Comments on Avenues to Promote Equity and Advance

Environmental Justice Through Rulemaking and Regulatory Analysis

July 6, 2021 (Docket No. OMB-2021-0005)

The Institute for Policy Integrity at New York University School of Law ("Policy Integrity")[1] respectfully submits these comments in response to the Office and Management and Budget's ("OMB") request for information on advancing equity and supporting underserved communities.[2] Policy Integrity is a non-partisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy. A particular area of expertise for Policy Integrity is the assessment of regulatory impacts through cost-benefit analysis, especially for environmental rulemakings.

In his Presidential Memorandum titled *Modernizing Regulatory Review*, President Biden called on OMB to identify measures to "promote . . . racial justice" in the regulatory review process.[3] The Memorandum emphasized the significance of cost-benefit analysis, calling on OMB to "propose procedures that take into account the distributional consequences of regulations, including as part of any quantitative or qualitative analysis of the costs and benefits of regulations, to ensure that regulatory initiatives appropriately benefit and do not inappropriately burden disadvantaged, vulnerable, or marginalized communities."[4] ***This comment letter outlines procedures and methodologies that OMB could apply to account for equity in the regulatory review process, with a focus on environmental injustice.***

Past presidential administrations have instructed agencies to incorporate distributional concerns—that is, how both benefits and costs are distributed among sub-populations of particular concern—into regulatory cost-benefit analysis. But agencies received practically no guidance on *how* to do this, even though they have long had detailed instructions for approaching other aspects of cost-benefit analysis. Absent standardized, cross-agency benchmarks for assessing the quality of agencies' distributional analyses, questions of equity have received little formal attention from the White House Office of Information and Regulatory Affairs ("OIRA"), the office within OMB that is responsible for reviewing all significant agency regulations prior to proposal and finalization. As a result, cost-benefit assessments for major rulemakings typically

[1] This document does not purport to represent the views, if any, of New York University School of Law.
[2] Request for Information on Methods and Leading Practices for Advancing Equity and Support for Underserved Communities Through Government, 86 Fed. Reg. 24,029 (May 5, 2021).
[3] Modernizing Regulatory Review § 2(a), 86 Fed. Reg. 7223 (Jan. 20, 2021).
[4] *Id.* § 2(b)(3).

focus on aggregate cost and benefit estimates, with little analysis—quantitative or otherwise—of how those costs and benefits are distributed.

To better ensure that its initiatives foster meaningful and long-lasting reform, OMB should specify detailed and sustainable methodologies and procedures that agencies could implement. This comment letter identifies four principles to guide future action on evaluating the distributional consequences of regulations.

First, OMB should recommend that agencies assess regulatory impacts on a more granular scale, depending on the nature of the impact. With regard to environmental impacts, for example, OMB should promote the use of detailed spatial modeling to assess how different zip codes and census blocks are affected by changes in pollution, accounting for baseline exposure levels along with existing vulnerabilities and risk factors. This more granular approach will both facilitate more accurate assessments of a rule's total mortality and morbidity impacts *and* provide an informational foundation for distributional analysis.

Second, OMB should provide comprehensive guidance to agencies on how to conduct distributional analysis—that is, how to disaggregate their total cost and benefit estimates to illuminate whether any economic or demographic group can be expected to disproportionately bear the regulatory burdens or receive the regulatory benefits. Such guidance should, among other things, standardize the groups upon which agencies' analyses should focus, as this will enable comparison and aggregation of distributional impacts across rulemakings and agencies.

Third, OMB should provide more prescriptive guidance to agencies on incorporating the findings of their distributional analyses into decisionmaking. Currently, agencies are provided minimal guidance on how to weigh distributional effects against other regulatory impacts. Accordingly, agencies exhibit little consistency in their consideration of distributional impacts and frequently default to affording them little or no decisional weight. While precise recommendations on how agencies should balance distributional impacts are beyond the scope of this comment letter, we survey the academic literature and identify approaches that OMB could consider.

But not all regulatory imbalances can or should be addressed on a rule-by-rule basis. The significance of some disparities may become clear only when viewed cumulatively across multiple rulemakings. And even where the distributional analysis of an individual rule reveals a significant disparity, changing the design of the rule may not always be possible or the most effective way to address that disparity; instead, compensating action elsewhere in the executive branch may be warranted. Thus, our fourth recommendation is for OMB to develop coordinated, interagency strategies for identifying marginalized groups that are disproportionately burdened across the regulatory system and compensating those communities using agencies' regulatory and spending authorities. Regular reports from OMB on disparate impacts could help facilitate this process.

Table of Contents

Background: The Limits of Existing Guidance and Precedent 4

A. Legal Framework on Equity Considerations in Agency Analysis 5

B. The Lack of Routine or Consistent Practice Across Agencies 7

Recommendation 1: OMB Should Instruct Agencies to Assess Regulatory Impacts at a Granular Scale, Taking into Account Community Demographics and Existing Risk Factors 9

A. Geographically Granular Analyses Are Key to Unveiling Environmental Injustices 9

B. Granular Analyses Should Incorporate Varying Levels of Vulnerability 10

C. Regulatory Costs Should Also Be Measured Granularly 11

Recommendation 2: OMB Should Instruct Agencies to Assess How the Costs and Benefits of Proposed Regulations Are Distributed Among Demographic Subgroups, and Provide Detailed Guidance on How to Conduct Such an Assessment 13

A. Disaggregated Totals Enable Agencies to More Rigorously Assess Disproportionate Impacts 13

B. OMB Can Facilitate Consistent Disaggregated Analysis by Providing Guidance on Methodology and Approach 14

Recommendation 3: In Addition to Providing Guidance on How to Conduct Distributional Analysis, OMB Should Direct Agencies on How to Incorporate the Results of Such Analysis into Their Regulatory Decisionmaking 17

A. OMB Could Recommend that Agencies Qualitatively Assess the Results of a Disaggregated Cost-Benefit Analysis 18

B. OMB Could Recommend that Agencies Use Quantitative Tools to Evaluate Distributional Outcomes 19

1. Inequality metrics 20

2. Weights based on social welfare functions 22

C. OMB Could Recommend that Agencies Calculate Net Welfare Using Weighted Cost-Benefit Analysis 25

Recommendation 4: OMB Should Lead a Whole-of-Government Approach to Implement Measures to Mitigate Adverse Distributional Impacts Through Interagency Coordination 27

A. OMB Should Coordinate Between the Lead Agency and Other Agencies to Address Inequitable Effects 28

B. OMB Should Provide Systemwide Oversight 29

Conclusion 31

Background: The Limits of Existing Guidance and Precedent

While executive orders and guidance documents have, for decades, advised agencies to consider equity and fairness when promulgating regulations and setting policy, agencies have not consistently incorporated distributional analysis into their regulatory impact assessments. This section explores that contrast at a high level, largely faulting the lack of detailed guidance focused on the assessment of distributional impacts or the consideration of those impacts when weighing regulatory alternatives.

This section first provides an overview of executive precedents on distributional analysis, and then discusses the sporadic implementation by agencies.

The Importance of Equity Considerations in Regulation

A common argument against considering distributional consequences in regulatory decisionmaking is that regulations should focus on efficiency (i.e., maximizing aggregate welfare), whereas distributional equity should be left to the tax-and-transfer system.[5] While a full assessment of this argument is outside the scope of this comment letter, the argument elicits several common rejoinders. Most notably, scholars highlight that while the tax-and-transfer system may theoretically be better suited for addressing distribution, as a practical matter, the tax-and-transfer system is not designed to compensate regulatory "losers," particularly for non-monetary harms such as health risks.[6] Richard Revesz explores the limitations of the tax-and-transfer system in his 2018 article, *Regulation and Distribution*, arguing that while "perhaps the most important benefit of environmental, health, and safety regulation is the prevention of premature mortality . . . the income tax system is poorly suited to deal with such distributional consequences that are not income-based."[7]

Additionally, because our society values distributional equity—and because distributional baselines and impacts can inform an assessment of aggregate welfare gains and losses—regulatory analyses that omit distributional impacts do not fully capture welfare effects and thus may not accurately measure efficiency.[8] And more broadly, in an early 2021 article, Yale Law School professor Zachary Liscow argued that redistribution through the United States tax code is only one-ninth as redistributive as it should be.[9] Liscow argued that this is in part because of preconceived notions surrounding personal income tax and the inability of individuals to readily see across policy silos.[10]

[5] Richard L. Revesz, *Regulation and Distribution*, 93 N.Y.U. L. Rev. 1489, 1500–11 (2018) (presenting, but then criticizing, this "orthodox view").
[6] *Id.* at 1512–18; H. Spencer Banzhaf, *Regulatory Impact Analyses of Environmental Justice Effects*, 27 J. LAND USE 1, 14 (2011) ("[A]ctual compensations for the distributional effects of government projects and regulations are exceedingly rare, if not an outright fiction.").
[7] Revesz, *supra* note 5, at 1511–12.
[8] *See* Banzhaf, *supra* note 6, at 14 (stating that because "redistribution is a national objective . . . any regulatory action that promotes this objective, ceteris paribus, is obviously preferable to one that does not").
[9] Zachary Liscow, *Redistribution for Realists* 6 (2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3792122 (estimating "that the tax code is only about *one ninth* as redistributive as reasonable baselines suggest that it should be to do all the redistribution needed to maximize welfare").
[10] *Id.* at 5.

A. Legal Framework on Equity Considerations in Agency Analysis

Distributional concerns have traditionally played a backseat role in cost-benefit analysis. While relevant executive orders expressly instruct agencies to consider distributional equity, OMB guidance on cost-benefit analysis offers few insights on the form of such an analysis. Additionally, a separate executive order from President Clinton calls on agencies to assess environmental justice impacts, but agencies have rarely integrated that assessment into cost-benefit analysis.

Executive Order 12,866, issued by President Clinton in 1994, requires agencies to conduct cost-benefit analysis for major rulemakings.[11] While a prior executive order issued by President Reagan did call for some assessment of distributional impacts in regulatory analysis,[12] President Clinton's Executive Order more explicitly recognized that equity considerations are relevant in regulatory decisionmaking. Specifically, President Clinton's Executive Order explained that agencies should select regulatory "approaches that maximize net benefits" and explicitly recognized that "distributive impacts[] and equity" are relevant to assessing net benefits.[13] This executive order thus unambiguously recognized that agencies should incorporate equity considerations into their cost-benefit analyses and regulatory decisions.

Nonetheless, the Clinton administration offered agencies limited guidance on assessing distributional outcomes. In 1996, OMB convened an interagency working group on cost-benefit analysis that resulted in the publication of a best practices guidance document.[14] This document contained just a brief and mostly non-prescriptive section on distributional effects and equity.[15] For instance, the guidance advised agencies to assess important distributional effects "quantitatively to the extent possible, including their magnitude, likelihood, and incidence of effects on particular groups," but offered no further advice to agencies on how to conduct that assessment.[16] When it comes to incorporating distributional considerations into their decisionmaking, the guidance simply advised regulators that "[t]here are no generally accepted principles for determining when one distribution of net benefits is more equitable than another" and thus warned them to "be careful to describe distributional effects without judging their fairness."[17]

Under the George W. Bush administration in 2003, OMB supplemented the Clinton-era guidance through the publication of *Circular A-4*, which remains OMB's principal guidance on cost-benefit analysis. *Circular A-4* clearly recognizes that "removing distributional unfairness"

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[11] Exec. Order No. 12,866, 58 Fed. Reg. 51,735 (Oct. 4, 1993).
[12] Exec. Order No. 12,291 § 3(d)(1)–(2), 46 Fed. Reg. 13,193 (Feb. 17, 1981) (calling on agencies to identif[y] . . . those likely to receive the benefits" and "those likely to bear the costs" of each regulation"). However, this Order does not advise regulators on how to incorporate such a distributional analysis into its assessment of net benefits. Instead, the Order advises agencies that "[r]egulatory objectives shall be chosen to maximize the net benefits to society," suggesting that distributional and justice considerations merit scant consideration. *Id.* § 2(c).
[13] *Id.* § 1(a).
[14] OMB, Economic Analysis of Federal Regulations Under Executive Order 12,866 (Jan. 11, 1996), *available at* https://georgewbush-whitehouse.archives.gov/omb/inforeg/riaguide.html.
[15] *Id.* § III(A)(8).
[16] *Id.*
[17] *Id.*

can be a basis for regulation.[18] Yet again, however, this document offers limited technical guidance on assessing distributional effects. While *Circular A-4* advises agencies to "provide a separate description of distributional effects (i.e., how both benefits and costs are distributed among sub-populations of particular concern) so that decision makers can properly consider them along with the effects on economic efficiency," it does not explain how to conduct such an analysis or what demographic sub-populations to consider.[19] And, while *Circular A-4* echoes the Clinton-era guidance by advising agencies to describe distributional effects "quantitatively to the extent possible," it too lacks further direction on this front.[20]

In 2011, President Obama published Executive Order 13,563, which once again reaffirmed the centrality of cost-benefit analysis in regulatory decisionmaking.[21] While reaffirming the continued applicability of Executive Order 12,866,[22] President Obama's Order added new language regarding distribution and equity. Specifically, this Order directed that "[w]here appropriate and permitted by law, each agency may consider (and discuss qualitatively) values that are difficult or impossible to quantify, including equity, human dignity, fairness, and distributive impacts."[23] But the Order did not elaborate on how agencies should consider these impacts, nor did the Obama administration publish additional guidance on cost-benefit analysis building upon *Circular A-4* in this regard.

In addition to these executive orders and guidance documents on cost-benefit analysis, there is a parallel and largely distinct line of authority on environmental justice considerations in agency decisionmaking. Executive Order 12,898, issued by President Clinton in 1994, requires agencies to identify and seek to address adverse environmental and human-health impacts of all federal administrative programs (including regulations) on minority and low-income populations.[24] Guidance documents—issued by the White House Council on Environmental Quality under the Clinton administration[25] and the Interagency Working Group on Environmental Justice under the Obama administration[26]—provide detailed instruction on identifying and assessing a broad range of potential disparate impacts in environmental justice analyses conducted under Executive Order 12,898. But these documents offer sparse direction on how environmental justice analysis for rulemakings should interact, if at all, with regulatory cost-benefit analysis.

[18] OMB, Circular A-4, Regulatory Impact Analysis 3 (2003) [hereinafter "Circular A-4"].
[19] *Id.* at 14.
[20] *Id.*
[21] Exec. Order No. 13,563, 76 Fed. Reg. 3821 (Jan. 18, 2011).
[22] *Id.* § 1(b).
[23] *Id.* § 1(c).
[24] Exec. Order No. 12,898 § 1-101, 59 Fed. Reg. 7629 (Feb. 11, 1994) ("To the greatest extent practicable and permitted by law, … each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations[.]"); *accord id.* § 3-302(a).
[25] Council on Env't Quality, *Environmental Justice: Guidance Under the National Environmental Policy Act* (Dec. 10, 1997), https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf.
[26] Federal Interagency Working Group on Environmental Justice, *Promising Practices for EJ Methodologies in NEPA Reviews* (2016), https://www.epa.gov/sites/production/files/2016-08/documents/nepa_promising_practices_document_2016.pdf.

The Environmental Protection Agency ("EPA") has released its own guidance documents on considering equity and environmental justice in cost-benefit analysis. The agency's *Guidelines for Preparing Economic Analysis* contains a chapter focused on assessing distributional considerations and incorporating them into a cost-benefit analysis.[27] In 2016, EPA issued a document building off of this chapter that provides the most detailed guidance to date on "methods for analysts to use when assessing potential environmental-justice concerns in national rules."[28] This EPA guidance recommends that analysts "estimate[] health and environmental risks, exposures, outcomes, benefits and other relevant effects disaggregated by income and race/ethnicity" whenever possible.[29] Among other issues, the document addresses key analytical considerations and provides technical guidance on assessing the distribution of both regulatory costs and benefits.[30] Published in the final months of President Obama's second term, however, this guidance was largely ignored during the Trump administration, and its recommendations have not been extended to other agencies.

B. The Lack of Routine or Consistent Practice Across Agencies

With the limited guidance or oversight, agencies have mostly failed to develop a consistent set of best practices for assessing distributional outcomes of regulation. Studies show that agencies rarely provide quantitative analysis of distributional considerations, and hardly ever cite fairness and environmental justice as a basis for rulemaking.

Harvard University professors Lisa Robinson, James Hammitt, and Richard Zeckhauser conducted what is perhaps the most comprehensive evaluation to date of the role of distribution in regulatory impact analysis, analyzing dozens of major regulations promulgated during President Obama's first term.[31] In their study, Robinson et al. found few consistent practices across agencies and across analyses, a lack of quantification of distributional impacts, and a general inattention to equity. For instance, the authors noted that agencies "rarely quantify the distribution of health-risk reductions across [demographic] groupings" and "[i]n most cases . . . simply certify that the regulation . . . does not adversely affect the health of minorities, low-income groups, or children" without detailed analysis.[32] The authors found even less attention to the distribution of compliance costs, with agencies regularly failing to estimate how profits, price changes, or payroll and employment impacts fall on different demographic groups.[33] In sum, the authors concluded, "[n]et tallies of costs and benefits for different groups are simply not

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[27] EPA, Guidelines for Preparing Economic Analyses 10-1 to 10-23 (last updated 2014) [hereinafter "EPA Guidelines"].

[28] EPA, Technical Guidance for Assessing Environmental Justice in Regulatory Analysis (2016), https://www.epa.gov/sites/production/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf [hereinafter "EPA Technical Guidance"].

[29] *Id.* at 13.

[30] *See, e.g.*, *id.* at 11–14 (describing key analytical considerations); *id.* at 41–59 (offering guidance on assessing distribution of benefits and costs in regulatory impact analysis).

[31] Lisa A. Robinson, James K. Hammitt & Richard Zeckhauser, *The Role of Distribution in Regulatory Analysis and Decision Making* (Mossavar-Rahmani Ctr. for Bus. and Gov't, Harvard Kennedy Sch., Working Paper No. RPP-2014-03, 2014), https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/files/Zeckhauser_final.pdf.

[32] *Id.* at 9.

[33] *Id.* at 10–12.

available" and thus "it is not possible to estimate the distribution of net benefits" using existing agency analyses.[34]

Analyses of Executive Order 12,898's impact similarly find that the Order has neither resulted in robust analyses nor substantially affected policy outcomes. For instance, one study found that agencies typically either ignore Executive Order 12,9898 or satisfy its demands through "boilerplate rhetoric" that is "devoid of detailed thought."[35] Another analysis concluded that interest in environmental justice has waxed and waned across presidential administrations and that agencies have sometimes passed off environmental-protection measures that they would have taken anyway as "environmental justice."[36] Given the lack of guidance on how to integrate the findings of an environmental-justice analysis with those of a broader cost-benefit analysis, moreover, agency findings under Executive Order 12,898 are typically not integrated into agencies' broader assessments of rules' economic impacts.[37]

There are a handful of cases in which agencies have explicitly relied upon distributional equity as a basis for rulemaking. For instance, in 2014 the National Highway Traffic Safety Administration ("NHTSA") relied on equity and justice concerns in promulgating a regulation mandating backup cameras on all new vehicles.[38] Despite acknowledging that the rule's costs exceed its monetized benefits,[39] the agency nonetheless concluded that justice considerations (along with nonmonetized benefits) nonetheless justified the regulation, highlighting the rule's beneficial outcomes for children, people with disabilities, and the elderly who collectively are disproportionately the victims of back-over crashes.[40] But NHTSA's analysis, though laudable in many respects, was incomplete in others. In particular, the agency ignored the distribution of regulatory costs, and offered a somewhat opaque explanation of how it balanced quantified costs and benefits with equity effects.

Even since NHTSA's rulemaking in 2014, there are numerous examples of agencies disregarding key distributional impacts. Under the Trump administration, in particular, agencies routinely ignored (or minimally considered) regressive regulatory impacts with limited discussion or quantitative analysis. In one egregious example, the Department of Agriculture finalized a regulation tightening eligibility for the Supplemental Nutrition Assistance Program that, by the agency's estimates, would cause 688,000 individuals to lose their food-assistance benefits.[41] Although the rule would substantially and almost exclusively burden low-income

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[34] *Id.* at 12.
[35] Elizabeth Ann Glass Geltman et al., *Beyond Baby Steps An Empirical Study of the Impact of Environmental Justice Executive Order 12898*, 39 FAMILY AND CMTY. HEALTH 143, 143 (2016); *see also* Revesz, *supra* note 5, at 1540 ("[O]f the nearly 4,000 rules the EPA promulgated during the Obama administration, the agency referred to only seven as ones taking environmental justice concerns into account.").
[36] Eileen Gauna et al., *A Survey of Federal Agency Responses to President Clinton's Executive Order Number 12898 on Environmental Justice*, 31 ENV'T L. REP'R 11,133 (2001).
[37] *See* Banzhaf, *supra* note 6 at 5–6 ("[W]hen it has incorporated even these limited environmental justice objectives into its [cost-benefit analyses], EPA has tended to stop at perfunctory, pro forma assertions that it is not creating or exacerbating an environmental injustice.").
[38] Federal Motor Vehicle Safety Standards; Rear Visibility, 79 Fed. Reg. 19,178 (Apr. 7, 2014).
[39] *Id.* at 19,184.
[40] *Id.* at 19,236.
[41] USDA, Regulatory Impact Analysis: Supplemental Nutrition Assistance Program: Requirements for Able-Bodied Adults Without Dependents 2 (2019), *available at* https://www.regulations.gov/document?D=FNS-2018-0004-19016. This analysis was conducted in support of Supplemental Nutrition Assistance Program: Requirements for Able-Bodied Adults Without Dependents, 84 Fed. Reg. 66,782 (Dec. 5, 2019).

individuals, the Department of Agriculture provided just a short section on distributional impacts that briefly estimated the racial breakdown of disenrollees without acknowledging the rule's regressive economic effect.[42] Moreover, these important distributional concerns did not appear to factor into the agency's determination.[43]

In short, agency cost-benefit analyses rarely integrate distributional impacts in a meaningful fashion, and agencies have not developed consistent practices for considering equity as part of regulatory decisionmaking.

Recommendation 1: OMB Should Instruct Agencies to Assess Regulatory Impacts at a Granular Scale, Taking into Account Community Demographics and Existing Risk Factors

A critical first step to identify and address distributional regulatory concerns is to identify who is being affected by a regulation, and to what degree. Measuring impacts at aggregate scales can hinder this objective, as group averages often mask disparate effects across communities and fail to accurately capture total regulatory impacts. Thus, in order to improve quantification of total regulatory impacts and enable better identification and analysis of disproportionate effects, regulators should measure effects as granularly as possible, considering different levels of exposure and risk factors of affected communities. These granular measurements could lay the foundation for regulatory analyses that better account for distributional impacts, as discussed in the next sections of this comment letter.

This section explains how granular measurements could unmask disparities in the intensity of regulatory impacts, account for different risk factors of affected communities, and generate more accurate analyses of both regulatory benefits and costs. The examples in this section are drawn from air-quality regulations, where impacts are heavily determined by geographical space, and hence geographically granular measurements are required to best assess regulatory effects. However, the advantages of granular analyses in the measurement of distributional outcomes extend beyond air or even environmental regulation. Indeed, they apply to any policy whose disproportionate effects on vulnerable individuals or communities are masked by population averages.

A. Geographically Granular Analyses Are Key to Unveiling Environmental Injustices

Recent research in public health and economics that applies novel modelling techniques and disaggregated demographic data highlights how a granular analysis of impacts might better reveal environmental injustices, in ways that coarser analysis cannot. For instance, Goodkind et al.[44] measure $PM_{2.5}$-related health damages at a fine geographical scale (down to one kilometer). They find that a large share of damages[45] is borne by populations living very close to emission sources: a third of total damages happen within five miles of the source of pollution. As a result,

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42 *Id.* at 49–51.
43 The U.S. District Court for the District of Columbia found this regulation to be arbitrary and capricious, citing, among other reasons, the agency's failure to meaningfully evaluate distributional impacts. *D.C. v. United States Dep't of Agric.*, 496 F. Supp. 3d 213, 256–57 (D.D.C. 2020). This case represents a rare judicial rebuke of an agency's distributional analysis.
44 Andrew L. Goodkind et al., *Fine-Scale Damage Estimates of Particulate Matter Air Pollution Reveal Opportunities for Location-Specific Mitigation of Emissions*, 116 PROCS. NAT'L ACAD. SCIS. 8775 (2019), https://doi.org/10.1073/pnas.1816102116.
45 Where damages are defined as the monetary valuation of premature mortality attributable to exposure to fine particulate matter.

health damages associated with one more unit of emissions can vary by an order of magnitude within a single county. Likewise, Currie et al.[46] find that toxic emissions from industrial plants cause low infant birthweight only in narrow areas surrounding a plant. In those cases, a county aggregate—let alone a state or national estimate—would obscure the disproportionate effects of those populations more directly affected by pollution. And, depending on the number and demographics of the individuals living within the proximate range of the relevant plants, larger aggregates could significantly under- or over-estimate the total regulatory effect.

More granular analysis could also be used to better assess the scope and distribution of more distant pollution harms. This is particularly important in the case of diffuse pollutants, such as fine particulate matter or arsenic contamination of drinking water, whose adverse effects can propagate through narrow paths across large spatial areas.[47] Hence, Goodkind et al., in their fine-scale analysis of $PM_{2.5}$ pollution damages, find that a sizable share of pollution harm is borne by populations living more than 150 miles from a pollution source.[48] Recent research also shows that 99% of coal plant emissions leave the counties from which they are emitted after only six hours.[49] These findings reveal that limiting the exploration of environmental injustices to nearby, "frontline" communities—even in cases of pollutants that are often considered "local," such as primary particulate matter—might be overly simplistic in certain cases. In actuality, pollution can affect distant narrow areas (as determined by wind patterns and atmospheric conditions, or water bodies). Granular analysis of pollution impacts, unlike aggregate county- or state-level analyses, allows for identification of geographic communities near and far from pollution sources that stand to suffer disproportionate harms.

B. Granular Analyses Should Incorporate Varying Levels of Vulnerability

Besides identifying different levels of exposure, granular measurements would also enable better integration of the risk factors associated with affected communities, allowing analysts to better translate pollution levels into public-health impacts. Populations with different socioeconomic characteristics can differ in their vulnerability to changes induced by regulation, as an additional unit of pollution more severely affects a vulnerable population than a non-vulnerable one.[50] As a result, granular analysis is critical not only to identifying the affected communities, but ultimately to accurately estimating the public-health impacts of the regulation that are influenced by the profile of the communities affected. Due to differing levels of vulnerability, a regulation could result in disproportionate effects even if all communities are equally exposed to the same levels of pollution (although such uniform exposure rarely occurs).[51]

Granular-level analysis that considers socioeconomic risk factors could reveal regulatory impacts that a county- or region-wide analysis would likely miss. To provide just one example, a

[46] Janet Currie et al., *Environmental Health Risks and Housing Values: Evidence from 1,600 Toxic Plant Openings and Closings*, 105 AM. ECON. REV. 678 (2015), https://doi.org/10.1257/aer.20121656.
[47] Banzhaf, *supra* note 6; Ellen S. Post, Anna Belova & Jin Huang, *Distributional Benefit Analysis of a National Air Quality Rule*, 8 INTERNAT'L J. ENV'T RES. & PUB. HEALTH 1872 (2011), https://doi.org/10.3390/ijerph8061872.
[48] Goodkind et al., *supra* note 44
[49] John M. Morehouse & Edward Rubin, *Downwind and Out: The Strategic Dispersion of Power Plants and Their Pollution* 47, Ctr. for Growth & Opportunity at Utah State U. Working Paper (2021).
[50] Qian Di et al., *Air Pollution and Mortality in the Medicare Population*, 26 NEW ENGLAND J. MED. 2513 (2017), https://doi.org/10.1056/NEJMoa1702747.
[51] Solomon Hsiang, Paulina Oliva & Reed Walker, *The Distribution of Environmental Damages*, 13 REV. ENV'T ECON. & POL'Y 83 (2019), https://doi.org/10.1093/reep/rey024; Banzhaf, *supra* note 6.

study by Deryugina et al., finds that more vulnerable elderly populations (e.g., those more frequently suffering chronic health conditions) are more susceptible to pollution increases than other elderly communities, yet they tend to live in areas with *lower* average pollution levels.[52] Hence, reducing pollution in highly polluted areas may not always maximize public-health gains, as community demographic risk factors are equally important to the assessment. Because vulnerable populations tend to be concentrated in particular, sub-county geographic areas, regulatory impacts estimated at the county level would fail to capture the disparate vulnerability levels of different communities and thus would not fully capture public-health impacts.

Considering local-level demographic risk factors would improve our understanding of both the aggregate and distributional impacts of many regulations. For instance, the average dose-response function between particulate matter concentration and mortality identified in a 2009 study of the American Cancer Society is widely used in the quantification of costs related to pollution exposure,[53] including by EPA's Co-Benefits Risk Assessment Health Impacts Screening and Mapping Tool.[54] However, that same study also shows that mortality risk from pollution exposure is negatively correlated with educational attainment: for instance, lung-cancer mortality risk associated with a change of 10 $\mu g/m^3$ $PM_{2.5}$ concentration is approximately 20% higher for those without post-secondary education. The use of disaggregated risk estimates would thus enable a more accurate estimate of pollution mortality and morbidity.[55] By doing so, it could reveal both efficiency and distributional impacts that might be overlooked when using average population risks.

C. Regulatory Costs Should Also Be Measured Granularly

To more fully assess distributional impacts, regulatory analyses should seek to granularly estimate all regulatory costs and benefits.[56] Even environmental regulations that bring health-related benefits to some vulnerable communities could pose disproportionate costs on these same communities, if, for instance, they are dependent on the pollution sources for jobs or would face higher prices for common consumer goods. These costs might offset health-related benefits in some cases.[57] Hence, regulatory analysis should seek to assess both benefits and costs on a granular scale.

Assessing who bears regulatory costs due to changing energy prices or wages at a granular scale could be more challenging than granularly evaluating health-related impacts. As described above, health impacts could be estimated using readily available air-transport models[58]

[52] Tatyana Deryugina et al., *Geographic and Socioeconomic Heterogeneity in the Benefits of Reducing Air Pollution in the United States*, Nat'l Bur. of Econ. Res. Working Paper Series (2020), https://doi.org/10.3386/w27357.
[53] Daniel Krewski et al., *Extended Follow-up and Spatial Analysis of the American Cancer Society Study Linking Particulate Air Pollution and Mortality*, Health Effects Inst. Research Report (2009).
[54] CO-Benefits Risk Assessment (COBRA) Health Impacts Screening and Mapping Tool, Data and Tools, EPA, https://www.epa.gov/statelocalenergy/co-benefits-risk-assessment-cobra-health-impacts-screening-and-mapping-tool (last updated June 26, 2017).
[55] Neal Fann et al., *Maximizing Health Benefits and Minimizing Inequality: Incorporating Local-Scale Data in the Design and Evaluation of Air Quality Policies*, 31 RISK ANALYSIS 908 (2011), https://doi.org/10.1111/j.1539-6924.2011.01629.x.
[56] Banzhaf, *supra* note 6.
[57] Jonathan I. Levy, *Accounting for Health Risk Inequality in Regulatory Impact Analysis: Barriers and Opportunities*, 41 RISK ANALYSIS 610 (2021), https://doi.org/10.1111/risa.13714; EPA, Final Guidance For Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses (1998).
[58] Goodkind et al., *supra* note 44.

and census demographic data. However, the distribution of regulatory costs would usually depend on responses by firms and customers that are more complex to model (e.g., Would a firm pass costs incurred from a pollution-reducing policy to customers? Or would it rather decrease wages? How would customers/employees react to those changes?)

Recent research has made advances in modeling these interactions. For instance, Burtraw et al. analyze how energy expenditures and income sources might change for populations with different income levels as a result of setting a federal carbon tax, showing that the details of implementation determine whether the policy is progressive or regressive.[59] When similar analytical models are not readily available, Robinson et al. suggest performing a "bounding analysis" that assumes that costs are passed on "as changes in prices, wages, and/or returns to capital in both the short and long runs."[60] Comparing these different scenarios using disaggregated data on product purchases, wages by occupation, etc. would shed light on the potential distributional consequences of a policy, and consequently, allow a granular estimation of net benefits even when analysts are more data- or resource-constrained.

Case Study: Geographically granular analyses and environmental justice at EPA

EPA has long recognized the need to evaluate impacts at granular and disaggregated levels in order to address environmental justice, even if this recognition has not always been translated into policymaking. As early as 1995, and in response to Executive Order 12,898, EPA announced its goal that "no segment of the population, regardless of race, color, national origin, or income, as a result of EPA's policies, programs, and activities, suffers disproportionately from adverse human health or environmental effects."[61] However, in the decades following this statement, EPA's regulatory analyses were not typically carried out with a level of granularity to identify disproportionate impacts on different segments of the population. Indeed, most EPA analyses have incorporated environmental justice concerns only with "perfunctory, pro forma assertions," mostly stating that "a plan of environmental justice compliance was not needed because there would be no adverse impact."[62]

More recently, EPA has highlighted the importance of granular regulatory analysis in its detailed technical guidance issued during the last months of the Obama administration.[63] This guidance has the stated objective of assisting EPA's analysts in ensuring that "potential [environmental justice] concerns are appropriately considered and addressed in the development of regulatory actions."[64] Though it stresses that any analysis will be limited by the data available,

[59] Dallas Burtraw, Maya Domeshek & Amelia Keyes, *Carbon Pricing 104: Economic Effects across Income Groups*, RESOURCES FOR THE FUTURE (May 4, 2020), https://www.rff.org/publications/explainers/carbon-pricing-104-economic-effects-across-income-groups/.
[60] Lisa A. Robinson, James K. Hammitt & Richard J. Zeckhauser, *Attention to Distribution in U.S. Regulatory Analyses*, 10 REV. ENV'T ECON. & POL'Y 308 (2016), https://doi.org/10.1093/reep/rew011.
[61] EPA, EPA Environmental Justice Strategy 3 (Apr. 3, 1995), https://www.epa.gov/environmentaljustice/epa-environmental-justice-strategy-1995.
[62] Elizabeth Glass Geltman, Gunwant Gill & Miriam Jovanovic, *Beyond Baby Steps: An Empirical Study of the Impact of Environmental Justice Executive Order 12898*, 39 FAMILY & CMTY. HEALTH 144 (2016), https://doi.org/10.1097/FCH.0000000000000113.
[63] EPA Technical Guidance, *supra* note 28.
[64] *Id.* at 1.

the guidance highlights that a best practice is to "disaggregate data to reveal important spatial differences (e.g., demographic information for each facility/place) when feasible and appropriate."[65] In the case of air regulations, the guidance emphasizes that "finer-scale air quality, health, and socioeconomic data allow one to assess the distribution of air pollution impacts across key population groups of concern and to have greater confidence in the conclusions drawn from these data."[66] As noted in this section, such a granular analysis of pollution impacts should be feasible in most contexts using readily-available air transport models and census demographic data.

Recommendation 2: OMB Should Instruct Agencies to Assess How the Costs and Benefits of Proposed Regulations Are Distributed Among Demographic Subgroups, and Provide Detailed Guidance on How to Conduct Such an Assessment

Equipped with granular measurements of regulatory costs and benefits that consider different impact intensities and risk factors across communities, a regulator could tally how those costs and benefits are distributed among discrete demographic groups. OMB should recommend that agencies provide such demographically disaggregated totals—in addition to aggregate calculations of costs and benefits—whenever possible. OMB should also publish guidance on conducting such an assessment, including which sub-populations to consider.

A. Disaggregated Totals Enable Agencies to More Rigorously Assess Disproportionate Impacts

As detailed in the Background section, executive orders and guidance on cost-benefit analysis have long called for agencies to quantify the distributional impacts of regulations, but these documents offer little direction on the form or contents of such an analysis.[67] To promote better and more consistent distributional analysis, OMB should provide more prescriptive and detailed guidance on this front. In particular, OMB should instruct agencies to provide disaggregated cost and benefit estimates, in addition to the population-wide estimates that agencies normally provide, that evaluate how both positive and adverse regulatory impacts are distributed across specified sub-populations.

Such analysis would enable regulators to assess not only how costs and benefits are dispersed among different sub-populations, but also whether the rule is net-beneficial or net-costly for those groups. This would help regulators understand the magnitude of distributional consequences and potentially dispel false assumptions about their magnitude.[68] And by consistently disaggregating cost-benefit totals along the same demographic lines, agencies (and OMB) could also assess whether sub-populations of particular concern are benefitted across the regulatory system, and consider whether disparate impacts of particular rules are offset or compounded by the effects of other rules.

Like good cost-benefit analysis itself, moreover, disaggregated estimates could also improve agency decisionmaking by "better inform[ing]" the public and decisionmakers on the

[65] *Id.* at 14.
[66] *Id.* at 47.
[67] *See supra* notes 11–43 and accompanying text.
[68] *See* Robinson et al., *supra* note 31, at 21.

regulation's distributional impacts and thereby "reduc[ing] interest group power over" the rulemaking process.[69] According to former OIRA administrator John Graham, advocates for low-income groups are underrepresented among lobbyists,[70] and so adding a "distributional test" to cost-benefit analysis would help ensure that "regulators . . . seriously consider the impact" of regulations on marginalized groups.[71]

B. OMB Can Facilitate Consistent Disaggregated Analysis by Providing Guidance on Methodology and Approach

Despite not being widely implemented in regulatory analysis, the notion of disaggregating regulatory impacts along demographic lines is well-established in the academic literature.[72] But disaggregation can be very challenging. Without further guidance and standardization, agencies may continue struggling to assess distributional considerations in a rigorous and consistent fashion.

OMB should thus prepare guidance on methodologies for assessing distributional impacts. Such guidance should recommend methodologies for disaggregating and monetizing benefits, methodologies for disaggregating and monetizing costs, and provide guidelines on the demographic sub-populations that agency analyses should consider. This section discusses those different elements, in that order.

For disaggregating benefits, EPA's 2016 technical guidance on incorporating environmental justice into cost-benefit analysis offers a useful starting point. In particular, that document provides detailed advice for analysts on disaggregating health impacts along geographic, and ultimately demographic, lines using mapping and data on exposure and baseline vulnerability.[73] As detailed in Recommendation 1, *supra*, regular usage of these state-of-the-art tools would enable agencies to better estimate both the scale and distribution of environmental benefits. Although OMB should broaden its guidance beyond environmental regulations, the core approach in EPA's guidance—incorporating scientific and demographic data to measure benefits at a granular scale—can be generalized and supplemented to facilitate disaggregated estimates of all benefits, both environmental and non-environmental.

As an example of using granular data to calculate benefits and costs on demographic sub-populations, Ronald J. Shadbegian, Wayne Gray, and Cynthia Morgan performed such an analysis in a paper looking at the impacts of EPA's sulfur dioxide trading program on various demographic sub-populations.[74] In their analysis, the authors began by looking at the distribution of sulfur-dioxide emission reductions by geographic area. They then looked at the demographic makeup of each geographic area to transpose geographic impacts into demographic effects.

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[69] Cass R. Sunstein, *The Cost-Benefit State* 22–23 (Coase-Sandor Institute for Law & Economics Working Paper No. 39, 1996).
[70] John Graham, *Savings Lives Through Administrative Law and Economics*, 157 U. PENN. LAW. REV. 395, 520 (2008).
[71] *See id.*
[72] As discussed above, a 2016 EPA guidance document recommends that analysts quantify the distribution of costs and benefits as part of their regulatory analysis. Many legal and economic scholars also support the practice. *See supra* notes 28–30 and accompanying text. Many legal and economic scholars also support the practice. *See, e.g.*, Banzhaf, *supra* note 6, at 9 n.35 (collecting sources).
[73] *See* EPA Technical Guidance, *supra* note 28, at 41–57.
[74] Ronald J. Shadbegian, Wayne Gray & Cynthia Morgan, *Benefits and Costs from Sulfur Dioxide Trading: A Distributional Analysis*, Nat'l Ctr. for Env't Econ. Working Paper 05-09 (2005).

Specifically, the analysts assessed the rule's benefits and costs on five different demographic sub-populations based on race (Black and Hispanic), income (those below the poverty level), and age (children under 6 and the adults over 65).[75] While this analysis is from 2005 and does not make full use of high-resolution granularity now available, a more granular analysis would enable even more reliable translation of localized impacts into demographic assessments.

As part of its guidance on disaggregating benefit estimates, OMB should provide particular guidance on how agencies should monetize health and welfare impacts that have been disaggregated along demographic lines. While some scholars have suggested using different willingness-to-pay values particular to each sub-population,[76] one's willingness to pay is bounded by wealth and income, and therefore does not fully reflect the value that one ascribes to a particular benefit. Especially if regulators assess benefits disaggregated by income groups, the use of particularized in-group willingness-to-pay values will thus undervalue benefits received by low-income groups and produce a skewed picture of regulatory impacts. Thus, the most defensible approach is to use the same monetized values for health and welfare benefits across all demographic groups.

In addition to its normative advantages, using a constant value is also consistent with existing regulatory precedent, which could bolster its legal justification. For instance, EPA applies a constant value of a statistical life for all individuals, despite some empirical evidence suggesting that younger and healthier individuals may place a higher value on the avoidance of small mortality risks[77] (and evidence that willingness to pay is higher among wealthier individuals[78]). And in the United Kingdom, cost-benefit analyses from the Department of Health applies demographic disaggregation while also using constant monetary valuations of health benefits across demographic groups.[79] OMB should provide clear guidance on the use of constant monetized values across demographic sub-populations to ensure consistent practices between agencies.

OMB should also provide guidance on disaggregating regulatory costs along demographic lines, as "the distribution of health or environment effects alone," without disaggregated cost estimates, "might convey an incomplete—and potentially biased—picture of the overall burden faced by population groups of concern."[80] As detailed in Recommendation 1, frequently "data or methods may not exist for [a] full examination of the distributional

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[75] *Id.* at 15–18.
[76] *See, e.g.*, Daniel Hemel, *Regulation and Redistribution with Lives in the Balance*, __ U. Chi. L. Rev. ___, at 2 (forthcoming, manuscript available at March 2, 2021), https://papers.ssrn.com/abstract=3796235) ("Incorporating distributive objectives into cost-benefit analysis of lifesaving regulations while maintaining equal dollar [values of a statistical life] for rich and poor will potentially produce perverse outcomes that—according to standard economic thinking—actually redistribute from poor to rich.").
[77] EPA Guidelines, *supra* note 27, at B-4 to B-6. *But cf.* RICHARD L. REVESZ & MICHAEL A. LIVERMORE, RETAKING RATIONALITY: HOW COST-BENEFIT ANALYSIS CAN BETTER PROTECT THE ENVIRONMENT AND OUR HEALTH 80–81 (2008) (discussing evidence that older individuals place a higher value on each remaining life-year).
[78] EPA Guidelines, *supra* note 27, at B-4 ("[T]he income elasticity of [willingness to pay] to reduce mortality risk is positive[.]").
[79] United Kingdom Department of Health, Quantifying Health Impacts of Government Policies: A How-To Guide to Quantifying the Health Impacts of Government Policies 12 (2010) (advising that "the health gains to any two individuals should be valued the same regardless of their income"); *see also id.* at 10–12 (endorsing disaggregating assessment of regulatory impacts).
[80] EPA Technical Guidance, *supra* note 28, at 57.

implications of costs across population groups of concern."[81] Nonetheless, as noted therein, the distribution of costs could be assessed based on data such as the pass-through of compliance costs to consumers and the demographic makeup of the relevant consumer base and labor force.[82] Such cost data, to the extent available, could be disaggregated to estimate the breakdown of regulatory costs along different population subgroups. OMB could facilitate such analysis across the regulatory state by expanding on EPA's guidance to encompass cost considerations outside the environmental sphere.

OMB should also consider providing guidance to agencies on what demographic sub-populations their analyses should focus on. Executive Order 12,898 targets the dimensions of income and race, with its focus on "minority populations and low-income populations."[83] Other demographic characteristics such as age or health status may also be relevant, as illustrated by NHTSA's 2014 regulation involving backup cameras.[84] While all of these dimensions are important and merit consideration, disaggregating costs and benefits along demographic lines is challenging and time-consuming, and there is a risk that agencies may delay important regulations—or simply eschew recommended procedures for distributional analysis—if asked to perform quantitative analysis along numerous dimensions.

In providing guidance on the groups on which agency analyses should focus, OMB may wish to consider such factors as the prominence of different demographic indicators in concerns about distribution and equity, the availability of data, and the compatibility of different metrics with quantitative decisionmaking tools. Distributional breakdowns by income group fare especially well on the last criteria, as there is voluminous research translating income gains or losses into utility effects.[85] While disaggregated data based on race could also be highly informative regarding a regulation's racial or environmental justice impacts, agencies should exercise caution about factoring that data into regulatory decisionmaking since it could also implicate thorny constitutional issues.[86]

Whatever OMB recommends, it may wish to preserve flexibility for agencies to additionally consider a wide range of potential distributional considerations, either quantitatively

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[81] *Id.* at 58.
[82] *Id.* at 57–59; EPA Guidelines, *supra* note 27, at 10-8 to 10-9.
[83] Exec. Order No. 12898 § 1-101.
[84] *See supra* note 40 and accompanying text.
[85] *See, e.g.*, MATTHEW ADLER, MEASURING SOCIAL WELFARE: AN INTRODUCTION 16 (2019) [hereinafter MEASURING SOCIAL WELFARE] ("If income indeed has declining marginal well-being impact, then an equal distribution of a fixed total 'pie' of income among otherwise identical individuals generates a bigger sum total of well-being, as compared to an unequal distribution of the same 'pie.'"). Social welfare functions are discussed in further detail in Recommendation 3.
[86] Earlier this year, for instance, a divided panel of the U.S. Court of Appeals for the Sixth Circuit enjoined the Small Business Administration from prioritizing applications for relief funding based upon the race or sex of the applicant. *Vitolo v. Guzman*, No. 21-5517, __ F.3d __, 2021 WL 2172181 (6th Cir. May 27, 2021). Two weeks after that decision, a federal judge in the Eastern District of Wisconsin issued a temporary restraining order blocking the Department of Agriculture from administering a loan-forgiveness program based on the applicant's race. *Faust v. Vilsack*, No. 21-C-548, __ F. Supp. 3d __, 2021 WL 2409729 (E.D. Wis. June 10, 2021). In general, federal courts are skeptical of mathematical analyses involving "suspect classifications" such as race. *See, e.g.*, *Gratz v. Bollinger*, 539 U.S. 244, 279 (2003) (O'Connor, concurring) (concluding that university-admission process relying on racial "point allocations" violates the Equal Protection Clause because it "ensures that the diversity contributions of applicants cannot be individually assessed"). *But see Grutter v. Bollinger*, 539 U.S. 306 (2003) (permitting university-admission process that considers racial diversity as a "soft variable[]" in a holistic analysis).

or qualitatively, on a case-by-case basis (on top of the default analysis that OMB recommends). Important effects on particular communities—based on age or health status, for example[87]—could be considered in individual rulemakings even if it may not be feasible for agencies to quantitatively assess costs and benefits for that sub-population in every rule.

Recommendation 3: In Addition to Providing Guidance on How to Conduct Distributional Analysis, OMB Should Direct Agencies on How to Incorporate the Results of Such Analysis into Their Regulatory Decisionmaking

Even if agencies gather detailed data on how costs and benefits are distributed among discrete demographic groups as described above, current authorities offer little guidance on what they should do with that data. For instance, *Circular A-4* instructs agencies to perform a distributional analysis but then says nothing about how to incorporate that analysis into the ultimate decision of which regulatory alternative to select. In other words, agencies have no guidance on how to weigh the desirability of a potential rule's distributional effects against other attributes of that rule, such as its total net benefits.

This section discusses three possible approaches to factoring distributional consequences into regulatory decisionmaking:

1. Qualitatively assessing of the desirability of distributional outcomes from a disaggregated cost-benefit analysis.
2. Using quantitative tools that enable regulators to assess the desirability of distributional outcomes.
3. Using weighted cost-benefit analysis that directly incorporates distributional outcomes into aggregated cost and benefit totals.

The first option is premised on the status quo, where the focus in regulatory decisionmaking is traditional cost-benefit analysis and OMB grants agencies broad discretion to determine whether and how distributional desirability should affect their decisions.[88]

The second is to recommend standardized metrics for scoring policies' distributional outcomes, which agencies could use to supplement a traditional cost-benefit analysis. These approaches include inequality metrics and social welfare functions that enable agencies to "score," or assess the desirability of, different distributional outcomes. While this approach leaves agencies discretion as to how to use those scores when selecting among regulatory options, OMB could recommend that agencies treat these scores similarly to other nonmonetized effects.

The third option is to fully integrate distributional effects into the bottom line of a cost-benefit analysis by using distributional weights that reflect the diminishing marginal utility of income (recognizing that a dollar is worth more to a poor person than a rich one) or the diminishing marginal utility of well-being more broadly understood,[89] based on a utilitarian social welfare function. Alternately, OMB could recommend that agencies use weights that

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[87] *See, e.g.*, *supra* note 40 and accompanying text.
[88] We refer to traditional cost-benefit analysis as *unweighted*, to differentiate it from cost-benefit analysis where weights are applied to the costs and benefits of different groups before aggregation, as described below.
[89] See below in the discussion of utilitarian and prioritarian weights that income is the default, but not necessarily the only, basis for weights. Weights could also consider attributes like health status. *See infra* at p. 23.

reflect an ethical choice to prioritize net benefits for worst-off individuals, based on a prioritarian social welfare function. Rather than supplementing a traditional cost-benefit analysis, under this alternative these metrics would effectively replace that traditional analysis.

This letter takes no position on the particular approach that OMB should adopt. We do, however, urge OMB to provide agencies with some sort of concrete guidance on how to contextualize—quantitatively or not—the magnitude or significance of distributional consequences relative to a proposed action's other effects (including aggregate monetized costs and benefits). We note that any approach to distributional analysis, including the status quo approach, requires a regulator to make explicit value judgments.[90] Transparency regarding such judgments is key to ensuring consistent and robust distributional analysis.

A. OMB Could Recommend that Agencies Qualitatively Assess the Results of a Disaggregated Cost-Benefit Analysis

Regulators could treat the findings of a disaggregated cost-benefit analysis the way they would a nonmonetized cost or benefit. Under this approach, an agency could use its discretion when evaluating the significance of a proposal's distributional effects and incorporating that evaluation into its regulatory decision. While this qualitative assessment resembles how agencies currently treat distributional impacts, agencies would now have quantitative support for their decisions from their disaggregated cost-benefit totals.

This would not be such a departure from current practice, as agencies are already making judgments like this when faced with important but nonmonetized risk reduction or health effects. Indeed, rules have been justified on the significance of their unquantified benefits in the past. For example, EPA promulgated a rule in 2015 on phosphoric acid manufacturing and phosphate fertilizer production despite finding that rule to be net-costly based on monetized impacts alone.[91] Relying on the nonmonetized benefits of mercury emissions reductions, however, EPA concluded that the rule was net-beneficial on the whole and therefore the regulation was justified. Specifically, EPA explained that the rule "will mitigate future [mercury] emissions … by requiring compliance with numeric emission limits,"[92] thereby "result[ing] in improvements in air quality and reduced negative health effects associated with exposure to air pollution of these emissions."[93] However, EPA did not monetize the benefits of reducing mercury emissions because it lacked adequate data to do so.[94] Similarly, the Bureau of Land Management justified its 2015 hydraulic fracturing rule despite an absence of monetized benefits, concluding that, despite not being able to put a number on risk reduction associated with the rule, that "does not mean that the rule is without benefits."[95]

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[90] Marc Fleurbaey & Rossi Abi-Rafeh, *The Use of Distributional Weights in Benefit–Cost Analysis: Insights from Welfare Economics*, 10 REV. ENVT'L ECON. & POL'Y 286, 289 ("Interpersonal comparisons have long been considered problematic because they are associated with difficult value judgments. Although the Pareto principle, which is so popular in economics, is itself a value judgment, it seems easy to defend. In contrast, dealing with the conflicting interests of winners and losers involves defining who is worse off, or more deserving, and this is clearly no simple task.").
[91] Phosphoric Acid Manufacturing and Phosphate Fertilizer Production RTR and Standards of Performance for Phosphate Processing, 80 Fed. Reg. 50,386 (Aug. 19, 2015).
[92] *Id*. at 50,430.
[93] *Id*.
[94] EPA determined this rule to not be significant under Executive Order 12,866. *Id*. at 50,431.
[95] 80 Fed. Reg. 16,188 (Mar. 26, 2015).

Circular A-4 also broadly endorses the consideration of nonmonetized benefits (and costs), explaining that "[w]hen there are important non-monetary values at stake," a regulator should "also identify them in [the] analysis so policymakers can compare them with the monetary benefits and costs."[96] Accordingly, regulators should "exercise professional judgment in determining how important the non-quantified benefits or costs may be in the context of the overall analysis."[97]

Agencies could treat the findings of their distributional analysis in the same manner. For instance, if a proposal has desirable enough distributional effects, then those effects could allow a regulator to justify choosing this option even if it may have lower net benefits than other alternatives examined. Similarly, an agency could choose not to pursue the most net-beneficial option (according to aggregated, unweighted cost-benefit estimates) if its distributional outcomes are undesirable. This ranking could be done by looking at the results of a disaggregated cost-benefit analysis, and making normative judgments about the desirability of distributional outcomes—much like how regulators often consider other nonmonetized effects.

B. OMB Could Recommend that Agencies Use Quantitative Tools to Evaluate Distributional Outcomes

If a regulator is treating the results of a disaggregated cost-benefit analysis like a nonmonetized effect, it is important that those effects "be categorized or ranked in terms of their importance within the decision-making context."[98] Like with nonmonetized effects, the more underlying data to guide such an analysis, the better.[99] While distributional impacts could be ranked without further quantitative analysis, as discussed above, various quantitative methodologies to assess the results of a disaggregated cost-benefit analysis would greatly aid in the process of assessing and contextualizing different distributional outcomes.

To this end, if it pursues this approach, OMB should recommend standardized metrics for assessing distributional outcomes that regulators could then weigh against monetized costs and benefits. These metrics could be inequality metrics that are commonly used in the literature, or they could be based on social welfare functions. The decisionmaker could also use this information to determine if some other quantitative analytical tool, like a breakeven analysis, would be useful. In breakeven analysis, if faced with a net costly rule with nonmonetized benefits, the regulator tries to determine "[h]ow small … the value of the non-quantified benefits [would] be…before the rule would yield zero net benefits."[100]

The following subsections describe several analytical tools that could be used to more easily rank and compare policy proposals based on distributional outcomes or distributional desirability. As with above, policymakers could treat their findings from these methodologies as they would a nonmonetized effect: the findings could factor into their decision, even to justify choosing a less net-beneficial alternative, but to what extent this information plays a role is at the

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[96] Circular A-4, *supra* note 18, at 3.
[97] *Id*. at 2. The Circular uses nonmonetized and unquantified somewhat interchangeably, noting that "[a] non-quantified outcome is a benefit or cost that has not been quantified or monetized in the analysis." *Id.* at 3.
[98] Lisa A. Robinson et al., *Reference Case Guidelines for Benefit-Cost Analysis in Global Health and Development* xviii (2019), https://cdn1.sph.harvard.edu/wp-content/uploads/sites/2447/2019/05/BCA-Guidelines-May-2019.pdf.
[99] *See* Circular A-4, *supra* note 18, at 27 (encouraging agencies to assess "detailed information on the nature, timing, likelihood, location, and distribution of the unquantified benefits and costs").
[100] *Id.* at 2.

policymaker's discretion. In other words, these quantitative metrics could be presented alongside traditional cost-benefit analysis, with the regulator choosing how much weight to give each analysis in the decisionmaking process.

1. Inequality metrics

One option is for regulators to assess policy outcomes using inequality metrics. Inequality metrics take a range of inputs, like individual-, household-, or group-level characteristics (e.g., income, health status, or exposure to a particular pollutant), apply a formula that reflects certain assumptions about the regulator's priorities, and produce values that represent the level of inequality in a given scenario. Inequality metrics can be used to compare the status quo with a specific policy scenario or to compare across alternatives, assessing distributional outcomes under the baseline scenario and under different regulatory options. The values produced by these metrics could allow regulators to rank different policy options based on distributional effects, enabling them to evaluate distributional outcomes alongside cost-benefit analysis to aid in the decisionmaking process.

Below are some examples of inequality metrics that OMB could suggest agencies use. The Gini coefficient and Atkinson index have been used by researchers to measure health inequality and also "to evaluate changes in inequality resulting from environmental policy measures."[101] The Theil index is also widely used by researchers in the health context[102] and has been used to measure racial segregation.[103] The United States Census Bureau uses all three to assess income inequality.[104]

a. Gini Coefficient –

The Gini coefficient was originally designed to measure inequality in distribution of income.[105] In essence, it relates the mean level of treatment of a given variable, like pollution exposure, with a specific individual's level of that treatment.[106] The result is a number between zero and one, "with higher values denoting greater inequality."[107] The Gini coefficient "satisfies the Pigou-Dalton transfer principle,"[108] which assumes that there can be a pure, gap-diminishing transfer between a better-off individual and a worse-off individual, leaving all others (and so net

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[101] Harper et al., *Using Inequality Measures to Incorporate Environmental Justice into Regulatory Analyses*, 10 INT'L J. ENV'T RES. PUB. HEALTH 4039, 4042 (citing Jonathan Levy et al., *Quantifying the Efficiency and Equity Implications of Power Plant Air Pollution Control Strategies in the United States*, 115 ENV'T HEALTH PERSPECT. 743 (2007)); Jonathan Levy et al., *Evaluating Efficiency-Equality Tradeoffs for Mobile Source Control Strategies in an Urban Area*, 29 RISK ANALYSIS 34 (2009); Neal Fann et al., *Maximizing Health Benefits and Minimizing Inequality: Incorporating Local-Scale Data in the Design and Evaluation of Air Quality Policies*, 31 RISK ANALYSIS 908 (2011).
[102] Harper et al., *supra* note 101, at 4041.
[103] E.g., Urban Inst., *Segregation Measures*, https://www.urban.org/research/data-methods/data-analysis/quantitative-data-analysis/segregation-measures (last visited June 28, 2021).
[104] U.S. Census Bureau, *Income Inequality Metrics*, https://www.census.gov/topics/income-poverty/income-inequality/about/metrics.html (last visited June 28, 2021).
[105] *See* Robert Dorfman, *A Formula for the Gini Coefficient*, 61 REV. ECON. STAT. 146 (1979); FRANK COWELL, MEASURING INEQUALITY (1995).
[106] *Id.*
[107] James Boyce et al., *Measuring Environmental Inequality*, 124 ECOLOGICAL ECON. 114, 118 (2016).
[108] Jonathan Levy et al., *Incorporating Concepts of Inequality and Inequity into Health Benefits Analysis*, 5 INT'L J. EQUITY IN HEALTH 1, 9 (2006).

well-being) unaffected.[109] The Gini coefficient could be used to analyze the effects of a proposed regulation with the status quo or the effects of a preferred alternative to other policy options.[110] If the Gini coefficient is near one for a proposed action but near 0.5 for a possible alternative, for instance, the regulator would know that the proposal would result in a more unequal outcome than the alternative.

b. Atkinson Index

The Atkinson index was also originally designed to measure inequality in the distribution of income. The Atkinson index takes the status of an individual and the number of individuals in the population, and applies an inequality-aversion parameter.[111] In applying this aversion-to-inequality factor, the Atkinson index "explicitly incorporate[s] normative judgments about social welfare."[112] It can look at within-group inequality, that is, how an individual fares compared to the entire population, or between-group inequality, or how groups fare compared to one another. The inequality-aversion parameter reflects "societal preferences for equality."[113] The Atkinson index also satisfies the Pigou-Dalton transfer principle.[114] Like the Gini coefficient, a regulator could use the Atkinson index to compare a proposal to the status quo or to other alternatives. The Atkinson index could tell a regulator about which end of the distribution (e.g., high income or low income) is disproportionately affected by a particular policy.

c. Theil Index

The Theil index could similarly be used for within-group and between-group comparisons.[115] It applies both a linear and a logarithmic function to the relationship between individual and mean treatment.[116] The Theil index effectively measures how far away the population in a given scenario is from a state of equality.[117] The higher the numerical output of the index, the more inequality.[118] Like the Gini coefficient and the Atkinson index, the Theil index satisfies Pigou-Dalton principle.[119] Some experts recommend that Theil's index only be used with other inequality metrics because certain aspects of its calculation lack intuition.[120]

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[109] *See, e.g.*, MEASURING SOCIAL WELFARE, *supra* note 85, at 89, for further explanation of the Pigou-Dalton axiom and its relevance to welfare economics.
[110] *See, e.g.*, Daniel L. Millimet & Daniel Slottje, *Environmental Compliance Costs and the Distribution of Emissions*, 42 J. REGIONAL SCI. 105 (2002) (using Gini coefficient to assess how uniform increases in federal environmental standards impact the distribution of environmental hazards).
[111] *See* Harper et al., *supra* note 101, at 4052 for a detailed discussion on the Atkinson Index.
[112] Levy et al., *supra* note 108, at 10.
[113] *Id.*
[114] *Id.*
[115] Levy et al., supra note 108, at 10.
[116] *See e.g.*, Harper et al., *supra* note 101, at 4050 and Boyce et al., *supra* note 107, at 118 for examples.
[117] See U.S. Census Bureau, *Theil Index*, https://www.census.gov/topics/income-poverty/income-inequality/about/metrics/theil-index.html (last visited June 28, 2021) ("The Theil index measures an entropic 'distance' the population is away from the "ideal" egalitarian state of everyone having the same income.").
[118] *Id.*
[119] Levy et al., *supra* note 108, at 10.
[120] *Id.*

Levy et al. (2006)[121] and Harper et al. (2013)[122] provide useful overviews of these and other inequality metrics, which OMB may wish to consider.

* * *

OMB should be aware that regulators conducting distributional analyses using inequality metrics must make certain choices about: reference groups or points for comparisons;[123] whether they will look at relative comparisons (e.g., the disparity between a lower income and a higher income is 10:1) or absolute comparisons (e.g., there is a $90,000 difference between the highest and lowest incomes in the group) among the population;[124] whether to consider ordinal groups (e.g., income quartiles or years of education) or nominal groups (e.g., ethnic or geographic groups) or both.[125] A regulator using one of these tools would also have to acknowledge any value judgments that belie possible distributional preferences.[126] Finally, OMB should understand that, according to some experts, these measures "will … be interpretable only when they take account of baseline inequality and are evaluated in conjunction with [other] benefits."[127]

OMB should also recognize the potential challenges that come along with recommending that agencies use inequality metrics to rank distributional outcomes. While there are numerous approaches available for applying metrics of inequality, those approaches share some limitations. For example, the act of choosing a summary statistic like an inequality metric may "unnecessarily impose[] a judgement about distributional tradeoffs."[128] In addition, "identifying distributional effects only in a single summary statistic" omits potentially important information that would be useful to interested stakeholders who seek to engage in the regulatory process.[129] Furthermore, multiple indicators of inequality might be needed to generate a complete picture of distributional impacts. For instance, in one study, which sought to generate inter-state rankings of inequality in exposure to air pollution, the authors found that no single metric yielded the same inter-state rankings.[130] Hence, a single metric could paint an incomplete picture of potential distributional effects. Nonetheless, using inequality metrics alongside costs and benefits that have been disaggregated by demographic groups may give regulators important information that could help them in contextualizing a rule's distributional effects alongside other regulatory impacts.

2. *Weights based on social welfare functions*

Agencies could also assess the desirability of distributional outcomes by applying weights to costs and benefits that are based on a Social Welfare Function ("SWF") framework. SWFs are used to understand how social welfare changes as a function of the distribution of

[121] Levy et al., *supra* note 108.
[122] Harper et al., *supra* note 101.
[123] *Id.* at 4043-44.
[124] *Id.* at 4045.
[125] *Id*. at 4046.
[126] *Id*.
[127] *Id.* at 4043.
[128] Banzhaf, *supra* note 6, at 34.
[129] *Id*.
[130] Boyce et al., *supra* note 107, at 120.

"utilities," or units of well-being,[131] in a given population.[132] Weights based on SWFs could be applied to disaggregated costs and benefits to rank policy options based on distributional desirability. Although SWFs typically are based on income or consumption, we note that it is also possible to define well-being using characteristics like health status or leisure.[133] OMB should consider whether an income-focused approach is appropriate and, if not, whether and how other attributes of well-being could be used to generate weights.

Here we describe two types of distributional weights that could be applied to costs and benefits to proxy different SWFs: utilitarian and prioritarian. Utilitarian weights are typically constructed to reflect the fact that one dollar is more valuable for a low-income individual than a high-income one. They could also be constructed to reflect the diminishing marginal utility of well-being more broadly understood (e.g. an increase in environmental quality is more valuable to individuals with a lower baseline of environmental quality),[134] but using dimensions other than income could create analytical difficulties. Under the prioritarian approach, weights go beyond incorporating the diminishing marginal utility of income (or other characteristics) and are constructed instead to integrate ethical and moral considerations of equity and fairness. Prioritarian weights assign "higher value to well-being increments that accrue to the worse-off than to identical well-being impacts that accrue to the better-off."[135] Under either approach, regulators could look at weighted cost-benefit assessments as another data point to inform their consideration of distributional concerns.

The economics literature underpinning social welfare functions is well-established. Proponents like Duke University law and economics professor Matthew Adler advocate for the use of social welfare functions in regulatory decisionmaking[136] by using analysis that applies weights in assessing costs and benefits.[137]

a. Utilitarian Weights

As mentioned above, unweighted cost-benefit analysis monetizes regulatory impacts based on individuals' willingness-to-pay, and thus, does not account for the distribution of willingness-to-pay among individuals. Because those with higher income are able and willing to pay more for goods and services than those with lower incomes, a willingness-to-pay approach inherently favors those who are richer.

Diminishing marginal utility of income, however, considers that as income increases, the marginal benefit to an individual's well-being of each additional dollar decreases. Therefore, adjusting for diminishing marginal utility using income-based utilitarian weights could alleviate the inherent bias in the analysis. Such utilitarian weights translate income changes into well-

[131] In his 2019 book, Matthew Adler dedicates a chapter on how to define/measure a unit of well-being. MEASURING SOCIAL WELFARE, *supra* note 85, Ch. 2.
[132] Fleurbaey & Abi-Rafeh, *supra* note 90.
[133] *See, e.g.,* Matthew Adler & Koen Decancq, *Measuring Well-Being and Respect for Preferences*, in PRIORITARIANISM IN PRACTICE (Matthew Adler and Ole Frithjof Norheim, eds., forthcoming).
[134] *Id*.
[135] Maddalena Ferranna et al., *Addressing the COVID-19 Pandemic: Comparing Alternative Value Frameworks* 19, (National Bureau of Economic Research, March 29, 2021), https://doi.org/10.3386/w28601*Id*.
[136] MEASURING SOCIAL WELFARE, *supra* note 85.
[137] Matthew D. Adler, Factoring Equity into Benefit-Cost Analysis, Regulatory Review (Apr. 26, 2021), https://www.theregreview.org/2021/04/26/adler-factoring-equity-benefit-cost-analysis/ [hereinafter Factoring Equity].

being, or utility, changes. As a result, a certain monetized benefit for a low-income group is given greater value than the same monetized benefit for a high-income group, even when the monetization is based on a willingness-to-pay estimate. A regulatory analysis using this methodology would, in theory, show decisionmakers what regulatory option generates the greatest utility for society overall, offering policymakers a rigorous methodology to prioritize different distributional alternatives.

As noted above, utilitarian weights can be extended to reflect more complex definitions of well-being, rather than just equating well-being with income. For instance, well-being might be defined to include attributes like health status. In that case, utilitarian weights would reflect that the same health benefit increases the well-being of a sick person more than that of a healthier one.[138] However, constructing this type of utilitarian function would require that decisionmakers determine which attributes contribute to well-being. Relying on income rather than more complex definitions of well-being would be simpler, particularly given that the concept of diminishing marginal utility of income already underpins standard practices of cost-benefit analysis such as discounting.[139] Moreover, some attributes of disadvantaged communities that might be of interest for the regulator (such as race, gender, or labor occupation) cannot be incorporated into a utilitarian SWF. Hence, using utilitarian weights will not help in the analysis of distributional impacts along these dimensions.

Using income-based utilitarian weights is recommended by the British government for regulatory impact assessment.[140] The UK Green Book, which sets specific guidance on how to carry out cost-benefit analysis in the United Kingdom, even establishes precise values. Specifically, it states that a dollar to a person in the lowest income quartile is worth roughly twice as much as a dollar to a person in the highest income quartile in the British context.[141] Again, if a utilitarian-based analysis is presented alongside the results of an unweighted cost-benefit analysis, regulators will have flexibility to assess what policy outcome is preferable considering different aggregate and distributional outcomes. In this context, the utilitarian analysis provides helpful perspective for the regulator but need not be the deciding factor.

b. Prioritarian Weights

A regulator could go one step further by applying prioritarian weights to inform an assessment of distributional outcomes. These weights can be used to proxy a prioritarian social welfare function—that is, a welfare function that recognizes a higher societal benefit to improving the utility of the worst-off than improving the utility of the best-off.[142] In essence,

[138] For instance, Ferranna et al., *supra* note 133, construct weights considering that well-being depends on "consumption/income, longevity, and health status."
[139] *See, e.g.*, Tamma Carleton & Michael Greenstone, *Updating the United States Government's Social Cost of Carbon* 25 (2021), https://doi.org/10.2139/ssrn.3764255; Circular A-4, *supra* note 18, at 35 (explaining that one rationale discounting is that "if consumption continues to increase over time, as it has for most of U.S. history, an increment of consumption will be less valuable in the future than it would be today, because the principle of diminishing marginal utility implies that as total consumption increases, the value of a marginal unit of consumption tends to decline").
[140] Her Majesty's Treasury, The Green Book: Central Government Guidance on Appraisal and Evaluation (2020) [hereinafter UK Greenbook].
[141] *Id*. at 97.
[142] *See* Matthew D. Adler, *Benefit-Cost Analysis and Distributional Weights: An Overview*, 10 REV. ENV'T ECON. & POL'Y 264 (2016) [hereinafter BCA and Distributional Weights]; Factoring Equity, *supra* note 137.

prioritarian social welfare functions assign larger weights to the welfare gains of the worst-off than weights based solely on marginal utility of income or other measures of well-being.[143] In giving priority to the worst-off, prioritarian weights reflect one possible (albeit common) idea of fairness.

The parameters of a prioritarian social welfare function depend on normative determinations of the decisionmaker, including the evaluation of society's aversion to inequality. As a result, calculating prioritarian weights can be challenging. However, there are empirical estimates that a regulator could use to support such a calculation. For instance, society's distributional preferences and aversion to inequality, though nuanced,[144] can be measured empirically. One recent paper concludes that from a prioritarian standpoint, an improvement in air quality is eight times more advantageous when that improvement benefits someone with a lower baseline environmental quality, versus another individual whose environmental-quality baseline is twice as high.[145] However, this empirical measurement of inequality aversion depends, among other things, on the type of environmental good that is being considered (e.g. air quality versus soil quality). Calculating an aversion to inequality factor or coefficient can be a complex undertaking that is context-specific. Though OMB could provide guidance on the process for making such a calculation, agencies would potentially need to derive the aversion to inequality factor for each policy proposal.

Other studies of inequality aversion further demonstrate how an individual's well-being relative to others in a given population affects preferences for certain distributional outcomes.[146] In order to apply prioritarian weights practically, a regulator must make normative judgments and other decisions in order to select a methodology for determining the inequality aversion factor.[147] Once again, policymakers could consider an analysis using prioritarian weights alongside an unweighted cost-benefit analysis, rather than assign it dispositive preference.

C. OMB Could Recommend that Agencies Calculate Net Welfare Using Weighted Cost-Benefit Analysis

Finally, in the biggest departure from common practice, a regulator could further depart from the status quo and prioritize distributional outcomes by *replacing* traditional cost-benefit

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[143] Adler explains the family of prioritarian social welfare functions at length, but very simply, they are tools that can be used when a decisionmaker place value on improving the well-being of the worst-off even if that leads to larger decreases in well-being to the best-off. MEASURING SOCIAL WELFARE, supra note 85, at 88.

[144] *See, e.g.,* Raymond Fisman, Ilyana Kuziemko & Silvia Vannutelli, *Distributional Preferences in Larger Groups: Keeping up with the Joneses and Keeping Track of the Tails*, 19 J. EURO. ECON. ASSOC. 1407 (2021), https://doi.org/10.1093/jeea/jvaa033.

[145] Frank Venmans & Ben Groom, *Social Discounting, Inequality Aversion, and the Environment*, 109 J. ENV'T ECON. & MGMT. 1 (2021), https://doi.org/10.1016/j.jeem.2021.102479.

[146] For instance, Fisman et al., *supra* note 144, use different models to understand what value an individual may place on greater equality. The authors also discuss aversion-to-inequality models more generally. This study in particular looks at "the role of others' payoffs in choosing distributional outcomes." *Id.* at 1409. In other words, the authors can "distinguish, for example, whether individuals put more weight on reducing inequality at extreme income levels such as the top and bottom, or focus on inequality nearer to the subject's own income." *Id.* Their findings explain some anecdotal evidence regarding society's aversion to inequality, like why the top one percent of earners are an easier target than those who are extremely well-off but lower down on the income scale for higher tax rates. *Id.* at 1408.

[147] *See* BCA and Distributional Weights, *supra* note 142, at 271 (saying that defining the inequality aversion parameter can also reflect "the moral preferences" of a decisionmaker).

analysis with a weighted cost-benefit analysis. If it takes this approach, OMB should give explicit guidance on whether income will be the default measure of utility, and so the basis for weights, and if not, provide guidance on how regulators could use other measures of well-being in the place of income for generating weights. Also, as noted above, a utilitarian weighted cost-benefit analysis will not shed light on distributional impacts along some attributes that could be of interest to a regulator, such as race, although prioritarian weights could. We note that though adopting SWF-based weights as the main decisionmaking tool has some theoretical and academic support,[148] it could pose a challenge from a practical and legal perspective (in addition to the limitations mentioned above).

First, weighting may be an unnecessary step to achieve more equitable outcomes. Some argue that using unweighted cost-benefit analysis could lead to progressive (greater benefits to the worse off) rather than regressive (greater benefits to the better off) policies. In a forthcoming paper, University of Chicago Law School professor Daniel Hemel argues that using unweighted cost-benefit analysis is particularly appropriate when assessing policies that are designed to save lives.[149] Hemel is not alone in concluding that regulators should stick with traditional cost-benefit analysis. Hemel's colleague David Weisbach draws the same conclusion in a 2015 paper, though for different reasons. Essentially, Weisbach argues that agencies exist to "perform specialized tasks," and that within that narrow scope of responsibility, agencies cannot achieve "desirable distributive policies." Therefore, he argues that regulatory decisionmakers should continue to use unweighted cost-benefit analysis, with redistribution occurring primarily through the tax-and-transfer system.[150]

If OMB determines that weighting is the appropriate approach for agencies to meet both efficiency and distributional goals, there are a number of considerations that OMB would have to take into account before choosing to go this route. For example, employing a social welfare function requires regulators to make political decisions that they may not be empowered to make.[151] This may be particularly true when using prioritarian weights, as designating the "worst-off" in any given scenario is an inherently value-laden judgment that may not fully capture all determinants of fairness. Although regulators have long purported to consider distributional concerns,[152] they may be ill-equipped to determine policy so explicitly and fundamentally based on distributional considerations. And insofar as regulations are justified primarily based on distributional benefits rather than more traditional benefits, courts may be concerned that agencies are relying too heavily on factors outside their core statutory mandate.

There are other possible practical and legal hurdles to adopting weighted cost-benefit analysis as the primary basis for regulatory decisions. For example, traditional cost-benefit analysis is widely applied across the federal government and well understood by courts. While agencies are given broad deference by courts and surely have latitude to make methodological choices, fundamental changes to cost-benefit analysis of this sort may draw judicial ire. It is

[148] *See, e.g.,* Fleurbaey & Abi-Rafeh, *supra* note 90, for a brief overview of this literature.
[149] Hemel, *supra* note 76.
[150] David A. Weisbach, *Distributionally Weighted Cost-Benefit Analysis: Welfare Economics Meets Organizational Design*, 7 J. LEGAL ANALYSIS 151 (2015).
[151] See, e.g., BCA and Distributional Weights, *supra* note 142, at 278 ("The use of distributional weights does raise questions of institutional role. An unelected bureaucrat might feel that it would be legally problematic, or democratically illegitimate, for her to specify weights…"); *see also* Fleurbaey & Abi-Rafeh, *supra* note 90, at 289.
[152] *See, e.g.*, Robinson et al., *supra* note 31.

certainly possible that case law could come to embrace the use of social welfare functions in cost-benefit analysis just as it has traditional cost-benefit analysis.[153] Indeed, agencies are generally empowered by sufficiently open-ended statutory frameworks to choose their preferred methodology and balance different regulatory priorities.[154] However, this may be a risk that the federal government does not wish to take. Indeed, even Adler, one of the biggest proponents of social welfare functions, argues that given that applying distributional weights (both utilitarian or prioritarian) is "value-laden," agencies should "undertake standard [cost-benefit analysis] alongside distributionally weighted [cost-benefit analysis] with some range of weights," as discussed above.[155]

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Addressing distributional concerns in regulation involves more than showing how costs and benefits accrue to different groups. Rather, it involves taking this information into account as part of the regulatory decision. Agencies have a range of options for methods to consider distributional impacts alongside other regulatory effects. Clear guidance from OMB on how agencies can contextualize the magnitude or significance of distributional consequences will be critical to ensure robust and consistent consideration of distributional impacts across agencies.

Recommendation 4: OMB Should Lead a Whole-of-Government Approach to Implement Measures to Mitigate Adverse Distributional Impacts Through Interagency Coordination

Regardless of how agencies account for distributional outcomes in regulatory decisionmaking, there will likely be some undesirable distributional outcomes resulting from otherwise desirable rules. OMB could coordinate among agencies and provide guidance on how agencies can mitigate those adverse distributional outcomes.[156]

As noted in the previous sections, OMB could give agencies guidance to help them to identify adverse distributional outcomes during the rulemaking process. Agencies could then consider other avenues within their statutory authority to address or minimize undesirable distributional outcomes. For example, the Department of the Interior could prioritize fossil-fuel-dependent communities for the siting of renewable energy projects to redress potential lost revenue in those places due to more stringent leasing and production policies.[157] This type of policy accounts for lost income to some groups, an adverse distributional consequence, by providing new income-generating opportunities for those same groups. OMB could consult with agencies on a rule-by-rule basis to identify avenues to mitigate adverse distributional impacts.

If mitigating the adverse distributional effects of an otherwise cost-benefit-justified rule is outside the statutory authority of the rulemaking agency, then the lead agency could work with

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[153] MEASURING SOCIAL WELFARE, *supra* note 85, at 213.
[154] *Id*. at 214 (arguing that the law likely enables agencies to between a social welfarist approach or a traditional cost-benefit analysis approach).
[155] Factoring Equity, *supra* note 137.
[156] This section draws significantly from Revesz, *supra* note 5, and Jason Schwartz, Inst. for Pol'y Integrity, *Enhancing the Social Benefits of Regulatory Review* 12 (2020), https://policyintegrity.org/files/publications/Enhancing_the_Social_Benefits_of_Regulatory_Review.pdf.
[157] See Jayni Hein, Inst. for Pol'y Integrity, *A New Way Forward on Climate Change and Energy Development for Public Lands and Waters* 12 (Sept. 2020) (proposing that Interior "identify renewable resource generation potential in areas that have experienced or are expected to experience a decline in fossil fuel production," and potentially prioritizing those areas for such renewable development.).

another agency (or other agencies) to create remediation plans. OMB could act as a liaison between agencies. Additionally, OMB (or specifically OIRA) could provide oversight over distributional issues, including by regularly reviewing distributional analyses across rules and across agencies to assess cumulative distributional effects. As part of such oversight, OIRA could convene an interagency working group to provide coordination across the federal government aimed at addressing adverse distributional outcomes.

A. OMB Should Coordinate Between the Lead Agency and Other Agencies to Address Inequitable Effects

Many adverse distributional outcomes cannot be efficiently solved within the lead agency's authority, nor can any one agency alone work to solve longstanding distributional disparities suffered by certain groups. In this event, it may be appropriate for two or more agencies to work together to correct distributional imbalances. OMB should provide coordination in this regard.

In a law review article on this topic, Professor Richard Revesz discusses how it could be appropriate for a second agency (other than the rulemaking agency) or multiple other agencies to design the redistributive mechanism.[158] Revesz goes into detail about a real-life example, the Partnerships for Opportunity and Workforce and Economic Revitalization (sometimes known as POWER) Initiative, which was designed to compensate displaced coal industry workers.[159] This initiative was in part a way of addressing the disproportionate effect of environmental regulations like the Clean Power Plan on coal communities.[160] Although EPA was responsible for the regulations in question, the Economic Development Administration, Department of Labor, Appalachian Regional Commission, Department of Commerce, and Department of Agriculture all worked with EPA on the POWER Initiative.[161]

Similar to the multiagency cooperation in the POWER Initiative, Executive Order 13,990 establishes the Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization.[162] This tasks numerous agencies and offices with "coordinat[ing] the identification and delivery of Federal resources to revitalize the economies of coal, oil and gas, and power plant communities," among other things.[163] A similar group of agency heads could come together to direct resources towards compensating groups that are adversely affected by a specific regulation or set of regulations.

Such cooperation could be a model for future efforts. OMB oversight and coordination could facilitate these types of joint ventures across the federal government.

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[158] Revesz, *supra* note 5, at 1573.
[159] *See* OMB, Investing in Coal Communities, Workers, and Technology: The POWER+ Plan 2–3 (2015), https://obamawhitehouse.archives.gov/sites/default/files/omb/budget/fy2016/assets/fact_sheets/investing-in-coal-communities-workers-and-technology-the-power-plan.pdf.
[160] Revesz, *supra* note 5, at 1550.
[161] *Id.* at 1551.
[162] Exec. Order No. 14,008 § 218, 86 Fed. Reg. 7619 (Feb. 1, 2021).
[163] *Id*. Membership in this interagency working group is comprised of the Secretaries of the Treasury, Interior, Agriculture, Commerce, Labor, Health and Human Services, Transportation, Energy, Education, the Administrator of the EPA, the Director of OMB, the Assistant to the President for Domestic Policy and the Director of the Domestic Policy Council, and the federal co-Chair of the Appalachian Regional Commission.

B. OMB Should Provide Systemwide Oversight

Beyond addressing the adverse distributional impacts of individual rules, OMB could also facilitate assessment, and potentially remediation, of distributional inequities across the regulatory system. For instance, regulatory actions may routinely impose disparate impacts on the same groups. Conversely, some groups may experience disproportionate costs under some policies but enjoy offsetting, disproportionate benefits under others. In order to identify these cumulative effects, the federal government would benefit from an approach that considers the whole universe of agencies and their actions, rather than looking at each agency or action in a vacuum. This will require systemwide oversight and data collection, which OMB (and OIRA in particular) could lead.[164]

President Biden has given OMB a number of interagency coordination duties with respect to the climate crisis that the Office could carry out with careful attention to regulatory equity. For instance, President Biden's executive order *Tackling the Climate Crisis at Home and Abroad* (Executive Order 14,008) directs the Director of OMB to work with the National Climate Advisor to first identify fossil fuel subsidies provided by various agencies and to then take the necessary steps to ensure that "Federal funding is not directly subsidizing fossil fuels."[165] As part of this role, OMB could help identify the nature and magnitude of disparate impacts resulting from fossil-fuel subsidies, and work with agencies to ensure that federal funding not be used in such a way that it contributes to adverse distributional impacts. This same executive order also tasks OMB with reviewing and assessing agencies' Climate Action Plans to ensure these plans are consistent with policy established by the Order. OMB could similarly request plans from agencies that detail how the agencies intend to address equity in their upcoming actions.

OIRA, an office within OMB, is already responsible for carrying out some tasks that could be translated into the context of distributional analysis. For example, since agencies already provide regulatory impact analyses to OIRA for review, OIRA would be the perfect candidate to oversee a systemic review of agencies' distributional analyses.[166] First, it could collect data from agencies on their distributional analyses. Then, OIRA could look at the net effects on specific groups across agencies and across rules. Using its expertise in assessing the consequences of regulation, OIRA could work with agencies to formulate an appropriate response to distributional consequences of proposed rules.[167] Given its understanding of the regulatory landscape, OIRA would also be well-suited to advise agencies on when the distributional impacts of their regulations are significant and merit corrective action, similar to the agency's function in assessing whether a regulation is "significant" under Executive Order 12,866 triggering a detailed regulatory impact analysis. Finally, again due to its unique position overseeing the significant actions of all agencies, OIRA would be well positioned to assess cumulative distributional issues that are the result of many actions. OIRA could, for example, incorporate other distributional issues into the environmental justice scorecard prescribed by

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[164] *See* Revesz, *supra* note 5, at 1556–68 for a detailed argument for why the Office of the President is an appropriate conduit for these considerations.

[165] Exec. Order 14,008 § 209.

[166] See Revesz, *supra* note 5, at 1570–72 for a discussion of why OIRA is a suitable candidate to oversee federal government-wide distributional issues.

[167] *Id.*

Executive Order 14,008,[168] or generate separate scorecards to capture how well agencies are addressing equity in their decisionmaking.

OIRA could also use the unified agenda process to facilitate review of distributional analyses. Under this approach, agencies would flag potential adverse distributional outcomes early in the regulatory process. If possible, agencies could include preliminary distributional findings as part of their semi-annual submission to the unified agenda.[169] With this information, OIRA would be able to better guide agencies through the rulemaking process to address distributional concerns from the early stages, rather than waiting for notice and comment. Similarly, OIRA could connect agencies to address distributional inequities, such as in the POWER Initiative example above. Moreover, providing this information early allows for further stakeholder engagement and input into the upcoming year's rulemaking process across agencies.

In its annual review and report to Congress, OIRA could assess distributional outcomes (both of key rules and across rules) and report whether any particular groups were adversely impacted by the year's regulatory actions.[170] Understanding the effects on specific groups from the entire universe of regulations in a given period of time is key to addressing longer-term inequities. Such information could also provide a baseline from which to consider the distributional effects of the following year's regulatory agenda.

OIRA could also convene an interagency working group to address the distributional outcomes of regulatory actions. This group could be tasked with "facilitat[ing] the organization and deployment of a Government-wide approach" to equity, the way the newly formed National Climate Task Force is tasked with taking such an approach to addressing climate change.[171] This could be housed within the existing Interagency Working Group on Environmental Justice to reduce duplication of efforts, or could operate as a distinct body. Among other important tasks, the interagency working group on distributional impacts could help OIRA assess the collective distributional impacts across regulations and across agencies to include in OIRA's annual report to Congress.[172]

The interagency working group could also be responsible for taking stock of methodological shortcomings of existing distributional analyses, such as identifying unquantified effects that have important equity implications for further research.[173] In this regard, it would have similar responsibilities to the Interagency Working Group on the Social Cost of Greenhouse Gases. Because interoperable, systematic distributional analysis would be new, there would inevitably be room for continuous improvement within and across agencies. An interagency working group could lead research efforts and contribute to OIRA's methodological guidance on established best practices. "Once a set of best practices is established by the interagency working group, it will become less costly for agencies to conduct their distributional analyses, because they can refer back to established practices rather than trying to reinvent a new methodology each time."[174]

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[168] Exec. Order No. 14,008 § 220 (d).
[169] Schwartz, *supra* note 156.
[170] *Id.*
[171] *See* Exec. Order No. 14,008 § 203.
[172] Schwartz, *supra* note 156, at 12.
[173] *Id.*
[174] *Id.*

Conclusion

The federal regulatory system could play an important role in addressing inequality and promoting fairness and environmental justice. Greater oversight and clearer guidance from OMB will be critical to creating long-lasting change on this front. As these comments have outlined, OMB should consider providing detailed guidance to agencies on conducting granular analysis, assessing costs and benefits on demographic subgroups, and weighing distributional concerns alongside other regulatory impacts. Additionally, OMB should facilitate coordination between agencies to promote equity throughout the regulatory system.

Sincerely,

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