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REVIEW OF DANIEL FARBER, *INEQUALITY AND REGULATION: DESIGNING RULES TO ADDRESS RACE, POVERTY, AND ENVIRONMENTAL HARM*

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Dan Farber’s wide-ranging article, *Inequality and Regulation*, makes two core arguments. First, Farber argues that using a uniform value of statistical life (VSL) in cost-benefit analysis is justified not only as a pragmatic compromise but also as a matter of first principles. In particular, he argues that a uniform VSL can be based on a theory of equality that he calls harm egalitarianism, which holds that individuals have equal entitlements to protection against harm. Second, Farber, looking for ways to address environmental justice concerns through regulations, argues that “a heightened focus on differences in exposure and vulnerability [in the cost-benefit analysis of regulations] offers the most promising path forward for environmental justice to expand protection for the goals of environmental justice.” I will address these claims in reverse order.¹

1. EXPOSURE AND VULNERABILITY TO POLLUTION

I start with Farber’s claim, about the ability of cost-benefit analysis to address problems of environmental justice (EJ). The claim is that many disadvantaged communities—by which he means both communities that are predominantly racial minorities and also communities that are lower-income or poor—face higher exposures to pollution and have higher levels of vulnerability to pollution. If cost-benefit analysis paid careful attention to those differences in exposures and vulnerabilities, the resulting

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¹ Farber’s paper addresses both racial disparities and income inequality (although his title mentions poverty not income inequality, he does not discuss poverty but does discuss income inequality). Although there are overlaps—black households on average have lower incomes than white households—these are separate subjects. The causes of racial disparities and income inequality are most likely distinct, as are the remedies. The legal tools available for addressing these problems are different. We could solve the problem of income inequality while leaving racial disparities untouched, and vice versa. For the most part, Farber’s analysis treats these topics separately, but combining the two in a single paper risks confusion. Following Farber’s discussion, my analysis of vulnerability and exposure to environmental harms will focus on race. My discussion of VSLs will be exclusively about income.

regulations would address many of the concerns raised by the EJ movement while avoiding potentially illegal, explicit reference to race. As noted, he states the claim as follows: “a heightened focus on differences in exposure and vulnerability offers the most promising path forward for environmental justice to expand protection for the goals of environmental justice.”

We might paraphrase Farber as saying that the best way to promote EJ in the regulatory sphere is good old cost-benefit analysis, but done well by taking into account data on exposures and vulnerability to pollution. That is, I do not think Farber is advocating for a change in CBA, but rather better CBA that pays careful attention to the facts in disadvantaged communities around the country. If correct, the claim illustrates one of the great virtues of CBA, namely that it provides a transparent, publicly-announced formula for evaluating regulations. If the government is not following its own criteria, it is easy for harmed groups to call the government to account.

I want to explore this in more detail. My conclusion will be that while I wish Farber’s claim were true, the results of taking into account local differences is likely much more ambiguous than Farber suggests and may even be counter to the goals of the EJ movement.

Farber’s factual claims on exposure and vulnerability are consistent with my reading of the literature.² It is important, however, to keep exposure and vulnerability separate because the empirical support and implications for regulatory policy for exposure and for vulnerability are not the same. In particular, vulnerability is the extent to which a given exposure causes harm. It is marginal harm, the slope of the damages function. Because cost-benefit analysis should set marginal harm equal to the marginal cost of care, higher vulnerability immediately translates into a different level of regulatory stringency. That is, even if the exposure to a pollutant is the same, a

² For reviews of the literature, see Spencer Banzhaf, Lala Ma & Christopher Timmins, *Environmental Justice: The Economics of Race, Place, and Pollution*, 33 JOURNAL OF ECONOMIC PERSPECTIVES 185 (2019); Paul Mohai, David Pellow & J. Timmons Roberts, *Environmental Justice*, 34 ANNUAL REVIEW OF ENVIRONMENT AND RESOURCES 405 (2009).

community with higher vulnerability will face more harm. As a result, a regulation might require lower levels of exposure in that community.

Exposure is about the level of harm, not the sensitivity to harm. Higher levels of exposure do not automatically change the optimum that cost-benefit analysis would reach. If all communities have the same vulnerability—that is the same marginal harm for a given exposure—a regulation might set uniform exposure levels for all communities. Communities with higher initial exposure levels would see greater reductions, but the final result would be similar exposures across all communities. While this result may satisfy EJ, it is not the result that we would see with different vulnerabilities. Because differences in exposure and differences in vulnerability can lead to entirely different regulatory results, it is important to keep the two separate.³

Most of the empirical literature examining differences in pollution across different communities focuses on differences in exposures, not vulnerability. The early work by the United Church of Christ⁴ and Robert Bullard⁵ documented higher levels of exposure in minority or poor communities. These findings generated a substantial literature addressing the connection between pollution and race, poverty, and other markers of disadvantage. Although there is some variation in findings, particular when controls

³ Farber's claim about how cost benefit analysis should multiply rather than add when computing harm applies only to differences in vulnerability, not differences in exposure. For example, if a population is exposed to a condition such a prior pollution, excess stress, or poor healthcare, that exposure might make exposure to a second type of pollution worse. The prior exposure might increase vulnerability. In this case, it might be appropriate to use multiplication to determine the effects of the second pollution when performing cost benefit analysis (though we can imagine any number of other functional forms—there is no magic to multiplication). If a community merely has excess exposure to the regulated pollutant but not increased vulnerability, however, multiplication would not be appropriate.

⁴ UNITED CHURCH OF CHRIST COMMISSION FOR RACIAL JUSTICE, *Toxic Wastes and Race in the United States: A National Report on the Racial and Socio-Economic Characteristics of Communities with Hazardous Waste Sites*, (1987).

⁵ ROBERT D. BULLARD, *DUMPING IN DIXIE: RACE, CLASS, AND ENVIRONMENTAL QUALITY* (3 ed. 2019); Robert D. Bullard et al., *Toxic Wastes and Race at Twenty: Why Race Still Matters after all of These Years Environmental Justice: Making it a Reality*, 38 ENVTL. L. 371 (2008).

and multiple regression analysis are used,⁶ for the most part studies have confirmed the results of that early work.

For example, a 2011 study examined about 11 million births in five states between 1989 and 2003, comparing the characteristics of mothers within two kilometers of Superfund and Toxic Release Inventory sites to those living outside this radius.⁷ It found that black mothers are 0.7 and 5.3 percentage points more likely than others to live near a Superfund and Toxic Release Inventory site, respectively. Another study looked at exposure to PM_{2.5}, finding that black, Asian, and Hispanic communities (measured at the zip code level) have higher exposures than white communities.⁸

The most recent estimates are able to use satellite data combined with machine learning techniques to estimate PM_{2.5} exposure in grids as small as 1 kilometer (making up about 8.6 million grid cells in the United States). These studies are able to link this grid-level data to individuals through census and tax records, allowing a highly-detailed tracing of exposures to health or other outcomes. One recent study using this approach found that black households tend to live in the most polluted areas nationally, but that the black-white gap in mean pollution exposure has closed by about two-thirds since 2000.⁹ As Janet Currie, one of the leading researchers in this area, summarizes,

⁶See, e.g., Meredith Fowlie, Stephen P. Holland & Erin T. Mansur, *What Do Emissions Markets Deliver and to Whom? Evidence from Southern California's NO_x Trading Program*, 102 AMERICAN ECONOMIC REVIEW 965 (2012); Shreekanth Gupta, George Van Houtven & Maureen L. Cropper, *Do Benefits and Costs Matter in Environmental Regulation? An Analysis of EPA Decisions Under Superfund*, in ANALYZING SUPERFUND 83 (Richard L. Revesz & Richard B Stewart eds., 1995); W. Kip Viscusi & James T. Hamilton, *Are Risk Regulators Rational? Evidence from Hazardous Waste Cleanup Decisions*, 89 THE AMERICAN ECONOMIC REVIEW 1010 (1999).

⁷ Janet Currie, *Inequality at Birth: Some Causes and Consequences*, 101 AMERICAN ECONOMIC REVIEW 1 (2011).

⁸ Abdulrahman Jbaily et al., *Air pollution exposure disparities across US population and income groups*, 601 NATURE 228 (2022).

⁹ JANET CURRIE, JOHN VOORHEIS & REED WALKER, *What Caused Racial Disparities in Particulate Exposure to Fall? New Evidence from the Clean Air Act and Satellite-Based Measures of Air Quality*, (2020), <https://www.nber.org/papers/w26659> (last visited Dec 8, 2022). For similar results also using satellite

“minorities and people of lower socioeconomic status are more likely to be exposed to potentially harmful pollutants for reasons that cannot be explained by their broad geographical distribution, education, or other observable characteristics.”¹⁰

There is a related, but distinct, question of how much these disparities in exposure affect health and other outcomes. Our understanding of the effects of exposure to different pollutants remains imperfect,¹¹ but it appears exposure to PM_{2.5} even in utero can have long-term deleterious effects.¹² For example, prenatal exposure to PM_{2.5} appears to reduce the rates of upward mobility at age 30 and has been estimated to explain 17-26 percent of the black-white earnings gap.¹³ The effects may last their lifetime and indirectly even to those individuals’ children (the grandchildren of the exposed mothers).¹⁴ The more researchers look at the effects of exposure to many pollutants and the better they are able to trace and identify the effects, the worse things look.

There is far less evidence on vulnerability. An early and seminal study found that black infants respond more negatively than white infants to increases in total suspended

data on PM_{2.5}, see Jonathan Colmer et al., *Disparities in PM_{2.5} air pollution in the United States*, 369 *SCIENCE* 575 (2020).

¹⁰ Currie, *supra* note 8 at 12.

¹¹ For a review of the evidence as of about 10 years ago, see Gerard Hoek et al., *Long-term air pollution exposure and cardio- respiratory mortality: a review*, 12 *ENVIRONMENTAL HEALTH* 43 (2013).

¹² For example, Chay and Greenstone find that reductions in airborne particulates reduce infant deaths and increase birth weights. Kenneth Y. Chay & Michael Greenstone, *The Impact of Air Pollution on Infant Mortality: Evidence from Geographic Variation in Pollution Shocks Induced by a Recession**, 118 *THE QUARTERLY JOURNAL OF ECONOMICS* 1121 (2003).

¹³ Jonathan Colmer, John Voorheis & Brennan Williams, *Air Pollution and Economic Opportunity in the United States*, (2022).

¹⁴ Jonathan Colmer & John Voorheis, *The grandkids aren’t alright: the intergenerational effects of prenatal pollution exposure*, (2020), https://cep.lse.ac.uk/_new/publications/discussion-papers/ (last visited Dec 8, 2022).

particulates.¹⁵ Another study looked at dose-response differences for black and white individuals to traffic-related air pollution, finding larger effects for black individuals than for white individuals.¹⁶ Exposure to carbon monoxide appears to have a greater effect on poor children than on others, even attempting to account for greater exposures.¹⁷ There is some evidence on differences in vulnerabilities.

Nevertheless, a recent survey on differences in vulnerabilities concluded that “there is much less evidence that [] differences in health-related dose-response functions translate into differences in marginal damages or welfare.”¹⁸ The underlying problem is that it is not easy to eliminate possible sources of heterogeneity. For example, suppose we observe households in different communities responding differently to a change in exposure to a pollutant. This might mean different vulnerabilities but it might also be explained by different levels of exposure and a common nonlinear dose-response function. In addition, differences in vulnerability could be due to non-pollution related factors such as less access to healthcare.¹⁹ These would be true differences in vulnerability but the appropriate response might lie in addressing the cause of the difference in vulnerability rather than requiring different pollution exposures.

In short, my review of the literature is roughly consistent with Farber’s, if perhaps somewhat more skeptical. To the best of our current knowledge, there are significant disparities in exposure to pollution, and these disparities generate long-term harms, including to health and other effects such as to earnings. Some of these effects are large and addressing them is a matter of utmost urgency. Moreover, background conditions,

¹⁵ Chay and Greenstone, *supra* note 13.

¹⁶ Janet Currie & Reed Walker, *Traffic Congestion and Infant Health: Evidence from E-ZPass*, 3 AMERICAN ECONOMIC JOURNAL: APPLIED ECONOMICS 65 (2011).

¹⁷ Matthew J. Neidell, *Air pollution, health, and socio-economic status: the effect of outdoor air quality on childhood asthma*, 23 JOURNAL OF HEALTH ECONOMICS 1209 (2004).

¹⁸ Solomon Hsiang, Paulina Oliva & Reed Walker, *The Distribution of Environmental Damages*, 13 REVIEW OF ENVIRONMENTAL ECONOMICS AND POLICY 83, 90 (2019).

¹⁹ Yan Wang et al., *Long-term exposure to PM_{2.5} and mortality among older adults in the Southeastern US*, 28 EPIDEMIOLOGY 207, 211 (2017).

including but not limited to prior exposure to pollution, seem to lead to greater vulnerability to pollution, in the sense that the slope of the damage function from pollution is steeper for minority and other disadvantaged communities than for others, although the evidence on this issue is limited.

The implications for the stringency of regulations and the ability of cost-benefit analysis to address EJ concerns, however, is more ambiguous than Farber indicates. Incorporating information about disparities in pollution exposures and vulnerabilities into cost benefit analysis may affect disadvantaged communities in surprising ways and, in particular, may not lead to greater regulatory stringency or more emissions reductions in those communities. In fact, focusing on local community differences may lead to less regulatory stringency rather than more in affected communities. Whether those effects promote the goals of environmental justice depends on what, precisely, those goals are.

To understand the effects of taking the differences in exposures and vulnerabilities of local communities into account, let us assume that we are crafting an idealized regulation of a pollutant. The regulation sets the marginal cost of care equal to the marginal harm from a pollutant.²⁰ Moreover, the regulation can take local exposures and vulnerabilities into account if appropriate, which means that it can be spatially differentiated, requiring different levels of pollution in different locations. The question is whether this regulation advances the goals of environmental justice.

As noted, differences in exposures and vulnerabilities enter into the CBA for this hypothetical regulation differently. Differences in vulnerabilities mean that marginal harm varies by location. This means that the regulation should be geographically differentiated to take differences in vulnerabilities into account. All else equal, the regulation should be more stringent in the location where marginal harm is higher.

Differences in exposures do not generate that same effect because differences in exposure do not mean there are differences in marginal harm. If the marginal harm from

²⁰ Of course, statutes may use a different standard for a variety of reasons. The standard in the text—marginal cost of care equals marginal cost of harm—maximizes the net benefits from regulation. Moreover, it gives the result that obtains in markets where regulation is not needed because the costs of pollution are internalized.

pollution is the same for different locations, all else equal, regulations should set the same standard in each location. Regulations should not necessarily take geographic differences in exposures into account.

In either case, the regulation may seem to satisfy the goals of the EJ movement. In the first case, the vulnerable would be exposed to lower levels of pollution to account for the differences they face. Even when there are merely different levels of exposure, the regulation may still address EJ concerns. By imposing a uniform standard across communities, communities with higher pre-existing exposures to the pollutant would see larger reductions in pollution. Moreover, uniform standards would mean treating all communities equally.

This analysis, however, only considered exposures and vulnerabilities, holding all else equal. All else may not be equal. Just as vulnerabilities or exposures may differ across communities, so may other factors that go into CBA. In particular, CBA sets the marginal costs of care equal to marginal harm, and just as vulnerabilities and exposures may vary by community, so may the marginal costs of care. In addition, to determine whether the goals of EJ are advanced, we need to take into account the consequences of the regulation including who benefits. Once differences costs and benefits are taken into account, the resulting regulations may do little to advance the cause of environmental justice. It is entirely possible that an optimal regulation would be less stringent where people are more vulnerable or where people face greater exposure to pollution. Moreover, it is entirely possible that an optimal regulation may not benefit disadvantaged communities even if it reduces pollution in those communities. That is, taking local geographic variation into account may not produce results that EJ advocates would promote.

To see this in more detail, start with costs of care. We know far less about the distribution of the costs of care than we do the harms from pollution. To understand the distribution of the costs of care, we need to know the incidence of the costs, both by income and geographic location. This is hard to estimate.

To illustrate, suppose that a regulation requires a facility to reduce emissions of a pollutant. The owners of the facility—that is the capital providers—might bear the costs because they have to pay for equipment that prevents the emissions. On the other hand, workers at the facility might bear the costs because the facility, now more expensive to operate, might fire workers, lower wages, or shut down. Or the customers of the facility

might bear the costs because it raises prices. These possibilities will have quite different effects on the local community. If, for example, the facility reduces employment or lowers wages, the local community might face high costs, while if capital bears the cost of the regulation, the local community might not bear any costs whatsoever. The particular effects will likely vary by location and by regulation.

The problem of incidence is most widely studied in the context of pollution taxes, such as carbon taxes. Pollution taxes tend to be regressive because the poor spend a relatively greater fraction of their income on energy or goods produced with energy, and energy production is major source of pollution. Because pollution taxes raise revenue, however, the distributional effects can vary widely depending on how the revenue is spent. The geographic incidence of pollution taxes is less studied. One study of carbon taxation found that they key factor is the geographic variation in electricity consumption and the carbon intensity of electricity.²¹ With some exceptions, states with larger losses from electricity price increases tend to be poorer.

The conventional wisdom for environmental regulations is similar.²² Lower income households bear a greater portion of the costs because they spend a larger fraction of their income on energy-intensive goods and are more often employed in energy-related industries.

The effects, however, can be subtle and difficult to measure. For example, one study looked at whether renters or owners bear the costs of regulations reducing suspended particular matter (PM₁₀) under the Clean Air Act.²³ It found that the renters bear a substantial fraction of the costs in the form of increased rent. Another study, looking at

²¹ Robertson C. Williams et al., *The initial incidence of a carbon tax across u.s. states*, 67 NATIONAL TAX JOURNAL 807 (2014). Another study, just a few years earlier, however, found little systematic variation in carbon tax burdens across regions. See Kevin A. Hassett, Aparna Mathur & Gilbert E. Metcalf, *The Incidence of a U.S. Carbon Tax: A Lifetime and Regional Analysis*, 30 EJ (2009).

²² See Don Fullerton, *Six Distributional Effects of Environmental Policy*, 31 RISK ANALYSIS 923 (2011); Antonio Bento, *Equity Impacts of Environmental Policy*, 5 ANNUAL REVIEW OF RESOURCE ECONOMICS 181 (2013).

²³ Corbett A. Grainger, *The distributional effects of pollution regulations: Do renters fully pay for cleaner air?*, 96 JOURNAL OF PUBLIC ECONOMICS 840 (2012).

the same regulation, however, found the reverse because local regulators targeted the dirtiest areas to clean up first and that pattern tended to favor low-income households.²⁴

Estimating who benefits from a regulation may, if anything, be even more complex. Merely because disadvantaged communities tend to have greater exposure and vulnerability to pollution does not mean that they are the communities that benefit from when pollution is reduced. To understand who benefits from reduced pollution, we have to understand why there are differences in exposures and vulnerability in the first instance.

There are a number of different stories.²⁵ A foundational story for EJ is an incident in North Carolina where PCBs were dumped in the county with the highest proportion of black people in the state, even though the county was unsuitable for a landfill.²⁶ One reason the state was able to put the PCBs where they did was that the local town had no mayor and the people lacked the ability to organize.

Evidence for these stories is mixed. For example, one study looked at the application of state-level hazardous and solid waste taxes. Controlling for multiple factors, such as the external costs associated with the waste, it found that race does not have an independent effect on the level of these taxes.²⁷ Another study looked at how, or whether, community organization can affect bureaucratic decisions regarding regulatory compliance.²⁸ It found that better organized communities are able to force

²⁴ Antonio Bento, Matthew Freedman & Corey Lang, *Who Benefits from Environmental Regulation? Evidence from the Clean Air Act Amendments*, 97 THE REVIEW OF ECONOMICS AND STATISTICS 610 (2015).

²⁵ For reviews, see Spencer Banzhaf, Lala Ma & Christopher Timmins, *Environmental Justice: Establishing Causal Relationships*, 11 ANNUAL REVIEW OF RESOURCE ECONOMICS 377 (2019).

²⁶ See Banzhaf, Ma, and Timmins, *supra* note 3 at 185; Mohai, Pellow, and Roberts, *supra* note 3 at 406.

²⁷ Robin R. Jenkins & Kelly B. Maguire, *An Examination of the Correlation between Race and State Hazardous and Solid Waste Taxes*, in THE POLITICAL ECONOMY OF ENVIRONMENTAL JUSTICE 249 (Spencer Banzhaf ed., 2012).

²⁸ David M. Konisky & Christopher Reenock, *Compliance Bias and Environmental (In)justice*, 75 THE JOURNAL OF POLITICS 506 (2013).

bureaucrats to dedicate more resources to firms in their areas. Interestingly, it found that this organizational bias applies for poor and Hispanic communities but not black communities. On the other hand, there are numerous examples of lack of community participation and voice, focused on black communities. It is possible that the large n studies are not sufficiently nuanced to detect the community representation or bias problems identified by the EJ community. It is also possible that the large n studies are correct and the EJ stories are a non-representative sample.

An alternative set of stories involve market mechanisms. For example, both poor households and polluting firms might choose to locate where land is least expensive. Because black households have lower income and much lower wealth than white households, they may, as a result, end up in areas with higher levels of pollution. A number of studies support this hypothesis. For example, work by Janet Currie finds that following Superfund cleanups, areas become more white and more educated.²⁹ Ann Wolverton finds that TRI plant location is based on local economic conditions, such as inexpensive land, low-wage labor and transportation networks. As with estimates of differences in vulnerabilities, however, a number of difficult empirical problems make estimation of this kind of sorting difficult.

Putting this altogether, the effects of taking different exposures and vulnerabilities into account will depend on which combination of facts obtains in a given area for a given pollutant.³⁰ One can imagine many different results. A “good” story for Farber (but bad in the sense that it is not an attractive description of the world) is that disadvantaged communities have greater exposure to pollution or vulnerability to pollution because of bad and possibly biased political or bureaucratic decision-making, and that a well-done cost-benefit analysis would indicate that more stringent regulation

²⁹ Currie, *supra* note 8.

³⁰ The analysis here can be thought of as a geographic or place-based version of the analysis Daniel Hemel does of how income and pollution and safety regulations interact. See Daniel Hemel, *Regulation and Redistribution with Lives in the Balance*, 89 U. CHI. L. REV. 649 (2022). Hemel finds results similar in spirit to those found here. For example, he finds that some automobile safety regulations are regressive. As a result, a regulatory policy that attempted to take income distribution into account would reduce safety.

is warranted. In this case, CBA might plausibly promote the ideals of environmental justice (but see the discussion below).

There are many other possible combinations of facts, however, that point in different directions. If, for example, the costs of pollution reduction fall on already disadvantaged communities or the benefits accrue elsewhere, increased environmental stringency may not help or even hurt those communities. Moreover, if the reason for increased exposure or vulnerabilities relates to market choices, increased environmental stringency may lead to so-called environmental gentrification. It is not clear from the data that there is any general pattern. The effects likely vary with location and with pollutant, and possibly over time.

To determine whether these outcomes meet the goals of the environmental justice movement, we have to specify more precisely what those goals are. I find the literature somewhat vague. One possible goal of the EJ movement is voice, to have the concerns and needs of minority communities taken into account when setting various environmental policies on the same basis that needs and concerns of other communities are. Perhaps taking those needs and concerns into account in CBA partially meets this goal. Something like this is clearly behind the various executive orders on environmental justice.

Another possible goal is to eliminate discrimination that arises in setting environmental policy. Although there are many different ways to define discrimination, many of our laws look to some version of economic rationality (i.e., was there a good, non-race-based reason for treating A differently than B). To the extent we define discrimination as making non-cost justified decisions that harm minorities, Farber's suggestions are correct almost as a tautology because using CBA requires everything to be cost-justified. This would be true even if taking differential exposures and vulnerabilities into account leads to *less* stringent environmental standards in disadvantaged communities, a result that may not accord with EJ goals.

I suspect that EJ advocates have something broader in mind. For example, if the reason minorities are more often exposed to pollution is because of income, and one reason minorities have lower income than others is historic or current discrimination, EJ advocates would likely argue that merely doing good cost-benefit analysis, taking those disadvantages as a given, is not sufficient. In this case, however, we need to ask what the best way to address the problem is. Using environmental regulation rather

than directly addressing the underlying problem may make the problem worse rather than better (recall the problem of environmental gentrification). If the reasons for higher exposure and vulnerabilities in disadvantaged communities are complex and multifactorial, we need to carefully understand the causes of the problems and how they interact before pulling on one string.

To summarize a somewhat long and winding discussion, I think the issue is much complicated than what Farber suggests. I agree with the suggestion to use good data when performing CBA, including data that takes different exposures and vulnerabilities into account. But it is an entirely different thing to assess whether doing so is a good method of pursuing the goals of environmental justice. On this latter issue, we need much more work before concluding that Farber's suggestion is correct.

2. INCOME-DEPENDENT VSLs

Farber's other argument is that equal VSLs for all individuals are appropriate not merely as an administrative convenience or as a nod to politics, but as a matter of first principles. To a great extent, the argument is academic because agencies currently use equal VSLs, and there is no move to change that. Nevertheless, it is worth understanding the basis, if any, for this practice.

The issue of income-dependent VSLs has been well-explored in the literature so I keep my comments brief. Recall that CBA uses the value of a statistical life to estimate the benefits of lives saved by a regulation. These are empirically estimated, often through methods such as observing the salary premium demanded for taking additional risk at work. Higher-income individuals will demand a higher premium for taking risk which means that their VSLs will be higher than the VSLs for poor people. Though one may question the empirics in estimating VSLs, I will take them here as valid, as I assume Farber does.

What we might call "textbook CBA" uses actual VSLs when calculating the benefits of a regulation.³¹ If the regulation benefits poor households, the benefit will be lower than if it benefits rich households. The government does not do this. Instead, it uses equal VSLs for all individuals, using for example, the average VSL. This practice is often

³¹ I get this term from Daniel Hemel. *Id.*

justified as a nod to political reality or to simplicity.³² Farber argues that in fact equal VSLs are correct as a matter of first principle.

Farber's argument is based on an appeal to equality, in this case, equality of harms. He calls this harm egalitarianism meaning that "equivalent harms should be treated the same by regulators regardless of the identity of the victim." The intuition is that the government owes equal concern for all individuals. That means, when regulating, treating harms the same regardless of which individual bears the harm.

While I accept the pragmatic reasons for using equal VSLs, I do not think the practice can be justified on first principles, or at least Farber's arguments do not do so. I take Farber's motivation to be to help poor or lower-income individuals. Textbook CBA values the poor less than the rich, and it is this unequal valuation that offends. The argument, however, makes no reference whatsoever to whether the individuals Farber seeks to benefit are actually made better off. If one seeks to help a class of people, one should at least make *some* attempt to ascertain whether the help helps. Farber does not.

Indeed, he explicitly rejects any reference to values of the people he seeks to help. He makes this explicit:

There is no evident moral justification for equating the amount society is willing to sacrifice to protect the life or health of an individual with the amount that a particular individual would have been willing to spend themselves.

And:

[T]he amount that particular people are willing to pay to reduce risks to themselves does not define how much of a cost a regulation should impose in order to reduce their risks.

This is startling. Farber does not claim people are badly informed, that they suffer from cognitive biases, or that there is some other reason for rejecting people's own views about their risk preferences and valuations. He does not claim the empirical estimates of VSLs or the income-elasticity of VSLs are bad. He does not claim that there a positive

³² For example, Daniel Hemel justifies equal VSLs as a method of saving information costs. See *Id.*

externality to safety or some other external benefit that individuals do not take into account when determining their risk trade-offs. Even if one is not exclusively a welfarist, even if one has a deontological equality principle in mind, some reference to the well-being of the people one seeks to help seems warranted.

Had Farber made such an inquiry, he would have found that equal VSLs often make low-income households worse off.³³ In particular, using equal VSLs means we may often require low-income households to pay more for safety than they wish to pay. To illustrate, using an example from recent work by Cass Sunstein, consider a regulation reducing risks from motor vehicles where the costs of the regulation are passed-forward to consumers.³⁴ If poor households have a VSL of, say, \$1 million but the regulation assumes that they have a VSL of \$10 million, they are forced to purchase vehicles that are more expensive than otherwise to get safety benefits they would not choose themselves (even if fully informed). While they get additional safety benefits, they cannot purchase other items that they prefer to those safety benefits. That is, we are forcing those households to buy expensive but safer cars when they would prefer buy somewhat less safe cars and using the savings on other things (perhaps even safety in other spheres).

Faber wants to do this because this somehow promotes equality. In fact, it is a deeply unequal and inequalitarian outcome: the rich get the cars that they want while the poor are forced to forego other goods to buy cars with features that they do not want. Poor households in this case would tell us that while they appreciate the good intentions, they are better off without our help.

In fact, the situation is even worse than Sunstein's example illustrates. Using equal VSLs can sometimes make *everyone* worse off, not just the poor. Examples are easy to

³³ It is not clear whether Farber would level up, treating poor households' VSL at rich households' levels, level down (the reverse) or average (put everyone's VSL at the middle), but any of these choices means some households get a VSL different than they actual valuation of life. To fix ideas, I will assume we use the population average.

³⁴ CASS R SUNSTEIN, *Inequality and the Value of a Statistical Life*, (2022), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4236366 (last visited Dec 14, 2022).

construct.³⁵ To illustrate, suppose that there are equal numbers of rich and poor, and the rich have a VSL of \$8 million and the poor a VSL of \$4 million. Consider a regulation that will improve safety for the poor at a cost of \$5 million per statistical life. The regulation costs the rich a modest amount but does not help them at all (say because they are already taking the necessary precautions). If the government were to use the average VSL, it would enact the regulation because it saves lives at a cost of \$5 million when lives are valued at \$6 million. But the regulation in fact makes both the poor worse off (they get \$4 million of benefits at a cost of \$5 million) and the rich worse off (they get no benefits at some modest cost). Nobody wants this regulation to be enacted, but if we use equal VSLs we would enact it nonetheless.

As should be evident from these examples, the key issue in understanding the effects of using equal VSLs is the incidence of the costs and benefits of the regulation. If the costs of the regulation are passed forward so that they fall on the poor, or if the benefits do not fully accrue to the poor, it is likely that the regulation will make poor households worse off. The problem is similar to CBA/EJ problem analyzed above. We need to understand the details of individual regulations to make the determination.

Perhaps if we made this inquiry we would find that most of the time using equal VSLs helps the poor because of how the incidence of the costs and benefits shakes out. There is, of course, no reason to believe this is the case, and Farber does not suggest it is. But suppose this were true so that harm egalitarianism is in fact helping those it seeks to help. This would still not justify using equal VSLs. The reason is that while equal VSLs on average make the poor better off, we would need to compare that to other means of doing so. If there are better methods of achieving the same goal, we would not want to use equal VSLs.

In particular, by far the most important tool we use for redistributing to help the poor is the tax and transfer system. That is, even if we could make the empirical case that equal VSLs overall helps the poor rather than hurts them, we would have to believe that it is a better tool than say increasing transfers.³⁶ Farber, I believe, far too readily

³⁵ This example is taken from Banzhaf, Ma, and Timmins, *supra* note 3 at 204.

³⁶ There seems to be a widespread belief that the tax and transfer system has not adjusted to account for the growth in pre-tax and transfer inequality over the last 40 or 50 years. This is not correct as can be seen using widely available data, such as the Congressional Budget Office estimates of the effects of

dismisses the use of taxes and transfers, but there has been too much written on this already, and I save comments on this issue for other work.³⁷

A related but distinct problem if we were to adopt harm egalitarianism as an operating principle is that we would have to regulate vast swathes of activity that we now leave to individual choice. Farber's formulation of harm egalitarianism varies in its scope. In the body of his paper, he limits the principle to regulators: he states the principle to be that equivalent harms should be treated the same by *regulators*. In the introduction, however, he defines it much more generally: individuals have equal entitlements to protection against harm. (In a footnote in the body of the paper, he follows the approach in the introduction.)

It is hard to see a good reason for limiting the principle to regulators and not extend it to the rest of government and to all of social policy. It is a principle of equity that applies to people. It is that all people deserve to have the harms they face treated equally. There is nothing special about the tasks Congress assigns to regulators as opposed to those it decides itself in this regard. And because a choice not to regulate, to allow

taxes and transfers. See, e.g., CONGRESSIONAL BUDGET OFFICE, *The Distribution of Household Income, 2019*, (2022), <https://www.cbo.gov/publication/58353> (last visited Dec 14, 2022). For a summary, see [cite my paper on tax progressivity].

³⁷ The literature is vast. For some of my views on the use of distribution in cost-benefit analysis, see David A. Weisbach, *Distributionally Weighted Cost–Benefit Analysis: Welfare Economics Meets Organizational Design*, 7 *JOURNAL OF LEGAL ANALYSIS* 151 (2015). [ADD CITE TO MY NEW PAPER] While the issues are complex and widely debated in the literature, Farber makes mistakes that are essentially mathematical in nature and are not about the applicability of one model or another to real-world policymaking. One in particular is the claim that by using non-tax rules to redistribute, we can lower deadweight loss because many small distortions are better than one big one. In the context of redistribution, this is wrong. That this is wrong was the very point of the original paper by Atkinson and Stiglitz and the extensions of that work by Louis Kaplow. See A. B. Atkinson & J. E. Stiglitz, *Design of the Tax Structure -- Direct versus Indirect Taxation*, 6 *JOURNAL OF PUBLIC ECONOMICS* 55 (1976); Louis Kaplow, *On the undesirability of commodity taxation even when income taxation is not optimal*, 90 *JOURNAL OF PUBLIC ECONOMICS* 1235 (2006).

market mechanisms to work, is a choice, there is nothing to limit the principle to areas where Congress chooses to intervene in the market.

Applying the principle to all harms, however, implausible. People make private decisions based on their own VSLs, not on government mandated VSLs. For example, when making choices about the trade-off between risks in the workplace and salary, people use their own VSLs, with the poor using a lower VSL than the rich. (That is, after all, how VSLs are estimated.) People choose to purchase less safe products or make choices that they would not make had they had a higher VSL. Harm egalitarianism would seem to require us to override all of these choices and require people to choose as if they had equal VSLs.

Perhaps there is a way to limit the principle to government policy (though limiting it to just regulations, a subset of government policy seems much more difficult). The argument would be something like that when we act collectively through the government, we owe it to each other to treat each other equally, but not when we act on our own. The problem with this approach is that it depends on a prior choice of when to act collectively through the government, and that prior choice may not reflect the equality norms that underlying harm egalitarianism. We choose to regulate for all kinds of reasons, most entirely unrelated to whatever the principles are that underlying harm egalitarianism, which means that the application of the principle looks effectively random.

Said another way, Farber sets out a broad claim—people have equal entitlements to protection against harm—but does not seek to limit it in any way to the cases he considers. Perhaps there is a limiting principle, but without one, the claim would require massive changes to the way our society operates, changes that I believe most would reject. And as noted, the changes would often make the people it seeks to help worse off.

Let us leave aside consequences and suppose that we are pure deontologists committed to an abstract principle of equality. Even then, the argument fails. There are two problems. One is addressed by recent work by Daniel Hemel.³⁸ His analysis is complex and subtle, so I won't repeat it here, but he shows that equality norms cannot

³⁸ Hemel, *supra* note 31.

distinguish between CBA using equal VSLs and textbook CBA that uses VSLs that are differentiated by income.³⁹

The second problem is well-known, which is that, equality arguments are largely empty because they need a prior argument to justify the thing we are equalizing, and once we are making that prior argument, we no longer need the equality argument.⁴⁰ For example, perhaps we should replace harm egalitarianism with what we might call “respect egalitarianism.” Respect egalitarianism respects all individuals, regardless of income, race or other demographic characteristics equally by taking their views into account, including their risk versus return tradeoffs as measured empirically by their VSLs. It gives individuals equal voice on decisions that affect them.

Imposing a higher VSL on individuals than they actually have violates respect egalitarianism. It is a harm to their dignity because it implies, indeed explicitly states, that their well-informed views on matters about their own life are wrong. Respect egalitarianism could of course include caveats for when individuals lack information or have problems processing the information for one reason or another, although given the importance of respect and voice, these exceptions should be narrowly construed. Absent those or related reasons for disavowing individual views, however, respect egalitarianism requires policy makers to use the views, including valuations and risk tradeoffs, of the people they govern.

Respect egalitarianism is of course a conceit. I do not think we should ever make policy on these sorts of norms rather than by direct reference to the well-being of the individuals. If we are going to impose a deontological equality norm on policy, however, we have to show why that particular equality norm, as opposed to the almost infinite

³⁹ *Id.* at 711–712.

⁴⁰ See, e.g., Louis Kaplow, *Horizontal Equity: Measures in Search of a Principle*, 42 NATIONAL TAX JOURNAL 139 (1989); Peter Westen, *The empty idea of equality*, HARVARD LAW REVIEW 537 (1982).

There are other considerations. Hemel for example considers the expressive harms and the information costs of not using equal VSLs. Farber, however, seems to reject both of these considerations because he argues that we should use equal VSLs as a matter of first principles.

array of other possibilities, is desirable. And I believe that process would have to devolve into an analysis of the welfare effects.

To summarize, I cannot see the appeal of harm egalitarianism without some consideration of whether it actually makes the people it seeks to help better off and without some understanding when it applies and why. Farber undertakes neither inquiry. It is entirely possible that the principle will make those it seeks to help worse off, primarily because it overrides their preferences even if those preferences are well informed. I can see using equal VSLs for pragmatic reasons or simplicity reasons, but Farber has not convinced me that doing so is desirable as a matter of first principles.