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Subject: OMB Draft Guidelines for the Conduct of Regulatory Analysis and the Format of Accounting Statements

- OMB draft guidelines for regulatory analysis.pdf

Harvard Center for Risk Analysis

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Re: "OMB Draft Guidelines for the Conduct of Regulatory Analysis and the Format of Accounting Statements"

Dear Ms. Hunt:

I am pleased to have the opportunity to comment on the "OMB Draft Guidelines for the Conduct of Regulatory Analysis and the Format of Accounting Statements," published February 3 in the Federal Register. Overall, I think the document provides excellent guidance about how regulatory analysis should be conducted. The guidelines are consistent with, and well-supported by, current theoretical and applied work in economic evaluation of government regulation. I have several comments and suggestions to offer that I hope will prove useful in refining and improving the draft guidelines. I divide my comments into two groups, first addressing some general issues and second offering comments keyed to specific sections of the draft guidance.

General Comments

Recognizing the value of information and accountability, I suggest that OMB ask agencies to report the resources used in each regulatory analysis. Ideally, agencies would provide information about the resources used in major components of the analysis (e.g., quantifying benefits and costs, monetizing benefits, formal uncertainty analysis). This information would be useful in helping OMB and others to evaluate whether the benefits

of analysis justify their costs, to identify components of the analysis that may be more or less worthwhile, and to use this information to improve future guidance.

There are several overarching issues that might be but are not currently addressed in the guidelines. These include setting the boundaries of the analysis and clarifying which differences among people merit attention. With respect to boundaries, it is necessary to specify the population and time period over which benefits and costs are to be included. The guidance states that transfers between the United States and other nations should be included as real benefits and costs, which suggests that the United States population is the relevant set of individuals. If so, this might be stated more explicitly, together with some discussion of exactly how that population is defined (e.g., does it include citizens, residents, visitors, illegal aliens?). To some extent, this question may be addressed in relevant legislation, but that does not seem to bar providing explicit guidance, since the draft guidance appropriately asks agencies to consider some issues that are already resolved by legislation. In many cases, resolution of this boundary issue will not have any substantive effect, but there may be cases where it is important.

The time horizon for analysis may also significantly affect the results. There are at least two competing issues. One is that the analysis should include all effects that are large enough to influence the conclusion, regardless of how far in the future they occur. The other is that uncertainty about the effects of a rule is likely to increase the further into the future one projects (with the exception that uncertainty may decrease as one goes from short to medium term projections, since some random effects may cancel out). One factor that influences the relevant time horizon is the possibility that the effects of a regulation may disappear, because changes in technology or other factors lead to replacement of the technology that is regulated (e.g., any past regulation of horse and buggy safety would have negligible effect today). For rules where the timing of benefits and costs are quite different, the choice of horizon may significantly affect the conclusion. For example, the present value (at 3 percent) of a stream of constant annual benefits is more than twice as large if one counts 100 years rather than 20 years of benefits.

The conditions under which regulatory analysis is required under Executive Order 12866 and other authorities, and under which formal uncertainty analysis is required by the guidance, refer to threshold values of benefits or costs. Although it may not be perceived as a problem in practice, from a theoretical perspective there is substantial ambiguity about how to define benefits and costs as distinct categories. For example, cost savings may be treated as a benefit or as a negative cost (as acknowledged in the guidance). Indeed, in BCA I suspect any component may be treated as either a benefit or a cost, if disbenefits and cost savings are considered. (In CEA, a similar problem arises to the extent that individual components can be measured either in effectiveness or monetary units.) In addition, the magnitude of benefits and costs depends on the baseline against which they are compared. Ambiguity about whether components are benefits or costs and about the relevant baseline may create ambiguity about whether a threshold for analysis is exceeded. For example, a regulation that imposes $200 million in costs and $150 million in cost savings on the regulated parties, could be defined as imposing (net) costs of only $50 million. Whether the costs of this rule exceed a $100 million threshold

depends entirely on whether costs savings count as benefits or costs. Perhaps this ambiguity does not cause any problems in practice (in part because other conditions are also used to define major rules), but it would seem desirable for the guidance to clarify this issue.

An issue that distinguishes benefit-cost analysis (BCA) from cost-effectiveness analysis (CEA) is that, in principle, BCA recognizes differences in the value of benefits and costs to individuals that are caused by differences in wealth or income. As conventionally practiced, CEA is schizophrenic on this point, often ignoring differences in the value of health benefits but incorporating differences in the value of costs (e.g., the resource cost of an hour of physician time is counted as higher than the resource cost of an hour of nurse time because the physician receives a higher wage). It is striking that the guidance highlights the dependence of the value per statistical life (VSL) on background risk and health preferences (Section IV. B. 8. b.) but does not mention its dependence on wealth or income, which is much more solidly established in the empirical literature. In cases where the whole population is affected, the population-average value can be used without considering interpersonal differences in values, but many regulations will disproportionately affect subpopulations with different income levels.

The extent to which federal policy should depend on interpersonal differences in preferences that are related to wealth is a complex issue that I will not attempt to address here, except to suggest that OMB provide guidance to agencies regarding when and how to deal with the fact that benefits and costs may depend on wealth and income. The requirement to conduct both BCA and CEA is useful in part because these methods treat effects of income differences in different ways, and so conducting both analyses provides some indication of the extent to which this issue affects the analytic result. A more direct method to evaluate this sensitivity would be to conduct BCA using alternatively population-subgroup and population-average values.

Comments Keyed to Sections of Draft Guidance

II. Alternative Approaches to Consider

It is important to analyze multiple alternative regulations, and the list of dimensions over which flexibility may be exercised should be useful in helping to identify interesting alternatives. Indeed, the most significant benefit of regulatory analysis may be in helping to refine regulatory approaches in order to increase benefits and/or reduce costs, rather than in determining whether or not a rule should go forward (see, e.g., Morgenstern, 1997). In this respect, the guidance to separately analyze provisions within a regulation, and to analyze alternatives that are both more and less stringent than the agency's preferred choice, may be especially useful (Section IV. A. 2.). In many cases, the most desirable regulation strikes a balance between competing objectives, such as greater efficacy and smaller opportunity costs. The best level of stringency is likely to be somewhere between the minimum and maximum feasible, and it should be useful to confirm that the proposed rule is better than both stronger and weaker alternatives.

III. A. Benefit-Cost Analysis

I suggest that the guidance recommend that threshold analysis be used to evaluate the significance of non-monetized and non-quantified benefits or costs. Threshold analysis enables one to determine how large the monetized value of an effect would need to be for it to outweigh the monetized effects, and thus provides useful perspective. Threshold analysis performs this function by identifying the monetary value of the effect that makes the net benefits zero. For example, if the net benefit calculated without including the non-monetized effect is less than zero, the threshold analysis identifies the monetary value that must be assigned to the non-monetized effect in order to increase the net benefits to zero.

III. B. Cost-Effectiveness Analysis

When using CEA, it is important to ensure that the effectiveness metric actually captures the relative value of different consequences. The simple fact that consequences can be measured in a common unit (e.g., acres of wetland) does not by itself imply that consequences having the same value on this scale are equally valued. To continue this example, acres of wetland may differ in ecological significance, productivity, presence of endangered species, location, historical or cultural significance, or other dimensions so that it may be much more valuable to protect an acre of one wetland than of another. For tons of emitted pollutants to be an appropriate measure of effectiveness, it is necessary for any between-pollutant differences in potency to be controlled for, even if the pollutants have the same health effects. Good examples of this issue include the debate over the use of a Global Warming Potential or alternative indices to weight the relative contributions of different greenhouse gases to global climate change, and the debate over various forms of health-adjusted life years such as QALYs, DALYs, and HYEs.

IV. B. 5. Contingent Valuation

The draft guidance reflects a certain skepticism of contingent valuation (CV) (and presumably of other stated preference methods) relative to revealed preference that is widely but not universally shared in the academic community. Clearly, regulatory analysis will be most useful if valid and reliable methods for estimating benefits can be developed and implemented. As noted in the guidance, revealed-preference estimates are unlikely to be available, or even feasible, in many situations that are relevant for federal regulation, and so estimates using stated-preference methods may be the only practical alternative for the near term. This suggests that care should be taken to ensure that the guidance does not inappropriately discourage agencies from relying on stated-preference estimates.

The guidance discusses a number of factors that may affect the validity of CV estimates, but it is not clear to me that all of these are correct or supported by empirical work, especially work that has been conducted since the NOAA Panel issued its recommendations (which appear to be the source of many of the components listed in the guidance). While many of the recommendations seem reasonable, I suggest that the guidance not require them unless evidence of their importance for improving the validity of estimates can be provided. Specifically, I question the draft guidance that reminders of

substitute commodities and alternative expenditure possibilities "must" be included in the survey instrument as well as the recommendation to assure respondents that their responses are consequential. The statement that a high non-response rate "would" make survey results unreliable seems wrong; non-response creates the possibility of selection bias but does not ensure it.

The criterion that results should be consistent with economic theory is important, since the results will be interpreted in the light of this theory. In this regard, the question of whether estimated WTP should be not just sensitive, but nearly proportionate, to the magnitude of risk reduction for small risk changes deserves attention. Similarly, differences between estimates of WTP and WTA that are inconsistent with theory suggest that at least one of these estimates or the theory is wrong. If one attributes this difference to a limitation of economic theory (e.g., that it does not incorporate loss aversion), then one needs to investigate whether this limitation (or others) requires other modifications in the framework of BCA or CEA.

It might be useful to review the empirical work on validity and reliability of CV and to develop an updated set of "best practice" recommendations. Such an effort might also evaluate revealed-preference methods. These suffer from their own set of weaknesses, including the need to make assumptions about what alternatives the subjects perceived to be available, the degree of information they have about alternative choices, and the attributes of the choices the subjects considered relevant (none of which are observed by the analyst).

IV. B. 6. Benefit-Transfer Methods

The use of benefit transfer is vital to regulatory analysis because it provides a method for ensuring greater consistency across analyses and because it obviates the need to conduct primary valuation work for every analysis. Hence improvements in benefit-transfer methods should be encouraged. Benefit transfer includes the extrapolation of revealed-preference as well as stated-preference estimates to the policy context, although the guidance seems to imply it is restricted to CV.

Several of the specific points in this section are unclear. I do not see why it is important that the study context and policy context have similar population size. In many cases, per capita values are estimated and are not anticipated to be sensitive to size of the affected population. It is not clear what is meant by asking whether the policy context is similar to the study context in "the degree of embedding in other values" and "the order in which the good is supplied." How could an analyst evaluate whether "the functional relationship between the consumer surplus and its determinants" is similar without doing primary estimation in the policy context? How can one determine whether "resources are unique or have unique attributes?" One could argue that most resources have unique attributes. Finally, I do not understand what is meant by the bullet on "significant problems with applying an ex ante valuation estimate to an ex post policy context." Presumably most regulatory decisions involve ex ante contexts, because it is not known exactly who will benefit or be harmed.

IV. C. What Discount Rate to Use

When benefits (or effects) and costs do not occur simultaneously, practices regarding discounting can substantially affect the results of a regulatory analysis. The guidance to use smaller discount rates than the OMB standard of 7 percent is an important advance.

In my view, the rationale for discounting is based on the opportunity cost of resources. It is not true that people always prefer to receive an increment to consumption, health, or other goods sooner rather than later, as introspection and many empirical studies show. What is true is that resources can be put to alternative productive use and so the opportunity cost of consumption is often reduced by postponing consumption. As explained in the guidance, taxes and other factors lead to a divergence between the social opportunity cost of investment and the private opportunity cost of consumption, which implies the appropriate adjustment for timing may differ depending on how the regulation affects investment and consumption. The shadow-price-of-capital approach appears to be a theoretical well grounded solution to this problem, but there are a number of practical issues that need to be resolved in any particular application and the method is not, in my judgment, sufficiently well developed for routine application in regulatory analysis. The guidance to discount using both 3 and 7 percent annual rates is a reasonable and practical alternative for now. For long-term (intergenerational) evaluations, the use of smaller discount rates seems appropriate given the likelihood of decreasing marginal utility of consumption with economic growth, and Weitzman's (1998) conclusion that symmetric uncertainty about the discount rate leads to systematically decreasing certainty-equivalent discount rates for increasingly distant time periods.

As the guidance suggests, it is standard practice in CEA to discount effects (or costs) that are quantified but not monetized. This is correct if one wishes to treat regulations having effects at different dates as identical, i.e., to ensure that the cost-effectiveness ratio is independent of the date at which the regulation is implemented. Alternatively, if one assumes that the value of health or other non-monetized consequences will change over time, perhaps in response to secular increases in income, it may be appropriate to treat a unit of the non-monetized consequence as more valuable in the future than the present. In this case, one should discount the non-monetized consequence at a smaller rate than one discounts monetary values. This point is another aspect of the general point (discussed at Section III. B. above) that the effectiveness metric must accurately characterize preferences, in this case for units received at different dates.

When using BCA, anticipated changes in the monetary value of health or other consequences over time can be incorporated directly in the benefit estimate. The monetary value of these benefits should be discounted at the same rate as other monetized consequences. It would be useful for the guidance to address the question of whether and when to incorporate anticipated changes in real monetary values over time. This issue is relevant to estimating future benefits in the case of environmental and other programs with long term effects. For example, in its 1988 analysis of stratospheric-ozone depletion, EPA assumed that VSL would grow over time and so the real value of preventing future skin-cancer mortality would also increase. It is also relevant to benefit

transfer, such as using estimates of VSL obtained from past data to characterize current VSL, if average incomes have increased substantially.

In the third from last paragraph of Section IV. C., the sentence "Aversion to uncertainty discourages any such investments" seems correct but not relevant and could be deleted.

In the following sentence (from the fourth paragraph of Section IV. C.), the word "larger" should be replaced by "smaller:" "The further in the future the costs and benefits are expected to occur, the larger is this discount factor."

IV. D. Treatment of Uncertainty

Reasonable characterization of uncertainty is an important component of regulatory analysis. The draft guidance emphasis on reporting uncertainty, and on conducting formal uncertainty analysis, offers the possibility of substantial improvements in the practice of regulatory analysis.

The recommendation to perform formal uncertainty analysis for major rules is appropriate, given the additional analytic resources required. However, the definition of major rule merits some attention. It seems odd to specify an apparently deterministic threshold (costs exceeding $1 billion) in a section highlighting uncertainty. Perhaps the threshold should refer to expected costs. Also, it is not apparent why the threshold refers to costs, not benefits, in contrast to the definitions of major rule used in Executive Order 12866 and elsewhere.

In many cases, some form of expert judgment may offer the only feasible approach to estimating uncertainty. Even when statistical data are available, many components that contribute to uncertainty about benefits and costs can be best addressed using expert judgment. Examples include the choice of statistical model and whether an epidemiological association should be interpreted as causal. For these reasons, it is appropriate for the guidance to endorse the use of expert judgment.

Methods for eliciting and aggregating judgments from multiple experts are a topic of ongoing research, and offer the promise of significant future improvements in practical methods. I believe the Delphi method mentioned in the guidance is inferior to more current methods. In my view, the most well-developed and tested method is the classical approach described by Cooke (1991). This method combines experts' judgments using a weighted average of the probability distributions they provide, where the weights are based on the experts' performance on a set of "training variables" (variables for which the experts provide judgments and the true value is available to the analyst).

IV. E. Other Key Considerations

In determining what other effects to include, the guidance should continue to reflect, as it does elsewhere, the desire to balance accuracy with effort. Specifically, even if it is "possible" to estimate other costs such as government administration, discomfort or

inconvenience, the guidance should recommend these not be estimated in cases where they are unlikely to contribute significantly to the overall result.

With regard to transfer payments, it is not clear what is meant by "distribution expenses." One interpretation of this phrase is the cost of distributing a product to consumers, which would be a real resource cost, not a transfer. Similarly, insurance payments may include both real economic components as well as transfers. Insurance is a means for redistributing financial risk, which exploits differences in risk aversion (between insurance consumers and suppliers) in order to increase welfare. In evaluating insurance, it appears that the administrative costs (captured in the "loading factor") are a resource cost, the expected value of the covered loss (the "pure premium") is a transfer, and the risk premium the insurance purchaser associates with the uninsured loss (which is not readily observable) is a real benefit.

References

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Cordially,

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