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To: Lorraine D. Hunt OIRA BC RPT/OMB/EOP@EOP, Lorraine D. Hunt OIRA ECON GUIDE/OMB/EOP@EOP
cc:
Subject:

Attached please find W. Kip Viscusi's comments on Draft Guidelines. Please let me know if you have any difficulty downloading this. Thank you.

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TO: John D. Graham, Administrator, OIRA
FROM: W. Kip Viscusi
RE: Comments on Draft Guidelines

I would like to submit the following comments on the OMB draft 2003 Report to Congress that appeared in the Federal Register on February 3, 2003. Let me emphasize that these comments are my own views. I have not been retained by any party to submit comments. However, in the interest of full disclosure, I should indicate that I am currently on sabbatical leave from Harvard and that my research is being supported in part by the US EPA. All views expressed are my own and do not reflect the views of EPA or any other organization. Overall, I thought that the draft report was superb. I agreed with almost all the report and thought that many of the new suggestions made in the report were both innovative and economically sound. Nevertheless, I did have some comments regarding the report and some disagreements with the views expressed in it. Most of my critical comments relate to Appendix C, in part because it is the most substantive part of the document. However, to facilitate review of my comments, I will list my comments by page number.

Page 5493

In discussing the costs of regulations for different agencies, the report should indicate that these costs and benefit estimates were calculated in a consistent manner across agencies. I believe that there is a statement to this effect on page 5499, but it would be helpful to see that up front.

Page 5495

I was struck by the statement in the text that the tire pressure monitoring system regulation had “negative net monetized benefits...” rather than letting readers such as myself be puzzled until we read the information on page 5496 in Table 4. Perhaps an additional sentence could be added indicating that there are also unquantified benefits that were not monetized.

Page 5498

This page provides a preview of the subsequent guidelines for regulatory analysis that are discussed in further detail in Appendix C. I will be having further comments on many of these issues below, but will try not to be too repetitive in my comments.

The guidelines proposed that agencies undertake cost effectiveness analysis. This was the standard that was in place during the Carter administration, where I worked in the regulatory oversight effort. I agree that cost-effectiveness analysis is an excellent and useful approach. My only concern is that this approach may be interpreted as an endorsement of the use of QALY's. Cost-effectiveness analysis is frequently used in the QALY context in the health care area. My support of the use of cost-effectiveness analysis should not be taken as an indication of any support for the use of QALY's.

I thought that the discount rate proposal to show the present value using rates 3 percent and 7 percent was fine. Let me also add that 3 percent is the realistic real return on capital in the United States rather than 7 percent. Even my home mortgage, which is not a risk free investment

on the part of my bank, is at a rate below 7 percent, and that's a nominal rate of return rather than a real rate.

I strongly disagree with the proposal that a lower discount rate be permitted for policies that affect future generations. First, I am not sure how such a policy would be operationalized. Consider a policy that affects both current and future generations. Is an agency supposed to use a discount rate such as 3 percent for the first 30 or so years of the policy, and would it then be permitted to drop the rate to 1 percent for all subsequent years? Alternatively, if a policy affects future generations, could the agency use a discount rate of 1 percent for every year? In either case, I believe that this discounting approach will lead to inconsistent policy choices that upon reflection people would choose not to make if they understood the implications of this discounting practice. Second, future generations will be richer than current generations. The use of a preferential discount rate with respect to future generations in effect will be transferring income from our poor current selves to the more affluent future generations. From an intertemporal equity standpoint, I see no rationale for doing so. Third, in valuing effects for current generations we are using a discount rate such as 3 percent. By continuing to use a 3 percent rate for future generations, in effect we are treating them in much the same way as we would want to treat ourselves. Such an approach would seem to be quite equitable as well as possibly efficient. Ideally, of course, we would like to select the policies that would emerge if future generations could bribe us to pick policies on their behalf. When they are evaluating their policies that affect their generation prospectively, will they then be using a 3 percent discount rate or would they use a preferential 1 percent rate? In short, I see no compelling reason whatsoever to put current generations at a disadvantage compared to future generations by using a lower discount rate in situations in which future generations are affected by the policy.

The other novel component of this proposal deals with the role of probabilistic analysis. I will defer these comments until my discussion on page 5523.

Page 5499

Here there is discussion of various precautionary aspects of regulatory assumptions. In my book with James T. Hamilton, *Calculating Risks?* which was published by MIT Press, we examine how replacing the various conservative assumptions used in EPA analyses of Superfund sites with mean values of the parameters would affect the policy analysis. Thus, if these proposed guidelines are successful in getting agencies to use mean values, this source of precautionary conservatism ideally would be eliminated. It is feasible to eliminate such biases and agencies should be encouraged to do so. Below I discuss in greater detail my concerns and recommendations with respect to uncertainty and risk assessment.

A novel and important contribution of this report is raising the importance of analyzing costs and benefits for homeland security policies. Homeland security efforts involve objectives that many claim can never be compromised – civil liberties and risk. Given the presence of these two fundamentally important societal concerns, it is essential that agencies undertake a careful analysis of the benefits and costs of their efforts and an assessment of how these policies will affect different benefit and cost components. At the first stage, perhaps the most that can be done is to provide judgmental assessments of the risk reduction as well as categorizations of the types of policy consequences.

In the longer run, however, it is certainly quite feasible to do systematic regulatory analyses of these policies. In a recent paper I have written with Richard Zechhauser, "Sacrificing Civil Liberties to Reduce Terrorism Risks," which has been posted on the Harvard Law School

and AEI Brookings websites, we provide an example of how people are willing to trade off shorter waits in line for reductions in civil liberties that will arise due to targeting of airplane passengers for searches at airports. The value of time is easy to turn into a monetary value either by using the individual's wage rate or a more detailed exploration of the value of that particular kind of time.

It will also be possible to do similar kinds of studies in which people trade off risk against civil liberties or other attributes with respect to civil liberties. Placing a value on risk reduction is fairly straightforward; since these are accidental risks comparable in character to most job related injuries and fatalities. The only additional component one might also wish to value might be anxiety related costs.

I hope that OMB will encourage the development of benefit methodologies for homeland security policies. In many respects, the task is similar to that which faces the Environmental Protection Agency. In the absence of readily available market estimates, the agency has used a variety of survey methodologies to establish stated preference values for the pertinent magnitudes of interest. The same kinds of approaches could be used in the homeland security area as well. Given the likely long-term nature of our homeland security concerns, OMB should encourage homeland security policy makers to undertake the long-term research process needed to establish these benefit values.

Page 5515

I agree that in analyzing whether there is a market failure, policy makers should take into account the incentives provided by the courts and by workers' compensation. However, ideally government regulators will not defer to these policy mechanisms. The technical issues associated with regulating consumer products, such as determining appropriate levels of auto safety, are much better addressed by NHTSA regulators in conjunction with OMB oversight than they are by a lay jury. Workers' compensation is a more interesting case in that that effort provides financial incentives for safety that, along with market wage premiums for risk are the driving force promoting safety in the workplace. Perhaps it will be possible at some point for OSHA to emulate the workers' compensation approach by exploring various injury tax options. Such financial incentives will create stronger incentives for safety than the current policies that involve a low probability of inspection coupled with modest fines. Moreover, injury taxes would address accidents and fatalities of all types, including those arising from work practices that often are not addressed by OSHA regulatory standards.

The discussion of heterogeneous standards according to the size of firms may be responsive to the desires of the Small Business Administration, but typically the more salient concern is with respect to the age of the firm and whether it has new technologies. Ideally, standards should be set so that across all firms the marginal benefits equal the marginal costs of regulation. Complications arise, however, when considering the role of entry into the industry, which may be discouraged by rigid standards for new entrants that are not also being imposed by the less efficient plans currently in operation. Balancing these concerns will remain a difficult regulatory policy issue.

Page 5517

Let me return to the QALY concept, which seems to be given greater support here than in previous OMB pronouncements. First, I agree that risks to life matter, and that these should be valued based on people's willingness to pay for the risk reduction. This value is likely to be

responsive to the quantity of life that will be extended by the regulation. Thus, I believe that OMB's request for information on the age distribution of the people affected by the policy is correct, but I would go further and ask agencies to show the distribution of the increase in life expectancy of the policy's effects. This demonstration will also capture the effects of ill health for people within any particular age group, as this health status may also affect longevity. The quality of life also matters. However, much of the literature on QALY's is not based on sound willingness to pay principles, but is much more ad hoc. Not only is this approach typically not based on willingness to pay, but also it is often not based on the valuations of the individuals affected by the policy. Valuations by "experts" cannot be used in lieu of values elicited from populations similar to those affected by the policy. A third drawback of QALY's is that the studies generating these values typically do not describe the health effects with a sufficient degree of detail that people will know exactly how these ailments will effect their lives.

The proper approach to valuing such effects is a willingness to pay study in which we elicit people's willingness to pay for reducing small risks of well-defined health outcomes that are described in sufficient detail that people know exactly what the health effects are and how they will affect their well being. My colleagues and I have undertaken such studies for EPA on chronic bronchitis, cancer, and a wide variety of other ailments. Many studies that I have seen both in the QALY literature as well as in the stated preference literature simply list the disease or give a succinct characterization of it. In my view, these studies do not provide any useful benefit information to policy makers and should not be used for policy-making purposes. What then should OMB do in this whole general area? First, agencies should calculate a cost per life saved. Second, agencies should calculate a cost per discounted number of years of life saved. Similarly, one could convert the willingness to pay values for a statistical life into a value per discounted expected life year, which will give you a different answer than if the discounting is ignored. Third, agencies should explore how the value of statistical life varies over the life cycle. Many economic theories as well as empirical work suggests that the value of a statistical life rises and then falls over the life cycle. However, the exact character of these relationships has not been resolved from a research standpoint. At the very minimum, agencies must show the age distribution of the people affected by the risk reduction, which would seem to be a fairly basic requirement but one that is often not met.

Page 5518

I will defer discussion of uncertainty and probability distributions until page 5523. Let me note here that I believe that agencies should show the mean values of all parameters and carry out analyses based on the mean values of the distribution.

This report discusses willingness to pay vs. willingness to accept and indicates a preference for willingness to pay methods. I agree that willingness to pay is the appropriate benefit methodology. However, for small changes in risk, willingness to pay and willingness to accept values should be equal from a theoretical standpoint. The labor market values of a statistical life are based on willingness to accept values. I do not view these estimates as being implausibly large, and I have seen no evidence indicating that they are higher than the willingness to pay values for comparably small reductions in risk. Where we do encounter major discrepancies is with respect to various kinds of contingent valuation studies in which there is often a major difference between the willingness to pay and willingness to accept amounts. For all survey approaches that are used to value benefits, I believe the only approach that should be permitted is the willingness to pay value for the benefit. I do not believe such a stringent rule should be applied to market based studies for the reasons indicated above. I was puzzled why the report referred to the use of hedonic price equations in situations in which "market prices are hard

to measure or markets do not exist...” Markets do exist or else we couldn’t estimate the hedonic equation.

Page 5519

The statement with respect to occupational risks did not seem to make sense to me. The report states: “For example, the use of occupational-risk premiums can be a source of bias because the risks, when recognized, may be voluntarily rather than involuntarily assumed...” The reason why I am puzzled is that if people are not making a voluntary choice to accept the risky job, then there will be no compensating differentials for risk. Thus, suppose we found a situation in which all workers were forced to incur risks involuntarily and the observed compensating differentials were 0, presumably we should not use 0 values for the risk reduction.

There also seemed to be an asymmetry here in your discussion of voluntary and involuntary risks in the studies used for benefit valuation purposes that was not also reflected in your discussion of people who will be protected by the government risk regulations. If the voluntary-involuntary risk distinction is to be made, shouldn’t we also recognize the fact that people who choose to live in dangerous neighborhoods, to live near a toxic waste dump, to live near a nuclear reactor, or to smoke cigarettes have different valuations of their own statistical lives than do representative members of the population? My research and that of others suggests that there is a tremendous amount of heterogeneity with respect to preferences toward risk that is, in fact, expressed in the choices people make and results in different exposures to risk. I don’t think it is necessarily correct to assume that the estimates based on market studies of risk valuations understate the appropriate benefit values for the protected populations because many of the protected populations for government policies are likely to have a value of a statistical life comparable to those of people in risky jobs.

Finally on this same point let me also add that I think that this distinction being made between people in high risk and low risk jobs is somewhat dated. It was certainly pertinent to the old work by Thaler and Rosen, which focused on workers in very risky jobs that were 10 times more dangerous than the average U.S. job. However, a number of my studies as well as all my recent estimates used the full sample of workers including risk levels and risk premiums observed for those in white collar occupations and are not restricted to the valuations that workers in very high-risk jobs have revealed through their labor market decisions.

This page also begins the discussion of contingent valuation methods. I strongly disagree with much of what is expressed here. Let me begin with the threshold issue of the various standards that are being applied to contingent valuation studies. The report outlines sampling criteria that must be met. Survey instrument design criteria that must be met, transparency and replicability of the results, and other requirements. Yet, the report outlines no comparable requirements being imposed on any other studies used as part of a regulatory analysis. Contingent valuation studies are not the only components of regulatory analyses that rely on sampling procedures. They are also not the only components that rely on surveys. Similarly, they are not the only components that should be subject to other data quality guidelines. The QALY literature, for example, also uses samples, surveys, and the like and does not incorporate many of the kinds of rationality tests and other checks that are now the norm in contingent valuation studies. Many of the other concerns with respect to the soundness of the studies and the appropriateness for use in the benefit assessment contexts also pertain to market based studies as well as scientific studies as well. OMB should not hold contingent valuation studies to a higher standard than what is being applied to other studies used in regulatory analyses.

I also disagree with each of the three points with respect to sampling made at the top of page 5519. First, probability sampling is not necessarily the gold standard. Survey firms have developed representative panels of respondents who match up with national demographic profiles quite well. Moreover, through the appropriate use of multivariate regression analysis, one can project benefit values for the pertinent populations of interest. The requirement that a study be based on a national random sample is based on the mindset that the analysis is searching for a single number rather than a credible regression equation that could be used for benefit assessment purposes.

The second requirement regarding a low response rate is also not compelling. A number of survey firms have assembled panels of representative respondents, where the enrollment in these panels often is at a very low rate with respect to the overall population. However, the panel itself is representative. When a survey is being run on these panels, some people may not choose to participate in the survey, or some people may participate but fail to answer the key questions. Our main concern with response rates is not some vaguely defined concern with whether the results are “reliable” but rather with whether there is a bias that results from the selection process. Methodologies exist for adjusting for these sample selection effects. Indeed, James Heckman received the Nobel Prize two years ago largely because of his analysis of how selection effects could be addressed. Doing so within the context of representative panels assembled by survey firms facilitates controls for selection effects in that these firms also know the characteristics of the people who have chosen not to participate in the study, making it possible to do the sample selection correction.

Third, personal interviews done face to face are not the gold standard in my view. Computer based interviews are much more reliable. We have been undertaking computer-based studies in our benefit assessments and examinations of hazard warnings for EPA for almost twenty years. We have found that people are much more willing to give sensitive information in a computer based interview than they would in a face-to-face interview.

A major drawback of face-to-face interviews is that people will have an incentive to give an answer that will impress the interviewer. Later on page 5519 OMB expresses a concern with warm-glow effects. A case study that I often show my class is the State of Alaska survey for the Exxon Valdez oil spill. As an aside, let me note that I consulted to the U.S. Department of Justice on their analysis and that I did support compensation for environmental benefit losses. However, the Alaska survey involved a face-to-face interview in which the survey representative showed interviewees a series of pictures in which otters, birds, and other wildlife were adversely affected by the spill. After having and interviewer provide roughly a half hour of information regarding the harms caused by the spill, it is inconceivable to me that a person in a face-to-face interview would indicate that he or she was unwilling to pay fairly substantial amounts of hypothetical interview money in order to prevent similar catastrophes in the future. Thus, the same kind of warm-glow effects that are of concern to OMB are likely to be more salient in face-to-face interviews.

Computer based interviews have additional advantages as well. The types of question structures that can be used can be more elaborate. Quite simply, OMB here appears to be endorsing dated technologies that are clearly well behind the current state of the art of what is achievable in the current survey environment.

With regard to the survey instrument design, I agree that it is extremely important for these surveys to describe the good adequately. As I indicated above, this is a common failing of

many QALY studies and it is a common failing of many contingent valuation studies, including some that are currently ongoing that I witnessed at the AEA meetings this year.

This urging that respondents be reminded of substitutes does not seem to be as compelling as it depends on the character of the survey. Our studies are not contingent valuation studies in the traditional sense, but rather involve a series of pairwise comparisons in which respondents are asked to move to hypothetical areas involving differences in cost of living. Based on our work and corroboration of the results with market estimates for commodities being valued in these surveys, we have found that this approach yields reasonable values.

I agree with the OMB urging that warm-glow effects should be minimized, and I believe that this can best be done by not using face-to-face or telephone interviews.

The requirement that results be reported in detail seems reasonable. However, the same kinds of reporting requirements should be imposed on all studies, not simply contingent valuation studies. Similarly, the requirements that special care be undertaken to comply with data quality guidelines is also good advice, but advice that should be required of all studies, not simply contingent valuation studies.

The requirement that there be some rationality test incorporated in the study and that the scope test be undertaken using split samples also appears to be a sound recommendation. Let me add, however, that in our studies, the two tests that were suggested – (1) that people buy less at a higher price and (2) that people would be willing to pay more for more of the good – may in some cases emerge simultaneously as part of a single test in a survey.

Notably absent from this discussion is any mention of peer review. Shouldn't all results used in regulatory analyses either be published in peer review journals or be subject to a peer review process?

Page 5520

I did not understand the report's allusion to the problem of applying ex ante values to ex post policy. While policy outcomes occur after the fact, they must be valued before the fact. It is the ex ante willingness to pay values that are appropriate for policy assessments, not the ex post policy valuations.

Page 5521

Consideration of health cost externalities is often important, however, this should be done within the context of the present value of the net incremental lifetime costs that are averted. In particular, what would the present value of the trajectory of costs be but for this government policy, and how is this trajectory altered by government policy?

I have commented previously on the mortality risk valuation issues as well as on the discount rate.

Pages 5521-5523

I have commented previously on many of the issues covered in these pages. Here I will elaborate on the role of uncertainty.

The report urges that regulatory agencies show the whole probability distribution. In past regulatory analyses, agencies have frequently shown only the worst-case analysis. My recommendation would be that agencies show mean values for all parameters in that they calculate benefits and costs using mean estimates. As part of this analysis they can show the probability distribution associated with how they arrived at the mean or discuss otherwise how they obtained this best estimate.

In our analysis of Superfund sites in the book *Calculating Risks?* we should show how agencies could do a more detailed probability distribution than they currently do. The present practice is to use some kind of worst-case assumption for each parameter in the analysis, with the result being that risk estimates for hazardous waste sites are well beyond the 99th percentile of the actual distribution of risks. Two recommendations are possible. First, agencies could use mean values for each of the parameters and calculate the benefits based on these mean values. That is fairly straightforward, though not often the practice. Second, if agencies want to show the probability distribution, it should be the probability distribution for the overall risk level, not the probability distribution for each particular parameter. Thus, if an agency wants to argue that from the standpoint of conservatism, we should use the 95th percentile of the risk value, that should be done using the 95th percentile of the overall risk, not the 95th percentile of each component risk parameter, which when included in the analysis will compound the conservatism embodied in the approach. If agencies choose to show anything other than the mean, then this should be the way that it is done. We performed such an analysis for Superfund sites using a Monte Carlo analysis, but in doing so, we had to assume that the different parameters and their distributions were independent. For my part, I view anything other than the mean risk values as being extraneous information.

How this concern with uncertainty would be operationalized in specific cases is unclear to me. Let me take the value of statistical life as one case study. What does it mean to show the probability distribution for that parameter? Should agencies take the best study in the literature? Should they take the mean value of a set of studies and examine the standard errors around that mean? Alternatively, should they undertake a meta analysis and use that approach to determine the amount of uncertainty with respect to the value of statistical life? We have attempted to provide such bounds in my recent paper with Joseph Aldy, "The Value of Statistical Life: A Critical Survey of Market Estimates Throughout the World," but it is unclear which of these approaches is favored by OMB. More fundamentally, as I have argued above, the concern of OMB should be with best estimates, not with probability distributions.

I am concerned about the emphasis that is being placed around probability distributions and that much of this emphasis may lead to dismissal of risks that cannot be proven conclusively. Current policy biases that emphasize worst-case scenarios place undue emphasis on ambiguous risks, which are those risks for which the least is known. Requirements that agencies show statistical significance would have the opposite effect in that such risks would now be dismissed because they could not be proven to be statistically significant. Policy decisions should be guided by best estimates of the risk, which in many cases will involve judgmental probabilities or probabilities based on highly imprecise evidence. A case in point is homeland security policies for which we simply do not have the kind of statistical basis to make precise inferences. If risks are required to be shown to be statistically significant based on classical tests, then we should close down our homeland security operation because its policies will never pass such a test. Uncertain probabilities should receive the same weight as hard probabilities and policies should be designed to maximize the expected net benefits to society based on the mean values of the risk parameters.

The recommendation that agencies show the central tendency as well as the pertinent balance of the distribution is reasonable in situations in which this information is known. However, it is only the central tendency or the mean that is truly required for proper policy analysis.

The Missing Section

What is missing from this draft report is any discussion of risk-risk analysis. A useful overview of the different concepts is in my book, *Rational Risk Policy* (Oxford: Oxford University Press 1998). The John Graham book on this topic is also pertinent. Three kinds of risk-risk effects can be distinguished. First, regulations require economic activity to take place, and people may be injured or killed as part of these efforts. For example, if a regulation requires the manufacture of new kinds of emission control equipment, then that manufacturing activity does have risk consequences. Similarly, the requirement that people bring their cars back for an automobile recall may lead to traffic accidents. Second, regulatory requirements may lead people to substitute other activities that impose higher risks. Child seat requirements for infants traveling on airplanes could, for example, lead people to drive, which would be more dangerous. Third, there is the effect that some people refer to as health-health analysis, which is also a form of risk-risk analysis in that spending money on government regulations involves a real opportunity cost. To the extent that we take money away from consumers that could have been used on a representative bundle of consumer goods, people will have less money to spend on medical care, better housing, more nutritious diets, and other commodities that on balance have life extending consequences.

If in fact agencies base policies on the kinds of approaches embodied in this report, then risk-risk analysis would not be required. However, past experience with both cost effectiveness analysis and various kinds of cost-benefit tests have often conflicted with agency's legislative mandates that they set out to make the world safe without proper consideration of benefit-cost balancing. Imposing a risk-risk analysis requirement may be premature from an economic knowledge standpoint in that there is yet to be a consensus as to the cost per life threshold that must be reached before a regulation becomes counterproductive. However, this threshold is certainly below \$100 million per life saved and probably much less. In situations in which regulators choose to pursue regulations that fail the cost-benefit test because of their restrictive legislative mandates, they should be required to show the net risk consequences of the regulation and to prove that the regulation on balance will improve the health and safety of the citizenry. Thus, wholly apart from cost considerations, are we better off in terms of the health, safety, and environmental quality resulting from these regulations?