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Improving Measures of Environmental Justice in EPA Regulatory Analysis

Statement before the EPA Science Advisory Board Environmental Justice Technical Guidance Review Panel

James Broughel, Program Manager, Mercatus Center at George Mason University
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INTRODUCTION

Members of the Science Advisory Board (SAB), thank you for taking the time to hear to my comments this morning. Today's topic—how to measure the impact of Environmental Protection Agency (EPA) regulations on low-income and minority citizens in the United States—is both timely and important. At the research center where I work, we have begun to explore the consequences of regulations on vulnerable populations. I appreciate the opportunity to share some of our findings and to contribute to this important discussion.

I am currently a program manager at the Mercatus Center at George Mason University. We are a university-based research center dedicated to bringing economic scholarship to policymakers. In my role, I manage our portfolio of research related to federal regulations. At Mercatus, we focus a great deal on the economic analyses that federal agencies produce, known as regulatory impact analyses or RIAs. In addition to my role at the Mercatus Center, I am also a doctoral student studying economics at George Mason University.

In this statement, I plan on addressing the following issues. First, environmental justice is not just about the state of the environment in which vulnerable populations live, but also their health, which is considered an important component of environmental justice according to the relevant presidential executive order. Unfortunately, the draft version of the EPA's guidance for incorporating environmental justice into regulatory analysis does not adequately address the impact of regulatory costs on the health of low-income and minority populations. Regulatory costs, and the income losses associated with those costs, impact health every bit as much as regulatory benefits do.

Environmental justice is also related to the ability of citizens to mitigate risks in their own lives. This has been explicitly stated by the EPA in the new draft guidance. For this reason, it is vitally important that the EPA focus on mitigating those risks that the poor are willing to pay for given the costs that are imposed on them. There are many risks that people must address using their own income, such as their choice of neighborhoods, diets, and cars, for which additional health and safety is purchased at higher prices. This means that regulations that purchase health- and safety-risk reductions at very high costs may be crowding out private purchases that would lower risk much more efficiently.

Unfortunately, the way the EPA currently measures benefits is biased in a way that can overestimate the benefits of EPA rules to vulnerable populations. The EPA uses a mean estimate of the populations' willingness to pay (WTP) to reduce risks when it calculates many types of regulatory benefits. While this metric is appropriate to measure the overall efficiency of a rule, it is not sufficient to measure benefits to

subgroups in the population whose WTP may differ from the population mean WTP. Since environmental justice is concerned with distributional effects, then in addition to using a mean estimate of WTP, the EPA should use a WTP estimate for the individual subpopulations being impacted by a particular regulation. Otherwise, the EPA will systemically overestimate the benefits of a rule to those with modest incomes while underestimating the benefits to the rich. This results from the fact that the wealthy are generally willing to pay more for risk reduction given their higher incomes.

Lastly, the EPA should consider more closely the impacts of its regulations on employment, which also has important distributional consequences. For example, losing one's job due to a regulation can affect lifetime earnings as well as health and may also contribute towards issues like income inequality if the compliance jobs created by rules require higher skills than production jobs that are lost.

I conclude this statement with recommendations about ways to improve upon the EPA's draft guidance, including ways the EPA can provide more information about the benefits and costs of its rules to vulnerable populations and gather meaningful feedback from these groups in a transparent manner.

ENVIRONMENTAL JUSTICE IS RELATED TO HEALTH AND RISK MITIGATION

Executive Order (EO) 12898, issued by President William J. Clinton in 1994, ordered each federal agency to consider "disproportionately high and adverse **human health** or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States."[1]

The EPA defines environmental justice as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies,"[2] with "fair treatment" defined as requiring that "no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies."[3] Additionally, in its new guidance, "the Agency has expanded the concept of fair treatment to consider not only the distribution of burdens across all populations, but also the **distribution of reductions in risk** from EPA actions."[4]

I emphasize the words "human health" and "distribution of reductions in risk" here to make clear that health and risk mitigation are as much a part of environmental justice as are issues related to the environment. Indeed these issues are all very closely related. Additionally, the distribution of any *increases* in risk resulting from regulations should also be considered or else analysis will be biased in favor of regulations, even when those regulations produce unintended harms.

REGULATORY COSTS AFFECT HEALTH AND RISK MITIGATION

The EPA needs to more fully consider how the costs of its rules affect the health of vulnerable populations and alter the risk-mitigation strategies of these groups. Currently, the EPA is focusing far more on the benefits of its rules than the costs to these groups. In fact, the 81-page draft technical

[1] Exec. Order No. 12898, 59 Fed. Reg. 32 (Feb. 16, 1994), emphasis added.
[2] US Environmental Protection Agency (EPA), Administrator Whitman Reaffirms Commitment to Environmental Justice (Washington, DC: Environmental Protection Agency, August 21, 2001), http://yosemite.epa.gov/opa/admpress.nsf/89745a330d4ef8b9852572a000651fe1/41a2df9798d627a185256aaf0067e435.
[3] "Environmental Justice: Basic Information," EPA, last modified May 24, 2012, http://www.epa.gov/environmentaljustice/basics/index.html.
[4] EPA, Draft Technical Guidance for Assessing Environmental Justice in Regulatory Analysis (Washington, DC: Environmental Protection Agency, April 2013): 1, emphasis added.

guidance document on environmental justice contains only two pages related to costs of EPA regulations.[5] This is unfortunate given that costs have important human health impacts, just as benefits do.

Crowding out personal expenditures that might address bigger risks than those addressed by regulations could be one channel through which such costs have impacts on the health of vulnerable populations. For example, some estimates suggest a recent EPA regulation controlling sulfur emissions from automobiles will increase the price of fuel by up to 9 cents per gallon.[6] While there may be health benefits to citizens from reducing automobile emissions, the added expenditures on fuel could also crowd out the ability of citizens to reduce other risks. Perhaps the additional money spent on fuel would have been spent on healthier food, purchasing a gym membership, or more frequent visits to the doctor's office. As incomes fall due to the costs imposed on citizens complying with regulations, people have fewer resources available to use toward risk reduction and outlays related to improving health and well-being. Indeed, an entire literature related to "health-health" analysis examines this relationship between reduced incomes and the ability to mitigate risks.[7] This literature details a methodology for estimating the health impacts of regulatory costs, in order to better compare costs with regulatory benefits, which are often stated in terms of improvements in the health of citizens. As such, regulatory costs, and the income reductions associated with these costs, are closely tied to health and risk mitigation and therefore should be of concern when considering the environmental justice impact of rules.[8]

This means that the distribution of regulatory costs throughout society is very important for environmental justice concerns. Unfortunately, the EPA itself suggests that regulatory costs are likely to be regressive in many cases, stating:

> Often the costs of regulation are passed onto consumers as higher prices that are spread fairly evenly across many households.[9]

If the costs of regulations are spread evenly across households in society, as the EPA states, then the poor will be disproportionately burdened by these policies. The reason is simple: regulations can act like a regressive sales tax, increasing the prices of goods and services and thereby lowering the real incomes of individuals. Any price increase that is spread evenly across society will disproportionately burden the poor since their incomes are lower, and any price increase will take a larger bite out their paychecks.

Further, if the EPA is addressing risks that are smaller than the risks individuals must address through private markets, then the EPA may crowd out private risk mitigation expenditures through the costs it imposes on citizens. Utah State University economist Diana Thomas recently found that households can

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[5] EPA, Draft Technical Guidance.

[6] David Tamm and Kevin Milburn, "Addendum to Potential Supply and Cost Impacts of Lower Sulfur, Lower RVP Gasoline," (American Petroleum Institute, Houston, TX, March 2012).

[7] For more information about health-health analysis see, Fred Kuchler et al., "Health Transfers: An Application of Health-health Analysis to Assess Food Safety Regulations," *Risk* 10 (1999): 315; Randall Lutter and John F. Morrall III, "Health-health Analysis: A New Way to Evaluate Health and Safety Regulation," *Journal of Risk and Uncertainty* 8, no. 1 (January 1, 1994): 43–66; and Ralph Keeney, "Estimating Fatalities Induced by the Economic Costs of Regulations," *Journal of Risk and Uncertainty* 14, no. 1 (January 1, 1997): 5–23.

[8] The EPA also cites several studies in its report that examine the relationship between income and health, including Joel Schwartz, David Bellinger, and Thomas Glass, "Expanding the Scope of Risk Assessment: Methods of Studying Differential Vulnerability and Susceptibility," *American Journal of Public Health* 101, no. S1 (December 2011): S102–S109; and Robert D. Bullard, Paul Mohai, Robin Saha, and Beverly Wright, *Toxic Wastes and Race at Twenty: 1987–2007 Grassroots Struggles to Dismantle Environmental Racism in the United States* (Cleveland, OH: United Church of Christ Justice and Witness Ministries, March 2007).

[9] EPA, Draft Technical Guidance, 51.

likely mitigate the same level of mortality risks privately for about one-fifth the cost of public risk-reduction strategies.[10] Additionally, Thomas found that those who live in low-income neighborhoods are at higher risks for heart disease, diabetes, cancer, and homicide than people in high-income areas. Indeed, these risks represent some of the leading causes of death in our society and are likely much more of a threat to low-income individuals than many of the risks addressed by EPA regulations. To help the poor combat these risks, the best option may be to leave more money in their pockets so they can manage their risks privately and more effectively.

OVERVALUING BENEFITS TO THE POOR

It is vitally important that the EPA focus on addressing risks that matter to low-income and minority populations. Unfortunately, the EPA's regulatory analysis is often biased towards producing more regulatory benefits than the poor would be willing to pay for. By using a uniform value of a statistical life (VSL) across all individuals in society, the EPA overestimates benefits to the poor and underestimates benefits to the wealthy.[11] VSL is based on the mean estimate of the populations' willingness to pay (WTP) to reduce risks. Since the poor are generally willing to pay less than the wealthy to reduce risks,[12] when the EPA only uses a constant VSL, the agency is overestimating what the poor would be willing to pay to reduce risks, thereby overestimating the benefits to the poor resulting from the regulation. (The situation may be different when the poor are at higher risks from the regulated compound.)

Vanderbilt Law School Professor Kip Viscusi sums up this point well in a recent article when he states:

> By using a uniform VSL across different populations, agencies engage in an implicit form of income redistribution, as benefits to the poor receive a greater weight than is justified by their VSL and benefits to the rich are undervalued.[13]

To address this issue, in instances where regulations are directly impacting vulnerable populations, it may make sense to use an additional measure of WTP so as not to overestimate the benefits to disadvantaged groups, especially if the EPA is claiming these populations will accrue greater benefits. For example, in a 2013 EPA proposal related to formaldehyde standards for composite wood products, the EPA claimed the regulation would benefit low-income and minority groups to a greater degree relative to their proportion in the affected population.[14] However, since the EPA uses uniform WTP estimates across all groups in its analysis, it is hard to know if these groups really will benefit to the extent that the EPA claims. Thus, where environmental justice is a concern, benefits and costs should be estimated for the subpopulation of concern.

This issue concerning benefits is vitally important because, when combined with the fact that the cost of many regulations are regressive, the poor will be made worse off by many of the EPA's regulations if the benefits to vulnerable populations are being overestimated.

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[10] Diana Thomas, "Regressive Effects of Regulation" (Working Paper No. 12-35, Mercatus Center at George Mason University, Arlington, VA, November 2012), http://mercatus.org/publication/regressive-effects-regulation.

[11] The aggregate estimate of benefits to society may still be correct even if benefits are over- or underestimated to particular groups.

[12] This is due to the fact that risk reduction is what economists call a "normal good," meaning as an individual's income rises, that person will demand more risk reduction.

[13] W. Kip Viscusi, "The Benefits of Mortality Risk Reduction: Happiness Surveys vs. the Value of a Statistical Life," *Duke Law Journal* 62, no. 8 (2013).

[14] EPA, "Economic Analysis of the Formaldehyde Standards for Composite Wood Products Act Implementing Regulations Proposed Rule," (May 2013): ES-17.

EMPLOYMENT COSTS AFFECT HEALTH AND RISK MITIGATION

Another important issue is that of job loss due to regulations. Job loss is correlated with many health issues, partially due to loss of income. Recent estimates of earning losses resulting from job loss range from 1.4 years of earnings in times of low unemployment to 2.8 years during times of high unemployment, and research shows that after reemployment it can take as long as 20 years for workers to catch up on lost earnings, largely due to skill mismatches between the jobs lost and the new jobs created in the economy.[15] Job loss can also lead to distress that has further impacts on health,[16] and unemployed workers commonly lose their health insurance coverage.[17] Additionally, low-income and minority populations often have chronically high unemployment rates, particularly when the economy is underperforming, as it is now. To address this, the EPA should analyze more closely the costs of its regulations on employment, as well as the distribution of those costs. It is important to note that the employment effects of regulation are not just a simple tally of the jobs lost or created by a rule, but rather the impacts on real human beings due to loss of skill, income, reduced health, and reduced dignity.[18]

One way the EPA can better address this issue is by engaging low-income and minority groups earlier in the rulemaking process, perhaps by issuing surveys in order to gauge the willingness of vulnerable groups to trade off benefits to the environment against loss of income, higher prices, or loss of employment. The EPA could also make information about the distribution of benefits and costs of alternative proposals available in an advanced notice of proposed rulemaking prior to officially proposing a regulation.

RECOMMENDATIONS

In light of the above concerns, I have several recommendations to the SAB to improve upon the EPA's draft guidance for assessing environmental justice in regulatory analysis:

- Analysts should always identify the distribution of costs of regulations, paying special attention towards the costs imposed disproportionately on low-income and minority citizens. In cases where costs are expected to be distributed evenly across society, analysts should pay particular attention given the likelihood that these costs are regressive.[19]

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[15] Keith Hall, "The Employment Costs of Regulation" (Working Paper No. 13-06, Mercatus Center at George Mason University, Arlington, VA, March 2013), http://mercatus.org/publication/employment-costs-regulation.
[16] See Sarah A. Burgard, Jennie E. Brand, and James S. House, "Toward a Better Estimation of the Effect of Job Loss on Health," *Journal of Health and Social Behavior* 48, no. 4 (2007): 369–384; Marcus Eliason and Donald Storrie, "Does Job Loss Shorten Life?" *Journal of Human Resources* 44, no. 2 (2009): 277–302; Mari Rege, Telle Kjetil, and Mark Votruba, "The Effect of Plant Downsizing on Disability Pension Utilization," *Journal of European Economic Association* 7, no. 4 (2009): 754–785; Daniel Sullivan and Till von Wachter, "Job Displacement and Mortality: An Analysis Using Administrative Data," *Quarterly Journal of Economics* 124, no. 3 (2009): 1265–1306; Kate W. Strully, "Job Loss and Health in the US Labor Market," *Demography* 46, no. 2 (2009): 221–246; and Martin Salm, "Does Job Loss Cause Ill Health?," *Health Economics* 18, no. 9 (2009): 1075–1089.
[17] See, for example, Jonathan Gruber, "Health Insurance and the Labor Market," *Handbook of Health Economics* 1 (2000): 645–706; John Cawley and Kosali I. Simon, "The Impact of Macroeconomic Conditions on the Health Insurance Coverage of Americans," *Frontiers in Health Policy Research* 6 (2003); and Vasilios D. Kosteas and Francesco Renna, "The Impact of Job Displacement on Employer Based Health Insurance Coverage," *Journal of Labor Research* 30, no. 4 (2009): 317–327.
[18] Keith Hall, "The Employment Costs of Regulation."
[19] OMB guidelines also recommend analyzing the distribution of costs. See Office of Management and Budget, Circular A-4, Regulatory Analysis (September 17, 2003).

- The EPA should consider the degree to which its regulations directly increase prices of products that represent a higher proportion of the income of low-income populations (e.g., electricity, rent, food, and fuel). Some regulations of these products act like a regressive sales tax and lower real incomes, which are correlated with health concerns, and leave less money available for private risk mitigation.
- The EPA should go beyond exploring compliance costs on individuals to ultimately look at how the health and well-being of vulnerable populations are impacted by regulations. One way to do this is through a health-health analysis. This is especially important for regulations that have large gross impacts on employment or regulations that are likely to reduce real incomes significantly.
- Whenever possible, VSL estimates should vary by the differing WTP across income groups. This will greatly improve the estimates of benefits to different income groups, which will allow further comparison to the distribution of costs to assess which groups are experiencing net benefits or net costs as a result of a regulation.
- The EPA should make information on the distribution of costs and benefits of its proposals available in an advanced notice of proposed rulemaking prior to publishing a proposed rule. Surveys may assist the agency in gathering this information. This will allow impacted groups the opportunity to provide meaningful feedback to the agency; it is also an example of transparent practices consistent with EPA goals.[20]

CONCLUSION

As the EPA's current draft guidelines stand, they are inadequate. The current guidelines, if followed, will lead to systematically ignoring the distribution of costs of EPA rules, including how those costs impact the health and risk-mitigation abilities of vulnerable groups. If followed, analysts will also overestimate the benefits to vulnerable populations in many cases. Together, these problems run the risk of biasing the entire environmental justice project in favor of designing regulations that produce unintended harms on low-income and minority groups and leave them worse off. Given the EPA's clear intention to provide net benefits to these groups, the recommended changes above should be made to the final version of the EPA's guidance on assessing environmental justice in regulatory analysis.

Thank you for taking the time to consider my remarks. I am happy to answer any questions you may have at this time.

[20] For example, the EPA states, "A basic analysis should support conclusions with regard to potential distributional effects to improve the transparency of the rulemaking process and provide the decision maker and public with more complete information regarding the expected effects of the policy." EPA, Assessing Environmental Justice, 37.