Just regulation: improving distributional analysis in agency rulemaking*

Regulação justa: melhorando a análise distribucional na elaboração de normas pelas agências

Richard L. Revesz**
Burcin Unel****

ABSTRACT

Taking account of the impacts of government action on historically marginalized and overburdened communities is a core policy goal of

* Article received on May 10, 2024 and approved on May 30, 2024. Originally published by UC Berkeley School of Law in *Ecology Law Quarterly*, Vol. 50, Issue 3, 2023, p. 727-758. Available at: https://www.ecologylawquarterly.org/print/just-regulation-improving-distributional-analysis-in-agency-rulemaking/. DOI: https://doi.org/10.15779/Z38JD4PQ80.

** AnBryce Professor of Law and Dean Emeritus, New York University School of Law. We are grateful for the financial support of the Filomen D'Agostino and Max E. Greenberg Fund at New York University School of Law and for the excellent research assistance of Lara Fishbane, Anna Kasradze, Molly Lutton, and Alec Peters. Professor Revesz substantially completed his work on this Article before becoming the Administrator of the Office of Information and Regulatory Affairs. E-mail: richard.revesz@nyu.edu.

*** Executive Director, Institute for Policy Integrity at New York University School of Law. E-mail: burcin.unel@nyu.edu.

the Biden-Harris Administration. With respect to regulatory action, the Memorandum on Modernizing Regulatory Review, which President Biden issued on his first day in office, directed the Office of Management and Budget to take steps "to ensure that regulatory initiatives appropriately benefit and do not inappropriately burden disadvantaged, vulnerable, or marginalized communities." While the efforts in this regard have gone beyond those of the Clinton and Obama Administrations, federal regulations still pay limited attention to regulatory consequences on disadvantaged communities.

In this Article, we seek to understand the shortcomings of current agency practice and outline what agencies can do better. To do so, we examine fifteen significant proposed or final agency rules promulgated during the Biden-Harris Administration's first eighteen months. This empirical analysis reveals four categories of limitations. First, agencies often pursue inconsistent goals across different regulatory initiatives. Second, they do not grapple with the core issue that distributional analysis should raise: the extent to which the better distributional consequences of one alternative should trump the higher net benefits of another alternative. Third, agencies do not apply a consistent approach to defining disadvantaged groups, which makes the analysis inconsistent and unpredictable. Fourth, the distributional analysis relies on a truncated set of costs and benefits, and thus presents an incomplete picture of the consequences of regulation on disadvantaged communities. One of the fifteen analyses, however, suggests an attractive path to fulfilling the promise of distributional analysis, though significant work remains to be done.

KEYWORDS

regulatory affairs — administrative law — cost-benefit analysis

RESUMO

Levar em consideração os impactos das ações governamentais sobre comunidades historicamente marginalizadas e sobrecarregadas é um objetivo central da administração Biden-Harris. Em relação às ações regulatórias, o Memorando sobre a Modernização da Revisão Regulatória, emitido pelo presidente Biden em seu primeiro dia de mandato, instruiu o Escritório de Gestão e Orçamento a tomar medidas "para garantir que as iniciativas regulatórias beneficiem adequadamente e não

prejudiquem indevidamente comunidades desfavorecidas, vulneráveis ou marginalizadas". Embora os esforços nesse sentido tenham superado os das administrações Clinton e Obama, as regulamentações federais ainda prestam atenção limitada às consequências regulatórias para as comunidades desfavorecidas.

Neste artigo, buscamos entender as deficiências das práticas atuais das agências e delinear o que pode ser aprimorado. Para isso, examinamos 15 regras propostas ou finais significativas emitidas nos primeiros 18 meses da administração Biden-Harris. Esta análise empírica revela quatro categorias de limitações. Primeiro, as agências frequentemente buscam objetivos inconsistentes entre diferentes iniciativas regulatórias. Segundo, elas não enfrentam a questão central que a análise distributiva deveria levantar: até que ponto as melhores consequências distributivas de uma alternativa devem prevalecer sobre os maiores benefícios líquidos de outra. Terceiro, as agências não aplicam uma abordagem consistente para definir grupos desfavorecidos, o que torna a análise inconsistente e imprevisível. Quarto, a análise distributiva se baseia em um conjunto truncado de custos e benefícios, apresentando, assim, uma visão incompleta das consequências da regulamentação para as comunidades desfavorecidas. No entanto, uma das 15 análises sugere um caminho promissor para cumprir a promessa da análise distributiva, embora ainda haja muito trabalho a ser feito.

PALAVRAS-CHAVE

assuntos regulatórios — direito administrativo — análise custo-benefício

Introduction

The Biden-Harris Administration has underscored, to an extent not done by any prior administrations, the central importance it attaches to the well-being of disadvantaged communities. Reflecting this priority, during his first week in office, President Biden issued two significant directives that undertook important commitments for his administration.

First, Executive Order 14008, on Tackling the Climate Crisis at Home and Abroad, sets forth the Justice40 Initiative, which provides that 40 percent of the benefits of certain federal investments, including ones to remediate pollution, develop clean water infrastructure, and promote clean energy,

energy efficiency, and clean transit, flow to disadvantaged communities.[1] The Executive Order defines "disadvantaged communities," as ones that are "historically marginalized and overburdened."[2] The Justice40 Initiative is seen as the Biden-Harris Administration's signature environmental justice commitment.[3]

Second, the presidential memorandum of Modernizing Regulatory Review focuses specifically on how distributional consequences should be taken into account in the regulatory process.[4] It requests that the Director of the Office of Management and Budget (OMB) "propose procedures that take into account the distributional consequences of regulations … to ensure that regulatory initiatives appropriately benefit and do not inappropriately burden disadvantaged, vulnerable, or marginalized communities."[5]

The Clinton and Obama Administrations had similarly indicated that distributional analyses be conducted alongside the cost-benefit analyses required under Executive Order 12866 to justify federal regulations—a cost--benefit requirement that President Biden reaffirmed. But the prior efforts to take meaningful account of distributional consequences in the regulatory process had widely been regarded as failures.[6] As a result, the Biden memorandum has the promise of leading to the first serious effort to make distributional analysis an important part of the regulatory process.

While OMB has not yet proposed the procedures to take distributional effects into account called for in the memorandum on Modernizing Regulatory Review, the efforts in this direction have already gone beyond the practices under the Clinton and Obama Administrations.[7] But this Article shows that a great deal work remains to be done.

To evaluate the Biden-Harris Administration's performance to date on accounting for the distributional consequences of regulation, we examine fifteen significant proposed or final agency rules promulgated during the

---

1 Exec. Order No. 14008 § 223, 86 Fed. Reg. 7619, 7632 (2021).
2 *Id*. § 219, 86 Fed. Reg. at 7629.
3 Center for American Progress, Implementing Biden's Commitment to Combat Environmental Racism (June 22, 2021), https://www.americanprogress.org/article/implementing-bidens-justice40-commitment-combat-environmental-racism/.
4 Modernizing Regulatory Review, 86 Fed. Reg. 7223 (Jan. 26, 2021).
5 *Id*. § 2, 86 Fed. Reg. at 7223.
6 *See* Richard L. Revesz & Samantha P. Yi, *Distributional Consequences and Regulatory Analysis*, 52 ENV'T L. 53, 55-56 (2022).
7 *See id*.

administration's first eighteen months, which are listed in the Table 2.[8] We selected rules that had been listed in the *Washington Post's* environmental action tracker,[9] contained regulatory impact analyses, and had been proposed or finalized at the time of our research. We focus our analysis on Department of Energy (DOE) and Environmental Protection Agency (EPA) rules because these agencies have done at least some limited distributional analysis in the past.[10] But we also consider rules promulgated by other agencies, including Consumer Product Safety Commission (CPSC), National Highway Traffic Safety Administration (NHTSA), and Pipeline and Hazardous Materials Safety Administration (PHMSA), to better understand differences across agency practices. Our sample is not a complete or representative sample of all proposed or final rules under the Biden-Harris Administration, and our goal is not to run a statistical analysis of the rules and their parameters. Rather, we use these case studies to critique how agencies are conducting distributional analyses and to assess what remains to be done for such analysis to become a meaningful part of the regulatory process.

This Article finds that agencies do not effectively leverage distributional analyses to consider and promote environmental justice in regulatory decision-making. For five of the fifteen regulations, the respective agencies do not conduct a distributional analysis at all.[11] But even when they do, this Article shows that the analysis is generally truncated, inconsistent, or inadequate.

Part I shows that agencies lack a consistent goal to inform their distributional analysis. The command in the Modernizing Regulatory Review memorandum that "that regulatory initiatives appropriately benefit and do not inappropriately burden disadvantaged, vulnerable, or

---

8 Where possible, we reviewed final rules, but if a final rule had not yet been promulgated at the time of our analysis, we reviewed the proposed rule.

9 Juliet Eilperin, Brady Dennis & John Muyskens, *Tracking Biden's Environmental Actions*, WASH. POST (last updated Sept. 15 at 6:04 PM), https://www.washingtonpost.com/graphics/2021/climate-environment/biden-climate- environment-actions/.

10 Caroline Cecot & Robert Hahn, *Incorporating Equity Concerns in Regulation* 2 (George Mason Law & Econ. Rsch. Paper No. 22-19, 2022).

11 *See* Energy Conservation Program: Energy Conservation Standards for General Service Lamps, 87 Fed. Reg. 27,439 (May 9, 2022); Corporate Average Fuel Economy Standards for Model Years 2024-2026 Passenger Cars and Light Trucks, 87 Fed. Reg. 25,710 (May 2, 2022); Pipeline Safety: Requirement of Valve Installation and Minimum Rupture Detection Standards, 87 Fed. Reg. 20,940 (Apr. 8, 2022); Baseline Energy Efficiency Standards Update for New Federal Commercial and Multi-Family High-Rise Residential Buildings, 87 Fed. Reg. 20,267 (Apr. 7, 2022); Safety Standard for Operating Cords on Custom Window Coverings, 87 Fed. Reg. 1014 (proposed Jan. 7, 2022).

marginalized communities,"[12] can be operationalized in multiple, mutually inconsistent ways. Yet thus far, agencies have not coalesced around a uniform understanding of their distributional goals.

In Part II, we explain that agencies generally fail to consider the distributional analysis of regulatory alternatives. In some cases, they simply suggest that a rule produces benefits for disadvantaged communities merely by establishing that the pre-rule status quo disproportionately burdened these communities. Analysis of this sort does not ensure that the benefits of the rule will necessarily accrue to the disadvantaged communities. In other rules, agencies do conduct this additional analysis. But they only rarely analyze the distributional consequences of alternatives to the proposed rule. As a result, they cannot evaluate the key issue for distributional analysis: how to trade off the higher net benefits of one alternative against the better distributional consequences of another.[13]

Part III documents how the distributional analyses in different regulations focus on different types of disadvantaged groups. For some regulations, the focus is on racial or ethnic groups, with the information sometimes presented in aggregated fashion and other times disaggregated. Other regulations instead use income measures of disadvantage. And yet others focus on both types of considerations. No explanations are provided for these different methodological approaches. Without a consistent approach to determining what counts as a disadvantaged community, or an explanation about why it is appropriate to use different definitions of disadvantage for different regulations, there is a risk that the distributional analyses will be manipulated to reach predetermined outcomes.[14]

In Part IV, we criticize the distributional analysis for examining only a truncated set of costs and benefits. In particular, some of benefits and costs examined in the regulation's cost-benefit analysis are not taken into account for the distributional analysis. It is obviously necessary to consider all significant benefits and costs to determine whether a regulation's benefits justify its costs—an inquiry required by Executive Order 12866. But it is equally critical to consider the full panoply of significant effects to determine a regulation's consequences on disadvantaged communities.

---

[12] Modernizing Regulatory Review, *supra* note 4, § 2, 86 Fed. Reg. at 7223.
[13] *See* Revesz & Yi, *supra* note 6, at 56-57.
[14] *See id.* at 57.

Despite the various shortcomings, there are glimmers of what an attractive approach to distributional analysis might look like. In Part V, we focus on one rule that looks at distributional consequences in a more comprehensive way than the norm. This rule provide an attractive model for other agencies to follow. But we show that, despite this promise, it still exhibits significant shortcomings. These need to be addressed for distributional analysis to occupy the place in the regulatory process that is consistent with the ambitions that the Biden-Harris administration articulated during its first week in office.

I. Inconsistent Goals

The Modernizing Regulatory Review memorandum directs agencies to ensure "that regulatory initiatives appropriately benefit and do not inappropriately burden disadvantaged, vulnerable, or marginalized communities."[15] However, this directive can be operationalized in different and inconsistent ways. The distributional analysis conducted during the Biden administration lacks clear and consistent goals. There is no explanation why one goal is used in certain regulations and other goals are used in others. Section A defines several distinct ways to operationalize distributional goals. Section B shows how different goals guide the distributional analysis of different regulations and that the respective agencies provide no explanation or defense for the choice.

A. Multiple Possible Objectives

Distributional analysis provides agencies with additional data to inform its decisionmaking among different potential rules, by indicating how the costs and benefits of regulation affect different communities. But this information, however valuable, does not dictate *which* regulatory alternative an agency should select or *how* it should decide among competing alternatives. Instead, agencies need to establish clear objectives to inform their rule selection process so that their rules "appropriately benefit and do not inappropriately burden disadvantaged, vulnerable, or marginalized communities."

---

[15] Modernizing Regulatory Review, *supra* note 4, § 2, 86 Fed. Reg. at 7223.

But the goal of "appropriately benefit[ing] and not inappropriately burden[ing]"[16] is sufficiently broad that agencies can operationalize it in multiple ways, each with different distributional consequences. Because each of the possible choices leads to fundamentally different outcomes for disadvantaged communities, unexplained inconsistencies across agencies, and particularly across regulations in a single agency, are problematic.

The following simple example illustrates this point. Consider four possible alternatives for a given regulation, which promote, respectively, goals that label as follows: Harm Minimization, Justice40, No Disproportionate Burden, and Restorative. All of these alternatives have the same aggregate net benefits, but different distributional consequences. The Harm Minimization alternative minimizes the costs to disadvantaged communities. The Justice40 alternative directs forty percent of the net benefits of the regulation to disadvantaged communities, just as the Justice40 Initiative directs to these communities forty percent of the net benefits of certain federal investments.[17] The No Disproportionate Burden alternative ensures that the burdens faced by disadvantaged communities are similar to the burdens faced by other communities. Finally, the Restorative alternative allocates higher net benefits to disadvantaged communities compared to other communities, helping reduce the inequality between the two groups.

Table 1 helps demonstrate how an agency interested in following the Modernizing Regulatory Review memorandum might decide among four alternatives depending on the guiding objective it relies on. Each row of the table represents one of these distributional approaches. The first three columns show the aggregate costs, benefits, and net benefits of each alternative to society. The next three columns show the costs, benefits, and net benefits of each alternative to disadvantaged communities. And the last three columns show the corresponding costs, benefits, and net benefits to other communities.

---

16 *Id.*

17 *See supra* text accompanying notes 1-3.

Table 1
Costs and Benefits of Four Hypothetical Regulatory Alternatives

	Total			**Disadvantaged Communities**			**Others**		
	Cost	Benefit	Net Benefit	Cost	Benefit	Net Benefit	Cost	Benefit	Net Benefit
Harm Minimization	100	150	50	20	10	-10	80	140	60
Justice40	100	150	50	30	50	20	70	100	30
No Disproportionate Burden	100	150	50	50	50	0	50	100	50
Restorative	100	150	50	30	60	30	70	90	20

An agency faced with the data in the table above is significantly better equipped to select an alternative that promotes the interests of disadvantaged communities than an agency that has not conducted a distributional analysis.[18] But the analysis alone does not provide clear instruction on which alternative the agency should select. All four choices could "appropriately benefit and do not inappropriately burden," depending on how those terms are defined.

The four alternatives have different distributional consequences. The Harm Minimization alternative minimizes the adverse harm disadvantaged communities experience due to the rulemaking, *but* it also imposes net costs on them as the rule provides relatively small benefits to these communities. Justice40 alternative allocates 40 percent of the regulation's net benefits to disadvantaged communities,[19] *but* the rule exacerbates existing inequalities because it benefits non-disadvantaged communities more than disadvantaged ones. No Disproportionate Burden alternative does not "disproportionately"[20]

---

[18] Modernizing Regulatory Review, *supra* note 4, § 2, 86 Fed. Reg. at 7223.

[19] Exec. Order No. 14008, *supra* note 1, § 223, 86 Fed. Reg. at 7631-32.

[20] We put the term "Disproportionately" in quotes here to acknowledge that the term can be interpreted in different ways. Here, we use the term to indicate that disadvantaged groups do not disproportionately bear the *absolute* costs of the rule. But even when the absolute costs borne by each group are the same, the welfare impacts on each group would not be as the marginal utility of income would be different between these two groups. Empirical studies find that fixed changes in wealth have larger impacts on individuals that begin with less wealth. MATTHEW D. ADLER, MEASURING SOCIAL WELFARE: AN INTRODUCTION 16 (2019); Matthew D. Adler, *Factoring Equity into Benefit-Cost Analysis*, REG. REV. (Apr. 26,

burden disadvantaged communities because the total costs of the alternative are borne equally between disadvantaged and non-disadvantaged communities, *but* it also does not provide net benefits to disadvantaged communities. The Restorative alternative helps corrects inequalities by providing higher net benefits to disadvantaged communities than others.

While this example simplifies the decisions agencies face, it does demonstrate several important conceptual points. First, it shows that rules have tradeoffs. Agencies need to understand these tradeoffs to make good distributional decisions. Second, it demonstrates the significance of the choice of the agency's objective. On a casual review, there might not seem to be much of a distinction between a goal of minimizing adverse harms to disadvantaged communities and a goal of avoiding disproportionate burdens to disadvantaged communities. Yet, the two goals could have different implications in terms of the rule that gets selected, and the net benefits that accrue to disadvantaged communities. Third, and relatedly, it shows that neither a goal of minimizing harms nor avoiding disproportionate harms guarantees benefits to disadvantaged communities or a reduction in historical burdens. It is important to ensure that rules do not unnecessarily harm already disadvantaged communities, or burden them disproportionate to more well-off communities, but when these goals are pursued in isolation, the agencies might forego important net benefits to disadvantaged communities.

The problem is compounded when there is a tradeoff—not present in the example above—when the alternative that maximizes the net benefits to society is not the one that scores best on the distributional front. We will turn to that issue in Part II.

B. Agency Objectives in Practice

As illustrated in the previous section, the agency's goals inform the alternative it selects, which may result in completely different outcomes for

2021), https://perma.cc/8VPN-T6N2. Our hypothetical is simplified to illustrate a conceptual point, but cost-benefit analysis could account for the differences in marginal utility that different groups experience gains or losses. *See* INST. FOR POL'Y INTEGRITY, COMMENTS ON AVENUES TO PROMOTE EQUITY AND ADVANCE ENVIRONMENTAL JUSTICE THROUGH RULEMAKING AND REGULATORY ANALYSIS 23-25 (July 6, 2021), https://policyintegrity.org/documents/Comments_on_Advancing_Equity_and_Supporting_Underserved_Communiti es.pdf, discussing how cost benefit-analysis could be conducted through utilitarian or prioritarian weighting to improve distributional outcomes.

disadvantaged communities. And yet, it is not clear that agencies set these goals in consistent ways, fully aware of the implications of their decisions.

EPA rules, for example, tend to focus on whether the rulemaking creates "disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, and/or indigenous peoples," which is the No-Disproportionate-Burden alternative discussed above.[21] EPA developed this approach pursuant to language set forth in Executive Order 12898, promulgated during the Clinton Administration.[22] In it, President Clinton instructed federal agencies to promote environmental justice by identifying and addressing "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."[23] Accordingly, EPA finds that the distributional analysis is satisfied if a rule does not impose disproportionately high or adverse impacts on minority populations and/or low-income populations.[24]

EPA embraces this approach in six rules we considered: (1) Revised Cross-State Air Pollution Rule Update;[25] (2) Phasedown of Hydrofluorocarbons;[26]

---

[21] EPA broadly endorses this approach in a technical guidance promulgated in 2016. ENVT'L PROT. AGENCY, TECHNICAL GUIDANCE FOR ASSESSING ENVIRONMENTAL JUSTICE IN REGULATORY ANALYSIS 1 (Apr. 2016), *available at* https://www.epa.gov/sites/default/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf [hereinafter EPA TECHNICAL GUIDANCE] (defining fair treatment to mean that "no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies").

[22] *Id.* at 1, 4 (referencing Executive Order 12,898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 Fed. Reg. 9061 (Feb. 24, 1994)). EPA also cites Executive Order 12898 in several rulemakings in our sample. *See* Revised Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS, 86 Fed. Reg. 23,054, 23,162 April 30, 2021); Phasedown of Hydrofluorocarbons: Establishing the Allowance Allocation and Trading Program Under the American Innovation and Manufacturing Act, 86 Fed. Reg. 55,116, 55,125 (proposed Oct. 5, 2021); NESHAP: Carbon Black Production and Cyanide Chemicals Manufacturing Residual Risk and Technology Reviews, and Carbon Black Production Area Source Technology Review, 86 Fed. Reg. 66,096, 66,118 (Nov. 19, 2021) (to be codified at 40 C.F.R. pt. 63); NESHAP: Flexible Polyurethane Foam Fabrication Operations Residual Risk and Technology Review and Flexible Polyurethane Foam Production and Fabrication Area Source Technology Review, 86 Fed. Reg. 1868, 1890 (proposed Jan 11, 2021).

[23] Exec. Order No. 12898, 59 Fed. Reg. 9061 (Feb. 16, 1994).

[24] *See, e.g.*, NESHAP: Carbon Black Production and Cyanide Chemicals Manufacturing Residual Risk and Technology Reviews, and Carbon Black Production Area Source Technology Review, *supra* note 22, at 66,118; Revised Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS, *supra* note 22, at 23,163.

[25] Revised Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS, *supra* note 22, at 23,162 (considering whether the rule "has the potential to result in disproportionately high and adverse human health or environmental impacts on vulnerable populations or overburdened communities").

[26] Phasedown of Hydrofluorocarbons, *supra* note 22, at 55,125 (noting EPA's requirement that rules address and identify "disproportionately high and adverse human health or

(3) NESHAP: Carbon Black Production and Cyanide Chemical Manufacturing;[27] (4) NESHAP: Flexible Polyurethane Foam Fabrication Operations;[28] (5) NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units;[29] and (6) Revised Definition of "Waters of the United States."[30]

For example, EPA notes that the NESHAP: Carbon Black Production and Cyanide Chemical Manufacturing rule is not likely to "result in a significant increase or decrease in any existing risk disparities for the demographic groups."[31] Similarly, the agency indicates that the Revised Definition of "Waters of the United States" rule, unlike its predecessor, does not impose disproportionate impacts on minority, low-income, or indigenous populations.[32] EPA uses the same argument for NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units.[33] Further, EPA promulgates the Revised Cross-State Air Pollution Rule Update despite the absence of time to conduct a distributional analysis because there was insufficient information to suggest that disadvantaged communities would bear disproportionately high or adverse effects.[34]

---

environmental effects of their programs, policies, and activities on minority populations and low-income populations").

27 NESHAP: Carbon Black Production and Cyanide Chemicals Manufacturing Residual Risk and Technology Reviews, and Carbon Black Production Area Source Technology Review, *supra* note 22, at 66,118 (noting that EPA defines fair treatment to mean that "no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies").

28 NESHAP: Flexible Polyurethane Foam Fabrication Operations Residual Risk and Technology Review and Flexible Polyurethane Foam Production and Fabrication Area Source Technology Review, *supra* note 22, at 1890 (considering whether the rule would create "disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, and/or indigenous peoples").

29 NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units—Revocation of the 2020 Reconsideration, and Affirmation of the Appropriate and Necessary Supplemental Finding; Notice of Proposed Rulemaking, 87 Fed. Reg, 7624, 7647 (proposed Feb. 9, 2022) (noting the importance of "identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations").

30 Revised Definition of "Waters of the United States," 86 Fed. Reg. 69,372, 69,386 (proposed Dec. 7, 2021) (noting, in particular, the importance of considering disproportionate harms to "communities of color and low-income communities").

31 NESHAP: Carbon Black Production and Cyanide Chemicals Manufacturing Residual Risk and Technology Reviews, and Carbon Black Production Area Source Technology Review, *supra* note 22, at 66, 119.

32 Revised Definition of "Waters of the United States," *supra* note 30, at 69,383, 69, 448.

33 NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units, *supra* note 29, at 7646-47.

34 Revised Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS, *supra* note 22, at 23, 162.

These rules reflect a consistent commitment to not disproportionately burden disadvantaged communities. However, as the third row of Table 1 shows, the fact that disadvantaged communities do not bear a disproportionate burden does not necessarily mean that they benefit from the rule. Critically, this approach may encourage EPA to pursue rulemakings that could benefit disadvantaged communities but that do not remedy historical inequalities.

In other rules, EPA takes more affirmative approaches to promoting benefits in disadvantaged communities. For example, in its cost-benefit analysis for Heavy-Duty Engine and Vehicle Standards, EPA "assessed whether areas with the worst projected baseline air quality in 2045 have larger numbers of people of color living in them, and if those with the worst projected air quality would *benefit more from the proposed rule*," which is closer to the Restorative alternative identified in the fourth of the table above.[35] EPA notes that "relative to the rest of the population, people living near truck routes are more likely to be people of color and have lower incomes than the general population."[36] It determines that the rule, if implemented, would result in nationwide emissions reductions, improvements in air quality, and reductions in premature deaths and non-fatal illnesses.[37] EPA finds that these benefits would be particularly pronounced in areas with the worst baseline air quality—areas disproportionately populated by communities of color.[38] However, in this same rule, EPA also stated that it seeks "to ensure that no group of people faces a disproportionate burden of exposure to mobile-source pollution," in line with the No-Disproportionate Burden alternative.[39]

DOE, on the other hand, focuses on a hybrid approach of Harm-Minimization and No-Disproportionate-Burden. In several rules, DOE seeks to ensure that no consumer group would face significantly higher costs due to the implementation on its new Energy Conservation Standards for Consumer Clothes Dryers, reflecting the former approach.[40] In others, it notes that it "evaluates the impact on identifiable subgroups of consumers that may be disproportionately affected by a new or amended national standard […] to

---

35 Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards, 87 Fed. Reg. 17, 414, 17, 454 (proposed Mar. 28, 2022 (emphasis added).

36 *Id*. at 17, 643.

37 *Id*.

38 *Id.* at 17, 643-44.

39 *Id.* at 17, 452.

40 *See* Energy Conservation Program: Energy Conservation Standards for Consumer Clothes Dryers, 87 Fed. Reg. 51, 734, 51, 798-51, 801 (proposed Aug. 23, 2022).

determine the extent of any such disproportional impacts," reflecting the latter approach.[441]

II. Lack of Consideration of the Distributional Consequences of Alternatives

Our analysis finds that agencies commonly suggest that a rule produces benefits for disadvantaged communities by performing only a baseline analysis—how the burdens are distributed under the pre-rule status quo. In these instances they do not consider how the rule, or any potential alternatives, affect the costs and benefits that accrue to these communities. We find that it is not common for agencies to look at the distributional consequences of the proposed rule, and that it is even rarer for them to look at the distributional consequences of alternative rules. Without doing the latter analysis, agencies are not in a position to determine when the better distributional consequences of one alternative make that alternative more desirable than one with higher net benefits—the central inquiry that distributional analysis should be designed to inform.[42]

For example, in analyzing the environmental justice impacts of the Phasedown of Hydrofluorocarbons rule, EPA "focused mainly" on assessing and quantifying baseline emission exposures.[43] Its baseline analysis reveals that cancer and respiratory risks tend to be much higher within one to ten miles of an HFC production facility.[44] EPA's analysis also finds that "higher percentages of low-income and Black or African-American individuals live near several HFC production facilities compared with the appropriate national and state level average."[45] Ultimately, based on this baseline analysis and research confirming that disadvantaged communities are particularly vulnerable to climate impacts,[46] EPA concludes that "this rule reduces GHG

---

41 Energy Conservation Program: Energy Conservation Standards for Room Air Conditioners, 87 Fed. Reg. 20,608, 20,639 (proposed Apr. 7, 2022); *see also* Energy Conservation Program: Energy Conservation Standards for Consumer Clothes Dryers, *supra* note 40, at 51,769.

42 *See* Revesz & Yi, *supra* note 6. at 56-57.

43 Phasedown of Hydrofluorocarbons, *supra* note 22, at 55,127.

44 *Id*.

45 *Id*.

46 *Id*. (citing, e.g., ENV'T PROT. AGENCY, CLIMATE CHANGE AND SOCIAL VULNERABILITY IN THE UNITED STATES: A FOCUS ON SIX IMPACTS (2021), NAT'L ACAD. OF SCI., ENG'G, AND MED, CLIMATE CHANGE AND ECOSYSTEMS. WASHINGTON, DC: THE NATIONAL ACADEMIES PRESS (2019), *available at* https://doi.org/10.17226/25504.)

emissions, which will benefit populations that may be especially vulnerable to damages associated with climate change."[47]

Similarly, in proposing NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units, EPA's baseline demographic analyses reveals that low-income Black and white subsistence fishers were more likely to face toxic exposures from coal- and oil-fired electric utility steam generating units.[48] Based on these demographic findings, EPA reasons that disadvantaged communities were likely to benefit from emission standards regulating HAP from EGUs since they disproportionately suffer harms from it.[49]

But baseline analyses, while necessary to understand the potentially affected populations, are not alone sufficient to necessarily conclude that a rule that reduces pollution nationwide would benefit disadvantaged communities. Without analyzing how pollution reductions, or other costs and benefits, associated with the rule are distributed between disadvantaged communities and others, agencies cannot conclusively infer that such a rule would benefit disadvantaged communities or reduce historical inequities. To reach such a conclusion, EPA would need to actually determine whether the proposed rule will reduce pollution in the areas where disadvantaged communities live, as opposed to elsewhere, or directly affect the sources of pollution located in disadvantaged communities, and how those effects compared to the outcomes in other communities. Otherwise, EPA cannot definitively conclude that the proposed rule would achieve its policy goals just because overall levels of pollution fall.

For only a few regulations in our sample does the agency analyze the distributional consequences of the rule itself, in addition to those of the pre-rule baseline. For example, the distributional analysis for EPA's Heavy--Duty Engine and Vehicle Standards compares the 2045 "no action" baseline to its proposed rule. EPA conducts this distributional analyses with regard to two demographics: race/ethnicity and income.[50] The agency first looks at the

---

47 *Id.*; *see also id.* at 55,200 (determining that "this rule will reduce emissions of potent GHGs, which will reduce the effects of climate change, including the public health and welfare effects that disproportionately harm minority populations, low-income populations, and/or indigenous peoples.")

48 NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units, *supra* note 29, at 7647.

49 *See id.* at 7673.

50 EPA, Draft Regulatory Impact Analysis, Control of Air Pollution from New Motor Vehicles: Heavy Duty Engine and Vehicle Standards (March 2022), at 306, https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P10144K0.pdf [hereinafter Draft RIA for New Motor Vehicles].

distribution of pollution in the 2045 baseline, and finds that "nearly double the number of people of color live within areas with the worst ozone and PM2.5 air pollution compared to non-Hispanic Whites (NH-Whites)."[51] Then EPA finds that "the largest predicted improvements in both ozone and PM2.5 [from the proposed rule] are estimated to occur in areas with the worst baseline air quality."[52]

Similarly, the Department of Energy's Energy Conservation Standards for Manufactured Housing evaluates the impacts of the final rule on low-income consumers.[53] This distributional analysis was prompted by affordability concerns that the Department of Housing and Urban Development (HUD) and other commenters raised in response to DOE's initial 2016 proposed rule Energy Conservation Standards for Manufactured Housing.[54] In response to these concerns, DOE adopts a tiered approach in the 2021 final rulemaking.[55] DOE explores a range of alternatives in the lead up to the 2021 final rulemaking,[56] but only conducts and publishes a quantitative consumer subgroup analysis for the final rule.[57] DOE deems the final rule acceptable because it "provide[s] the availability of homes for low-income consumers while still providing energy savings via improved energy efficiency."[58]

Importantly, our analysis reveals that agencies rarely analyze the distributional impacts of alternatives. While it is imperative that agencies analyze the distributional consequences of a proposed or final rule, it is still not sufficient to advance environmental justice goals, especially if the goal of the agency is to reduce historical inequities. That kind of policymaking requires agencies to also analyze the distributional consequences of proposed alternatives.[59] Yet, even EPA's Heavy-Duty Engine and Vehicle Standards, which was lauded from an environmental justice perspective,[60] analyzes the

---

51 *Id*. at 307, 308.

52 *Id*.

53 DOE, Technical Support Document: Final Rule Energy Conservation Standards for Manufactured Housing at 9-2 (May 2022) [hereinafter DOE Technical Support Document for Manufactured Housing].

54 Energy Conservation Standards for Manufactured Housing, 81 Fed. Reg. 39,755 (proposed June 17, 2016); DOE Technical Support Document for Manufactured Housing, *supra* note 53, at 9-2.

55 Energy Conservation Standards for Manufactured Housing, 87 Fed. Reg. 32,728, 32,746 (May 31, 2022).

56 *Id*. at 32,813.

57 DOE Technical Support Document for Manufactured Housing, *supra* note 53, at 9-2.

58 *Id*. at 9-3.

59 *See* Revesz & Yi, *supra* note 6. at 56-57.

60 *See* Michelle Meyer, *Will EPA's Proposed Clean Truck Emission Standards Deliver Environmental*

distributional consequences of only the proposed option and does not look at the alternative option considered in the rulemaking.

Of the fifteen rules studied, only two Department of Energy rules analyzed the distributional impacts both of the regulation selected and of its alternatives.[61] These rules are analyzed in Part V, which argues that they provide a promising first step towards the establishment of an attractive approach to taking distributional consequences into account in the regulatory process, despite some shortcomings.[62]

Table 2 presents a summary of the rules evaluated. The table is organized by agency, rule status (proposed or final), and then date of action. For each rule, we first show, respectively, whether the agency engaged in a distributional analysis of the pre-rule status quo analysis, of the proposed rule, and of alternatives.

Table 2
Summary of Rules Evaluated

Name	***Agency***	***Status (Date)***	***Analysis of the Status Quo***	***Analysis of the Proposed Rule***	***Consideration of Alternatives***
Safety Standard for Operating Cords on Custom Window Coverings[63]	CPSC	Proposed Rule (Jan. 7, 2022)	No	No	No
Baseline Energy Efficiency Standards Update for New Federal Commercial and Multi-Family High-Rise Residential Buildings[64]	DOE	Final Rule (Apr. 7, 2022)	No	No	No

Justice in U.S. States. INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION (June 28, 2022), https://theicct.org/epa-truck- standards-environmental-justice-jun22/.

61 *See infra* Part V.

62 *See infra* text accompanying notes 135-147.

63 Safety Standard for Operating Cords on Custom Window Coverings, *supra* note 11, at 1014.

64 Baseline Energy Efficiency Standards Update for New Federal Commercial and Multi-Family High-Rise Residential Buildings, supra note 11, at 20,267.

Energy Conservation Program: Energy Conservation Standards for General Service Lamps[65]	DOE	Final Rule (May 9, 2022)	No	No	No
Energy Conservation Program: Energy Conservation Standards for Manufactured Housing[66]	DOE	Final Rule (May 31, 2022)	Yes	Yes	No
Energy Conservation Program: Energy Conservation Standards for Room Air Conditioners[67]	DOE	Proposed Rule (Apr. 7, 2022)	Yes	Yes	Yes
Energy Conservation Program: Energy Conservation Standards for Consumer Clothes Dryers[68]	DOE	Proposed Rule (Aug. 23, 2022)	Yes	Yes	Yes
Revised Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS[69]	EPA	Proposed Rule (Apr. 30, 2021)	No	No	No
Phasedown of Hydrofluorocarbons: Establishing the Allowance Allocation and Trading Program Under the American Innovation and Manufacturing Act[70]	EPA	Final Rule (Oct. 2, 2021)	Yes	No	No

[65] Energy Conservation Standards for General Service Lamps, s*upra* note 11, at 27,439.
[66] Energy Conservation Program: Energy Conservation Standards for Manufactured Housing, s*upra note 55*, at 32,728.
[67] Energy Conservation Program: Energy Conservation Standards for Room Air Conditioners, s*upra* note 41, at 20,608.
[68] Energy Conservation Program: Energy Conservation Standards for Consumer Clothes Dryers, s*upra* note 40, at 51,734.
[69] Revised Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS, s*upra* note 22, at 23,054.
[70] Phasedown of Hydrofluorocarbons, s*upra* note 22, at 55,116.

National Emission Standards for Hazardous Air Pollutants: Carbon Black Production and Cyanide Chemicals Manufacturing Residual Risk and Technology Reviews, and Carbon Black Production Area Source Technology Review[71]	EPA	Final Rule (Nov. 19, 2021)	Yes	No	No
National Emission Standards for Hazardous Air Pollutants: Flexible Polyurethane Foam Fabrication Operations Residual Risk and Technology Review and Flexible Polyurethane Foam Production and Fabrication Area Source Technology Review[72]	EPA	Proposed Rule (Jan. 11, 2021)	Yes	No	No

[71] National Emission Standards for Hazardous Air Pollutants: Carbon Black Production and Cyanide Chemicals Manufacturing Residual Risk and Technology Reviews, and Carbon Black Production Area Source Technology Review, *supra* note 22, at 66,096.

[72] National Emission Standards for Hazardous Air Pollutants: Flexible Polyurethane Foam Fabrication Operations Residual Risk and Technology Review and Flexible Polyurethane Foam Production and Fabrication Area Source Technology Review, *supra* note 22, at 1868.

Revised Definition of Waters of the United State[73]	EPA	Proposed Rule (Dec. 7, 2021)	Yes *Considers two baselines: (1) status quo and (2) vacated* *status quo under Trump Administration.*	No	No
National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generation Units-Revocation of the 2020 Reconsideration, and Affirmation of the Appropriate and Necessary Supplemental Finding[74]	EPA	Proposed Rule (Feb. 2, 2022)	Yes	Partial* **No separate distributional analysis*	No
Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards[75]	EPA	Proposed Rule (Mar. 28, 2022)	Yes	Yes	No

[73] Revised Definition of "Waters of the United States," *supra* note 30, at 69,372.
[74] NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units, *supra* note 29, at 7624.
[75] Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards, *supra* note 35, at 17,414.

Corporate Average Fuel Economy Standards for Model Years 2024-2026 Passenger Cars and Light Trucks[76]	NHSTA	Final Rule (May 2, 2022)	No	No	No
Pipeline Safety: Requirement of Valve Installation and Minimum Rupture Detection Standards[15]	PHMSA	Final Rule (Apr. 8, 2022)	No	No	No

III. Selecting Subgroups

Standardizing the selection of subgroups for distributional analyses, both within and across agencies, is key to successfully implementing the Biden-Harris administration's policy agenda. However, our analysis also finds that agencies are not consistent in which demographic groups they consider in their distributional analyses. There are discrepancies even within an agency. There is a risk, therefore, that the distributional analysis will be manipulated to reach a predetermined result.[78]

For example, the demographic analysis of EPA's Heavy-Duty Engine and Vehicle Standards broadly considers impacts across two categories: race/ethnicity and income. EPA subdivides race/ethnicity into two groups: "people of color" and "Non-Hispanic White." People of color include Black, Asian, Native American, Hawaiian/Pacific Islander, and Hispanic populations.[79] EPA measures income by poverty status, dividing people into two groups: those earning above and below 200% of the federal poverty line.[80] EPA explains

[76] Corporate Average Fuel Economy Standards for Model Years 2024-2026 Passenger Cars and Light Trucks, *supra* note 11, at 25,710.
[77] Pipeline Safety: Requirement of Valve Installation and Minimum Rupture Detection Standards, *supra* note 11, at 20,940.
[78] *See* Revesz & Yi, *supra* note 6, at 57, 73-76.
[79] Draft RIA for New Motor Vehicles, *supra* note 50, at 306.
[80] *Id*. at 307.

that it examines the effects of the rulemaking on these communities because "environmental hazards such as air pollution are more prevalent in areas where people of color and low-income populations represent a higher fraction of the population compared with the general population."[81] Further, it cites a recent study finding that light- and heavy-duty vehicle sources disproportionately affect people of color,[82] as well as its own analysis confirming that "people living near FAF4 truck routes are more likely to be people of color and have lower incomes than the general population."[83] Overall, it notes "substantial evidence that people who live or attend school near major roadways are more likely to be of a non-White race, Hispanic, and/or have a low SES."[84]

In contrast, in NESHAP: Flexible Polyurethane Foam Production[85] and NESHAP: Carbon Black Production and Cyanide Chemicals Manufacturing Source,[86] EPA includes a broader set of demographic groups in its baseline analyses: White, African American, Native American, other races and multiracial, Hispanic or Latino, children 17 years of age and under, adults 18 to 64 years of age, adults 65 years of age and over, adults without a high school diploma, people living below the poverty level, people living below two times the poverty level, and linguistically isolated people. To perform these analyses, EPA uses EJScreen—its environmental justice tool[87]—and the data within it to compare the demographics of communities in affected areas to the national averages.[88]

---

81 Heavy-Duty Engine and Vehicle Standards, *supra* note 35, at 17,452 (citing Gregory Rowangould, *A Census of The Near-Roadway Population: Public Health and Environmental Justice Considerations*, 25 TRANSP. RSCH. PART D 59 (2013); Julian D. Marshall, Kathryn R. Swor & Nam P. Nguyen, *Prioritizing Environmental Justice and Equality: Diesel Emissions in Southern California*, 48 ENV'T SCI. TECH. 4063 (2014); Julian Marshall, *Environmental Inequality: Air Pollution Exposures in California's South Coast Air Basin*, 42 ATMOSPHERIC ENV'T 5499 (2008)).

82 *Id*. (citing Christopher Tessum et al., *PM2.5 Polluters Disproportionately and Systemically Affect People of Color in the United States*, 7 NAT. SCI. 1 (Apr. 2021)).

83 *Id*. (citing EPA, Memorandum to the Docket, Estimation of Population Size and Demographic Characteristics among People Living Near Truck Routes in the Conterminous United States (2021)).

84 Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards, *supra* note 35 at 17,454.

85 NESHAP: Flexible Polyurethane Foam Fabrication Operations, *supra* note 22, at 1883 n.23.

86 EPA, Risk and Technology Review: Analysis of Demographic Factors for Populations Living Near Carbon Black Production Source Category Operations (Sept. 1, 2020) at 1-2 [hereinafter EPA RIA for Carbon Black Production Source Operations].

87 EPA, EJSCREEN: ENVIRONMENTAL JUSTICE SCREENING AND MAPPING TOOL, https://www.epa.gov/ejscreen (last visited Dec. 2, 2022) [hereinafter EJSCREEN].

88 Both documents refer to EPA's Environmental Justice Risk and Proximity Analysis Tool, which later became EJ Screen. *See* EPA, Risk and Technology Review: Analysis of Demographic Factors for Populations Living Near Flexible Polyurethane Foam Fabrication Source Category Operations (Sept. 25, 2020) at 1; EPA RIA for Carbon Black Production Source Operations,

In its Revised Definition of "Waters of the United States," EPA undertakes three separate analyses: environmental justice, tribal impact, and sectoral. For the environmental justice analysis, EPA uses EJScreen to compare communities in affected areas to the national averages.[89] In the Revised WOTUS proposed rule's environmental justice analysis, EPA considers distributional impacts across the following demographic groups: people living below two times the poverty level, people belonging to a minority racial/ethnic group, adults without a high school diploma, linguistically isolated households, children under the age of five, adults aged 65 and older, and people belonging to an American Indian tribe.[90]

DOE is more consistent across its distributional analyses. In part, this consistency derives from DOE's interpretation of the Energy Policy and Conservation Act (EPCA) requirements, under which the agency must consider the economic impact of energy-efficiency standards on consumers.[91] Since at least 1996, the agency has interpreted the EPCA's language to require it to take into account impacts on significant subgroups of consumers, including low-income consumers.[92] As a result, DOE considers impacts on low-income households/consumers across its distributional analyses in Energy Conservation Standards for Manufactured Housing,[93] Energy Conservation Standards for Room Air Conditioners,[94] and Energy Conservation Standards for Consumer Clothes Dryers.[95] DOE's Energy Conservation Standards for Room Air Conditioners[96] and Energy Conservation Standards for Consumer Clothes Dryers[97] also consider the impacts on senior-only households.

Generally, agencies should be consistent in which subgroups they consider and how they categorize them. Adhering to a more structured approach allows

---

supra note 86, at 1; s*ee also* EJSCREEN, *supra* note 87.

89 EPA, Economic Analysis for the Proposed "Revised Definition of 'Waters of the United States'" Rule (Nov. 17, 2021), at 89-90.

90 *Id.* at 90.

91 Caroline Cecot & Robert Hahn, *Incorporating Equity Concerns in Regulation* 14 (George Mason Law & Econ. Rsch. Paper No. 22-19, 2022) (citing Energy Policy and Conservation Act, 42 U.S.C. 6291-6309).

92 *Id*. (citing DOE, Energy Conservation Program for Consumer Products: Procedures for Consideration of New or Revised Energy Conservation Standards for Consumer Products, 61 Fed. Reg. 36,974, 36,978, 36,985 (1996)).

93 Energy Conservation Standards for Manufactured Housing, *supra* note 55, at 32,737-38.

94 DOE, Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Room Air Conditioners (March 2022) at 11-1 [hereinafter DOE Technical Support Document for Room Air Conditioners].

95 Energy Conservation Standards for Consumer Clothes Dryers, *supra* note 40, at 51,737.

96 DOE Technical Support Document for Room Air Conditioners, *supra* note 94, at 11-1.

97 Energy Conservation Standards for Consumer Clothes Dryers, *supra* note 40, at 51,737.

agencies to assess whether and how its collective rulemakings are moving the needle on distributional goals. However, there may be cases where using additional subgroups is justified where the regulation specifically targets or affects a certain group of people. For example, in NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units proposed rule, EPA considers the impacts of mercury and HAP reduction on subsistence fishers, particularly women of child-bearing age and their children.[98] EPA notes that subsistence fishers consume self-caught fish, and as a result, "experience elevated levels of exposure to chemicals that bioaccumulate in fish including, in particular, methylmercury," leaving women subsistence fishers and their children more vulnerable to the harms.[99] In those cases, such analysis should be performed in addition to the standard distributional analysis, and the agency should explain why the deviation from the standard practice is appropriate.

IV. Limited Consideration of Costs and Benefits Within Distributional Analysis

Circular A-4—the Office of Management and Budget's guidance document for conducting regulatory impact analyses under Executive Order 12,866[100]—provides agencies with detailed guidance on how to conduct this analysis. However, Circular A-4 contains just two paragraphs addressing how agencies should consider "distributional effects."[101] It indicates that regulatory analyses should "provide a separate description of distributional effects … described quantitatively to the extent possible."[102] But it provides no guidance on how this analyses should be done. Given this lack of guidance,[103] it is unsurprising that agency distributional analyses are inconsistent.

The lack of guidance proves consequential especially on agencies decisions to identify which categories of costs and benefits to include in the

[98] NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units, *supra* note 29, at 7664.

[99] *Id*. at 7637 n.28 (citing Joanna Burger, *Daily Consumption of Wild Fish and Game: Exposures of High-End Recreationalists*, 12 INT'L J. ENV'T HEALTH RSCH. 343 (2002); Fraser Shilling, Aubrey White, Lucas Lippert & Mark Lubell, *Contaminated Fish Consumption in California's Central Valley Delta*. 110 ENV'T RSCH. 334 (2010)).

[100] OFF. OF MGMT. & BUDGET, CIRCULAR A-4, at 1-2 (2003) [hereinafter CIRCULAR A-4].

[101] *Id.* at 14.

[102] *Id*.

[103] *See* Revesz & Yi, *supra* note 6, at 82-83.

distributional analyses and how to disaggregate these categories. Circular A-4 directs agencies, to the extent feasible, to include *all* quantifiable costs and benefits in their cost-benefit analyses and to discuss all relevant unquantifiable costs and benefits, but a similar guidance for distributional analysis does not exist. As a result, we see that even when agencies conduct distributional analyses, the analyses often focuses on a limited set of costs and benefits, leading to a too narrow scope to prove useful. In addition, Circular A-4 does not provide guidance to agencies on how to disaggregate costs and benefits among subgroups. Without proper disaggregation, however, it is not possible for agencies to fully understand the distributional consequences of the rules they promulgate.

A. Excluded Categories

Our analyses reveals that agencies tend to conduct distributional analyses across fewer categories of quantifiable costs and benefits than those they evaluate in their cost-benefit analyses. In addition, agencies tend to omit pertinent discussions of unquantified costs and benefits in their distributional analyses, even when they could have significant impacts on disadvantaged communities.

In terms of quantifiable benefits, Circular A-4 instructs agencies performing regulatory impact analyses to "quantify *all* potential incremental benefits and costs" to the extent feasible.[104] It explains that benefit-cost analysis a compelling tool for regulatory analysis because "[w]here *all* benefits and costs can be quantified and expressed in monetary units, benefit-cost analysis provides decision makers with a clear indication of the most efficient alternative…."[105] Where fewer categories are (or can be) considered, the tool becomes less helpful as a decision-making tool.[106] However, agencies do not apply this same rigor to their distributional analyses. We find that agencies consider fewer categories of costs and benefits in their distributional analyses compared to their cost-benefit analyses, rendering their distributional analyses less helpful as analytical tools.

---

[104] CIRCULAR A-4, *supra* note 100, at 45.
[105] *Id*. at 2 (emphasis added).
[106] *Id*. at 2-3.

For example, in EPA's distributional analysis for its Heavy-Duty Engine and Vehicle Standards proposed rule, EPA considers distributional impacts on air quality by looking at two metrics: ozone and particulate matter ($PM_{2.5}$) reductions.[107] In its analysis, the agency "found that (in absolute terms) the largest predicted improvements in both ozone and $PM_{2.5}$ are estimated to occur in areas with the worst baseline air quality, where a substantially larger number of people of color are expected to reside."[108] This analysis is significantly limited compared to the agency's full cost-benefit analysis, in which the agency not only quantifies $PM_{2.5}$ and ozone reductions but also monetizes them.[109]

In addition, in its cost-benefit analysis, the agency considers additional benefits that flow from reductions in $PM_{2.5}$ and ozone such as declines in hospital admissions and emergency department visits, asthma symptoms, restricted activity days, and school absence days, as well as avoided premature mortality.[110] These benefits may be particularly pronounced in disadvantaged communities, where people face greater barriers to care and receive lower levels of care when they do obtain it.[111] EPA also considers the impact of the rule across a broader set of pollutants (hydrocarbons, air toxics, oxides of nitrogen, diesel exhaust, and carbon monoxide); the rule's impacts on traffic and derivative benefits; and the rule's impacts on employment.[112] But EPA does not explain why it does not include these categories in its distributional analysis.

Similarly, EPA's distributional analysis in the proposed rule of NESHAP: Coal- and Oil- Fired Electric Utility Steam Generating Units focuses only on

---

[107] EPA, Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards Draft Regulatory Impact Analysis (March 2022), at 307-09, https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P10144K0.pdf [hereinafter EPA RIA for New Motor Vehicles].

[108] *Id*. at 307-11 (giving the full results of the analysis in Tables 6-7 through 6-10).

[109] Heavy-Duty Engine and Vehicle Standards, *supra* note 35, at 17, 589.

[110] *Id*. at 17, 585.

[111] *See, e.g.*, CDC, Impact of Racism on our Nation's Health, https://www.cdc.gov/minorityhealth/racism- disparities/impact-of-racism.html (last visited Oct. 29, 2022); Jennifer Tolbert, Kendal Orgera & Anthony Damico, *Key Facts About the Uninsured Population*, KFF (Nov. 6, 2020), https://www.kff.org/uninsured/issue-brief/key-facts-about-the-uninsured-population/(finding that low-income individuals and people of color were less likely to have health insurance); Hailun Liang, May A. Beydoun & Shaker M. Eid, Health Needs, *Utilization of Services and Access to Care Among Medicaid and Uninsured Patients with Chronic Disease in Health Centres*, 24 J. HEALTH SERV. RSCH. & POL'Y 172 (2019) (finding that individuals without health insurance are less likely to seek medical care).

[112] Heavy-Duty Engine and Vehicle Standards, *supra* note 35, at 17, 589.

the benefits arising from reductions in methylmercury and HAP emissions.[113] Meanwhile, the cost-benefit analysis for the rule also considers benefits arising from incidental emissions like SO_2, PM, ozone, CO_2.[114] It is not clear why EPA does not consider these emissions in its distributional analysis of this rule, especially when some of these categories play a prominent role in the distributional analysis of the Heavy-Duty Engine and Vehicle rule.[115]

EPA's distributional analysis in its Phasedown of Hydrofluorocarbons rule has a similarly narrow focus compared to the agency's cost-benefit analysis. In its distributional analysis, it considers only co-pollutants and their toxicity-weighted concentrations.[116] But in its cost-benefit analysis, EPA considers more categories of costs and benefits including the social cost of each HFC and broader labor impacts.[117] For many variables, EPA offers no explanation as to their absence from the distributional analyses. For other variables—such as total cancer and respiratory risk—EPA explains that it could not disaggregate the data by race, ethnicity, or income.[118] Instead, it analyzed "the total cancer and respiratory risk for communities near the eight HFC production facilities."[119]

We also find that agencies do not adequately discuss unquantified costs and benefits in their distributional analyses. In Circular A-4, OMB instructs that where agencies are "not able to quantify the effects [of a rule, agencies] should present any relevant quantitative information along with a description of the unquantified effects…."[120] Perhaps because similar explicit guidance for distributional analyses is lacking, our analysis finds that agency distributional analyses do not consider unquantified effects even when agencies often address unquantified benefits in their cost-benefit analyses.

In fact, most of the rules in our sample do not discuss unquantified impacts at all in their distributional analyses. One exception is EPA's Phasedown of Hydrofluorocarbons. In its distributional analysis, EPA acknowledges the potential for "inadvertent or unexpected distributional

---

[113] NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units, *supra* note 29, at 7664-65.
[114] *Id*. at 7647-48.
[115] Heavy-Duty Engine and Vehicle Standards, 87 Fed. Reg. at 17, 454.
[116] EPA, Regulatory Impact Analysis for Phasing Down Production and Consumption of Hydrofluorocarbons (HFCs) [hereinafter RIA for Phasedown of Hydrofluorocarbons] (Sept. 2021) at 139-52.
[117] *Id*. at 63, 103.
[118] *Id*. at 152.
[119] *Id*.
[120] CIRCULAR A-4, *supra* note 100, at 27.

effects from this program" such as those arising from "the release of toxic chemicals that are feedstocks, catalysts, or byproducts in the production of HFCs or HFC substitutes."[121] The agency notes that these effects are most likely to be experienced by farmers working proximate to these sources as well as other disadvantaged communities.[122] In the transition period, EPA explains that there may be certain adverse health risks "for communities living near facilities that produce HFCs and HFC substitutes, to the extent the use of toxic feedstocks, byproducts, or catalysts changes and those chemicals are released into the environment."[123] Importantly, EPA recognizes the potential for heterogeneous effects across groups due to these unquantified effects.

B. Lack of Disaggregation

Our analysis also reveals that agencies do not sufficiently disaggregate the costs and benefits they consider among affected subgroups. Without this disaggregation it is not possible to determine how a rule would affect disadvantaged communities. Below we provide two examples categories of costs and benefits that agencies considered as part of their cost-benefit analysis but not sufficiently disaggregated for their distributional analysis.

One example concerns energy prices. For example, in the cost-benefit analysis for NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units, EPA projects a small but nonzero (0.3 cents/kWh) increase in national electricity prices.[124] Ultimately, it dismisses the slight increase as inconsequential, noting that the deviation falls within historical price fluctuations.[125]

While this reasoning may hold in aggregate, it overlooks the fact that the rule affects only *certain* power plants. Areas where affected plants are located may face disproportionately higher price increases than the national average. And, as disadvantaged communities also tend to be already energy burdened, any price increase may be particularly pronounced in these communities. Similarly, if a policy reduces energy prices by a small percentage, that does not mean the policy is inconsequential from a distributional standpoint.

---

[121] Phasedown of Hydrofluorocarbons, *supra* note 22, at 55, 126.
[122] *Id*. at 55, 126-27.
[123] *Id*. at 55, 127.
[124] NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units, *supra* note 29, at 7658.
[125] *Id*.

For example, one analysis done for the Inflation Reduction Act shows that even though the law is projected to reduce household energy expenditure by 0.7% on average nationally, the lowest income quintile would see savings closer to 1.8%.[126] To deal with such distributional effects, agencies need more granular analyses in which first determines areas in which price increases are likely; and then determines the demographics of those regions.

Another example concerns impacts on employment. In the Draft Regulatory Impact Analysis for the Heavy-Duty Engine and Vehicle Standards proposed rule, EPA considers the impact of the regulation on employment.[127] As part of the quantitative analysis, EPA estimates *cost effects*—the impact on employment due to increased costs from adopting technologies needed for vehicles to meet the standards.[128] To estimate these effects, EPA uses the historic share of labor in the cost of production to predict how labor demands will change in response to compliance with the proposed regulation.[129] Specifically, EPA "multipl[ies] the share of labor in production costs by the production cost increase estimated as an impact of this rule."[130] However, this analysis is not sufficiently granular to understand how the rule will affect relevant labor subgroups—particularly disadvantaged communities.

EPA's analysis overlooks the fact a regulation may affect the nature of an industry's workforce. For example, the workforce required to comply with regulations may look very different from the workforce that gets displaced. As a result, labor hours associated with higher compliance costs may be fulfilled by a different group of workers, potentially from a different socio--economic group. Thus, a more granular analysis is required to determine a regulation's labor effects. Moreover, manufacturers may close noncompliant plants and open new, compliant plants in completely different regions. Once again, the job creation associated with compliance would be attained by a different group of workers. More extensive analysis is required to understand these effects.

---

126 *See* Nicholas Roy et al., Beyond Clean Energy, *The Financial Incidence and Health Effects of the IRA*, Resources for the Future 15 (Oct. 2022), https://media.rff.org/documents/Report_22-11_v4.pdf.

127 EPA, RIA for New Motor Vehicles, *supra* note 107, at 420-26.

128 *Id*. at 421.

129 *Id*.

130 *Id*.

V. Towards a Better Approach

As we explain in Part II, without a distributional analysis of alternatives, it is not possible for an agency to determine when the better distributional consequences of one alternative should outweigh the higher net benefits of another one. Thus, unless analysis of alternatives becomes institutionalized, it is inevitable that regulatory policy will pay inadequate attention to the impact on disadvantaged communities. In this Part, we discuss the two rules, out of the fifteen rules in our sample, in which the agency, in both cases DOE, analyzed the distributional consequences of alternatives. We also discuss a third DOE rule, the Energy Conservation Standards for Manufactured Housing, in which, while the agency did not perform this analysis, it justified on distributional grounds the alternative that it ultimately selected.

In the final rule for the Energy Conservation Standards for Manufactured Housing, DOE rejects a more stringent standard in the proposed rule on distributional grounds. DOE had initially proposed an untiered standard, which applied to all manufactured housing. In the final rule, it instead adopts a tiered standard, under which "a subset of the energy conservation standards (based on retail list price) would be less stringent for certain manufactured homes."[131] The untiered standard, which DOE rejects in the final rule, had higher net benefits than the tiered standard,[132] which the agency chooses. In making this choice, DOE explains that the untiered standard does not adequately address the affordability of manufactured housing for low-income consumers.[133]

While it is significant that DOE selects a rule that addresses affordability concerns rather than the rule that yields the highest net benefits, DOE's analysis is still incomplete.[134] It just assumes that the untiered approach raises insurmountable affordability concerns. As a result, DOE never faces the question of how to trade off the higher net benefits of one rule against the better distributional consequences of another one.

The Manufactured Housing rule does not involve a distributional analysis of different alternatives, which Part II argues is the gold standard for

---

131 Energy Conservation Standards for Manufactured Housing, *supra* note 55, at 32, 729.
132 *See* DOE Technical Support Document for Manufactured Housing, *supra* note 53, at 15-3.
133 Energy Conservation Standards for Manufactured Housing, DOE Technical Support Document for Manufactured Housing, *supra* note 53, at 32, 742-46.
134 *See* DOE Technical Support Document for Manufactured Housing, *supra* note 53, ch. 9.

distributional analysis. But DOE does analyze the consequences of alternatives in two other rules.

In evaluating the proposed Energy Conservation Standards for Room Air Conditioners, DOE analyzes the impacts of the proposed standards on low-income and senior-only households,[135] evaluating multiple policy scenarios, referred to as trial standards levels (TSLs). For each TSL for product classes with a sufficient sample size, the agency calculates average lifecycle--cost savings relative to the no-new-standards scenario for each subgroup.[136] Following extensive analysis, the agency finds that "[i]n most cases, the values for low-income households and senior-only households at the considered efficiency levels are not substantially different from the average for all households."[137] As a result, the distributional analysis ends up not affecting the choice of standard.

The situation is different for the proposed Energy Conservation Standards for Consumer Clothes Dryers rule, which sets for the most promising approach to distributional analysis of the 15 rules analyzed in this article. There, DOE evaluates the net benefits and distributional consequences of six TSLs.[138] But for this regulation, the agency's choice of alternative is significantly affected by the distributional analysis.

To determine which alternative to select in the Clothes Dryer rule, DOE employs a "walk-down" approach, evaluating first the most stringent standards and proceeding then, in turn to the less stringent alternatives.[139] In its cost-benefit analysis, DOE finds the rule yields the highest overall net benefits at the two most stringent TSLs: TSL 6 and TSL 5.[140] And yet, DOE does not select either of these options. For both these TSLs, DOE finds that the rule's energy-saving, emissions reduction, and consumer benefits would all be outweighed by the economic burden the standard places "on many consumers, *especially senior consumers*, as well as the impacts on manufacturers."[141] At TSL 6, for example, DOE estimates that more than 65 percent of senior consumers would experience increased net life-cycle costs.[142] Moreover, consumers with

---

135 DOE Technical Support Document, *supra* note 94, at 11-1.
136 Energy Conservation Standards for Room Air Conditioners, *supra* note 41, at 20, 639.
137 Energy Conservation Standards for Room Air Conditioners, *supra* note 41, at 20, 656.
138 Energy Conservation Standards for Consumer Clothes Dryers, *supra* note 40, at 51,737.
139 *Id.*
140 *See id.* at 51, 796 table V. 42.
141 *Id*. at 51,799, 51, 800 (emphasis added).
142 *Id*. at 51,799.

the lowest-performing existing electric standard clothes dryers (often low-income consumers) were "more likely to experience a net cost" at TSL 6.[143]

Ultimately, DOE adopts TSL 3, which yields less than half the societal net benefits than either TSL 5 or TSL 6.[144] But at TSL 3, DOE finds that "across the product classes, less than 1 percent of the consumers, including low-income consumers, will experience a net [lifecycle] cost."[145] DOE also finds that only 1 percent of senior consumers will face higher net costs under TSL 3.[146]

Even though DOE relies extensively on the distributional analysis to pick a less stringent standard with lower net benefits, it does not explicitly state or imply that it selected TSL 3 due solely to the distributional impacts on disadvantaged communities. For example, it also states that under TSL 3, all consumer groups benefit from higher lifecycle cost savings, and fewer consumers face higher net costs.[147] And, moreover, at this level the manufacturing industry faces lower conversion costs and a lower maximum decrease in industry's net present value.[148]

DOE's attention to the impacts low-income and senior-only household would experience at each trial standard level and basing the final rule on this distributional consideration represent a meaningful difference from the approaches taken in many other rulemakings. However, DOE's analysis does not provide much guidance or insight as to how the agency would handle scenarios in which the impacts on and interests of disadvantaged communities do not align with the interests of other significant groups (in this case, consumers more broadly and also manufacturers). Therefore, further analytical work remains to be done on the question of how agencies consider distributional impacts on disadvantaged communities and the associated tradeoffs in their rulemakings.

---

143 *Id*.

144 *Id*. at 51,796 (TSL 3 yields less than half the overall net benefits of TSL 5 or TSL 6 across all scenarios and discount rates).

145 *Id*. at 51, 801.

146 *Id*.

147 *Id*. at 51, 802.

148 *Id*. Meanwhile, under TSL 6, for example, DOE projected a contraction of the manufacturing industry's net present value by upwards of $1,077.6 million. *Id.* at 51, 799.

Conclusion

The Biden-Harris Administration has made attention to distributional issues in general and environmental justice issues in particular a centerpiece of its policy focus. And it has explicitly indicated that distributional considerations should play a significant role in the regulatory process.

This Article examines how this vision was implemented by evaluating fifteen important proposed and final rules promulgated during the Biden--Harris Administration's first eighteen months. The main conclusion that emerges from this analysis is that significant analytical work remains to be done to realize the administration's goal. First, the administration should specify with more particularity what it means by "appropriately benefit and do not inappropriately burden disadvantaged … communities," eliminating the inconsistent approaches currently in use. Second, it should routinely evaluate the distributional consequences of multiple alternatives to its proposed rule; without this analysis agencies will not be in a position to determine when the better distributional attributes of one alternative should outweigh the higher net benefits of another one. Third, the administration should use a consistent definition of "disadvantaged communities," or explain why departures from a standard approach are desirable in particular situations. Fourth, it should consider a complete set of costs and benefits in its distributional analysis, and not a truncated subset of those that it considers in its cost-benefit analysis.

One of the fifteen regulations shows that this work can be done. The approach set forth in that regulation, with the necessary improvements, should be institutionalized, so that it is the norm and not an aberration.