

Climate Change Cosmopolitanism

Cass R. Sunstein[†]

*Do foreign lives matter? When? How much? If one nation damages another, what are its obligations, as a matter of law and policy? These questions can be approached and understood in diverse ways, but they are concretized in debates over the “social cost of carbon,” which is sometimes described as the linchpin of national climate policy. The social cost of carbon, meant to capture the damage done by a ton of carbon emissions, helps to determine the stringency of regulations in many domains, including emissions limits on motor vehicles and on stationary sources. In determining the social cost of carbon, agencies must decide whether to use the global number (as chosen by Presidents Barack Obama and Joe Biden) or instead the domestic number (as chosen by President Donald Trump). Use of the global number should be seen as a form of climate change cosmopolitanism, whether the grounding is moral, strategic, or otherwise. Within the constraints of governing statutes, there are four central arguments in favor of using the global figure. (1) The **epistemic** argument: experts do not know a great deal about the purely domestic harms from climate change, which makes it impossible to generate a purely domestic number. (2) The **interconnectedness** argument: harms done to U.S. citizens by domestic emissions are not limited to those directly brought about by the incremental increase in temperatures within the territorial boundaries of the United States; they include an assortment of harms to U.S. citizens living abroad and harms to U.S. citizens and interests that come as a result of the cascading effects of harm done to foreigners (including governments, companies, and individuals), which are ultimately felt by U.S. citizens or within the United States. (3) The **moral cosmopolitan** argument: in deciding on the scope of its regulations, the United States has a moral obligation to take account of the harms it does to non-Americans. (4) The **reciprocity** argument: if all nations used a domestic figure, all nations would lose; a successful approach to the climate problem requires nations to treat greenhouse gas emissions as a global, and not merely domestic, externality. Neither the epistemic argument nor the incompleteness argument*

[†] Robert Walmsley University Professor, Harvard University. I am grateful to Martha Nussbaum, Eric Posner, and Lucia Reisch for valuable comments on a previous draft; to Michael Greenstone for many valuable discussions; and to participants in a public law workshop at Harvard Law School. This Article was started several years ago, but this draft was completed while the author was serving as Senior Counselor and Regulatory Policy Officer in the Department of Homeland Security. Nothing here should be taken to represent an official view in any way.

justifies the choice of the global number. The moral cosmopolitan and reciprocity arguments stand on much stronger grounds, though they both run into plausible objections.

I must again repeat, what the assailants of utilitarianism seldom have the justice to acknowledge, that the happiness which forms the utilitarian standard of what is right in conduct, is not the agent's own happiness, but that of all concerned. As between his own happiness and that of others, utilitarianism requires him to be as strictly impartial as a disinterested and benevolent spectator. In the golden rule of Jesus of Nazareth, we read the complete spirit of the ethics of utility. To do as one would be done by, and to love one's neighbour as oneself, constitute the ideal perfection of utilitarian morality.

—John Stuart Mill¹

I. The Nation or the World?	1013
II. A Long and Winding Road	1019
A. Do Foreign Lives Count?	1019
B. Statutes	1020
C. Theory and Practice	1022
III. The Social Cost of Carbon: Of Presidents, Agencies, and Courts	1024
A. The Executive Branch	1024
B. Domestic or Global? Legal Challenges	1027
IV. Ignorance and Relationships	1030
A. The Epistemic Argument	1030
B. Interconnectedness	1032
V. Of Morality and Strategy	1033
A. Moral Cosmopolitanism	1033
B. Reciprocity	1037
VI. Agency Practice and Administrative Law: A Brief Note	1039
Conclusion	1041

1. JOHN STUART MILL, UTILITARIANISM 31-32 (Floating Press 2009) (1863).

I. The Nation or the World?

In American law, there is a pervasive struggle between technocratic and political conceptions of regulation. This struggle can be found within agencies themselves and also within courts. On one view, regulatory decisions call for a high degree of technical expertise. An important implication is that much of the time, the political convictions of the President of the United States should not much matter. Facts are what matter. One purpose of administrative law, as it operates within both agencies and courts, is to ensure that expert understandings prevail, at least within the constraints of law and across a wide range of judgments for which those understandings really should be decisive. It follows that across administrations, continuity must be maintained, at least if technical expertise calls for a particular approach.

On another view, “elections have consequences,” and regulatory decisions do and should depend on political convictions, broadly understood. On that view, one purpose of administrative law, as it operates within agencies and courts, is to give an appropriately wide berth to political judgments, at least within the constraints of law and across a wide range of issues. It follows that across administrations, continuity need not be maintained. Facts are not all that matter. With respect to health, safety, and the environment, for example, the Trump Administration need not accept the judgments of the Obama Administration, and the Biden Administration need not accept the judgments of the Trump Administration.

In stylized forms, both technocratic and political conceptions of regulatory practice are far too crude. Some regulatory judgments depend on broadly political convictions, and that is entirely appropriate. Different administrations need not approach air pollution or occupational safety in the same way. At the same time, elections should not *always* have consequences. Agencies cannot say that two plus two equals five,² that benzene is not a carcinogen, that smoking does not cause lung cancer, or that greenhouse gas emissions do not cause climate change. The question whether and to what extent regulatory decisions may be, and should be, technocratic or political depends on the context, including statutory language and existing evidence, and requires answers to a set of subsidiary questions. As William Blake wrote, commenting on Sir Joshua Reynolds: “To Generalize is to be an Idiot. To Particularize is the Alone Distinctive of Merit.”³ (True, Blake generalized there, but let us not be fussy.)

What is the appropriate stringency of regulations designed to reduce greenhouse gas emissions? How should agencies decide whether to reduce emissions modestly, aggressively, or more than that? The initial answers, and

2. Cf. GEORGE ORWELL, 1984 (1949).

3. The Works of Sir Joshua Reynolds with *William Blake's Manuscript Notes*, BRIT. LIBR., <https://www.bl.uk/collection-items/the-works-of-sir-joshua-reynolds-with-william-blakes-manuscript-notes> [<https://perma.cc/8QEX-X7BH>].

potentially the decisive ones, depend, of course, on the relevant statutes. What do they require or permit? Under Executive Orders 12,866⁴ and 13,563,⁵ moreover, agencies are required to quantify the costs and benefits of their regulations, and to proceed, to the extent permitted by law, only if the benefits justify the costs. Sometimes described as “the most important number you have never heard of,”⁶ the social cost of carbon plays a significant role in climate change policy.⁷ According to one count, it was used in eighty-three regulatory or planning processes, from six agencies, from 2009 to 2016.⁸ A high social cost of carbon will of course tend to support aggressive regulations, while a low one will tend to support modest regulations. But how should public officials, and reviewing courts, decide whether the number should be high or low?⁹

It is tempting to think that the ultimate judgment is “political,” but that would be far too coarse.¹⁰ With respect to scope and levels of stringency, relevant statutes constrain agency judgments,¹¹ and within statutory boundaries, agency decisions must not be arbitrary.¹² With respect to arbitrariness in particular, and sound policy more generally, the social cost of carbon depends on a series of scientific or technical conclusions, or at least on conclusions with scientific or technical dimensions.¹³ For example, it is necessary to make an assessment of

4. Exec. Order No. 12,866, 58 Fed. Reg. 51,735 (Oct. 4, 1993).

5. Exec. Order No. 13,563, 76 Fed. Reg. 3,821 (Jan. 21, 2011).

6. Eric Roston, *The Most Important Number You’ve Never Heard Of*, BLOOMBERG (Jan. 22, 2021), <https://www.bloomberg.com/news/articles/2021-01-22/how-do-you-put-a-price-on-climate-change-michael-greenstone-knows> [<https://perma.cc/3L2R-HWHJ>].

7. Tamma Carleton & Michael Greenstone, *Updating the United States Government’s Social Cost of Carbon* (Univ. of Chi., Becker Friedman Inst. for Econ., Working Paper No. 2021-04, 2021).

8. Peter Howard & Jason Schwartz, *Think Global: International Reciprocity as Justification for a Global Social Cost of Carbon*, 42 COLUM. J. ENV’T L. 203, 219-20, 270-94 (2017).

9. The more accurate and broader term is “the social cost of greenhouse gases”; for ease of exposition, I use the narrow (and snappier) term here.

10. The literature is vast. *See, e.g.*, NATIONAL ACADEMY OF SCIENCES, ENGINEERING, AND MEDICINE, VALUING CLIMATE DAMAGES: UPDATING ESTIMATION OF THE SOCIAL COST OF CARBON DIOXIDE (2017); Katharine Ricke, Laurent Drouet, Ken Caldeira & Massimo Tavoni, *Country-Level Social Cost of Carbon*, 8 NATURE CLIMATE CHANGE 895 (2018); William D. Nordhaus, *Revisiting the Social Cost of Carbon*, 114 PROC. NAT’L ACAD. SCI. U.S. 1518 (2017); Carleton & Greenstone, *supra* note 7; Gernot Wagner, David Anthoff, Maureen Cropper, Simon Dietz, Kenneth T. Gillingham, Ben Groom, J. Paul Kelleher, Frances C. Moore & James H. Stock, *Comment: Eight Priorities for Calculating the Social Cost of Carbon*, 590 NATURE 548 (2021); Nicholas Stern & Joseph E. Stiglitz, *The Social Cost of Carbon, Risk, Distribution, Market Failures: An Alternative Approach* (Nat’l Bureau of Econ. Rsch., Working Paper No. 28472, 2021); Michael Greenstone, Elizabeth Kopitz & Ann Wolverton, *Estimating the Social Cost of Carbon for Use in U.S. Federal Rulemakings: A Summary and Interpretation* (Nat’l Bureau of Econ. Rsch., Working Paper No. 16913, 2011); Jonathan S. Masur & Eric A. Posner, *Climate Regulation and the Limits of Cost-Benefit Analysis*, 99 CALIF. L. REV. 1557 (2011); Robert S. Pindyck, *The Social Cost of Carbon Revisited*, 94 J. ENV’T ECON. & MGMT. 140 (2019); Howard & Schwartz, *supra* note 8; Ted Gayer & W. Kip Viscusi, *Determining the Proper Scope of Climate Change Policy Benefits in U.S. Regulatory Analyses: Domestic Versus Global Approaches*, 10 REV. ENV’T ECON. & POL’Y 245 (2016); Matthew J. Kotchen, *Which Social Cost of Carbon? A Theoretical Perspective*, 5 J. ASS’N ENV’T & RES. ECON. 673 (2018).

11. Arden Rowell, *Foreign Impacts and Climate Change*, 39 HARV. ENV’T L. REV. 371 (2015).

12. *See* 5 U.S.C. § 706 (2018).

13. Nordhaus, *supra* note 10.

“climate sensitivity”¹⁴: for a given level of world-wide emissions, what is the likely change in temperature? It is also necessary to make an assessment of the “damage function”: for a given change in temperature, what are the likely effects on human welfare?¹⁵ It is necessary as well to consider the issue of adaptation.¹⁶ If global temperatures rise by (say) 2.5 degrees Celsius by 2100, how will human beings adapt? If they will do a great deal to adapt, and are able to do so at relatively low cost, then the social cost of carbon is lower than if they will do very little to adapt. It is necessary, too, to produce an appropriate discount rate.¹⁷ If a wide range of harms would occur in 2100, should they be discounted at a rate of 1%, 2%, 3%, 4%, or more?

None of these questions has an obvious answer.¹⁸ And in terms of U.S. policy, there is another question, a fundamental one that can, in principle, be separated from the rest: should the United States use a global measure of damages, or should it use a domestic measure?¹⁹ A great deal turns on the answer.²⁰ Use of the global number would of course reflect a form of cosmopolitanism, whether justified on epistemic, moral,²¹ or strategic²² grounds: by definition, a global measure would include the damage done by U.S. greenhouse gas emissions to people all over the world.²³ By definition, a

14. See Carleton & Greenstone, *supra* note 7, at 10.

15. *Id.* at 13.

16. See generally MATTHEW E. KAHN, ADAPTING TO CLIMATE CHANGE: MARKETS AND MANAGEMENT OF AN UNCERTAIN FUTURE (2021).

17. On the underlying issues, see J. Paul Kelleher, *Descriptive Versus Prescriptive Discounting in Climate Change Policy Analysis*, 15 GEO. J.L. & PUB. POL’Y 957 (2017); William D. Nordhaus, *A Review of the Stern Review on the Economics of Climate Change*, 45 J. ECON. LITERATURE 686 (2007); Lawrence H. Golder & Roberton C. Williams III, *The Choice of Discount Rate for Climate Change Evaluation* (Nat’l Bureau of Econ. Rsch., Working Paper No. 18301, 2012); David Weisbach & Cass R. Sunstein, *Climate Change and Discounting the Future: A Guide for the Perplexed*, 27 YALE L. & POL’Y REV. 433 (2008).

18. A valuable, crisp discussion of the central questions can be found in Carleton & Greenstone, *supra* note 7.

19. See *supra* note 10.

20. See Gayer & Viscusi, *supra* note 10, at 254-56 (surveying several regulations for which the analysis of benefits was greatly affected by the choice of the global measure).

21. See Arden Rowell & Lesley Wexler, *Valuing Foreign Lives*, 48 GA. L. REV. 499 (2014). For a general treatment of cosmopolitanism, see MARTHA NUSSBAUM, THE COSMOPOLITAN TRADITION: A NOBLE BUT FLAWED IDEA (2019).

22. See Kotchen, *supra* note 10.

23. There is a complex and important question in the background. If the United States values foreign lives, in the sense that it includes premature deaths to foreigners in its benefit calculations, at what level should it value those lives? In 2021, U.S. agencies valued U.S. statistical lives at about \$11.6 million. See U.S. Dep’t of Transp., *Departmental Guidance on Valuation of a Statistical Life in Economic Analysis* (May 13, 2021), <https://www.transportation.gov/office-policy/transportation-policy/revised-departmental-guidance-on-valuation-of-a-statistical-life-in-economic-analysis> [<https://perma.cc/9Z9X-5TX8>]. But the valuation of a statistical life depends on willingness to pay to reduce mortality risks, which means that the monetary figure will be high in rich nations and low in poor nations. See Cass R. Sunstein, *Valuing Life: A Plea for Disaggregation*, 54 DUKE L.J. 385 (2004). It follows that under the standard approach, the value of statistical lives in very wealthy nations such as Qatar and Luxembourg should be

domestic measure would include damages only within (or to) the United States. As we shall see, the best understanding of the domestic measure raises some hard questions of fact.²⁴ But on any account, the domestic measure is some fraction of the global measure. For example, the difference between the measure under the Trump Administration (about \$2) and that under the Obama and Biden Administrations (about \$50) turns largely on the fact that the former used a domestic measure, while the latter two used a global measure.²⁵

The central goal of this Article is to explore the choice between the domestic and global measures, assuming that relevant statutes allow agencies to decide as they (reasonably) see fit. As we shall see, there are four main arguments in favor of using the global figure. In brief, they take the following form:

The *epistemic* argument: We do not know a great deal about the purely domestic harms likely to come from climate change, let alone from different incremental increases in greenhouse gas emissions, which makes it difficult or perhaps even impossible to generate a purely domestic number.

The *interconnectedness* argument: Harms done by domestic emissions are hardly limited to those done by the incremental increase in temperatures in the United States; among other things, they include (1) harms to U.S. citizens living abroad and (2) economic and other harms to U.S. citizens that come from the cascading effects of harm done to foreigners (including governments, companies, and individuals). Any adequate approach to the domestic harms done by climate change must take account of (1) and (2) (and other relevant harms).

The *moral cosmopolitan* argument: In deciding on the scope of its regulations, the United States should account for the harms it²⁶ does to non-

more than \$11.6 million, while the value of statistical lives in relatively poor nations such as Russia, Bulgaria, Argentina, and China should be significantly less than \$11.6 million, and the value of statistical lives in very poor nations such as Sierra Leone, Burundi, and the Central African Republic at much less than \$11.6 million. Differences of this kind would raise serious questions in economic theory and political theory. There is also the independent question of whether U.S. agencies, regulating U.S. emissions, should use the \$11.6 million figure, some kind of global average, or some other number. (To say that a poor nation should not use the U.S. figure for its own regulations is entirely correct; whether the U.S. should use that figure, or a lower one, for reductions of its own emissions raises a separate question.) I bracket these questions here. Use of integrated assessment models allows agencies to use a global number for the social cost of carbon without requiring them to make their own, specific assessments of how to value statistical lives in diverse nations. But the relationship between the value of a statistical life and the global social cost of carbon very much deserves exploration in its own right. Note too that insofar as they are monetizing reductions in mortality, the integrated assessment models must necessarily take their own stand on the questions discussed in this note.

24. For a valuable treatment, see Rowell, *supra* note 11.

25. See Carleton & Greenstone, *supra* note 7.

26. By “it,” I mean to include all relevant U.S. actors, including companies, governments themselves, and citizens.

Americans. This is so for emphatically moral reasons,²⁷ signaled by utilitarianism and its moral foundations.

The *reciprocity* argument: If all nations used a domestic figure, all nations, including the United States, would lose. Use of the global figure, by all nations, is very much in the interest of the United States. A successful approach to the climate change problem requires nations to treat greenhouse gas emissions as a global, and not merely domestic, externality. According to the reciprocity argument, international leadership by the United States is an important and perhaps even essential means of creating a norm, and imposing incentives, to overcome a (wicked) prisoner's dilemma. The reciprocity argument can be seen as a form of strategic or back-door cosmopolitanism; it insists on taking account of harms done to foreigners, not because doing so is morally required, but because doing so is in the nation's purely domestic self-interest.

My basic conclusions are straightforward.

First: The premise of the epistemic argument is entirely correct, but by itself, the argument cannot possibly justify the use of a global number. On any accounting, the global number is too high if the concern is the harm done to U.S. citizens and U.S. interests. It remains true that specification of the domestic number is exceptionally difficult, but it simply cannot be equivalent to the global number. For the domestic number, evidence might be consulted, and some rules of thumb might be justified, to develop lower and upper bounds in the face of the epistemic challenges.

Second: The incompleteness argument is also correct, and it justifies use of what might be called an *inclusive domestic number*. But by itself, the incompleteness argument does not justify choice of the global number. On any account, the domestic number, even if inclusive, must fall short of that number.

Third: The moral cosmopolitan argument is very strong. Unless a statute forbids its use (an important question), it is more than plausible, at least in the specific context of harm done by people in one nation to those in another nation. This is so whatever we think of cosmopolitanism in the abstract or more generally. The problem is that moral cosmopolitanism would seem to have large and perhaps unacceptable implications for national policy in general; is the United States really under an obligation to value the lives of noncitizens as much

27. I use the term "moral cosmopolitanism" to refer very simply to the idea that a nation ought to value foreign lives, not only the lives of its own citizens, or even those within its territorial boundaries. See Rowell & Wexler, *supra* note 21. I do not mean to say anything provocative or controversial about the cosmopolitan tradition, or about what cosmopolitanism ought to be taken to entail. For a valuable discussion, see NUSSBAUM, *supra* note 21. Note that moral cosmopolitanism, in the specific sense in which I understand it here, is very different from the view that for reasons of justice, the United States should join an international treaty that is not in its domestic interest. See Eric A. Posner & Cass R. Sunstein, *Climate Change Justice*, 96 GEO. L.J. 1565 (2008). The question here is very specific: whether the United States should consider the harms done to foreigners in deciding on the stringency of regulations. On one of the arguments presented and endorsed here, doing that is plausibly in the domestic interest of the United States, because of the need for reciprocity. For relevant discussion, see EDNA ULLMANN-MARGALIT, *THE EMERGENCE OF NORMS* (1976).

as it values the lives of its own citizens? With respect to military conflict or foreign aid? The moral cosmopolitanism argument would be most convincing if it could be narrowed and specified.

Fourth: The reciprocity argument is also very strong, though it runs into some serious complications, and some counterarguments that must be engaged. The most fundamental objection is that because we are dealing with a prisoner's dilemma, nations will have a strong motivation to defect. To say the least, a decision by the United States to use the global figure will not automatically lead the rest of the world to do the same. Why should the United States impose costs on itself when other nations are not bound to follow, and have every incentive to stand on the sidelines and take advantage of its actions? The best answer points to international leadership on the part of the United States (a form of "leading by example"), and to reasonable conjectures about how international bargaining might be expected to unfold. Even if those conjectures are merely that, using the global number is both reasonable and appropriate in light of the sheer magnitude of the stakes.

The remainder of this Article comes in five parts. Part II provides relevant background. It refers to some of the underlying theoretical issues, the "major question" doctrine, and the presumption against extraterritoriality as potentially relevant background principles. Part II also addresses guidance from the Office of Management and Budget. Part III explores developments within the executive branch and the courts, with special attention to the diversity of arguments made in support of using the global number and the role of each of the four in the justifications offered by the Obama and Biden administrations.

Part IV investigates the epistemic and incompleteness arguments, concluding that by themselves, they do not justify use of the global number. Nonetheless, they must be addressed on their own terms. Part V turns to the moral cosmopolitanism and reciprocity arguments. Though their foundations are very different, each of them is, on balance, sufficient to justify use of the global figure and to cast real doubt on use of the domestic figure.

Part VI briefly discusses the implications of these conclusions for administrative law and agency practice. Emphasizing that statutes may constrain agency choices, and that agencies are obliged to offer detailed explanations for their conclusions, it urges that the global number should be upheld if it is consistent with relevant statutes and explained in terms of moral cosmopolitanism and reciprocity. Part VI also urges that it would be more challenging (but possible) to mount a convincing, non-arbitrary defense of the domestic number. A simple implication is that if an administration is to use the global number (as it should), it would do well to justify it in terms of moral cosmopolitanism and even better to do so in terms of reciprocity.

II. A Long and Winding Road

A. *Do Foreign Lives Count?*

The question whether, when, and how foreign lives (and interests) should be counted raises fundamental issues in many fields, including political philosophy, political science, economics, and law. Perhaps foreign lives should be counted for their own sake; a life is a life, after all, and perhaps a foreign life should be given no less attention, in principle, than a domestic life. Why should the life of a person born in the Central African Republic be worth less than the life of a person born in the United States?²⁸ From the moral point of view, it is hard to defend the proposition that the value of a life is less, or falls to zero, because of where one lives. On a more cautious approach, foreign lives should be counted because and to the extent that Americans believe that they should. Perhaps agencies should ask that question, and perhaps they should be interested in whether and to what extent Americans are willing to pay to protect those lives or to reduce statistical risks to them.²⁹ It is highly likely that Americans are willing, on average, to pay *something*, even if they are not willing to pay as much as they are willing to pay to protect Americans.

On one view, foreign lives matter simply because they do, on principle. On another view, foreign lives matter to the extent that Americans believe that they do (and are willing to back that belief with money). Or perhaps foreign lives matter because and to the extent that a decision to consider them is in the strategic interests of the United States. If, for example, foreign aid is undertaken with the goal of saving foreign lives, the United States and its citizens might be beneficiaries, certainly in the long-term and perhaps in the short-term as well.

I shall explore some of these issues here, with particular reference to climate change. It should be clear that the United States must ask that question in many contexts, regulatory and nonregulatory. The military context is obviously relevant; if the United States can prevent 10,000 foreign deaths at the cost of 300 American lives, should it do so? What if the corresponding numbers are 50,000 and 25, or 4000 and 800? Similar questions might be asked in the context of foreign aid.³⁰ Suppose that the United States can save 100 foreign lives at a domestic cost of \$900 million; should it do so? What if the corresponding numbers are 10,000 and \$200 billion, or 10 and \$700 million? The regulatory context might be thought to be different, at least if the United States is seeking to ensure that (say) its own companies are not harming those outside of our

28. See generally JOHN RAWLS, *A THEORY OF JUSTICE* (1971) and in particular the treatment of the original position and the veil of ignorance. I do not mean to suggest that Rawls' discussion is meant to answer the question posed in the text.

29. Cf. Randall A. Kramer & D. Evan Mercer, *Valuing a Global Environmental Good: U.S. Residents' Willingness to Pay to Protect Tropical Rain Forests*, 73 *LAND ECON.* 196 (1997) (exploring the willingness of Americans to pay for tropical rain forest protection).

30. A valuable treatment can be found in Rowell & Wexler, *supra* note 21, at 539-53.

territorial borders. If so, the United States is seeking to avoid commission of something like a tort; it is not seeking to confer a benefit or to exercise a kind of charity. In any case, the decision whether, when, and how to count foreign lives faces legal constraints. To understand those constraints, and the range of political judgments, it would be highly desirable to obtain a comprehensive account of the actual practices of the United States with respect to protection of foreign lives and interests.

B. Statutes

The initial question is, of course, one of statutory construction, and the answer to that question will differ from statute to statute and from domain to domain. The question of air pollution regulation may be different from the question of water pollution; both are likely to be different from that of foreign aid; and all three may differ from the question of national security policy. With respect to regulation, we can imagine three possibilities under relevant statutes: (1) an agency is required to consider global impacts; (2) an agency is required to consider only domestic impacts; (3) an agency is permitted but not required to consider either global or only domestic impacts.³¹ There is no reason to think that the answer under one statute will be the same as the answer under another statute. At the same time, two background principles might turn out to be relevant. The first is rooted in *Chevron*,³² which famously directs courts to defer to reasonable agency interpretations of ambiguous statutory provisions. To the extent that statutes are ambiguous on the key question—as they frequently are—*Chevron* suggests that the central issue is whether consideration of global impacts is “reasonable.” Much of the discussion here bears on that question, because the “reasonableness” of an agency’s interpretation is a similar question to that posed by arbitrariness review under the Administrative Procedure Act.³³

The second principle comes from the “major question” doctrine, which remains in a state of transition but which suggests, in its most aggressive form, that agencies will not be permitted to construe ambiguous statutes so as to work large or transformative changes in their authorities, or to exercise broad new power over the private sector.³⁴ It is tempting to think that the major question doctrine should be invoked to forbid agencies from choosing to consider global impacts, on the ground that that would be a large and contentious choice that ought to be made by Congress, not the executive. As we shall see, that idea was

31. See Rowell, *supra* note 11, for a detailed discussion.

32. *Chevron U.S.A. Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837 (1984).

33. See *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208 (2009) (engaging in a form of reasonableness review that is very close to arbitrariness review).

34. For discussion and citations, see Cass R. Sunstein, *There Are Two “Major Questions” Doctrines*, 73 ADMIN. L. REV. 475 (2021).

explicitly invoked by a lower court in 2022 in the particular context of the social cost of carbon.³⁵

In my view, use of the major question doctrine would be a (major) mistake in this context. Most of the time, identification of global impacts via the social cost of carbon would hardly rise to the level of large-scale transformation that has convinced judges to invoke that doctrine.³⁶ One reason is that use of the global figure will, in many cases, be a mere matter of public disclosure and not relevant to the agency's ultimate decision. And even when use of the global figure is highly relevant to that decision, the most that can be said is that it will be supportive of a somewhat higher level of stringency (of, say, regulation of greenhouse gas emissions from heavy duty vehicles). At least in a large set of cases, then, agencies should be free to make their own choices, so long as the governing statute is ambiguous.

To clarify this point, note that the actual *role* of the social cost of carbon, whether domestic or global, depends on an assortment of issues, most notably the governing statute (once again) and the policy inclinations of the executive branch. Suppose, for example, that a hypothetical statute requires agencies to reduce greenhouse gas emissions "to the extent feasible." If so, agencies must follow that direction, whether the social cost of carbon is large or small. (The major question doctrine could not possibly apply.) Suppose, by contrast, that a different hypothetical statute requires agencies to reduce greenhouse gas emissions "to the extent that the benefits of such reductions justify their costs." Under such a statute, a great deal will hinge on whether the social cost of carbon is large or small. Suppose, finally, that yet another hypothetical statute requires agencies to reduce emissions "to the extent feasible," while also "giving due consideration to costs and benefits." Under such a statute, agencies would have discretion, within the bounds of reasonableness, to give weight to the social cost of carbon, and hence a large number would argue for relative stringency, and a small one would not.

These are points about what might be called the *decisional relevance* of the social cost of carbon. In some cases, the number is unquestionably relevant to the agency's decision; in other cases, it is not; in still other cases, the agency is authorized to decide whether it is. Whether the major question doctrine is relevant depends on how, exactly, the social cost of carbon is being used. In my view, use of the global figure is too incremental to run afoul of the doctrine in any of the possible cases, but its use is least implausible when it plays an important role in an agency's decision. Note that even when the social cost of carbon is not relevant to the agency's decision, the agency might well seek to disclose the costs and benefits of its regulations, either because it wishes to do so or because it is required to do so by Executive Order. A regulatory impact

35. See *infra* notes 75–79 and accompanying text.

36. See *Nat'l Fed'n of Indep. Bus. v. Dep't of Lab., Occupational Safety and Health Admin.*, 142 S. Ct. 661 (2022).

analysis might look very different depending on whether the agency uses the global number or the domestic one, even if the agency does not take the number into account in making its choices.³⁷

C. Theory and Practice

For regulation, guidance from the Office of Management and Budget (OMB) for agencies conducting cost-benefit analyses seems to lean heavily toward domestic effects: “Your analysis should focus on benefits and costs that accrue to citizens and residents of the United States. Where you choose to evaluate a regulation that is likely to have effects beyond the borders of the United States, those effects should be reported separately.”³⁸ The statement “should focus” seems to suggest that domestic effects are what matter. Interestingly, however, those effects include benefits and costs with respect to residents and not merely citizens, which suggests that to that extent, foreign lives do matter (at least if they are lived within the United States). Also interestingly, agencies are not merely authorized but also directed (“should”) to report extraterritorial effects (“separately”), though OMB does not indicate what weight, if any, ought to be given to them.

No comprehensive account of actual regulatory practice exists, but Arden Rowell and Lesley Wexler have proved some valuable glimpses.³⁹ They find that at a single point in time (August 2011), the seven largest regulations could reasonably be expected to reduce mortality risks in foreign nations—but that *for those regulations, none of the supporting analyses attached any value at all to foreign lives*.⁴⁰ For example, certain air pollution regulations from the Environmental Protection Agency (EPA) might be expected to have beneficial effects in Canada and Mexico, but the EPA did not attempt to catalogue those effects. The relevant regulatory impact analyses appear entirely to have excluded populations outside of the United States, which suggests that the EPA did not value mortality benefits to foreigners at all.⁴¹ Arden and Wexler conclude that “the impact of agencies’ implicit practices is to value foreign lives at zero; that is, to commit *no* domestic resources towards the protection of foreign lives.”⁴²

Is that legally mandatory? Legally permissible? Legally forbidden? Recall that in the first instance, the answer depends on the governing statute. Congress

37. See OFF. OF MGMT. & BUDGET, EXEC. OFF. OF THE PRESIDENT, CIRCULAR A-4, TO THE HEADS OF EXECUTIVE AGENCIES AND ESTABLISHMENTS: REGULATORY ANALYSIS 2-3 (2003) (discussing the uses and key elements of regulatory impact analysis).

38. *Id.* at 15.

39. See Rowell & Wexler, *supra* note 21, at 522-32.

40. *Id.* at 526.

41. *Id.* at 529-30.

42. *Id.* at 531.

may or may not be silent on the question.⁴³ In the face of statutory silence or ambiguity, the answer might seem to depend on the judgment of the relevant agency,⁴⁴ which would lead to a simple conclusion: the executive branch is entitled to decide whether and how to count foreign lives. But even if that is the right conclusion, the judgment of the relevant agency must not be arbitrary, which means that a detailed explanation will be required, showing why the agency decided as it did.⁴⁵

I have also noted that some background principle of interpretation might limit the agency's discretion and forbid (or require) consideration of effects on foreigners. In addition to the *Chevron* principle and the major question doctrine, the Supreme Court has adopted a presumption against extraterritorial application of federal law,⁴⁶ which means that federal law does not apply outside the territorial boundaries of the United States unless Congress has explicitly said that it does.⁴⁷ The presumption against extraterritoriality might be understood to forbid consideration of benefits (or costs) to foreigners, at least if they are not residing in the United States. But there is a difference between (1) applying domestic law extraterritorially, in a way that might be taken to intrude on a foreign sovereign and (2) considering costs and benefits to foreigners, which would not seem to be any such intrusion at all (and which should, in fact, be welcomed by foreign sovereigns).

If the presumption against extraterritoriality is rooted in respect for congressional primacy in deciding whether U.S. law applies outside our borders, then consideration of adverse effects on foreigners, for moral or strategic reasons, would not seem to run afoul of that presumption. What would be needed is a new canon of construction, explicitly stating that unless Congress has so directed, agencies may not consider those effects. No such canon exists. At the moment, there is very little law on the question, with exceptions to which I will turn in due course.⁴⁸

43. See *id.* at 534 (“[M]ost domestic U.S. environmental statutes remain silent as to their extraterritorial reach . . .”). Gayer and Viscusi urge that federal statutes “focus on domestic benefits and costs,” Gayer & Viscusi, *supra* note 10, at 251, but what matters is the statutory text, not some abstract “focus.” Each statute must be parsed on its own terms to see whether it authorizes, requires, or forbids agencies to consider the effects on foreign lives and interests.

44. *Chevron U.S.A. Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837 (1984).

45. See *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 55 (1983) (discussing the National Highway Traffic Safety Administration’s duty to consider economic factors in its rulemaking process); *Dep’t of Homeland Sec. v. Regents of the Univ. of Cal.*, 140 S. Ct. 1891, 1914 (2020) (discussing the missing discussion of reliance interests in the Department of Homeland Security’s review of DACA).

46. See *Equal Emp. Opportunity Comm’n v. Arabian Am. Oil Co.*, 499 US 244 (1991).

47. The presumption against extraterritoriality raises many complexities that I do not discuss here. See, e.g., William S. Dodge, *The New Presumption Against Extraterritoriality*, 133 HARV. L. REV. 1582 (2020).

48. See *infra* Section II.B.

III. The Social Cost of Carbon: Of Presidents, Agencies, and Courts

A. *The Executive Branch*

The development of a social cost of carbon by the U.S. government has a lengthy history, with some significant changes in direction.⁴⁹ For present purposes, the central point is that all four arguments in favor of the use of a global SCC have been explicitly invoked by the executive branch, which is to say that agencies have been keenly aware of the theoretical arguments and their relevance to practice. To make a long story short: both the Obama and Biden administrations used all four arguments, though with different emphases at different times; the Trump administration implicitly rejected them, but without much of an explanation, which created serious trouble in court.⁵⁰

*The Obama Administration.*⁵¹ The initial guidance, coming in the form of a Technical Support Document (TSD), was issued by the Interagency Working Group (IWG) on the Social Cost of Carbon in 2010.⁵² The IWG, which I helped to convene, and which was headed by the Council of Economic Advisers (CEA) and the Office of Management and Budget (OMB),⁵³ included a wide array of agencies: CEA, the Council on Environmental Quality, the Department of Agriculture, the Department of Commerce, the Department of Energy, the Department of Transportation, the Environmental Protection Agency, the National Economic Council, the Office of Energy and Climate Change, OMB, the Office of Science and Technology Policy, and the Department of the Treasury. The resulting document describes the monetary value of reductions in carbon emissions in a way that bears on a large number of regulatory judgments.⁵⁴ In 2010, the United States did, in a sense, put a price on carbon.

Crucially, the TSD chose the global rather than merely domestic measure of damages; harms from U.S. emissions to people in China, Europe, Africa, India, and elsewhere are counted.⁵⁵ At various stages during the Obama

49. On some of those, see Howard & Schwartz, *supra* note 8, at 211-19; Masur & Posner, *supra* note 10; Michael Greenstone, Elizabeth Kopits & Ann Wolverton, *Developing A Social Cost of Carbon for US Regulatory Analysis: A Methodology and Interpretation*, 7 REV. ENV'T ECON. & POL'Y 23, 23 (2011).

50. See *California v. Bernhard*, 472 F. Supp. 3d 573 (N.D. Cal. 2020).

51. This Part, as well as material in Section IV.B, borrows heavily from a discussion in Cass R. Sunstein, *Arbitrariness Review and Climate Change*, 170 U. PA. L. REV. 991 (2022).

52. INTERAGENCY WORKING GRP. ON SOC. COST OF CARBON, U.S. GOV'T, TECHNICAL SUPPORT DOCUMENT: SOCIAL COST OF CARBON FOR REGULATORY IMPACT ANALYSIS UNDER EXECUTIVE ORDER 12866 (2010) [hereinafter INTERAGENCY WORKING GRP. 2010].

53. From 2009 to 2012, I served as Administrator of the Office of Information and Regulatory Affairs, which is part of the Office of Management and Budget.

54. See Greenstone et al., *supra* note 10 (discussing the implications of the SCC for regulatory decisions).

55. See INTERAGENCY WORKING GRP. 2010, *supra* note 52, at 10-11; INTERAGENCY WORKING GRP. ON SOC. COST OF CARBON, U.S. GOV'T, TECHNICAL UPDATE OF THE SOCIAL COST OF CARBON FOR REGULATORY IMPACT ANALYSIS UNDER EXECUTIVE ORDER 12866, 17 (2016) [hereinafter INTERAGENCY WORKING GRP. 2016].

Administration, that issue received a great deal of attention, with reference to all four of the arguments I have sketched. In its initial statement in 2010, the TSD noted that climate change involves “a global externality,” that it “presents a problem that the United States alone cannot solve.”⁵⁶ By itself, of course, the fact that a global externality is involved is not sufficient to justify use of a global number. But the IWD added that “the United States has been actively involved in seeking international agreements to reduce emissions and in encouraging other nations, including emerging major economies, to take significant steps to reduce emissions.”⁵⁷ In that way, it seemed to signal the reciprocity argument, and perhaps also to gesture in the direction of moral cosmopolitanism.

In 2016, the IWG offered a more detailed account. It acknowledged that under OMB Circular A-4, “analysis of economically significant proposed and final regulations from the domestic perspective is required, while analysis from the international perspective is optional.”⁵⁸ At the same time, it concluded “that a modified approach is more appropriate in this case.”⁵⁹ To defend that conclusion, it made several points, in a way that seemed to meld together the four arguments I am exploring here. Climate change, the IWG reiterated, “involves a global externality: emissions of most greenhouse gases contribute to damages around the world even when they are emitted in the United States—and conversely, greenhouse gases emitted elsewhere contribute to damages in the United States.”⁶⁰ It follows that climate change is a problem that the United States alone cannot solve. Other countries will also need to take action to reduce emissions if significant changes in the global climate are to be avoided. Using a global estimate of damages in U.S. regulatory analyses sends a strong signal to other nations that they too should base their emissions reduction strategies on a global perspective, thus supporting a cooperative and mutually beneficial approach to achieving needed reduction.⁶¹ This is the reciprocity argument in action.

In addition, the adverse impacts of climate change “on other countries can have spillover effects on the United States, particularly in the areas of national security, international trade, public health, and humanitarian concerns.”⁶² This is a version of the interconnectedness argument.

The Trump Administration. In 2017, President Donald Trump issued an executive order that explicitly addressed the social cost of carbon.⁶³ The order

56. INTERAGENCY WORKING GRP. 2010, *supra* note 52, at 10.

57. *Id.* at 11.

58. INTERAGENCY WORKING GRP. 2016, *supra* note 55, at 17.

59. *Id.*

60. *Id.*

61. *Id.*

62. *Id.*

63. Exec. Order No. 13,783, 82 Fed. Reg. 16,093 (Mar. 28, 2017).

briskly disbanded the IWG and rescinded essentially all relevant documents from the Obama Administration. In addition, it stated:

Effective immediately, when monetizing the value of changes in greenhouse gas emissions resulting from regulations, including with respect to the consideration of domestic versus international impacts and the consideration of appropriate discount rates, agencies shall ensure, to the extent permitted by law, that any such estimates are consistent with the guidance contained in OMB Circular A-4 of September 17, 2003 (Regulatory Analysis), which was issued after peer review and public comment and has been widely accepted for more than a decade as embodying the best practices for conducting regulatory cost-benefit analysis.⁶⁴

This provision was widely understood to call for two fundamental changes to the Obama administration's practices. First, agencies would be expected to use the domestic measure rather than the global measure. Second, agencies would be expected to calculate the benefits of reducing greenhouse gas emissions with discount rates of 3% and 7%, consistent with OMB Circular A-4.⁶⁵ In regulations from the Trump administration, the social cost of carbon generally ranged from \$1 to \$7, a small fraction of the approximately \$50 number that would come from the analysis of Obama's IWG.⁶⁶

The Biden Administration. On his first day in office, President Joe Biden issued an executive order that, among other things, explicitly addressed the social cost of carbon.⁶⁷ The relevant provision began simply: "It is essential that agencies capture the full costs of greenhouse gas emissions as accurately as possible, including by taking global damages into account."⁶⁸ This was a clear direction to use the global rather than the domestic measure. The order added that taking those steps "facilitates sound decision-making, recognizes the breadth of climate impacts, and supports the international leadership of the United States on climate issues."⁶⁹ It also established an Interagency Working Group, led by the Council of Economic Advisers, the Director of OMB, and the Director of the Office of Science and Technology Policy. The Working Group was directed to produce an interim "social cost of carbon" (SCC), "social cost of nitrous oxide" (SCN), and "social cost of methane" (SCM) within 30 days.⁷⁰ It was also directed to "publish a final SCC, SCN, and SCM by no later than January 2022."⁷¹

Importantly, the Order added that:

64. *Id.* § 4(c).

65. See Dana Nuccitelli, *The Trump EPA Is Vastly Underestimating the Cost of Carbon Dioxide Pollution to Society, New Research Finds*, YALE CLIMATE CONNECTIONS (July 30, 2020), <https://yaleclimateconnections.org/2020/07/trump-epa-vastly-underestimating-the-cost-of-carbon-dioxide-pollution-to-society-new-research-finds/> [<https://perma.cc/4JR9-S5NE>].

66. Carleton & Greenstone, *supra* note 7, at 3-5.

67. Exec. Order No. 13,990, 86 Fed. Reg. 7,037 (Jan. 20, 2021).

68. *Id.* § 5(a).

69. *Id.* § 5(b).

70. *Id.* § 5(b)(ii).

71. *Id.*

In carrying out its activities, the Working Group shall consider the recommendations of the National Academies of Science, Engineering, and Medicine as reported in *Valuing Climate Damages: Updating Estimation of the Social Cost of Carbon Dioxide (2017)* and other pertinent scientific literature; solicit public comment; engage with the public and stakeholders; seek the advice of ethics experts; and ensure that the SCC, SCN, and SCM reflect the interests of future generations in avoiding threats posed by climate change.⁷²

The Working Group's interim social cost of carbon adopted much of the analysis and approach of the Obama administration, at least for that interim use.⁷³ At the same time, it offered significant discussion of relevant issues, including the choice between the global and domestic measures. With respect to the use of the global measure, it said:

Unlike many environmental problems where the causes and impacts are distributed more locally, climate change is a true global challenge making GHG emissions a global externality. GHG emissions contribute to damages around the world regardless of where they are emitted. The global nature of GHGs means that U.S. interests, and therefore the benefits to the U.S. population of GHG mitigation, cannot be defined solely by the climate impacts that occur within U.S. borders. Impacts that occur outside U.S. borders as a result of U.S. actions can directly and indirectly affect the welfare of U.S. citizens and residents through a multitude of pathways. Over 9 million U.S. citizens lived abroad as of 2016-17 and U.S. direct investment positions abroad totaled nearly \$6 trillion in 2019. Climate impacts occurring outside of U.S. borders will have a direct impact on these U.S. citizens and the investment returns on those assets owned by U.S. citizens and residents. The U.S. economy is also inextricably linked to the rest of the world. . . . The global nature of GHGs means that damages caused by a ton of emissions in the U.S. are felt globally and that a ton emitted in any other country harms those in the U.S. Therefore, assessing the benefits of U.S. GHG mitigation activities will require consideration of how those actions may affect mitigation activities by other countries since those international actions will provide a benefit to U.S. citizens and residents.⁷⁴

This analysis emphasizes (and specifies) the interconnectedness argument and also nods in the direction of the reciprocity argument. As we shall now see, these arguments have played an important role in federal court.

B. Domestic or Global? Legal Challenges

The social cost of carbon has been challenged in three cases. In *Louisiana v. Biden*,⁷⁵ a district court enjoined agencies from adopting, employing, treating as binding, or relying on the work of the Interagency Working Group created by President Biden, and also from using the global cost of carbon. In its brisk but

72. *Id.* § 5(b)(iii).

73. INTERAGENCY WORKING GRP. ON SOC. COST OF CARBON, U.S. GOV'T, TECHNICAL SUPPORT DOCUMENT: SOCIAL COST OF CARBON, METHANE, AND NITROUS OXIDE, INTERIM ESTIMATES UNDER EXECUTIVE ORDER 13990 (2021) [hereinafter INTERAGENCY WORKING GRP. 2021].

74. *Id.* at 15-16.

75. No. 2:21-CV-01074, 2022 WL 438313 (W.D. La. Feb. 11, 2022).

far-ranging opinion, the court offered a host of concerns, two of which are of particular relevance here.⁷⁶ First, it said that any use of a social cost of carbon, ordered by the president and imposing “significant costs on the economy,”⁷⁷ would work a kind of transformation in federal regulatory law. In its view, any such transformation must be explicitly authorized by Congress under the major question doctrine.⁷⁸ Second, the court objected to the global rather than the domestic figure, apparently on the ground that use of the global figure exceeded the statutory authority of federal agencies.⁷⁹

It seems clear that under the district court’s approach, agencies are authorized use the domestic figure, which would, of course, ensure that their basic approach would be broadly similar to that used during the Trump Administration. Agencies might also attempt to produce an inclusive domestic number,⁸⁰ which, as noted, would not be the global number, but which would likely be far higher than a domestic number used under the Trump Administration. The Biden Administration appealed the district court’s decision, and it was stayed on standing grounds.⁸¹ As of this writing, the ultimate fate of the district court’s ruling remains uncertain.

In 2020, by contrast, a district court in *California v. Bernhardt*⁸² struck down a rule from the Bureau of Land Management (BLM), called the Waste Prevention Rule, whose content had been materially affected by the BLM’s social cost of methane. The court’s analysis and conclusion focused above all on the agency’s decision to use the domestic measure. In 2016, the BLM had relied on the analysis of the IWG in the Obama Administration, which supported a conclusion that the total benefits of emissions reductions from the rule would range between \$1.6 and \$1.9 billion. Under the Trump Administration, the benefits numbers fell dramatically to a range between \$66 to \$259 million. In generating the new numbers, the BLM relied on what it called an “interim domestic” model, focusing only on the benefits of emissions reductions to those living in the United States.⁸³ The court held that the agency’s decision was arbitrary and therefore unlawful.⁸⁴ It ruled, first, that the agency could not defend its decision solely by reference to a relevant executive order. That order “did not and could not erase the scientific and economic facts that formed the basis for” the earlier estimate. No president, the court said, can “alter by fiat what constitutes the best available science.”⁸⁵ For the Biden as well as the Trump

76. *Id.* at *13-21.

77. *Id.* at *15.

78. *Id.* at *14-16.

79. *Id.* at *17-18.

80. See *infra* Part IV.

81. *Louisiana v. Biden*, No. 22-300087, 2022 WL 8666282 (5th Cir. Mar. 16, 2022).

82. 472 F. Supp. 3d 573 (N.D. Cal. 2020).

83. *Id.* at 609-10.

84. *Id.* at 614.

85. *Id.* at 611.

Administration, this is an important conclusion; it suggests that if an agency is following an executive order, it is not immune from arbitrariness review. Rather, the substantive question remains, which is whether the agency is able to point, somewhere, to a rational justification for its choices—a question that bears on the legal validity of the use of the global or domestic number.

In the court’s view, the fact that BLM is “the expert agency,” not limited to peer-reviewed science, was not sufficient.⁸⁶ First, “the social cost of methane is beyond BLM’s expertise.”⁸⁷ Second, and more relevantly, the “interim domestic” model “is riddled with flaws.”⁸⁸ In offering this conclusion, the court referred to several of the arguments made by the IWG in 2016, above all the incompleteness argument. For example, the court said, the agency’s estimate neglected the effects of greenhouse gas emissions on eight million U.S. citizens living abroad, and also on thousands of U.S. military personnel; on billions of dollars of physical assets owned by U.S. companies abroad; on U.S. companies affected by their trading partners and suppliers abroad; and on global migration and geopolitical security.⁸⁹ The agency’s failure to show “a rational connection between the best available science” and its estimate meant that its decision was arbitrary on the merits.⁹⁰ The court added that economists and scientists alike rejected the idea of focusing solely on the domestic effects.⁹¹ One reason for this rejection was the difficulty of offering an estimate of those effects in light of the limits of existing science—the epistemic argument.⁹² Another reason was the spillover effects, on the United States itself, of the international effects—the incompleteness argument.⁹³

In *Zero Zone v. Department of Energy*,⁹⁴ a small business mounted a series of challenges to energy efficiency standards for refrigerator equipment. One of the challenges involved the social cost of carbon. The plaintiffs urged, very broadly, that DOE was forbidden from considering environmental factors and, in the alternative, that DOE’s analysis of the social cost of carbon was arbitrary and capricious. The court did not engage these claims in detail. It referred only briefly to several objections, including the claim that the damage function was “determined in an arbitrary manner.”⁹⁵ The court rejected the objections summarily, simply noting that the agency had responded to them in the

86. *Id.* at 612.

87. *Id.* at 613.

88. *Id.*

89. *Id.*

90. *Id.*

91. *See id.* at 613-14.

92. *Id.*

93. *Id.*

94. 832 F.3d 654 (7th Cir. 2016).

95. *Id.* at 678.

rulemaking.⁹⁶ Implicit in the court's ruling was acceptance of the global measure, though the court's summary conclusion did not specifically engage the issue.

IV. Ignorance and Relationships

In this Part, I explore two arguments emphasized by the district court in *California v. Bernhardt*, with my main focus being on issues of policy rather than law. My question is: What would it make sense for agencies to do, as a matter of sound policy, assuming that relevant statutes allow them to do what makes sense? (I turn to legal issues in Part V.) As we shall see, both arguments stand on solid premises, but by themselves, they do not justify use of the global figure, or any kind of climate change cosmopolitanism.

A. The Epistemic Argument

It is an understatement to use the word “challenging” to describe the task of calculating the social cost of carbon. For background: perhaps the central decision of the IWG was to build on what were, at the time, the three leading “integrated assessment models” (IAMs), rather than to question them seriously, or to attempt to make novel scientific judgments.⁹⁷ The three models are called DICE (Dynamic Model of Integrated Climate and the Economy),⁹⁸ FUND (Climate Framework for Uncertainty, Negotiation and Distribution),⁹⁹ and PAGE (Policy Analysis of the Greenhouse Effect).¹⁰⁰ These models attempt to specify the damage done by greenhouse gas emissions; they rely on both science and economics. If the goal is to monetize that damage, they provided (and continue to provide) a place to start.¹⁰¹ Nonetheless, the IAMs, old and new, are controversial in terms of both science and economics; many people believe they depend on a great deal of guesswork.¹⁰²

For example, Jonathan Masur and Eric Posner urge that “[t]he three major economic models on which agencies rely are extraordinarily crude. The cost of climate change will be high, but it is not clear how high, and one cannot conduct cost-benefit analysis of a regulation without knowing what its economic effect

96. *Id.*

97. For details, including departures from the IAMs in certain respects, see Greenstone et al., *supra* note 10; Masur & Posner, *supra* note 10.

98. See William D. Nordhaus, *Economic Aspects of Global Warming in a Post-Copenhagen Environment*, 107 PROC. NAT'L ACAD. SCI. U.S. 11721 (2010).

99. See David Anthoff & Richard S.J. Tol, *The Income Elasticity of the Impact of Climate Change*, in *IS THE ENVIRONMENT A LUXURY?* 34 (Silvia Tiezzi & Chiara Martini eds., 2014).

100. See Chris Hope, *The Social Cost of Co2 from the Page09 Model* (Econ. Discussion Paper No. 2011-39, 2011), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1973863 [<https://perma.cc/YGP8-WQ2P>].

101. See Greenstone et al., *supra* note 10.

102. Pindyck, *supra* note 10; Robert S. Pindyck, *The Use and Misuse of Models for Climate Policy* (Nat'l Bureau of Econ. Rsch., Working Paper No. 21097, 2015).

will be.”¹⁰³ Robert Pindyck urges that the existing “models are so deeply flawed as to be close to useless as tools for policy analysis.”¹⁰⁴ In his view, “the models’ descriptions of the impact of climate change are completely ad hoc, with no theoretical or empirical foundation,” and “the models can tell us nothing about the most important driver of the SCC, the possibility of a catastrophic climate outcome.”¹⁰⁵

Pindyck draws special attention to areas “where the uncertainties are greatest and our knowledge is weakest”: climate sensitivity and the damage function.¹⁰⁶ With respect to climate sensitivity, Pindyck suggests that we know very little because “the physical mechanisms that determine climate sensitivity involve crucial feedback loops, and the parameter values that determine the strength (and even the sign) of those feedback loops are largely unknown, and for the foreseeable future may even be unknowable.”¹⁰⁷ With respect to the damage function, he urges that “we know almost nothing,” which means that the developers of IAMs “can do little more than make up functional forms and corresponding parameter values.”¹⁰⁸ Losses for individual regions, for agriculture, and for forestry are built on assumptions rather than data, and some of those assumptions are ad hoc.¹⁰⁹ Hence Pindyck’s conclusion that “the damage functions used in most IAMs are completely made up, with no theoretical and empirical foundation.”¹¹⁰ In any case, the IAMs do not say much about catastrophic outcomes, which is a quite serious gap.¹¹¹ Pindyck’s conclusion is that we cannot reliably use the IAMs to establish a social cost of carbon, though we might explore plausible scenarios and make policy accordingly.¹¹²

Reasonable people believe that this conclusion is too pessimistic.¹¹³ Even if it is, disaggregating the global harm, and producing some number to specify the damage done in the United States in particular, is exceptionally difficult. Contrary to Pindyck and Masur and Posner, we might believe that global assessments are (increasingly) helpful, while also insisting that it is especially challenging to project the harm from any ton of carbon emissions in the United States (or France, or Germany, or China). Suppose that there is a good argument that any number would be essentially a stab in the dark. If so, might it not be best

103. Masur & Posner, *supra* note 10, at 1560.

104. Robert S. Pindyck, *Climate Change Policy: What Do the Models Tell Us?*, 51 J. ECON. LITERATURE 860, 861 (2013).

105. *Id.* at 860.

106. Pindyck, *supra* note 104, at 862.

107. *Id.* at 865.

108. *Id.* at 867.

109. *Id.*

110. *Id.* at 868.

111. *Id.* at 869.

112. *Id.* at 869-70.

113. See Carleton & Greenstone, *supra* note 7 (offering an account of how to monetize the social cost of carbon in light of recent findings).

to use a global number, which has a more plausible foundation in science and economics?

This question should not be taken as rhetorical. The problem with the epistemic argument is that the domestic number is surely some fraction of the global number, and whatever the epistemic gaps justify, they do not justify use of that much larger number. Indeed, the IWG in the Obama Administration said as much, suggesting that on one estimate (rooted in the integrated assessment models), the domestic number is about 7% to 10% of the global benefit, and that on another estimate (rooted in the U.S. share of global GDP), it is 23% of the global benefits.¹¹⁴ In light of the epistemic challenges, perhaps agencies should use some lower or upper bound, with some fraction of the global number reflecting the maximum damage to the United States, and another fraction representing the minimum. It might also be reasonable to specify some number between the upper or lower bounds, or perhaps to use the upper bound for reasons of prudence. For example, the executive branch could perhaps use the integrated assessment models or adopt some rules of thumb, working with U.S. population (about 4.25% of the world's total) and U.S. wealth (about 29.4% of the world's total). Any judgment about which to use, or whether to use some weighted average, would of course be controversial. The only point is that taken by itself, the epistemic argument cannot possibly support use of the global number

B. Interconnectedness

In important respects, the interconnectedness argument is unambiguously right: if the social cost of carbon were limited to the direct harms imposed by climate change on U.S. citizens within the territorial boundaries of the United States, it would clearly be too low, even if we focused solely on the harms done by climate change to U.S. citizens. As the 2021 Working Group documented, more than nine million Americans live abroad, and they might well be adversely affected by climate change.¹¹⁵ At a minimum, the harms done to them should be included in a *domestic* cost of carbon. As the 2021 Working Group also documented, and more fundamentally, the harms done to foreign institutions and individuals will inevitably have spillover effects on U.S. citizens and U.S. interests.¹¹⁶ These effects are challenging and perhaps impossible to monetize. But if we suppose that U.S. direct investment positions abroad are in the vicinity of \$6 trillion,¹¹⁷ we should be able to see immediately that a great deal of U.S. wealth is vulnerable to the adverse effects of climate change. And if various nations suffer in economic or other terms as a result of climate change, those effects might well be manifested, in one or another way, in negative

114. See Gayer & Viscusi, *supra* note 10, at 253.

115. INTERAGENCY WORKING GRP. 2021, *supra* note 73, at 15.

116. See *supra* note 63 and accompanying text.

117. See *id.*

consequences for U.S. citizens and U.S. interests. Pressure on the immigration system is only one example. An adequate accounting of a “domestic” social cost of carbon must take those enormous consequences fully on board.

All of these claims are true, which means that it would be a mistake (and clearly arbitrary under the APA¹¹⁸) to adopt a social cost of carbon that is limited to the direct effects of climate change on the Americans living within the territorial boundaries of the United States. If we are speaking of the domestic effects, we should use an inclusive domestic number, capturing the full set of effects on Americans. But what is that number? Here again, there are serious gaps in knowledge. It would make sense to start by offering some accounting of Americans who live abroad and of the likely effects of climate change on them. It would also make sense to try to estimate the cascading effects of climate change on U.S. citizens and interests that result from the adverse effects elsewhere. That would be an exceptionally challenging task. Perhaps it would be unrealistic to generate point estimates. Perhaps it would be possible to generate lower and upper bounds. But here is the central problem: however high the upper bound, it could not possibly be equivalent to the global number. It must be some fraction of it.

V. Of Morality and Strategy

I now turn to the strongest arguments in favor of a global figure. The moral cosmopolitanism argument insists that foreign lives matter, certainly insofar as U.S. actors are adversely affecting them. The reciprocity argument urges that because of the nature of the climate change problem, use of the global figure is essential or at least valuable for reasons of purely domestic self-interest. For purposes of regulatory policy and judicial review, the reciprocity argument is probably the safest, though in principle, moral cosmopolitanism has considerable appeal.

A. Moral Cosmopolitanism

To fix ideas, assume that a pollutant—let us call it pozone—comes from a small number of power plants, all located in Detroit. Let us assume that pozone imposes nontrivial health risks. About half of the adverse health effects are expected to occur in the United States, and about half in Canada. Suppose that the EPA seeks to regulate stationary sources of pozone under some provision of the Clean Air Act. When the agency produces a Regulatory Impact Analysis, which it uses to determine the stringency of its regulation,¹¹⁹ should it consider the harm to U.S. citizens only, or the harm to Canadians as well? Should it do so

118. See 5 U.S.C. § 706 (2018).

119. See Exec. Order No. 12,866, 58 Fed. Reg. 51,735 (Oct. 4, 1993); Exec. Order No. 13,563, 76 Fed. Reg. 3,821 (Jan. 21, 2011).

purely for reasons of transparency? Should it consider harms to Canadians in deciding on the appropriate level of stringency? Are there legal constraints on its choices? An admittedly quite limited survey, described above, suggests that similarly situated agencies do not consider the harm to foreigners.¹²⁰ Is that a mistake?

Let us begin with the easiest questions. As a matter of political morality, there is a strong argument that the harm to Canadians ought to count.¹²¹ If U.S. companies are causing deaths and illnesses in Canada, those are real deaths and illnesses; why should they be ignored? Nor would it be arbitrary, under the Administrative Procedure Act, for the EPA to consider those harms, so long as the agency offered some kind of justification. The EPA might be committed to a kind of cosmopolitanism: the lives of foreigners count. Valuation raises independent questions.¹²² In 2021, federal agencies valued a statistical life at about \$11.6 million, based on (American) willingness to pay to avoid statistical mortality risks.¹²³ In poor nations, the value of a statistical life would of course be lower.¹²⁴ But let us bracket questions of valuation and simply note that, according to moral cosmopolitanism, the value of a foreign life cannot possibly be \$0.

To be sure, moral cosmopolitanism raises many questions of both law and political theory, whether we are speaking of regulation, aid, military force, or anything else.¹²⁵ Many people believe that the job of political officials is to protect and help the people of their own nation, not the people of other nations.¹²⁶ Seeking not to engage the deepest issues, agencies might add that the kind of cosmopolitanism to which they are committed is narrow and constrained. They

120. See *supra* notes 38-48 and accompanying text.

121. It is natural to ask: should benefits count too? The question contains an ambiguity. It could mean: should the benefits of emissions reduction to foreigners be counted? If the analysis in the text is correct, that question is identical to this one: should the costs of emissions matter to the analysis? (The answer to both questions is “yes.”) But it could also mean: if (for example) polluting activity in the United States produces benefits to foreigners, should those benefits be counted? However that question is answered, it is independent of the question of whether the social *cost* of carbon should be measured in global or domestic terms. (A too-brief summary of what might be the outcome of an extended analysis: if regulation of polluting activity in the United States *removes benefits* to foreigners, it would be perfectly reasonable, consistent with the arguments presented here, to count those consequences as costs.)

122. See *supra* note 21.

123. See *id.*

124. See W. Kip Viscusi & Joseph E. Aldy, *The Value of a Statistical Life: A Critical Review of Market Estimates Throughout the World* (Nat'l Bureau of Econ. Rsch., Working Paper No. 9487, 2003); W. Kip Viscusi & Clayton Masterman, *Income Elasticities and Global Values of a Statistical Life*, 8 J. BENEFIT-COST ANAL. 226 (2017); Sunstein, *supra* note 23; Ted R. Miller, *Variations Between Countries in Values of Statistical Life*, 34 J. TRANSPORT ECON. & POL'Y 169 (2000).

125. See Jack Goldsmith, *Liberal Democracy and Cosmopolitan Duty*, 55 STAN. L. REV. 1667, 1670-71 (2003).

126. See *id.*; see also SIMON CANEY, JUSTICE BEYOND BORDERS: A GLOBAL POLITICAL THEORY 3-16 (2005) (exploring the issues from a philosophical perspective); Judith Lichtenberg, *National Boundaries and Moral Boundaries: A Cosmopolitan View*, in BOUNDARIES: NATIONAL AUTONOMY AND ITS LIMITS 79 (Peter G. Brown & Henry Shue eds., 1981) (same). On cosmopolitanism and the social cost of carbon, see Masur & Posner, *supra* note 10, at 1593-96.

are not saying that the United States must engage in humanitarian intervention (and so use military force to save lives), that U.S. resources must be given to foreigners (and so devote a large amount of the budget to foreign aid), or that the U.S. government should pay welfare benefits to poor people in other nations. In this context, the claim is not about conferring benefits but avoiding harms—something like a tort. The claim is only that when U.S. companies impose harm on foreigners, that harm should be given full consideration when the United States is deciding on the stringency of its regulations. At the very least, the claim is that federal agencies should give consideration to that harm where governing law does not require otherwise.

The claim might be supported by reference to moral considerations. It might also be strategic: if the United States considers harm to Canadians, Canada might consider harm to Americans as well. But that is a different point. Insofar as we are speaking of moral cosmopolitanism as I am characterizing it here, the basic claim is that the well-being of foreigners matters, at least insofar as Americans are compromising that well-being.

I have noted that as a matter of statutory interpretation, there is a presumption against extraterritoriality,¹²⁷ which means that U.S. law does not apply outside of the territorial boundaries of the United States unless Congress has expressly said that it ought to do so. I have also noted that the presumption against extraterritoriality is based in significant part on the view that U.S. requirements ought not to be applied outside those boundaries, and thus extend into the domain of another sovereign, unless Congress has so authorized. But note that in taking account of harms done to those outside of the United States, U.S. regulators *are not applying U.S. law outside of national boundaries*. They are not intruding on some other sovereign. They are not compromising the right of foreign governments to govern what happens on their own soil. They are simply stating that they will take account of the harms imposed on foreigners as a result of actions within the United States.

That does not run afoul of the presumption against extraterritoriality. On the contrary, foreign sovereigns should welcome, and not contest, a decision by U.S. regulators to take account of harms that American companies cause to their citizens or their interests. Nor should such a decision be thought to run afoul of the major question doctrine. At least outside of very rare cases, in which consideration of effects on noncitizens would fundamentally alter U.S. policy, consideration of such effects would hardly work the kind of transformation in national policy that triggers that doctrine. Recall that use of the global figure, rather than the domestic figure, may not be decisionally relevant; when it is, it may not be decisionally decisive.

To be sure, we could imagine a new canon of interpretation, a kind of cousin to the existing one, which would state that agencies may not consider benefits

127. See Dodge, *supra* note 47.

and costs to foreigners, except to the extent that Congress has explicitly directed (or authorized) them to do so. Call it a “nationalism canon.”¹²⁸ In principle, such a canon might not, to some people, entirely lack appeal. But what would be its justification? The best answer would be that in our legal system, executive agencies are responsible for what happens inside the United States, and to citizens of the United States who are living abroad, and that they cannot consider extraterritorial costs and benefits unless the national legislature has explicitly directed otherwise. That may not be an entirely wild thought. But it is not rooted in anything in existing law; it would be a kind of concoction. And because the moral issue is not (to put it lightly) easily resolved against moral cosmopolitanism of the limited form explored here, and because the United States frequently does consider the interests of foreigners in deciding what to do, judicial adoption of a presumption against moral cosmopolitanism would be a form of hubris.

Taken in the regulatory context, the moral cosmopolitan argument as understood here urges that if companies or others in the United States cause harm elsewhere, the United States has a moral obligation to consider that harm in deciding what regulations to impose. But a possible counterargument would point toward the decisive importance of international negotiations. Let us stipulate that the U.S. goal is to ensure that every nation acts as morality requires. The problem is that if the United States chooses unilaterally to use the global number (say, \$50), the outcome could be *worse*, on moral grounds, than if it used the domestic number. The reason is that other nations might elect to free ride—and take advantage of new economic opportunities. If the United States uses the global number, for example, the price of fossil fuels might decrease, which means that other countries might be more rather than less enthusiastic about using them. In this light, one might suggest that if we are speaking about the goals of moral cosmopolitanism, a treaty of some kind, engaging the social cost of carbon in particular, must come first, or that the United States ought to start with the domestic number and move to the global one only if other nations do the same. On this view, unilateral action is likely to be damaging to the very values for which moral cosmopolitanism purports to stand.

This argument is hardly preposterous, but it depends on speculative assumptions, and it is not a convincing response to the moral cosmopolitan argument. The simple claim behind the moral cosmopolitan argument is that harms to foreigners matter. If that claim is correct, harms to foreigners must be counted in the social cost of carbon. It is true that if we were confident that counting those harms in that way would ultimately lead other nations to act less aggressively to reduce greenhouse gas emissions, we should hesitate. Those who emphasize moral considerations should always be prepared to consider the

128. See Adrian Vermeule, *Nationalism Canons*, LAWFARE (June 2, 2017, 10:50 AM), <https://www.lawfareblog.com/nationalism-canons> [<https://perma.cc/FC9Q-RG3W>].

possibility that their preferred outcome, at Time 1, might lead to outcomes at Times 2, 3, and 4 that they would deplore. But on reflection, it is far more likely, in this case, that the morally preferred approach at Time 1 will lead to better, not worse, outcomes at Times 2, 3, and 4—which brings us to the final argument.

B. Reciprocity

Suppose that all nations used a domestic social cost of carbon, capturing the harm done by their own greenhouse gas emissions to their own citizens. If so, all nations would be losers. We can think of the climate change problem as a (repeated) prisoner's dilemma, in which individually rational actions by each nation produce losses for all.¹²⁹ What is needed is a binding agreement by which all nations agree to scale back their emissions in a way that protects not only their own citizens, but those of every other nation as well. (The Paris Agreement can be seen as a strong step in that direction, but it does not, of course, specify anything with respect to the social cost of carbon.) The use of the global figure by the United States might be regarded as a significant step toward ensuring widespread use of that figure.

But it is necessary to be careful here—more careful, perhaps, than the executive branch has been thus far. It is hardly self-evident that the reciprocity argument justifies the use, by any one nation, of the global number. It is the very nature of a prisoner's dilemma that a unilateral action by one actor—in this case, the United States, does not lead to cooperation from other actors. Why should one nation impose costs on itself without receiving corresponding benefits? To be sure, moral cosmopolitanism provides something like an answer, but we are bracketing that answer here.

In 2010, the United States adopted a global number, and the other nations of the world did not promptly follow its lead. (But importantly, some did; Canada, France, Germany, Mexico, Norway, and the United Kingdom were influenced and in some cases more than that.¹³⁰ I will return to that point.) Everyone should agree that the reciprocity argument would justify *use of the global number as part of an agreement by which many or all other nations agreed to do the same*. But recall once more that we are speaking of a prisoner's dilemma, which means that if the United States uses a global number, few other nations may elect to do so.¹³¹ Might China and India laugh all the way to the bank? How, exactly, would the prisoner's dilemma argument support a *unilateral* argument to use a global number when no general agreement to do that is in place?

The best answer, and the heart of the reciprocity argument in its most plausible form, is that with respect to climate change policy, the United States is

129. See ULLMAN-MARGALIT, *supra* note 27, for an especially clear discussion.

130. See Carleton & Greenstone, *supra* note 7, at 4-5.

131. See Gayer & Viscusi, *supra* note 10, at 259.

an international leader. The United States can help establish a norm, and in that sense, it can incentivize other nations to do the same. The basic idea is that norms can solve prisoner's dilemmas, and they often do exactly that.¹³² In the context of environmental harm, norms can do the work of law, and sometimes they substitute for law.¹³³ Indeed, they might ultimately form the foundation for law. The specific claims here are that if the United States uses the domestic number, it might well be more likely that other nations will do that as well, to the detriment of all, and that if the United States uses the global number and thus leads by example, its role as an international leader might well lead toward a solution to this prisoner's dilemma.

There is no mathematical proof here, and reasonable people might make different predictions about likely scenarios.¹³⁴ As Jonathan Masur puts it, speaking of the relevance of the social cost of carbon to a treaty to control climate change:

It may be that the United States has the greatest chance of convincing China and India to enter into a climate change treaty if it behaves as if it values the lives of Chinese and Indian citizens at zero, as China and India may understand that they must agree to joint action if they wish to protect their own citizens. Or it might be that a treaty is most likely if the United States values Chinese and Indian lives equally to American lives, on the theory that they will demonstrate that the United States is acting in good faith. Or it might be that a treaty is most likely if the United States adopts some intermediate path.¹³⁵

Fair enough. But if the United States uses the global number, it is fully plausible to think that it will become significantly more likely that other nations will, in the fullness of time, do so as well. Nor is this mere speculation; recall that a number of other nations have done exactly that. Indeed, the list of nations that have used a global social cost of carbon, or something like it, is very large; it includes Sweden, Switzerland, France, Finland, Denmark, Ireland, Slovenia, Costa Rica, the European Union, South Korea, Iceland, South Africa, Chile, Portugal, New Zealand, Latvia, Mexico, Kazakhstan, and Estonia.¹³⁶ The key point is that use of the global number may well create an incentive for other nations to do the same, and thus reduce harms done to U.S. citizens and interests. If that is the goal, and especially in view of the sheer magnitude of the threat posed by climate change, use of the global number seems to be a more sensible bet than use of the domestic one.

To be sure, there are several counterarguments. The point of the social cost of carbon is, of course, to capture the damage done by a ton of carbon emissions.

132. See ULLMAN-MARGALIT, *supra* note 27, for an extended discussion.

133. See ELINOR OSTROM, *GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION* (1990); ROBERT ELLICKSON, *ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES* (1994).

134. See Gayer & Viscusi, *supra* note 10, at 15; Jonathan Masur, *The Intractable Normative Complexities of Valuing Foreign Lives*, 2015 U. ILL. L. REV. SLIP OP. 12 (2015).

135. Masur, *supra* note 134, at 14.

136. See Howard & Schwartz, *supra* note 8, at 223.

Suppose that the appropriate global number is \$200 and that as an upper bound, the appropriate domestic number is \$25. By stipulation, the domestic damage is the latter, not the former. Even so, it would also be very good, and very important, for the United States to encourage other nations to reduce the damage they do to other nations, including the United States. Perhaps the United States should seek an international agreement to that effect. But on current assumptions, *the use of the global number is not a product of any such agreement*. (The Paris Agreement does not require it.) For that reason (the objection continues) there appears to be a serious mismatch between (1) the goal of the basic enterprise, which is to specify the social cost of carbon, and (2) the reciprocity argument, which points to the need to produce certain kinds of action from other nations. The goal of the enterprise, of course, is to get the number right, not to negotiate with anyone. If the global number is the correct one to use because it will ultimately benefit citizens of the United States, the reason is that it will be helpful to negotiations that will produce that benefit, not that it captures the social cost of carbon.

If the objection is right, moral cosmopolitanism might seem to be a more convincing justification for use of the global number. The basic problem is that the global number does not, in any respect, reflect the actual damage done to the United States; it is a kind of bargaining chip. In unilaterally adopting the global number, the United States could be throwing this bargaining chip away, to the detriment of international adoption of a global number.

The objection does not lack logic on its own terms, but it is unpersuasive, *so long as the reciprocity argument is described in the right way*. In brief, the argument takes the following form: *We are choosing the global figure as a matter of policy. If every nation used the domestic figure, the citizens of all nations, including and most relevantly of the United States, would be worse off. Our choice of the global figure is part of a series of efforts to protect U.S. citizens and interests against that risk*. That argument is a short version of what was said in the Obama and Biden Administrations, and it could easily be made without necessarily embracing moral cosmopolitanism. The reason is that it is founded in the importance of protecting U.S. citizens and interests, and it defends the use of the global number as an instrument toward ensuring that protection.

VI. Agency Practice and Administrative Law: A Brief Note

The discussion thus far has focused on questions of basic principle, but it has implications for what happens on the ground, so to speak—for the practices of both agencies and courts. For agencies, the most straightforward implication involves rulemaking. We have seen that under Executive Orders 12,866¹³⁷ and 13,563,¹³⁸ agencies are required to quantify the costs and benefits of their regulations, and to proceed, to the extent permitted by law, only if the benefits

137. Exec. Order No. 12,866, 58 Fed. Reg. 51,735 (Oct. 4, 1993).

138. Exec. Order No. 13,563, 76 Fed. Reg. 3,821 (Jan. 21, 2011).

justify the costs. I have argued that the global number is preferable to the domestic number, which means that quantification of the benefits of emissions reductions (or of the costs of emissions) should be based on the global number. Regulations involving motor vehicle emissions, power plant emissions, and much more should use the global number. But the arguments in favor of the global number extend to a much broader range of agency practices.¹³⁹ Funding decisions should, for example, include that number, to the extent that analysis of costs and benefits are relevant. Congress should consider the global number in deciding what climate change programs to adopt, and in deciding on what level of stringency. If and when the United States adopts a carbon tax, as it should,¹⁴⁰ it ought to use that number.

More specifically, agencies should defend the global number, publicly and in court, principally by deference to arguments from moral cosmopolitanism and reciprocity, not by reference to the weaker arguments. Of the two stronger arguments, the reciprocity argument is the safer, because it focuses on domestic effects, and sees the global number as a way of improving the welfare of American citizens; it does not make controversial claims about the appropriate weight to be given to the well-being of foreigners.

With respect to courts, we have seen that the governing statute is crucial, and also that certain canons of construction might turn out to be relevant.¹⁴¹ With respect to arbitrariness review, it is well-established that agencies must give detailed justifications for their decisions.¹⁴² The general implication is that for the social cost of carbon, a choice of the global number, or for that matter the domestic number, will be at serious risk if it is not explained in some way. As we have seen, the Trump Administration's use of the domestic number was invalidated in part because it was not adequately explained.¹⁴³ More specifically, use of the global number would be highly vulnerable if it rested solely or mostly on the epistemic argument, or on the incompleteness argument, including the admitted fact that American citizens and interests are at risk abroad. Indeed, a decision to justify the global number on either ground should and probably would be struck down. At the same time, the moral cosmopolitanism argument should be sufficient to satisfy judicial review. The same is true of the reciprocity argument. And of the two, the latter is probably on safer ground. The reason is that moral cosmopolitanism raises legitimate questions about whether and to what extent agencies can consider the costs and benefits of their regulations to foreigners. I have urged that they generally can do so, so long as statutes are

139. See Richard Revesz & Max Sarinsky, *The Social Cost of Greenhouse Gases: Legal, Economic, and Institutional Perspective*, 39 YALE J. ON REGUL. 855 (2022).

140. See RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: THE FINAL EDITION* 293-97 (2021).

141. See *supra* Section II.B.

142. See *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29 (1983); *Dep't of Homeland Sec. v. Regents of the Univ. of Cal.*, 140 S. Ct. 1891, 1905 (2020).

143. *California v. Bernhard*, 472 F. Supp. 3d 573 (N.D. Cal. 2020).

ambiguous. Under arbitrariness review, there is no doubt that courts should defer to the executive's decision to rely on the reciprocity argument.

In light of the force of the two stronger arguments, it would be challenging to justify use of the domestic number in court. At a minimum, agencies would have to explain why they rejected the strongest arguments on behalf of the global number. With respect to moral cosmopolitanism, they might urge that the central obligation of a national government is to protect the citizens of that nation, not foreigners.¹⁴⁴ With respect to reciprocity, they might argue that the goal of solving the prisoner's dilemma is best achieved by using the domestic number, and by holding out the promise of the global number, or more dramatic cuts, as a bargaining chip in negotiations; recall Masur's concerns. Neither of these arguments is implausible in principle. If they are spelled out in some detail, the choice of the domestic number should not be struck down on arbitrariness grounds, even though it is not preferable as a matter of policy.

Conclusion

Development of a social cost of carbon raises numerous challenges. A central question is whether to choose the domestic or instead the global figure. It is true that specialists find it exceedingly challenging to generate a domestic number, but by itself, that challenge is not a sufficient justification for using the global number—which must, on any account, be significantly higher than the domestic one. It is also true that climate change imposes risks to U.S. citizens and U.S. interests that go far beyond the risks associated with higher temperatures within the territorial boundaries of the United States. For that reason, any domestic figure must be inclusive of the full set of (domestic) harms. Calculating the correct domestic figure, in that light, presents even more serious challenges, but again, there is a difference between an inclusive domestic figure and the global figure, and the former is inevitably a fraction of the latter.

On moral grounds, there is a strong argument in favor of a narrow and constrained form of cosmopolitanism: when companies and individuals in the United States impose harms on foreigners, those harms are real, and they should be counted. There is also a strong argument in favor of using the global figure as part of an assortment of strategies designed to ensure an effective response to the problem of climate change, one that protects U.S. citizens and their interests against the harms coming from emissions from other nations. This is the argument from reciprocity, and even though it rests on a degree of speculation, the speculation is more than plausible. In this light, climate change cosmopolitanism, based on moral or strategic grounds, is the appropriate approach to the social cost of carbon.

144. On the underlying issues, see *supra* notes 125-126.