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To: The Environmental Economics Advisory Committee of EPA's Science Advisory Board

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Are future lives worth more, today, than our own – simply because of income growth?

The charge questions that EPA has presented to the EEAC for consideration this week relate to the analytical foundations of a procedure for estimating the value of statistical lives saved in the future – possibly the distant future – as a result of regulations imposed today. Reductions in future mortality and morbidity are certainly important, and the valuation of these benefits can be challenging. Intertwined with the detailed analytical questions, however, is a fundamental ethical and methodological question: Is it right to force a relatively poor population to pay an inflated price – higher than they are willing to pay to save their own lives – to save the lives of a richer population, on the theory that rich people's lives are more valuable?

Set aside, for the moment, the separate question of timing and discounting; set aside, too, the troubling regressive consequences of the proposed VSL adjustment for income. Simply from the perspective of economic efficiency, is it methodologically correct to assign benefits to a transfer from a poorer group to a wealthier group, based solely on the income elasticity of the good being transferred? After all, the rich are willing to pay much more for yachts; yet we would not thereby conclude that the poor should be compelled to buy yachts for the rich.

The question of *whose* willingness-to-pay is relevant – those paying or those receiving – is not an easy one. Statements of official guidance can be ambiguous on this point: "The

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[1] Brian Mannix served (2005 – 2009) as EPA's Associate Administrator for Policy, Economics, and Innovation. This comment reflects the views of the author, and does not represent an official position of the GW Regulatory Studies Center or the George Washington University.

[2] The George Washington University Regulatory Studies Center works to improve regulatory policy through research, education, and outreach to the public. The Center's policy on research integrity is available at http://regulatorystudies.columbian.gwu.edu/policy-research-integrity. This comment to the SAB/EEAC does not represent the views of any particular affected party or special interest, but is designed to evaluate the efficiency and distributional consequences of economic analysis methods from the perspective of the public interest.

principle of willingness-to-pay provides an aggregate measure of what individuals are willing to forego to obtain a given benefit."[3]

Using the Kaldor-Hicks criterion, one could argue that the population receiving the benefit would theoretically be willing to compensate the population that is actually paying for it. Yet that criterion was not really designed to be used to evaluate transfers, which are typically excluded from benefit-cost analysis. Some transfers are inevitable in regulatory programs, but they are not regarded as an independent source of benefits:

> There are no economic gains from a pure transfer payment because the benefits to those who receive such a transfer are matched by the costs borne by those who pay for it. Therefore, transfers should be excluded from the calculation of net present value. Transfers that arise as a result of the program or project being analyzed should be identified as such, however, and their distributional effects discussed. It should also be recognized that a transfer program may have benefits that are less than the program's real economic costs due to inefficiencies that can arise in the program's delivery of benefits and financing.[4]

Often the analysis does not have to wrestle with transfers, because we frequently do not know the precise incidence of the costs and benefits of a government action. We argue that individuals should support health and safety regulation because "The life you save may be your own."[5] Or, in applying BCA, we tend to assume that, summing across a large number of government actions, benefits and costs will be broadly distributed without a systematic bias, so that we are all better off. Yet the careless use of income effects could introduce just such a systematic bias: effectively assigning to the wealthy a stronger claim, not only on the private goods that they pay for, but also on public goods and on the benefits of regulation that other people pay for.

We typically don't apply the Kaldor-Hicks criterion to situations where identified individual lives are at stake – in the case of rescuing trapped miners, for example. We tend to apply it to aggregated measures of benefits and costs, and to statistical estimates of both risk and its valuation. It is important to keep in mind, however, that we use these statistical estimates not merely for analytical convenience; they also serve an ethical function. They provide a veil of ignorance behind which we can make objective judgments of what actions might serve the general welfare. This is important because the application of benefit-cost analysis to regulations is intended to justify the use of force by a government against its own citizens – force that will make some of them worse off. We need to be conscious of this ethical function when we think about how to tweak the analysis. Even if we *can*, it is not obvious that we *should* peek behind the veil of ignorance for the purpose of giving greater weight to the preferences of the wealthier among us.

The problem becomes sharper when we are dealing with regulatory transfers that deliver benefits to those who are not among the regulated population, such as citizens of foreign countries or members of generations not yet born. Governments derive their just powers from

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[3] OMB Circular A-94, Section 6.b.

[4] OMB Circular A-94, Section 6.a.

[5] Thomas Schelling, "The life you save may be your own." In *Problems in Public Expenditure Analysis*, ed. S. Chase (Washington, DC: Brookings Institution, 1968): 127-62.

the consent of the governed. For this reason, benefit-cost analyses of regulations must make a distinction between domestic and international effects. According to OMB circular A-4, "Analyses should focus on benefits and costs accruing to the citizens of the United States in determining net present value. Where programs or projects have effects outside the United States, these effects should be reported separately."[6]

This is not to say that Americans do not value foreign lives or future lives, or that we do not have ethical obligations to respect those lives. But agencies of the American government need to make these value judgements by consulting its own citizenry. In making decisions about foreign aid, for example, Americans may well prefer to be more generous towards populations that are poor; in setting criteria for immigration, they may want to accommodate not only refugees, but also relatively wealthy investors and entrepreneurs; in removing trade barriers they may be more willing to cooperate with countries that are providing reciprocal cooperation. Complex policy decisions are made in all sorts of complex contexts; in every case, however, American government agencies act as agents of its own citizens, and this must affect our consideration of who has standing in a benefit-cost analysis.

So the relevant question today is, how much are Americans today willing to pay in order to save statistical lives in the future? This is a question which could be answered directly, using empirical methods. Alternatively, we could make the assumption that our willingness to pay for future lives is not much different from our willingness to pay for today's lives. Using a value that is inflated for future income growth – growth not yet realized by the paying public – is more difficult to justify. Valuing future statistical lives according to some hypothetical future population could be regarded as a form of "benefits transfer" in which future valuations serve as a proxy for our own present preferences. But this type of benefit transfer is problematic. "The study context and policy context should have similar populations (e.g., demographic characteristics)." [7] Substituting the preferences of absent rich people for those of present poor people, is particularly problematic.

Additional complications arise if we consider the variation in income effect over time, in addition to the variation of income elasticity over time. Incurring regulatory costs has consequences for mortality and morbidity, and they are greater for poorer populations than for richer ones.[8] Can we use the presumed higher value of life in the future to ethically justify increased mortality today, and increased mortality overall? If not, then we should hesitate to incorporate an escalating VSL into benefit-cost analyses.

Finally, it is worth considering how a changing VSL over time will interact with the discount rate we use to calculate the net present value of benefits and costs. This is not the place to review the literature on discounting, but it is worth noting in this context the arguments that have been raised for using a lower discount rate – say, 2 percent – for intergenerational effects. If we use a VSL that escalates at, say, 3 percent, with a discount rate of 2 percent, we run the risk

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[6] OMB Circular A-94, Section 6.a.

[7] OMB Circular A-4, Section 5.

[8] See, e.g., Angus Deaton and Christina Paxson, *Mortality, Education, Income, and Inequality among American Cohorts*. National Bureau of Economic Research, Working Paper 7140: http://www.nber.org/papers/w7140.

of creating an infinite benefits machine. Health and safety regulations with an unbounded time horizon will appear infinitely beneficial, while the lives and values of everyone today will vanish into insignificance. Surely this is not the intent of the present effort to adjust the future VSL, but the result is absurd and we ought not to stumble into it without serious thought.