
THE GEORGE WASHINGTON UNIVERSITY

WASHINGTON, DC

Public Interest Comment¹ on

The Environmental Protection Agency's Proposed Rule

Increasing Consistency and Transparency in Considering Benefits and Costs in the Clean Air Act Rulemaking Process

Docket ID No. EPA-HQ-OAR-2020-0044

RIN: 2010-AA12

August 3, 2020

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The George Washington University Regulatory Studies Center improves regulatory policy through research, education, and outreach. As part of its mission, the Center conducts careful and independent analyses to assess rulemaking proposals from the perspective of the public interest. This comment on the Environmental Protection Agency's notice of rulemaking on "increasing consistency and transparency in considering costs and benefits in the rulemaking process" does not represent the views of any particular affected party or special interest, but is designed to evaluate the effect of EPA's rulemaking process on the welfare implications of future regulations.

1 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. The Center's policy on research integrity is available at <http://regulatorystudies.columbian.gwu.edu/policy-research-integrity>.

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Introduction

“The EPA is “soliciting comment on whether and how EPA should promulgate regulations that provide a consistent and transparent interpretation relating to the consideration of weighing costs and benefits in making regulatory decisions in a manner consistent with applicable authorizing statutes.” I will comment on three issues raised in the proposed EPA rule: (1) the discussion of the estimation of regulatory costs and benefits by means of partial equilibrium vs. general equilibrium analysis; (2) the role and presentation of primary and secondary effects (e.g. co-benefits) in benefit cost analysis; and (3) whether and the extent to which the benefits and costs experienced by international stakeholders should be included in estimating the social benefits and the social costs of domestic regulations.

I offer these comments from the perspective of someone who has taught benefit-cost analysis to working government professionals for more than 20 years, and as a past president of the Society for Benefit Cost Analysis.

I. Partial vs. General Equilibrium Analysis of the Economic Effects of Regulation

Estimates of social benefits and social costs can be based either on partial-equilibrium analysis of the economic effects of a proposed regulation or on general equilibrium analysis. In the former case, the focus is on the economic effects of a regulation experienced in a single market or economic subsector which is the object of the regulation, ignoring any possible ripple effects of the regulation on other markets, or the economy as a whole. For example, absorbing the compliance costs of a regulation may cause the output of regulated industry X to shrink and the price of its output to rise. Such changes would be translated into monetized social costs. These changes would theoretically spill over into other markets in the economy affecting wages, prices, and quantities in the economy as a whole, either increasing, decreasing, and/or attenuating the partial equilibrium estimates of social benefits and social costs.

As a rule of thumb, such “general equilibrium effects” will be quantitatively small if the industry that is the object of regulation is small relative to the economy, and hence can be ignored. However, if the industry is significant, failing to account for such effects can lead to potentially significant over- or under-estimates of social benefits and costs. General equilibrium models of the economy have been developed to account for multi-market effects of a host of policies mainly in the area of taxation and trade. The typical “GE model” represents the behavior of utility-maximizing consumers, profit maximizing firms, employees, and owners of capital interacting with each other in markets for goods, and labor and capital markets. The equations that represent such behavior are “calibrated” using empirical estimates of key parameters drawn from the academic literature so that the magnitudes such as the gross domestic product, labor and capital

shares of income are consistent with corresponding magnitudes in the economy.

Once the GE model has been calibrated/parameterized, it can be used to simulate policies, such as tax or tariff policies that affect prices, wages, or returns to capital. Essentially the model is solved by computing the general equilibrium of quantities, prices, wages, returns to capital, profits etc, that result when all markets are in the new equilibrium.

General equilibrium analysis has been used to simulate the effects of environmental policies such as the imposition of carbon taxes, and to a lesser extent the impact of environmental regulations. Although the EPA is correct to highlight the potential value added to be gained by using general equilibrium models, there are a number of reasons why GE modeling may not yet be ready for “prime-time” as a principal analytic framework for undertaking cost-benefit analysis of environmental regulations.

A good place to start is with a mantra popular among practitioners of GE modeling: namely that in their current form, GE models provide insights rather than answers about the economic effects of policies. Among the most reasons for this caveat are: (1) As noted above, unlike the familiar demand and/or supply curves of partial equilibrium analysis, GE models are calibrated using parameter estimates to “fit” predetermined values of GDP, etc. The calibration exercise allows the GE models to have a certain degree of “realism” but only up to a point; and (2) As the name implies, the typical GE model assumes that the economy adjusts in a frictionless way from one equilibrium in which all factors of production are employed to another full employment equilibrium.

For both of these reasons, although the estimates from GE models are often perceived to be “real point estimates” of a policy’s impact (e.g. imposing a carbon tax is estimated to reduce GDP by X percent per year) such estimates are best thought as providing insight about the policy’s order of magnitude, and of the distribution of costs and benefits throughout the economy.

A Practical Recommendation

In view of both the value but also the limitations of using GE modeling, how might such modeling best be used in practice? A suggested “best practice” might be the following.

1. Always undertake a partial equilibrium analysis of regulatory benefits and regulatory costs.
2. When the regulation is significant enough, undertake a qualitative discussion, drawing on “general equilibrium reasoning” and where possible the results from existing GE models. The analysis would focus on how general equilibrium effects might increase or attenuate benefits and costs estimated from the partial equilibrium analysis.

II. Inclusion of Indirect Effects of Co-Benefits in EPA Regulatory Analysis

The proposed rule contains a detailed discussion of concerns that have been expressed about the inclusion of secondary benefits in the benefit-cost analyses of environmental regulations. These concerns can be summarized as follows. A number of EPA regulations whose direct, or primary purpose is to reduce emissions of, say, CO², also have the indirect effect of reducing emissions of other airborne particulates. The economic benefits of such indirect effects often substantially exceed the primary economic benefits; and it is argued that for this and other reasons, indirect or co-benefits should either not be counted at all in benefit-cost analysis, or their impact should be reduced.

Several points are worth emphasizing with regard to the inclusion of indirect or co-benefits. First, and perhaps foremost, there is no disagreement in the extensive literature on benefit-cost analysis about the appropriateness of counting indirect effects or co-benefits. To the extent that indirect benefits or costs are true joint products of a regulation or program, and not merely different manifestations of the primary benefit or cost, such effects should legitimately be included as a social cost or benefit. Indeed, OMB Circular A-4 is quite clear on this point.

(the) analysis should look beyond the direct benefits and direct costs of (the) rulemaking and consider any important ancillary benefits and countervailing risks. An ancillary benefit is a favorable impact of the rule that is typically unrelated or secondary to the statutory purpose of the rulemaking (e.g., reduced refinery emissions due to more stringent fuel economy standards for light trucks) while a countervailing risk is an adverse economic, health, safety, or environmental consequence that occurs due to a rule and is not already accounted for in the direct cost of the rule (e.g., adverse safety impacts from more stringent fuel-economy standards for light trucks).

Like other benefits and costs, an effort should be made to quantify and monetize ancillary benefits and countervailing risks. If monetization is not feasible, quantification should be attempted through use of informative physical units. If both monetization and quantification are not feasible, then these issues should be presented as non-quantified benefits and costs. The same standards of information and analysis quality that apply to direct benefits and costs should be applied to ancillary benefits and countervailing risks.

Second, although there is no dispute about the need to include secondary/indirect benefits and/or costs, it is important that these co-benefits or co-costs be measured with reference to the proper baseline. In other words, co-benefits associated with the reduction in primary emission A, should not also be counted as co-benefits again in other benefit-cost analyses. There is no evidence that the EPA has engaged in such double-counting of co-benefits, but it is important that the analyst be vigilant to avoid double-counting.

Finally, the treatment of co-benefits and co-costs should be symmetric. That is, while it is important to include co-benefits when they occur, analysts should also make sure that any indirect costs are also included.³

Going forward, the EPA recommends that the benefits and costs be presented in three steps.

1. Present estimates of social costs, social benefits, and net social benefits, presumably separately presenting estimates of primary benefits and co-benefits (and by symmetry presumably doing likewise for primary social costs and co-costs).
2. Present a discussion of the primary social benefits (but presumably not of co-benefits).

In principle, there are strong arguments for separating primary benefits and co-benefits in presenting the results of any benefit cost analysis. It would also be appropriate to discuss the implications of cases in which co-benefits account for a majority of the estimated social benefits,

It is not appropriate, however, to require that primary and co-benefits be listed separately, but then frame the discussion as if co-benefits should not be counted. If the account from the NY Times is accurate, this may have happened in the case of the Mercury regulation.

....Driving down mercury emissions alone, the studies at the time found, would yield a \$6 million annual benefit, a fraction of the cost of the controls. But by adding in co-benefits like projected gains in avoided heart disease, asthma attacks and other health problems, the total benefits reached \$80 billion over five years. Overall, the Obama administration estimated that the rule would prevent 4,700 heart attacks, 130,000 asthma attacks and 11,000 premature deaths each year.....Under the Trump administration's new rule, such co-benefits will no longer be calculated with cost, only direct benefits.⁴

3 Dudley, S., Belzer, R., Blomquist, G., Brennan, T., Carrigan, C., Cordes, J., Cox, L.A., Fraas, A., Graham, J., Gray, G., Hammitt, J., Krutilla, K., Linquiti, P., Lutter, R., Mannix, B., Shapiro, S., Smith, A., Viscusi, W.K., Zerbe, R. (2017). Consumer's Guide to Regulatory Impact Analysis: Ten Tips for Being an Informed Policymaker. *Journal of Benefit-Cost Analysis*, 8(2), 187-204. doi:10.1017/bca.2017.11.
<https://regulatorystudies.columbian.gwu.edu/consumer%E2%80%99s-guide-regulatory-impact-analysis>.

4 Lisa Friedman and Coral Davenport. "E.P.A. Weakens Controls on Mercury." *New York Times*,
<https://www.nytimes.com/2020/04/16/climate/epa-mercury-coal.html>.

III. Which Stakeholders Should Have Standing in Environmental Benefit-Cost Analysis?

One critical issue in any benefit-cost analysis is that of standing. That is, whose benefits and costs should count?

An important input into many environmental benefit-cost analyses is the social cost of carbon emissions. As noted in the EPA Guidelines for economic analyses, the value of the social cost of carbon used by EPA are based on estimates of the social cost of carbon derived by a 2009 interagency workgroup composed of members from six federal agencies and various White House offices. A key feature of these estimates is that they “reflect the global damages caused by CO².” (emphasis added)

Guidance in OMB Circular A-4 states that the “...analysis should focus on benefits and costs that accrue to citizens and residents of the United States.” In the case where a regulation is evaluated that “is likely to have effects beyond the borders of the United States, these effects should be reported separately.” Thus, while the implicit inclusion of benefits and costs beyond the borders of the United States in the Social Cost of Carbon is not necessarily at odds with OMB guidance, it is somewhat at variance with the default position stated in OMB Circular A-4.

Although much of the scholarly literature on benefit-cost analysis presumes that such analysis should be limited to national effects that “stop at the “waters’ edge,” there is legitimate debate about how to treat “global social benefits and/or costs” particularly in the case of environmental problems whose scope is global rather than national. If one accepts the premise that the relevant social benefits should be based on the willingness to pay for environmental improvement of U.S. citizens, the question can be reframed as follows: (1) to what extent do U.S. citizens have a positive willingness to pay for environmental benefits that accrue to citizens in other countries, and if so, (2) How should this willingness to pay be estimated? Scholarly research suggests that the answer to the first question is “yes,” while the answer to the second question is that \$1 of environmental benefit accruing to citizens of other countries would be valued at less than \$1 of benefit accruing to U.S. citizens.⁵ Thus, perhaps consideration should be given to (a) including global estimates of the Social Cost of Carbon separately as recommended in OMB Circular A-4, and (b) applying an appropriate discount to such values to represent the willingness to pay of American citizens.

⁵ Dana, David A., 2010. “Valuing Foreign Lives and Settlements.” *Journal of Benefit Cost Analysis*, 1(1) 2010, pp. 1-24.