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BEHAVIORAL PUBLIC CHOICE AND THE CARBON TAX

Gary M. Lucas, Jr.*

Abstract

In response to the historic Paris Agreement on climate change and to the Environmental Protection Agency's recently finalized Clean Power Plan, economists and other climate policy experts have renewed the call for the United States to adopt a carbon tax. Opposition among the public presents a major obstacle. While a majority of the public supports government action on climate change, most people favor the use of "green" subsidies and command-and-control regulations—a fact that frustrates economists of all political stripes who contend that a carbon tax would be much cheaper and more effective. This Article argues that a cognitive bias known as opportunity cost neglect pervades the public's thinking about climate policy instruments, causing people to ignore the hidden costs of subsidies and command-and-control and, for that reason, to support less efficient alternatives to the carbon tax. The Article will help proponents of the carbon tax better tailor their advocacy efforts. The Article also contributes to the burgeoning literature on behavioral public choice, which shows how the cognitive biases of political actors (including voters) influence the law.

In addition, the Article points to the possibility of a Pyrrhic victory for conservative policymakers who oppose the carbon tax. Rather than averting major government action on global warming, defeating the carbon tax will very likely facilitate adoption of more costly substitutes that the public strongly favors as a result of cognitive bias. In that respect, the Article lends support to recent proposals by a small, but growing group of conservative scholars, who argue for a policy swap in which conservatives agree to a revenue-neutral carbon tax in exchange for support from environmentalists for abandoning the government's current regulatory approach. The Article also suggests that conservative policymakers rethink their position on the carbon tax given that the states are currently considering which policy options to pursue in satisfying their respective obligations to reduce carbon emissions under the Clean Power Plan.

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INTRODUCTION

Behavioral public choice (BPC) extends behavioral economics to politics and shows how human psychology influences the law and public policy. BPC is a relatively new field, but it has recently received significant attention from both legal scholars and economists.¹

Psychologists and behavioral economists have demonstrated that unlike the rational actors of economic theory, real people suffer from mental limitations and cognitive and emotional biases.² A number of legal scholars have used these findings

¹ See generally Gary M. Lucas, Jr. & Slavisa Tasic, *Behavioral Public Choice and the Law*, 118 W. VA. L. REV. 199, 200 (2015) (describing behavioral public choice as an “emerging field”); W. Kip Viscusi & Ted Gayer, *Behavioral Public Choice: The Behavioral Paradox of Government Policy*, 38 HARV. J.L. PUB. POL’Y 973, 974 (2015) (discussing behavioral public choice in the context of risk regulation); Jan Schnellenbach & Christian Schubert, *Behavioral Public Choice: A Survey* (Univ. of Freiburg, Working Paper No. 14/03, 2014) (discussing possible avenues for future research in behavioral public choice).

² COLIN CAMERER, *Individual Decision Making*, in THE HANDBOOK OF EXPERIMENTAL ECONOMICS 587, 595–96 (John Kagel & Alvin Roth eds., 1995); DANIEL KAHNEMAN, THINKING, FAST AND SLOW 130–31 (2011); CASS SUNSTEIN, *Introduction*, in BEHAVIORAL

to justify government paternalism intended to save consumers and other market actors from their own irrational tendencies.³ Others have argued that the government should use subtle psychological “nudges” to elicit socially desirable behavior thereby correcting more conventional market failures, such as those caused by pollution and other spillovers.⁴

By contrast, the BPC literature, rather than focusing on market failures, presents evidence that mental limitations and psychological biases influence politics. Three facts about politics explain why failures of rationality play a major role in shaping public policy.⁵

First, rational, unbiased thinking often requires significant effort, and many people have little incentive to make that effort when acting in their capacity as political actors.⁶ A single vote rarely matters, so voters need not take elections very seriously.⁷ Moreover, voters, politicians, and bureaucrats know that the consequences of mistaken policies fall largely upon others.⁸ Under these circumstances, voters are free to indulge their biases, ideological or otherwise. Politicians and bureaucrats (who may themselves suffer from bias) often have little to gain by pointing out voters’ errors.⁹

Second, law and policy are usually complex, and at the same time, most voters are woefully uninformed.¹⁰ Psychologists have found that when uninformed people

LAW AND ECONOMICS 1, 1–10 (Cass Sunstein ed., 2000); Jeremy A. Blumenthal, *Emotional Paternalism*, 35 FLA. ST. U. L. REV. 1, 30–50 (2007). See generally THOMAS GILOVICH & DALE GRIFFIN, *Introduction*, in HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT 1, 1–18 (Thomas Gilovich et al. eds., 2002) (exploring the psychology of judgment under uncertainty).

³ E.g., Oren Bar-Gill & Elizabeth Warren, *Making Credit Safer*, 157 U. PA. L. REV. 1, 1–7 (2008) (proposing “the creation of a single regulatory body that will be responsible for evaluating the safety of consumer credit products”); Cass R. Sunstein, *The Storrs Lectures: Behavioral Economics and Paternalism*, 122 YALE L.J. 1826, 1834 (2013) (arguing that “behavioral market failures do, in fact, justify paternalism.”); Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism Is Not an Oxymoron*, 70 U. CHI. L. REV. 1159, 1160 (2003) (arguing for libertarian paternalism).

⁴ See generally CASS R. SUNSTEIN, *Simpler: The Future of Government* 9–10 (2013) (discussing the importance of “nudges” for the regulatory system); Russell Korobkin, *Libertarian Welfarism*, 97 CAL. L. REV. 1651, 1653 (2009) (discussing “libertarian welfarism”).

⁵ For a more extensive discussion, see Lucas & Tasic, *supra* note 1, at 260–63.

⁶ On the effort required to think rationally, see KAHNEMAN, *supra* note 2, at 31–49.

⁷ On the odds of a single vote deciding an election, see DENNIS C. MUELLER, *PUBLIC CHOICE III* 304–05 (2003).

⁸ Bryan Caplan, *Majorities Against Utility: Implications of the Failure of the Miracle of Aggregation*, 26 SOC. PHIL. & POL’Y 198, 207–08 (2008).

⁹ Edward J. McCaffery & Jonathan Baron, *Thinking About Tax*, 12 J. PSYCHOL., PUB. POL’Y, & L. 106, 130 (2006).

¹⁰ MICHAEL X. DELLI CARPINI & SCOTT KEETER, *WHAT AMERICANS KNOW ABOUT POLITICS AND WHY IT MATTERS* 62–104 (1996); ILYA SOMIN, *DEMOCRACY AND POLITICAL IGNORANCE: WHY SMALLER GOVERNMENT IS SMARTER* 17–61 (2013).

think about complex problems, they evaluate those problems superficially, relying on simple cues and decision heuristics that often lead to poor reasoning.¹¹

Finally, political actors usually have little opportunity to learn from their mistakes. The effects of government intervention are often ambiguous, and voters, politicians, and bureaucrats all have incentives to interpret the limited feedback that they receive in biased ways.¹²

Although still developing, BPC scholarship has already shown that psychology exercises significant influence over the law. This Article adds to the literature by arguing that BPC can help legal scholars better understand the current debate surrounding proposals for a carbon tax.

The Obama Administration has made climate change a top policy priority.¹³ In 2015, the Administration negotiated the Paris Agreement on climate change, as part of which the United States and nearly two hundred other countries have pledged to significantly curtail carbon emissions.¹⁴ Moreover, the Environmental Protection Agency (EPA) recently finalized the Clean Power Plan, which establishes state-specific limits on carbon emissions from power plants and requires that each state develop and implement a plan to achieve the required emissions reductions.¹⁵ The Administration has also strengthened automobile fuel efficiency standards.¹⁶

In response to the Administration's focus on global warming, economists and other climate policy experts have renewed the call for a carbon tax. Many economists have long supported a national carbon tax.¹⁷ More recently, a number of commentators have argued that, in satisfying their obligations under the Clean Power Plan, the states should use carbon taxes to reduce emissions.¹⁸ Despite this

¹¹ See THOMAS GILOVICH ET AL., *SOCIAL PSYCHOLOGY* 281 (3d ed. 2013).

¹² E.g., Stephen J. Choi & A. C. Pritchard, *Behavioral Economics and the SEC*, 56 *STAN. L. REV.* 1, 44–45 (2003).

¹³ *Climate Change and President Obama's Action Plan*, THE WHITE HOUSE, <https://www.whitehouse.gov/climate-change> [<https://perma.cc/JJZ4-MHQE>].

¹⁴ UNITED NATIONS, *ADOPTION OF THE PARIS AGREEMENT* 22 (2015), <http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf> [<https://perma.cc/HXY6-PJJ5>].

¹⁵ Carbon Pollution Emissions Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 *Fed. Reg.* 64,662 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60). A number of states are challenging the validity of the Clean Power Plan, and the case is currently pending before the United States Court of Appeals for the District of Columbia Circuit. The Supreme Court recently entered an order staying implementation of the EPA's regulation pending resolution of the case. *West Virginia v. Env'tl. Prot. Agency*, 136 S. Ct. 1000, 1000. (2016) (mem.).

¹⁶ 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 *Fed. Reg.* 62,624, 62,626–27 (Oct. 15, 2012).

¹⁷ See *infra* Part I.

¹⁸ E.g., Ben Gemen, *Obama Climate Plan Revives Talk of a Carbon Tax*, THE ATLANTIC, Aug. 3, 2015, <http://www.theatlantic.com/politics/archive/2015/08/obama-climate-plan-revives-talk-of-a-carbon-tax/447621/> [<https://perma.cc/UU7V-Y768>]; Adele Morris & Evan Weber, *To Comply with the Clean Power Plan, States Should Tax Carbon*, THE HILL: CONGRESS BLOG (Sept. 2, 2015, 11:30 AM),

strong support among policy experts, the public remains steadfastly opposed to taxing carbon.¹⁹ This Article argues that the reasons for the public's opposition are largely psychological. The Article will help carbon tax proponents better tailor their advocacy efforts.

Part I provides background by briefly describing why economists and many other experts favor a carbon tax as the best policy instrument for addressing global warming. A properly designed carbon tax would be much less expensive and more effective than command-and-control regulations, such as renewable portfolio standards, or "green" subsidies, such as tax credits for hybrid cars.

Part II uses BPC to explain why the public disagrees with policy experts and rejects the carbon tax while at the same time strongly supporting regulations and subsidies that would cost more and be less effective. Specifically, Part II argues that support for these alternative policies often results from a particular cognitive bias known as opportunity cost neglect.²⁰ The opportunity cost of a climate policy represents the tradeoff that the policy entails, or more specifically, the private and public goods that society must forgo because the government carries out the policy. All climate policies require that we sacrifice resources in exchange for improvements in environmental quality. But many policies, such as renewable portfolio standards and tax credits for hybrid cars, hide these tradeoffs from public view, whereas the carbon tax makes them at least somewhat salient. Substantial evidence indicates that, in general, the public favors policies that conceal tradeoffs, which largely explains why the carbon tax is at a disadvantage relative to other policies.²¹ While other scholars have also suggested that a carbon tax makes costs more salient than alternative policies,²² they have not identified opportunity cost neglect as the underlying psychological mechanism nor have they provided much empirical support for this claim. This Article is a first step toward filling that gap in the literature.

Part III discusses the ramifications of opportunity cost neglect for both carbon tax advocates and opponents. To increase support for a carbon tax, advocates will have to convince the public that global warming is serious enough to warrant sacrifices and will also have to persuade the public that alternative policies do not offer a free lunch—environmental gain without any pain.

By contrast, carbon tax opponents, many of whom are conservatives or libertarians, are currently winning in the court of public opinion. I suggest, however, the possibility of a Pyrrhic victory. Opposition by conservative policymakers to the carbon tax has not stopped the government from moving forward with alternative

blog/energy-environment/252476-to-comply-with-the-clean-power-plan-states-should-tax [https://perma.cc/D59A-MRST].

¹⁹ See *infra* Section II.B.4.

²⁰ Although I did not fully develop the idea, I first suggested that opportunity cost neglect influences public opinion with respect to the carbon tax in Gary M. Lucas, Jr., *Out of Sight, Out of Mind: How Opportunity Cost Neglect Undermines Democracy*, 9 N.Y.U. J.L. & LIBERTY 249, 298–300 (2015).

²¹ See *infra* Section II.A.

²² See *infra* Part II.

policies that conservatives arguably should find more repugnant, both because those policies are less efficient and because they entail greater government intrusion into the economy and people's private lives. Because of opportunity cost neglect, the public strongly supports the government's current regulatory approach even though it will likely prove unnecessarily expensive and possibly ineffective. As a result, my analysis bolsters recent proposals by a small but growing group of conservative scholars who argue for a policy swap—conservative policymakers would agree to a revenue-neutral carbon tax in exchange for support from environmentalists for the government's abandoning command-and-control regulation and green subsidies.²³

On the other hand, Part III also argues that opportunity cost neglect will very likely make any real-world carbon tax that Congress adopts less efficient than traditional economic analysis would suggest. Part of the appeal of a carbon tax is that it could largely replace inefficient regulations and subsidies. But opportunity cost neglect causes the public to be incredibly fond of those alternative policies. And since those policies also appeal to certain environmental and industry groups, regulations and subsidies are unlikely to disappear completely with the advent of a carbon tax; the policies would instead coexist.

This does not, however, mean that a carbon tax is a bad idea. In fact, I suggest that conservative policymakers would be better off supporting a carbon tax and steadfastly opposing inefficient policies. The current strategy of opposing any and all government action is not working and is likely to pave the way for the costly regulations and wasteful subsidies that conservatives deplore. Moreover, given that the states are currently developing plans to achieve the emissions reductions required by the Clean Power Plan, conservative policymakers could, by advocating that the states use carbon taxes in lieu of expensive regulations, help ensure that these emissions reductions come at the lowest possible cost.

²³ John Cochrane, *Carbon Tax or Carbon Rights*, THE GRUMPY ECONOMIST (Jan. 5, 2015, 1:34 PM), <http://johnhcochrane.blogspot.com/2015/01/carbon-tax-or-carbon-rights.html> [<https://perma.cc/ALY7-WU7R>]; Amanda Little, *This Conservative Economist Makes the Case for a Carbon Tax*, GRIST (Oct. 12, 2015), <http://grist.org/climate-energy/this-conservative-economist-makes-the-case-for-a-carbon-tax/> [<https://perma.cc/FM Z6-3MJ9>] (interviewing Greg Mankiw, who argues for a policy swap); Jerry Taylor, *The Conservative Case for a Carbon Tax*, NISKANEN CENTER, 3–10 (March 23, 2015), <http://niskanencenter.org/wp-content/uploads/2015/03/The-Conservative-Case-for-a-Carbon-Tax1.pdf> [<https://perma.cc/AL8J-THY2>]. The policy swap proposal has also received attention outside of conservative circles. See Ted Gayer, *Addressing Climate Policy: The Next President Should Link a Carbon Tax to Fiscal and Environmental Reform*, in CAMPAIGN 2012: TWELVE INDEPENDENT IDEAS FOR IMPROVING AMERICAN PUBLIC POLICY 189, 189–98 (Benjamin Wittes ed., 2012); Nathan Richardson & Arthur G. Fraas, *Comparing the Clean Air Act and a Carbon Price*, RESOURCES FOR THE FUTURE, 22–23 (May 2013), <http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-DP-13-13.pdf> [<https://perma.cc/9KNB-ZVZX>].

I. WHY ECONOMISTS PREFER A CARBON TAX

On both the political right and left, economists generally favor a carbon tax as the primary policy tool for addressing global warming.²⁴ For example, both Joseph Stiglitz, who was the chief economic advisor for President Bill Clinton, and Greg Mankiw, who was the chief economic advisor for President George W. Bush, are carbon tax advocates.²⁵ This Part briefly discusses the primary reasons that economists tout the carbon tax. Section A explains why a carbon tax is attractive, and Section B describes some of the unattractive features of alternative policies. My goal is simply to provide enough background to facilitate understanding of the remainder of the Article, so the discussion here is not comprehensive.²⁶

A. Attractive Features of a Carbon Tax

The economic argument for a carbon tax starts from the premise that people who consume carbon-intensive goods impose a cost on society by contributing to global warming. Economists refer to this cost as a negative externality. Since the cost is external to producers who use carbon-intensive inputs and consumers of

²⁴ See, e.g., Alan Krupnick & Ian Parry, *What Is the Best Policy Instrument for Reducing CO₂ Emissions?*, in FISCAL POLICY TO MITIGATE CLIMATE CHANGE: A GUIDE FOR POLICYMAKERS 1, 1 (Ian Parry et al. eds., 2012) (“Carbon pricing policies . . . are easily the best instruments on the grounds of effectiveness, cost-effectiveness, and promoting clean technology investments.”); Ian Parry, *Summary for Policymakers*, in IMPLEMENTING A U.S. CARBON TAX xxiii, xxv (Ian Parry et al. eds., 2015) (stating that “there is near-universal agreement among economists that it [carbon pricing] will be essential if US emissions are ultimately to be rolled back at reasonable cost.”). For some examples of scholars and experts other than economists who support a carbon tax, see Jonathan H. Adler, *A Conservative’s Approach to Combating Climate Change*, THE ATLANTIC (May 30, 2012), <http://www.theatlantic.com/business/archive/2012/05/a-conservatives-approach-to-combating-climate-change/257827/> [<https://perma.cc/59UJ-8YEU>] (arguing in favor of a revenue-neutral carbon tax); MICHAEL J. GRAETZ, THE END OF ENERGY: THE UNMAKING OF AMERICA’S ENVIRONMENT, SECURITY, AND INDEPENDENCE 181 (2011); James Hansen et al., *Assessing “Dangerous Climate Change”: Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature*, 8 PLOS ONE 1, 18–19 (2013).

²⁵ N. Gregory Mankiw, *A Carbon Tax That America Could Live With*, N.Y. TIMES (Aug. 31, 2013), http://www.nytimes.com/2013/09/01/business/a-carbon-tax-that-america-could-live-with.html?_r=0 [<https://perma.cc/XYF4-6H74>]; Joseph E. Stiglitz, *A Cool Calculus of Global Warming*, PROJECT SYNDICATE (Nov. 9, 2006), <http://www.project-syndicate.org/commentary/a-cool-calculus-of-global-warming> [<https://perma.cc/Q6NG-PJV3>]. For more complete lists of economists (both conservative and liberal) who support a carbon tax, see SHI-LING HSU, THE CASE FOR A CARBON TAX 183–86 (2011); WILLIAM NORDHAUS, THE CLIMATE CASINO: RISK, UNCERTAINTY, AND ECONOMICS FOR A WARMING WORLD 314 (2013); Taylor, *supra* note 23, at 9–10, n.26; CARBON TAX CENTER, *Conservatives*, <http://www.carbontax.org/conservatives/> [<https://perma.cc/V9NH-5UEH>].

²⁶ For more comprehensive discussions of the advantages of a carbon tax relative to other policies, see HSU, *supra* note 25, at 13–115; NORDHAUS, *supra* note 25, at 244–89.

carbon-intensive goods, producers and consumers can ignore it in their decision-making. Because the prices of carbon-intensive goods and inputs do not reflect the carbon externality, firms and consumers buy more of them than they would if prices reflected all social costs.

The simplest way to address this problem is to tax the goods in question, thereby increasing their price to reflect the full social cost of carbon emissions.²⁷ The amount of the tax should equal the marginal social cost of emitting carbon, which economists can estimate using models that forecast the damage caused by global warming.²⁸ By forcing producers and consumers to internalize the carbon externality, an optimal carbon tax would reduce carbon-intensive activities to the economically efficient level.

In addition to its relative simplicity, a carbon tax possesses at least five other important features that make it an attractive policy. First, the government could apply it upstream directly to the limited number of firms that extract, process, and/or import fossil fuels.²⁹ These fossil fuel suppliers would then pass most of the cost on to their customers who use fossil fuels to produce gasoline, electricity, and other carbon-intensive goods. As a result, the price of all goods would increase in

²⁷ The economic case for a carbon tax is well established and it appears in many economics textbooks. See JONATHAN GRUBER, PUBLIC FINANCE AND PUBLIC POLICY 149–55 (3d ed. 2011); HARVEY S. ROSEN & TED GAYER, PUBLIC FINANCE 85–94 (8th ed. 2008).

²⁸ Technically, the optimal carbon tax might be somewhat less than the marginal social cost of carbon emissions due to tax interaction effects. For estimates of the social cost of carbon, see William Nordhaus, *Estimates of the Social Cost of Carbon: Concepts and Results from the DICE 2013-R Model and Alternative Approaches*, 1 J. ASS'N ENVTL. & RESOURCE ECON. 273, 275 (2014) (estimating that the social cost of carbon in 2015 is \$18.6 per ton of CO₂ stated in 2005 dollars); U.S. GOV'T INTERAGENCY WORKING GROUP ON THE SOCIAL COST OF CARBON, SOCIAL COST OF CARBON FOR REGULATORY IMPACT ANALYSIS UNDER EXEC. ORDER 12866 1 (2010) (presenting estimates of the social cost of carbon that vary depending on the specified discount rate); U.S. GOV'T INTERAGENCY WORKING GROUP ON THE SOCIAL COST OF CARBON, TECHNICAL SUPPORT DOCUMENT: TECHNICAL UPDATE OF THE SOCIAL COST OF CARBON FOR REGULATORY IMPACT ANALYSIS UNDER EXEC. ORDER 12866 (2013) (updating the working group's 2010 estimates); U.S. GOV'T INTERAGENCY WORKING GROUP ON THE SOCIAL COST OF CARBON, TECHNICAL UPDATE OF THE SOCIAL COST OF CARBON FOR REGULATORY IMPACT ANALYSIS UNDER EXEC. ORDER 12866 (2013) (revising the working group's 2013 estimates). See generally NICHOLAS STERN, STERN REVIEW: THE ECONOMICS OF CLIMATE CHANGE (2006) (reporting an influential, but highly controversial, estimate of the social cost of carbon); Richard S.J. Tol, *The Social Cost of Carbon: Trends, Outliers and Catastrophes*, 2 ECON.: THE OPEN-ACCESS, OPEN-ASSESSMENT E-JOURNAL 1 (2008), <http://dx.doi.org/10.5018/economics-ejournal.ja.2008-25> [<https://perma.cc/3BG3-HJF4>] (reviewing numerous estimates of the social cost of carbon).

²⁹ See Jack Calder, *Administration of a US Carbon Tax*, in IMPLEMENTING A U.S. CARBON TAX 38, 44–51 (Ian Parry et al. eds., 2015); Gilbert E. Metcalf & David Weisbach, *The Design of a Carbon Tax*, 33 HARV. ENVTL. L. REV. 499, 501–29 (2009) (concluding that it would be possible for a carbon tax to cover virtually all carbon emissions from fossil fuel combustion by imposing the tax upstream at fewer than three thousand points, such as coal mines and oil refineries).

proportion to their carbon intensity. A broad-based carbon tax would promote emissions reduction in all carbon-intensive sectors of the economy and ensure that resources are not inefficiently reallocated from taxed sectors to untaxed sectors.

Second, because it would apply broadly, a carbon tax incentivizes virtually everyone who produces and consumes carbon-intensive goods to behave in ways that reduce emissions.³⁰ For example, it would encourage consumers to drive more fuel-efficient cars and power companies to substitute renewable energy for coal and natural gas.

Third, a broad-based carbon tax would reduce carbon emissions at the lowest possible cost.³¹ Many opportunities exist for abating emissions, but some cost more than others. By pricing emissions, an optimally designed carbon tax would ensure that carbon is emitted only if the benefits of doing so outweigh the costs, including the tax. Those producers and consumers who can abate emissions at a cost lower than the tax will do so. Those who cannot will simply pay the tax. Thus, a carbon tax effectively allocates emissions abatement to sources that can abate most cheaply. In economic terms, the marginal cost of abatement will be uniform (i.e., equal to the tax rate) across all activities and economic sectors so that no opportunities exist to cheaply reallocate abatement from one sector to another.³²

Fourth, a carbon tax would raise revenue. The government could use this revenue to fund public goods, to reduce the deficit, or to cut income and similar taxes that adversely affect economic growth by reducing the incentive to work and save.³³ In particular, using carbon tax revenue to cut distortionary taxes would dramatically reduce the cost of addressing global warming.³⁴

The government could also use carbon tax revenue to mitigate the regressive nature of the tax. Although substantial debate exists over exactly how regressive a carbon tax would be, one popular criticism of the tax is that the burden of it may fall more heavily on the poor than the rich because the poor spend a larger portion of their incomes on carbon-intensive goods.³⁵ To reduce regressivity, the government

³⁰ See NORDHAUS, *supra* note 25, at 224–25.

³¹ See ROSEN & GAYER, *supra* note 27, at 87–88.

³² *Id.* at 87.

³³ For discussions of the macroeconomic effects of using carbon taxes to cut the deficit or fund government spending, see Jared C. Carbone et al., *Deficit Reduction and Carbon Taxes: Budgetary, Economic, and Distributional Impacts*, RESOURCES FOR THE FUTURE, [http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-Rpt-Carbone.et.al.Carbon Taxes.pdf](http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-Rpt-Carbone.et.al.Carbon%20Taxes.pdf) [<https://perma.cc/2X84-MDBX>]; Roberton C. Williams III & Casey J. Wichman, *Macroeconomic Effects of Carbon Taxes*, in IMPLEMENTING A U.S. CARBON TAX 83, 89–91 (Ian Parry et al. eds., 2015). A carbon tax can be a more efficient way to fund government spending than an income tax, but only if the carbon tax produces environmental benefits and only if it is not too large. Lawrence H. Goulder, *Climate Change Policy's Interactions with the Tax System*, 40 ENERGY ECON. S3, S9–10 (2013).

³⁴ See Carbone et al., *supra* note 33, at 7–8; Goulder, *supra* note 33, at S6–8; Williams III & Wichman, *supra* note 33, at 84–89.

³⁵ See Adele Morris & Aparna Mathur, *The Distributional Burden of a Carbon Tax: Evidence and Implications for Policy*, in IMPLEMENTING A U.S. CARBON TAX 97, 101–07 (Ian Parry et al. eds., 2015). *But see* Don Fullerton et al., *Does the Indexing of Government*

could give some carbon tax revenue to the poor (e.g., by mailing them a rebate check, by reducing regressive payroll taxes, or by increasing the earned income tax credit).³⁶ Economists estimate that the government could eliminate the burden that a carbon tax imposes on the poor using only a small portion of carbon tax revenue, which would leave most of the revenue available for other purposes.³⁷

Finally, a carbon tax that includes carbon tariffs (sometimes called “border tax adjustments”) could address the problems of free riders and leakage.³⁸ Climate change is a global problem and addressing it will require global cooperation. Yet each country has an incentive to free ride on the efforts of others while refusing to incur any abatement costs itself.³⁹ Carbon tariffs offer a potential solution to this problem. For example, if China and India refuse to adopt climate policies of their own, the United States could tax imports from those countries, thereby giving them an incentive to change course.

Carbon tariffs also mollify concerns about leakage, which occurs when firms shift production of carbon intensive goods to countries that do not tax or regulate carbon emissions.⁴⁰ Tariffs reduce the benefits to firms of relocating to renegade countries that refuse to place a price on carbon.

Transfers Make Carbon Pricing Progressive?, 94 AM. J. AGRIC. ECON. 347, 352 (2012) (finding that, because carbon taxes increase prices, the automatic indexing of government transfers for inflation reduces the regressivity of a carbon tax); Kevin Hassett et al., *The Incidence of a U.S. Carbon Tax: A Lifetime and Regional Analysis*, 30 ENERGY J. 157, 169 (2009) (concluding that carbon taxes are less regressive when analyzed with respect to measures of lifetime income rather than annual income); Sebastian Rauch et al., *Distributional Implications of Alternative U.S. Greenhouse Gas Control Measures* 41 (Nat'l Bureau Econ. Research, Working Paper No. 16053, 2010) (finding that the regressivity of a carbon tax is reduced by the fact that “low income households derive a relatively large fraction of their income from transfers which insulates them from changes in capital and labor income.”).

³⁶ See generally Terry Dinan, *Offsetting a Carbon Tax's Burden on Low-Income Households*, in IMPLEMENTING A U.S. CARBON TAX 120 (Ian Parry et al. eds., 2015). Lump-sum rebates to the poor may be politically attractive, but they come at a large cost. Carbon tax revenue used in this fashion is unavailable to cut distortionary taxes. See *infra* Section III.A.

³⁷ See Aparna Mathur & Adele Morris, *Distributional Effects of a Carbon Tax in Broader U.S. Fiscal Reform*, 66 ENERGY POL'Y 326, 333 (2014).

³⁸ See HSU, *supra* note 25, at 95–100; Metcalf & Weisbach, *supra* note 29, at 540–52. But see Calder, *supra* note 29, at 57–59 (discussing the practical challenges of implementing carbon tariffs).

³⁹ See Metcalf & Weisbach, *supra* note 29, at 501–46.

⁴⁰ *Id.* at 546–47.

B. Unattractive Features of Alternative Policies

Aside from a carbon tax, the government has three primary options for addressing global warming—cap-and-trade, command-and-control regulation, and green subsidies. This Section briefly describes why most economists find these alternative policies deficient when compared to a carbon tax.

1. Cap-and-Trade

A carbon cap-and-trade program would have two primary features—the emissions cap and tradable permits. The emissions cap would limit the annual aggregate carbon emissions of firms to which it applies.⁴¹ The government would then distribute permits in an amount corresponding to the cap with each permit conferring the right to emit one ton of carbon.⁴² Covered firms would have to surrender a permit for each ton of carbon that they emitted during the year.⁴³ After the government distributed the permits, firms could buy and sell them on a secondary market.⁴⁴

In theory, the government could implement a cap-and-trade program that would mimic the effects of the broad-based carbon tax described in Section A.⁴⁵ The government could apply the emissions cap to fossil-fuel suppliers and force them to surrender permits when they extract, process, or import fossil fuels. Because the permits would be valuable, fossil-fuel suppliers would increase the prices of fossil fuels to reflect the opportunity cost associated with surrendering the permits as part of the production process.⁴⁶ As a result—as with a carbon tax—prices of goods would increase in proportion to their carbon intensity.

In addition, the government could initially distribute permits by auction and use the resulting revenue for the same purposes as it would use carbon tax revenue.⁴⁷ In fact, a cap-and-trade program designed in this way would resemble a carbon tax in which the tax revenue is collected prior to emission rather than after.

As I discuss in more detail below, because cap-and-trade and a carbon tax are close substitutes, this Article does not analyze in depth how or why public opinion with respect to the two policies differs.⁴⁸ Instead, the Article focuses on public opinion regarding the carbon tax relative to more traditional command-and-control regulations and green subsidies.

⁴¹ See CONG. BUDGET OFFICE, AN EVALUATION OF CAP-AND-TRADE PROGRAMS FOR REDUCING U.S. CARBON EMISSIONS 5 (2001); Robert N. Stavins, *A Meaningful U.S. Cap-and-Trade System to Address Climate Change*, 32 HARV. ENVTL. L. REV. 293, 298 (2008).

⁴² See Stavins, *supra* note 41, at 298.

⁴³ *Id.*

⁴⁴ *Id.* at 326.

⁴⁵ See ROSEN & GAYER, *supra* note 27, at 90.

⁴⁶ See Stavins, *supra* note 41, at 310.

⁴⁷ *Id.* at 305.

⁴⁸ See *infra* Section II.B.

Having said that, I briefly note that many economists prefer a carbon tax to cap-and-trade despite the fact that, in theory, the government could efficiently price carbon emissions using either approach.⁴⁹ The reason is that a well-designed cap-and-trade program would mimic a carbon tax, only it would add substantial complexity, which would likely lead to unforeseen problems. So why bother?

In addition, in real-world cap-and-trade programs like the one governing carbon emissions in the European Union, the price of emissions permits has proven extremely volatile.⁵⁰ In particular, during an economic recession, emissions decline naturally along with economic activity, and this can cause the price of permits to fall dramatically relative to periods in which permits are in high demand.⁵¹ Price volatility is bad because it introduces risk for investors and can increase costs.⁵² Moreover, because it complicates planning, volatility can reduce the willingness of firms to develop clean technologies.⁵³ A carbon tax resolves this problem because the price of emissions does not change unless the government changes the tax rate or the law provides that the initial rate changes automatically over time or upon the occurrence of certain events.⁵⁴

Another practical problem with cap-and-trade is that in order to reduce industry opposition to the policy, rather than auctioning permits, the government would likely give them away to firms that cap-and-trade would affect adversely.⁵⁵ This is what happened with respect to the sulfur dioxide cap-and-trade program adopted in the United States and the carbon cap-and-trade program adopted in Europe.⁵⁶ A cap-and-trade program in which the government does not auction permits resembles a carbon tax in which the tax revenue is returned to polluting firms, and it creates windfall profits for shareholders.⁵⁷ Moreover, giving permits away eliminates the possibility of reducing the program's overall cost by using auction revenue to cut distortionary taxes.⁵⁸ It also removes the mechanism for addressing the regressivity of climate policy.

⁴⁹See NORDHAUS, *supra* note 25, at 241; Ian Parry, *Choosing Among Mitigation Instruments*, in IMPLEMENTING A U.S. CARBON TAX 18, 34–35 (Ian Parry et al. eds., 2015).

⁵⁰See GRAETZ, *supra* note 24, at 207; NORDHAUS, *supra* note 25, at 235–39.

⁵¹See Krupnick & Parry, *supra* note 24, at 14.

⁵²See NORDHAUS, *supra* note 25, at 239; Krupnick & Parry, *supra* note 24, at 14.

⁵³See Krupnick & Parry, *supra* note 24, at 14.

⁵⁴In theory, mechanisms exist for reducing the price volatility that plagues cap-and-trade programs, but these mechanisms add significant complexity. See Krupnick & Parry, *supra* note 24, at 14–15 (“[T]he best way to provide price stability is simply to implement a carbon tax . . . instead of a cap-and-trade system.”).

⁵⁵See GRAETZ, *supra* note 24, at 235–36; Parry, *supra* note 49, at 34 (“The Waxman-Markey ETS bill was not designed to provide a large new source of federal government revenue—at least initially, only 7 percent of the allowances were to be auctioned for the purpose of deficit reduction (most of the allowances were to be set aside for compensation schemes or to fund energy-related spending).”).

⁵⁶GRAETZ, *supra* note 24, at 207.

⁵⁷Morris & Mathur, *supra* note 35, at 100.

⁵⁸Goulder, *supra* note 33, at S7.

Of course, the government could, in theory, give carbon tax revenue to polluters just as easily as it could give them pollution permits. But in reality, sending large checks to coal, oil, and power companies would render the obviously unfair nature of the transfer scheme easily visible to the media and public in a way that handing out pollution permits would not.

2. *Command-and-Control Regulation*

Command-and-control regulations generally mandate that a polluter adopt a particular pollution abatement technology or achieve a minimal level of performance in reducing pollution.⁵⁹ Examples include regulations that impose fuel efficiency requirements on automobile manufacturers and regulations that require power companies to produce electricity from renewable sources rather than fossil fuels.

Regulation has a number of drawbacks, making it highly likely that achieving a given amount of emissions reduction using command-and-control would be much more expensive than if the government opted for a carbon tax instead.⁶⁰ First, the government is unlikely to regulate all sources of emissions because doing so would require a massive amount of intrusion into the economy as well as people's private lives. This means missing out on many opportunities to cheaply abate emissions.⁶¹ For example, fuel efficiency standards do not incentivize people to drive fewer miles.

Second, choosing the most cost-effective abatement technology or the optimal performance standard for various industries requires detailed information that the government usually does not have—much more information than is needed to impose an optimal carbon tax.⁶² Moreover, political considerations inevitably influence the regulatory process as powerful special interest groups lobby for regulations that will benefit them and harm competitors without concern for environmental objectives.⁶³

Third, the two problems already mentioned imply that, under any real-world regulatory scheme, the marginal cost of abatement will vary greatly across economic sectors.⁶⁴ For example, the marginal cost of abatement in the transportation sector may significantly exceed the marginal cost of abatement in electricity generation. In that case, society could achieve the same level of emissions reduction more cheaply by allowing greater emissions from automobiles while reducing emissions by power companies. A carbon tax avoids this problem by creating a uniform price for emissions. Everyone facing that price has an incentive to reduce emissions until the marginal cost of doing so exceeds the tax.

⁵⁹ ROSEN & GAYER, *supra* note 27, at 94–95.

⁶⁰ ALAN J. KRUPNICK ET AL., RESOURCES FOR THE FUTURE, TOWARD A NEW NATIONAL ENERGY POLICY: ASSESSING THE OPTIONS 69–112 (2010); NORDHAUS, *supra* note 25, at 260–61.

⁶¹ Parry, *supra* note 49, at 27.

⁶² See HSU, *supra* note 25, at 59.

⁶³ *Id.*

⁶⁴ See GRUBER, *supra* note 27, at 142–143.

Fourth, regulations, like a carbon tax, harm the poor more than the rich, but, unlike a carbon tax, do not produce revenue that the government can use to rectify this problem. As with a carbon tax, regulations increase the costs of firms that produce carbon-intensive goods. And as with a tax, firms pass these costs on to consumers in the form of higher prices for cars, electricity, and other regulated products.⁶⁵ Because the poor spend a greater percentage of their incomes on carbon-intensive goods, the burden of the price increases that result from regulation falls disproportionately on the poor.

Finally, polluters who adopt the government's required technology or who satisfy the applicable performance standard have no further incentive to reduce emissions.⁶⁶ By comparison, a carbon tax encourages polluters to reduce emissions until they are completely eliminated as long as the marginal cost of abatement is less than the tax.

Because of these undesirable features of regulation, the economist William Nordhaus, who is arguably the world's leading authority on the economics of global warming, concludes that "[r]egulatory policies alone cannot come close to solving the global warming problem by themselves."⁶⁷ Nordhaus concedes that "[c]arefully designed regulations in a few areas" might play a beneficial role, but he also warns that "regulations can be very costly or even counterproductive if they are not carefully designed."⁶⁸ Based on his review of the evidence, Nordhaus concludes that a "typical finding is that using inefficient regulations or approaches will double the costs" of global warming mitigation and would likely render infeasible attempts to limit the global temperature increase to levels that many climate scientists recommend.⁶⁹

Nordhaus is not alone in his belief that regulation would prove more expensive than a carbon tax. In a University of Chicago poll of over fifty distinguished academic economists, only one disagreed with the following statement: "A tax on the carbon content of fuels would be a less expensive way to reduce carbon-dioxide emissions than would a collection of policies such as 'corporate average fuel economy' requirements for automobiles."⁷⁰

⁶⁵ HSU, *supra* note 25, at 127. Prices would increase less as a result of regulations than as a result of a comparably scaled carbon tax, but the regulations would also not generate revenue.

⁶⁶ HSU, *supra* note 25, at 65–66.

⁶⁷ NORDHAUS, *supra* note 25, at 272.

⁶⁸ *Id.*

⁶⁹ *Id.* at 179.

⁷⁰ The one economist who disagreed stated that the question asked "compares two ineffective approaches. The magnitude of this problem is so great that no sufficient carbon tax is feasible worldwide." Four of the economists surveyed either did not respond or responded that they were uncertain. *Carbon Tax*, CHICAGO BOOTH, IGM FORUM (Dec. 20, 2011 1:48 PM) <http://www.igmchicago.org/surveys/carbon-tax> [<https://perma.cc/43AM-A2R8>].

3. *Green Subsidies*

At various times, the government has attempted to reduce carbon emissions by subsidizing (ostensibly) environmentally friendly goods and technologies. Examples include the income tax credit for hybrid cars and subsidies for corn-based ethanol, the hydrogen fuel cell, and carbon sequestration technology.

These subsidies are notoriously problematic. First, rather than pricing carbon and incentivizing millions of producers and consumers to find imaginative (and cheap) ways to reduce emissions, subsidies require that the government identify the low-carbon activities and technologies worth subsidizing. The task simply requires too much information that the government cannot easily obtain.⁷¹

Second, special interest groups and practical politics inevitably play a significant role in determining what the government subsidizes, often to the detriment of environmental objectives.⁷² Given the influence of special interest groups, it comes as no surprise that a study commissioned by Congress of tax code provisions affecting carbon emissions, including the major energy-related tax expenditures, concluded that “[v]ery little if any [greenhouse gas] reductions are achieved at substantial cost with these provisions.”⁷³ In fact, careful analysis suggests that ethanol subsidies supported by the farm lobby are actually counterproductive.⁷⁴

Finally, subsidies are expensive.⁷⁵ The government must pay for them via deficit spending or by increasing distortionary taxes like the income tax.

For these reasons, economists are generally skeptical of green subsidies.⁷⁶ The government might productively subsidize basic research related to climate change and renewable energy,⁷⁷ but it has a poor track record when it comes to subsidizing specific technologies.⁷⁸

To summarize, economists argue that a carbon tax is superior to subsidies as well as command-and-control regulation. Importantly, adoption of a carbon tax would not rule out also pursuing these other policies. But economists generally view subsidies and regulation as having at best a minor role in any optimal scheme for

⁷¹ GRAETZ, *supra* note 24, at 186–87; NORDHAUS, *supra* note 25, at 202.

⁷² GRAETZ, *supra* note 24, at 187–95; HSU, *supra* note 25, at 53–59.

⁷³ NATIONAL RESEARCH COUNCIL, EFFECTS OF U.S. TAX POLICY ON GREENHOUSE GAS EMISSIONS 8 (William Nordhaus et al. eds., 2013), http://www.climateactionproject.com/docs/NAS_study.pdf [<https://perma.cc/HH55-M2KV>].

⁷⁴ *Id.* at 98–99.

⁷⁵ GRAETZ, *supra* note 24, at 185–92; NORDHAUS, *supra* note 25, at 266.

⁷⁶ HSU, *supra* note 25, at 121 (“No reputable economist believes that, even in theory, subsidization can play any more than a supplementary role in reducing greenhouse gases.”).

⁷⁷ NORDHAUS, *supra* note 25, at 289; Richard G. Newell, *The Role of Energy Technology Policy Alongside Carbon Pricing*, in IMPLEMENTING A U.S. CARBON TAX 178, 188 (Ian Parry et al. eds., 2015); David Popp, *Innovation and Climate Policy*, 2 ANN. REV. RESOURCE ECON. 275, 285–88 (2010).

⁷⁸ See e.g., HSU, *supra* note 25, at 53–59.

controlling carbon emissions.⁷⁹ As a result, the public's support for subsidies and regulation is not irrational per se. But it is difficult to understand why the public strongly favors potential solutions that economists and other experts believe are seriously flawed, while at the same time it strongly opposes the solution that experts regard as clearly superior. The next Part attempts to explain this apparent paradox of public opinion.

II. WHY THE PUBLIC PREFERS COMMAND-AND-CONTROL REGULATION AND GREEN SUBSIDIES

Opinion surveys consistently find that a majority of the American public expresses support for government action to address global warming.⁸⁰ We have seen that economists argue that a broad-based carbon tax is the best policy available to the government for this purpose. Yet most surveys also find that the public strongly opposes a carbon tax.⁸¹ Instead, Americans support command-and-control regulation and green subsidies that would likely be less effective and cost significantly more. This divide between expert and lay opinion matters because research by political scientists suggests that the public exercises significant influence over government policy.⁸²

⁷⁹ See *infra* Section III.D.

⁸⁰ See *infra* Section II.B.

⁸¹ See *infra* Section II.B.

⁸² See e.g., Paul Burstein, *The Impact of Public Opinion on Public Policy: A Review and an Agenda*, 56 POL. RES. Q. 29, 36 (2003) ("Public opinion affects policy three-quarters of the times its impact is gauged; its effect is of substantial policy importance at least a third of the time, and probably a fair amount more."); Brandice Canes-Wrone et al., *Out of Step, Out of Office: Electoral Accountability and House Members' Voting*, 96 AM. POL. SCI. REV. 127, 138 (2002) (noting that "we show that, holding district ideology constant, in every election between 1956 and 1996 an incumbent's vote share decreased the more he voted with the extreme of his party . . . [and] the probability [of reelection] decreases significantly as an incumbent's voting support for his party increases"). But see Steven D. Levitt, *How Do Senators Vote? Disentangling the Role of Voter Preferences, Party Affiliation, and Senator Ideology*, 86 AM. ECON. REV. 425, 438 (1996) (concluding that "ideology is the primary determinant" of how U.S. senators vote, that "[l]ess than one quarter of the weight in the [senator's] decision function is devoted to voter preferences," and that public opinion matters more in election years or if the senator holds a marginal seat). For further discussion of the role of public opinion, see BRUCE ACKERMAN & JAMES S. FISHKIN, *DELIBERATION DAY* 9–10 (2004); ILYA SOMIN, *DEMOCRACY AND POLITICAL IGNORANCE: WHY SMALLER GOVERNMENT IS SMARTER* 6, 97 (2013); JAMES A. STIMSON, *TIDES OF CONSENT: HOW PUBLIC OPINION SHAPES AMERICAN POLITICS* 9 (2004). Despite the evidence that public opinion matters, a recent article by Martin Gilens and Benjamin Page purports to show that "the preferences of the average American appear to have only a miniscule, near-zero, statistically non-significant impact upon public policy" and that policy instead reflects the preferences of economic elites and business interest groups. Martin Gilens & Benjamin I. Page, *Testing Theories of American Politics: Elites, Interest Groups, and Average Citizens*, 12 PERSP. POL. 564, 575 (2014). But Omar Bashir has challenged Gilens and Page arguing that their study suffers from statistical flaws that undermine its conclusions. See generally

Why then does the public disagree with economists about the carbon tax? One popular explanation is that, because of anti-tax propaganda, the public suffers from tax label aversion and irrationally opposes any policy proposal that contains the word “tax” in it.⁸³ But the evidence for tax label aversion is mixed. On one hand, a study by David Hardisty and his colleagues found experimental evidence of tax label aversion.⁸⁴ Subjects in Hardisty’s study read descriptions of various policies that would increase the price of certain carbon-intensive goods and use the money generated by the price increases to fund alternative energy sources or carbon sequestration technologies.⁸⁵ For some subjects, Hardisty described the price increases as resulting from a carbon tax, but for others, he used the phrase “carbon offset” instead.⁸⁶ Hardisty found that subjects, and especially those who described themselves as independents or Republicans, “were more supportive of regulation when the cost increase was described as a carbon offset than when it was described as a carbon tax.”⁸⁷

On the other hand, a survey by Ana Villar and Jon Krosnick contradicts the tax label aversion hypothesis.⁸⁸ In their survey, Villar and Krosnick asked some participants whether the federal government should address global warming by “[i]ncreasing gasoline prices so people either drive less or buy cars that use less gas.”⁸⁹ They asked other subjects whether they favored “[i]ncreasing taxes on gasoline so people either drive less or buy cars that use less gas.”⁹⁰ Villar and Krosnick found that roughly 30% of participants supported “increasing gasoline prices,” while roughly 35% supported “increasing taxes on gasoline”—a difference that was not statistically significant.⁹¹ This suggests that people are averse to incurring higher costs, even if the cost is not labeled a tax.

A second possibility is that the costs associated with a carbon tax are more salient than those associated with regulation and subsidies. This hypothesis is not

Omar Bashir, *Testing Inferences About American Politics: A Review of the ‘Oligarchy’ Result*, 2 RESEARCH & POL. 1, 1–2 (2015) (critiquing Gilens and Page).

⁸³ GRAETZ, *supra* note 24, at 181–85 (arguing that a carbon tax is the best policy option, but blaming the failure to adopt it on the anti-tax movement); NORDHAUS, *supra* note 25, at 259 (“Part of the difficulty is that people resist raising the price of energy goods and services, particularly if it takes the form of taxes. This sentiment is widely shared around the world, although the United States exhibits an extreme allergy to taxes in its rhetoric and politics.”); Shi-Ling Hsu et al., *Pollution Tax Heuristics: An Empirical Study of Willingness to Pay Higher Gasoline Taxes*, 36 ENERGY POL’Y 3612, 3613–14 (2008) (describing a “severe North American allergy to taxes”).

⁸⁴ David J. Hardisty et al., *A Dirty Word or a Dirty World? Attribute Framing, Political Affiliation, and Query Theory*, 21 PSYCHOL. SCI. 86, 88 (2010).

⁸⁵ *Id.* at 87.

⁸⁶ *Id.*

⁸⁷ *Id.* at 88.

⁸⁸ See Ana Villar & Jon A. Krosnick, *Global Warming vs. Climate Change, Taxes vs. Prices: Does Word Choice Matter?*, 105 CLIMATE CHANGE 1, 10 (2011).

⁸⁹ *Id.* (emphasis added).

⁹⁰ *Id.* (emphasis added).

⁹¹ *Id.*

new, but no one has adequately explained the psychological mechanism underlying the phenomenon or provided much in the way of empirical support for its existence.⁹²

This Part addresses that gap in the literature by arguing that a cognitive bias known as opportunity cost neglect largely explains the public's puzzling views with respect to climate policy instruments. Section A explains what opportunity cost neglect is and briefly discusses evidence that it affects public opinion with respect to a variety of policies outside the climate context. This discussion provides the background necessary to understand Section B, which focuses specifically on global warming and argues that opportunity cost neglect influences public opinion regarding the policy instruments the government should use to address it.

A. Opportunity Cost Neglect and Public Opinion

Before choosing a particular option, a rational decision maker considers its opportunity cost, which is the value of the best alternative that the decisionmaker forgoes by choosing the option in question.⁹³ For example, a rational consumer deciding between an expensive or a cheap TV would take into account the best alternative use of the money that she would save by buying the cheaper model. If the best alternative use for that money is buying DVDs, then the consumer would not purchase the expensive TV unless its superior quality makes it more attractive than the cheap TV plus the DVDs.

Despite this compelling logic, real people (as opposed to the rational actors of economic theory) often neglect opportunity costs, especially if those costs are not obvious from the context in which people encounter the choices that they make. As a result, researchers have found that they can alter people's consumption decisions simply by manipulating the decision frame so as to make opportunity costs more or less salient.⁹⁴

To illustrate, consider a study by Shane Frederick in which he presented his subjects with two options: they could either purchase a video for \$14.99 or not.⁹⁵

⁹² The scholar whose work is most closely related to my own is Shi-Ling Hsu. Hsu has argued that the public suffers from three psychological biases that place the carbon tax at a disadvantage relative to other climate change policies: (1) the do no harm effect; (2) the identifiability effect; and (3) the endowment effect. Hsu, *supra* note 25, at 147–80. Although he does not discuss opportunity cost neglect, Hsu does draw attention to the fact that the carbon tax highlights the burden imposed on society in addressing climate change.

⁹³ Armen Alchian, *Cost*, in 3 INTERNATIONAL ENCYCLOPEDIA OF THE SOCIAL SCIENCES 404, 404–15 (David L. Sills ed., 1968); JAMES M. BUCHANAN, *COST AND CHOICE: AN INQUIRY IN ECONOMIC THEORY* 7 (1969); N. GREGORY MANKIW, *PRINCIPLES OF MICROECONOMICS* 6 (4th ed. 2007).

⁹⁴ See Shane Frederick et al., *Opportunity Cost Neglect*, 36 J. CONSUMER RES. 553, 554 (2009); Steven K. Jones et al., *Choices and Opportunities: Another Effect of Framing on Decisions*, 11 J. BEHAV. DECISION MAKING 211, 223 (1998); Stephen A. Spiller, *Opportunity Cost Consideration*, 38 J. CONSUMER RES. 595, 600 (2011).

⁹⁵ Frederick et al., *supra* note 94, at 554.

Frederick manipulated the “not buy” option so that for control subjects, it was worded as “Not buy this entertaining video,” but for subjects in the treatment group, it included the phrase “Keep the \$14.99 for other purchases.”⁹⁶ Frederick intended for the latter phrase to evoke opportunity costs. His manipulation worked and caused subjects in the treatment group to be much less willing to purchase the video.⁹⁷ This result is somewhat astonishing given that all of the subjects in both the control and treatment groups had in front of them the price of the item in question. Yet for many subjects, Frederick was able to reduce their willingness to pay simply by reminding them of the seemingly obvious fact that not buying the video would make the money saved available for other purchases. This study and others like it show that, in the absence of cues that trigger thoughts about tradeoffs, people do not always automatically consider opportunity costs, even when they are faced with familiar consumer transactions in which prices are explicitly stated.

Opportunity cost neglect is a specific instance of a more general phenomenon that psychologists refer to as focusing illusion.⁹⁸ People frequently fail to take account of all information relevant to a given problem. They instead accept the frame or characterization of the problem as they encounter it and passively restrict their thoughts to salient elements, especially information presented explicitly.⁹⁹ Implicit information, though relevant, often remains “off screen.”

Opportunity costs sometimes remain off screen because they are not obvious from the context. For example, when people are deciding whether to buy a particular product, they sometimes focus on whether they like the product itself and do not think about other options for spending their money—options that remain implicit.¹⁰⁰ This tendency biases consumers toward making purchases when, as is often the case, the product itself is obviously attractive or appears attractive due to clever advertising.

Most research on opportunity cost neglect focuses on consumer decision making, but in a recent article, I presented evidence that opportunity cost neglect

⁹⁶ *Id.* at 555.

⁹⁷ *Id.*

⁹⁸ Some scholars refer to the same phenomenon as “focusing effects,” “focusing failures,” “focusing bias,” “focusing,” or “isolation effects.” Lorraine Chen Idson et al., *Overcoming Focusing Failures in Competitive Environments*, 17 J. BEHAV. DECISION MAKING 159, 160 (2004); Jones et al., *supra* note 94, at 213–14; Daniel Kahneman & Dan Lovallo, *Timid Choices and Bold Forecasts: A Cognitive Perspective on Risk Taking*, 39 MGMT. SCI. 17, 20 (1993); Paolo Legrenzi et al., *Focussing in Reasoning and Decision Making*, 49 COGNITION 36, 58–64 (1993); McCaffery & Baron, *supra* note 9, at 107.

⁹⁹ For reviews of the relevant literature, see Frederick et al., *supra* note 94, at 553–54; Daniel Kahneman, *Maps of Bounded Rationality: Psychology for Behavioral Economics*, 93 AM. ECON. REV. 1449, 1458–60 (2003); Spiller, *supra* note 94, at 596.

¹⁰⁰ See Frederick et al., *supra* note 94, at 553; Steven S. Posavac et al., *Blissful Insularity: When Brands Are Judged in Isolation from Competitors*, 16 MKTG. LETTERS 87, 88 (2005) [hereinafter Posavac et al., *Blissful Insularity*]; Steven S. Posavac et al., *The Brand Positivity Effect: When Evaluation Confers Preference*, 31 J. CONSUMER RES. 643, 644 (2004) [hereinafter Posavac et al., *Positivity Effect*].

also affects the public's policy preferences.¹⁰¹ Opinion surveys show that the public strongly supports spending on virtually all of the programs that constitute a significant part of government budgets.¹⁰² The public also favors government regulation of numerous aspects of the economy and approves of many of the most costly tax expenditures.¹⁰³ These facts about public opinion are true not just of liberals and Democrats. Surprisingly enough, conservatives and Republicans also endorse many government interventions as long as researchers refrain from asking them about government in the abstract and instead ask about specific programs.¹⁰⁴

Nevertheless, the public's support for many government programs is superficial. It declines (often substantially) when researchers frame their questions in ways that draw attention to opportunity costs.¹⁰⁵ The opportunity cost of a government program includes the goods and services (whether public or private) that society must do without because the program exists. All government interventions—whether in the form of spending, regulation, or tax expenditures—impose opportunity costs because they reallocate scarce economic resources from one activity to another. This fact, however, seems lost on the public.

Consider, for example, public support for government spending. When researchers do not refer explicitly to the tradeoffs involved, surveys generally find substantial support for maintaining or increasing spending on virtually every major

¹⁰¹ See generally Lucas, *supra* note 20, at 264–303 (developing much of the material in this Section).

¹⁰² NAT'L PUB. RADIO, KAISER FAMILY FOUNDATION, & HARVARD KENNEDY SCHOOL OF GOV'T, POLL: ATTITUDES TOWARD GOVERNMENT 18–23 (2000), <http://kaiserfamilyfoundation.files.wordpress.com/2013/01/npr-kaiser-kennedy-school-poll-attitudes-toward-government.pdf> [<https://perma.cc/PNG2-5JPR>]; PEW RESEARCH CENTER, AS SEQUESTER DEADLINE LOOMS, LITTLE SUPPORT FOR CUTTING MOST PROGRAMS 10 (2013), <http://www.people-press.org/files/legacy-pdf/02-22-13%20Spending%20Release.pdf> [<https://perma.cc/8YHL-UMFJ>]; Christopher Faricy & Christopher Ellis, *Public Attitudes Toward Social Spending in the United States: The Differences Between Direct Spending and Tax Expenditures*, 36 POL. BEHAV. 53, 56–57 (2014).

¹⁰³ NAT'L PUB. RADIO, KAISER FAMILY FOUNDATION, & HARVARD KENNEDY SCHOOL OF GOV'T, *supra* note 102, at 23; Siona Robin Listokin et al., *Americans' Preferences for Tax Increases and Spending Cuts*, 139 TAX NOTES 188, 190–92 (2013); Slavisa Tasic, *The Modern Growth of Government Springs More from Ideas Than from Vested Interests*, 14 INDEP. REV. 549, 553 (2010). People often oppose both regulation and government spending in the abstract and answer yes to generic questions such as, “Does the government regulate business too much or waste money?.” Yet the public favors regulation and spending when pollsters avoid generic questions and ask about specific programs. BRYAN CAPLAN, *THE MYTH OF THE RATIONAL VOTER* 62–63 (2007).

¹⁰⁴ PEW RESEARCH CENTER, *supra* note 102, at 3; Faricy & Ellis, *supra* note 102, at 56–57; Stephen Miller, *Conservatives and Liberals on Economics: Expected Differences, Surprising Similarities*, 19 CRITICAL REV. 47, 50 (2007).

¹⁰⁵ Lucas, *supra* note 20, at 275–302.

government program.¹⁰⁶ But that support diminishes, especially for military spending, when survey questions highlight the seemingly obvious fact that the government could use spending cuts to reduce the budget deficit.¹⁰⁷

Similarly, in an early study, Eva Mueller found strong support for increasing spending on various government programs as long as she did not ask survey participants how to pay the additional cost.¹⁰⁸ But in a follow-up question that raised the specter of tax hikes, she found that no program was popular enough that a majority was willing to raise taxes to increase funding for it.¹⁰⁹ Mueller was also able to rule out the possibility that study participants wanted to increase spending on certain programs and pay for it, not through tax increases, but by cutting spending on other programs that they favored less.¹¹⁰ That explanation conflicted with the fact that, in response to Mueller's initial question, the participants expressed little support for cutting spending on any program other than foreign aid.¹¹¹ Instead, mentioning taxes apparently cued participants to think about opportunity costs, which they had initially neglected to consider and which diminished their support for greater spending.

The public's neglect of the opportunity costs of government spending is consistent with focusing illusion. Many of the benefits of government spending programs are obvious. In fact, many programs have such benign-sounding names (e.g., "national defense" and "education and job training") that it seems almost immoral to oppose them.¹¹² At the same time, the opportunity costs of these programs are implicit and easy to overlook. In particular, the payment of taxes generally is not connected to the receipt of government benefits, so the benefits of government spending can feel as though they are free.¹¹³

Moreover, most people know very little about how much the government actually spends on various programs.¹¹⁴ And even if people bothered to look at government budgets, the figures involved are so large and unfamiliar that most would find it difficult to translate them into something that concretely and meaningfully represents the implicit tradeoffs. Recall that Shane Frederick and other

¹⁰⁶ See PEW RESEARCH CENTER, *supra* note 102, at 3.

¹⁰⁷ Lucas, *supra* note 20, at 281–89.

¹⁰⁸ Eva Mueller, *Public Attitudes Toward Fiscal Programs*, 77 Q.J. ECON. 210, 215 (1963).

¹⁰⁹ *Id.* at 216.

¹¹⁰ *Id.* at 215–23.

¹¹¹ *Id.* at 215.

¹¹² Lucas, *supra* note 20, at 288.

¹¹³ Drazen Prelec & George Loewenstein, *The Red and the Black: Mental Accounting of Savings and Debt*, 17 *MARKETING SCI.* 4, 8–25 (1998).

¹¹⁴ Fred Barbash, *What They Don't Know About the Deficit*, CQ WEEKLY (June 11, 2011 10:32 AM), <http://public.cq.com/docs/weeklyreport/weeklyreport-000003886498.html> [<https://perma.cc/7BKV-MVRZ>]; Ilya Somin, *The Persistence of Public Ignorance About Federal Spending*, VOLOKH CONSPIRACY, (Oct. 8, 2014), <https://www.washingtonpost.com/news/volokh-conspiracy/wp/2014/10/08/the-persistence-of-public-ignorance-about-federal-spending/> [<https://perma.cc/3Y7L-87S8>].

researchers have found that people neglect opportunity costs even when they are faced with explicit prices in the context of familiar consumer transactions. We should expect then that opportunity cost neglect would be particularly severe with respect to government spending because of the complex and unfamiliar nature of the choices involved.

For example, one way to rationally think about whether the government should purchase ten F-35 Joint Strike Fighter jets would be to consider that the opportunity cost of doing so is approximately forty-nine elementary schools or eighteen high schools.¹¹⁵ This example makes clear that devoting scarce resources to one activity (the military) means taking those resources away from another activity (public education). But because people do not directly pay for either the military or public education, they are unlikely to make this connection on their own.

The tendency to neglect opportunity costs is likely even more pronounced with respect to government regulation and tax expenditures than it is for spending programs.¹¹⁶ The word “spend” implies an outflow of money or a dollar cost. So even though they may have difficulty processing the large amounts involved, at least some people probably think about tradeoffs when considering whether the government should spend more money.

By contrast, for regulations and tax expenditures, the dollar cost of the intervention is hidden—not just the exact amount, but the fact that there is any cost at all.¹¹⁷ Regulations, for example, impose costs on producers, many of which they pass on to consumers in the form of higher prices. But regulations do not require a monetary outlay by the government, so the costs are not obvious and are difficult to measure, even for policy experts. Similarly, tax expenditures reduce tax revenue, which leads to tax rate hikes, a larger budget deficit, and/or spending cuts in other areas. But politicians usually portray tax expenditures as involving tax cuts, which de-emphasizes tradeoffs. The result is that many people fail to recognize that regulations and tax expenditures impose monetary costs. Under these circumstances, people will almost assuredly not take the next step and consider that incurring these

¹¹⁵ F-35 Fighters are scheduled for full-rate production in 2019 at an estimated cost of \$71.5 million each, measured in 2012 dollars. Andrea Shalal-Esa, *Pentagon Says F-35 Fighter Delayed, Costs Rise 4.3 Percent*, CHI. TRIB. (March 29, 2012), http://articles.chicagotribune.com/2012-03-29/news/sns-rt-us-lockheed-fighterbre82t03r-20120329_1_f-35-costs-rise-pentagon-report [<https://perma.cc/VS65-9QL3>]. In 2012, the median cost of a new high school was \$38,200,000 and of a new elementary school was \$14,488,337. Paul Abramson, *2013 Annual School Construction Report*, SCH. PLAN. & MGMT. CR7 (2013), <http://www.peterli.com/spm/pdfs/SchoolConstructionReport2013.pdf> [<https://perma.cc/E66L-DPLM>].

¹¹⁶ A tax expenditure is a tax credit, deduction, or exemption that is designed, not to accurately calculate the taxpayer’s income, but to encourage certain behavior. Examples include the home mortgage interest deduction and the tax credit for hybrid cars.

¹¹⁷ On the hidden costs of regulation, see RICHARD EPSTEIN, *SIMPLE RULES FOR A COMPLEX WORLD* 145–46 (1995); David Gamage & Darien Shanske, *Three Essays on Tax Salience: Market Salience and Political Salience*, 65 *TAX L. REV.* 19, 51–53 (2011); Richard Posner, *Taxation by Regulation*, 2 *BELL J. ECON. & MGMT. SCI.* 22, 43 (1971). On the hidden costs of tax expenditures, see Faricy & Ellis, *supra* note 102, at 57–71.

costs means that society must forgo other opportunities for exploiting its resources.¹¹⁸ Why then would anyone oppose regulations intended to promote occupational safety or tax expenditures that ostensibly encourage home ownership?

Turning specifically to tax expenditures, if they do in fact make opportunity costs less salient than direct spending, then increasing the salience of opportunity costs should reduce support for tax expenditures more than for similar direct spending programs. A study by Jake Haselswerdt and Brandon Bartels supports this hypothesis.¹¹⁹ Haselswerdt and Bartels presented subjects with two scenarios.¹²⁰ In the first, a government program made homes more affordable by allowing homeowners to deduct home mortgage interest for tax purposes.¹²¹ In the second scenario, instead of the home mortgage interest deduction, the government made cash payments to individuals who borrowed money to buy a home.¹²² The researchers informed some subjects that the housing subsidy (whether in the form of a mortgage interest deduction or a cash grant) would add \$390 billion to the national debt over the next four years.¹²³ Other subjects did not receive this cost information.¹²⁴ Haselswerdt and Bartels found that referring to the subsidy's effects on the national debt reduced support for it no matter which way the program was framed (tax deduction or cash grant).¹²⁵ This result is unsurprising given the evidence of opportunity cost neglect presented above. More importantly, the reduction was even greater for the home mortgage interest deduction than for the comparable direct spending program.¹²⁶

The best explanation for this finding is that without cues evoking opportunity costs, many participants failed to consider them.¹²⁷ The reference to the national debt triggered consideration of opportunity costs, which reduced support for the program

¹¹⁸ Lucas, *supra* note 20, at 294–302.

¹¹⁹ Jake Haselswerdt & Brandon L. Bartels, *Public Opinion, Policy Tools, and the Status Quo: Evidence from a Survey Experiment*, 68 POL. RES. Q. 607, 612–16 (2015).

¹²⁰ *Id.* at 610–11.

¹²¹ *Id.*

¹²² *Id.*

¹²³ The \$390 billion cost figure is based on the government's estimate of the actual cost of the home mortgage interest deduction. *Id.* at 620, n.6.

¹²⁴ *Id.* at 610–16.

¹²⁵ *See id.* at 612–13.

¹²⁶ *Id.* at 612–16. Interestingly, even when costs were mentioned, subjects still preferred the tax expenditure frame over the direct spending frame. *Id.* at 613. Thus, the fact that tax expenditures conceal costs does not fully account for their popularity relative to direct spending programs.

As part of their study, Haselswerdt and Bartels asked survey questions similar to those described in the text but designed to measure support for job training and parental leave programs. The researchers found that referring to effects on the national debt reduced support for these other programs as well. Moreover, the reduction in support was greater if the survey question framed the program as a tax expenditure rather than a direct spending program. However, unlike for the tax expenditure program, the latter effect was not statistically significant. *Id.* at 612–19.

¹²⁷ Lucas, *supra* note 20, at 295–96.

regardless of its form. Nonetheless, the effect was greater for the home mortgage interest deduction. Without cues, subjects were less likely to think about the opportunity cost of the deduction than of the cash grant. At least some people probably realized that cash grants would either add to the national debt or necessitate tax increases, and this fact alone caused them to spontaneously consider alternative uses for the money even without prompting by researchers.

To summarize, this Section has argued that opportunity cost neglect plays a significant role in the public's enthusiasm for all types of government intervention. The next Section turns specifically to a discussion of opportunity cost neglect and its influence on the public's preferences with respect to climate policy instruments.

But first, I briefly digress to note that I do not intend for the discussion in this Section to imply that, in general, the public's support for government programs is excessive and irrational. While many of the benefits of government programs are obvious, some may not be.¹²⁸ In particular, some scholars argue that the public underestimates the positive effects of certain programs (including programs intended to address climate change), and this is especially likely when the benefits occur indirectly or in the distant future.¹²⁹ If that is the case, then the tendency to underestimate these hidden benefits of government could partially, fully, or more than fully counteract opportunity cost neglect with respect to particular areas in which the government intervenes. In other words, two different biases—opportunity cost neglect and the tendency to underestimate the hidden benefits of government—may simultaneously affect public opinion, but act in opposite directions. For purposes of this Article, I do not claim that one bias is always more important than the other. Either bias could adversely influence public opinion with respect to any given government intervention. My only claim is that opportunity cost neglect is a real phenomenon that influences how people think about particular policy instruments.

¹²⁸ *E.g.*, CASS R. SUNSTEIN, *RISK AND REASON: SAFETY, LAW, AND THE ENVIRONMENT* 41 (2004) (suggesting that in some instances, the public ignores the benefits of government regulation); Anthony Downs, *Why the Government Is Too Small in a Democracy*, 12 *WORLD POL.* 541, 544–45 (1960); Gamage & Shanske, *supra* note 117, at 91–95; Yair Listokin & David M. Schizer, *I Like to Pay Taxes: Taxpayer Support for Government Spending and the Efficiency of the Tax System*, 66 *Tax L. Rev.* 179, 204–15 (2013).

¹²⁹ *See, e.g.*, PER ESPEN STOKNES, *WHAT WE THINK ABOUT WHEN WE TRY NOT TO THINK ABOUT GLOBAL WARMING* 39–40, 82–83 (2015) (arguing that the fact that the adverse effects of global warming are distant both in terms of time and space creates a psychological barrier that impedes support for government action).

B. Opportunity Cost Neglect and the Choice of Climate Policy Instrument

Section A described how opportunity cost neglect influences public policy generally. This Section focuses specifically on climate policies and argues that opportunity cost neglect influences public opinion regarding which policy instruments are best for addressing global warming. In particular, I maintain that opportunity cost neglect helps explain why command-and-control regulations and green subsidies are more popular among the public than a carbon tax.

In surveys, a majority of Americans report their belief that global warming is real, that it results at least partly from human activity, and that the government ought to do something about it.¹³⁰ The important question is what exactly should the government do. Which policy instruments does the public endorse?

Based on the discussion in Section A, we can make four predictions about people who are convinced that global warming is a problem: (1) they will strongly support command-and-control regulations, such as fuel economy standards for automobiles; (2) they will strongly support subsidies to combat global warming, particularly if those subsidies are in the form of tax expenditures; (3) their support for regulations and subsidies will decrease if opinion researchers word questions in a way that makes opportunity costs salient; and (4) because it makes opportunity

¹³⁰ E.g., Christopher Borick et al., *Belief in Global Warming Among Americans Gradually Increases Following the Winter of 2015*, 24 *ISSUE IN ENERGY AND ENVTL. POL'Y* 1, 1 (2015), <http://closup.umich.edu/files/ieep-nsee-2015-spring-climate-belief.pdf> [<https://perma.cc/N64C-ATJN>] (noting that “[j]ust under two out of three Americans (63%) think that there is solid evidence of global warming”); Anthony Leiserowitz et al., *Climate Change in the American Mind*, YALE PROJECT ON CLIMATE CHANGE COMMUNICATION 18 (2015), <http://environment.yale.edu/climate-communication/files/Global-Warming-CCAM-March-2015.pdf> [<https://perma.cc/E9TG-RH58>] [hereinafter Leiserowitz et al., *Climate Change*] (finding that 59% of adults believe that Congress should be doing more to address global warming); Anthony Leiserowitz et al., *Public Support for Climate and Energy Policies in November 2013* 4 (2014), http://environment.yale.edu/climate-communication/files/Politics_and_Global_Warming.pdf [<https://perma.cc/G29Y-3NCW>] [hereinafter Leiserowitz et al., *Public Support*] (“Just over half of registered voters (51%) think that global warming is caused mostly by human activities.”); Matthew C. Nisbet & Teresa Myers, *Twenty Years of Public Opinion About Global Warming*, 71 *PUB. OPINION Q.* 444, 450 (2007) (reviewing two decades of survey evidence and concluding that “a strong majority of Americans believe that global warming is real, that temperatures are rising, and that the release of carbon dioxide is a cause”); PEW RESEARCH CENTER, *AMERICANS, POLITICS AND SCIENCE ISSUES* 37 (2015), http://www.pewinternet.org/files/2015/07/2015-07-01_science-and-politics_FINAL.pdf [<https://perma.cc/JZ48-AWNT>] (finding that “50% of adults say that climate change is occurring mostly because of human activity, such as burning fossil fuels”); N.Y. TIMES & STANFORD UNIV., *GLOBAL WARMING NATIONAL POLL RESOURCES FOR THE FUTURE*, 17–25 (2015), <http://www.rff.org/files/sharepoint/Documents/RFF-NYTimes-Stanford-global-warming-poll-Jan-2015-topline-part-3.pdf> [<https://perma.cc/LG6K-GJCZ>] (finding that 78% of adults believe that if nothing is done to stop it, global warming will be either a very serious or somewhat serious problem in the future and that 86% support government action to address the problem).

costs salient, people will support a carbon tax less than regulations and subsidies despite strong economic arguments that the tax is superior.

It turns out that all of these predictions are accurate. But before examining the evidence related to each prediction, I pause briefly to consider cap-and-trade. We cannot predict whether opportunity cost neglect will bias public opinion for or against cap-and-trade relative to a carbon tax. On one hand, the emissions cap in a cap-and-trade program is a form of command-and-control regulation, which, as we will see, the public generally finds more appealing than a carbon tax. On the other hand, in theory, cap-and-trade can function much like a carbon tax and opponents of the policy often label it as “cap and tax.”¹³¹ So, it is not clear whether the public thinks of cap-and-trade as a form of command-and-control or as similar to a carbon tax. In fact, public support for cap-and-trade varies greatly from one poll to another with a large number of people indicating that they have not formed an opinion.¹³²

1. *Support for Command-and-Control*

Section A argued that, in general, opportunity cost neglect biases the public in favor of regulation. The opportunity costs of regulation are implicit and therefore off screen. Regulation does not involve a government outlay that might trigger consideration of tradeoffs. So, while they are in fact costly, regulations appear to offer a free lunch—a painless way to address society’s problems.

Against this backdrop and given the fact that most people claim to be concerned about global warming, we would expect the public to strongly support the government addressing climate change through command-and-control mechanisms. In fact, polls consistently show overwhelming support (often 70% or higher) for numerous regulations, including more stringent fuel efficiency standards for automobiles, requiring that half of all new cars produced be hybrid cars, and even mandatory caps on industry emissions.¹³³

¹³¹ E.g., Editorial, *The Cap and Tax Fiction*, WALL ST. J. (June 26, 2009), <http://www.wsj.com/articles/SB12458883756075078> [<https://perma.cc/G94X-92SY>].

¹³² Sarah Mills et al., *Cap-and-Trade Support Linked to Revenue Use*, ISSUES IN ENERGY & ENVTL. POL’Y 5 (2015), <http://closup.umich.edu/files/ieep-nsec-2015-cap-and-trade.pdf> [<https://perma.cc/V4HH-LMZ7>] (finding that 38% of those surveyed were not sure if their state should adopt a cap-and-trade program).

¹³³ See Karlyn Bowman et al., *Polls on the Environment, Energy, Global Warming, and Nuclear Power* AM. ENTER. INST., PUB. OPINION STUD. 77–95 (April 2015), <https://www.aei.org/wp-content/uploads/2015/04/ENVIRONMENT.pdf> [<https://perma.cc/R8BE-LSJS>] (reviewing results from various polls); *Iraq—Getting In Was Wrong; Getting Out Was Right, U.S. Voters Tell Quinnipiac National Poll*, QUINNIPIAC UNIV. 5 (July 3, 2014), http://www.quinnipiac.edu/images/polling/us/us07032014_ulps31.pdf [<https://perma.cc/4M6E-E4DQ>] (finding that 58% of registered voters support limiting the release of greenhouse gases from power plants); *June 2014 Washington Post-ABC News Poll*, WASH. POST, 14 (June 2014), <http://apps.washingtonpost.com/g/page/politics/june-2014-washington-post-abc-news-poll/1075/> [<https://perma.cc/8HLB-ELBK>] (finding that 70% of adults support limiting the release of greenhouse gases from power plants); Leiserowitz et al., *Climate Change*, *supra* note 130, at 20; Leiserowitz et al., *Public Support*, *supra* note

As a specific example, a recent poll conducted by The New York Times asked participants whether they thought “the government should or should not limit the amount of greenhouse gases that U.S. businesses put out.”¹³⁴ Seventy-eight percent supported limiting emissions.¹³⁵ Interestingly, in the same poll, only 75% of participants reported having an opinion about global warming that was at least “somewhat strong.”¹³⁶ Apparently, people are so quick to express support for global warming regulations that some will do so even if they do not think climate change is much of a problem. In fact, in six nationally representative surveys of registered voters conducted over three years, the Yale Project on Climate Change Communication found that 56% of Republicans surveyed supported regulating carbon dioxide as a pollutant, despite the fact that only 44% were convinced that global warming was occurring!¹³⁷

2. Support for Green Subsidies

Section A also argued that opportunity cost neglect biases public opinion in favor of government spending and, to an even greater extent, tax expenditures. Unless explicitly prompted to consider tradeoffs, people eagerly support these two mechanisms for addressing perceived problems.

Given this fact, we would expect the public to embrace government subsidies intended to combat global warming. Opinion research supports this conclusion. A substantial majority of the public (often exceeding 70%) favors green subsidies for industry and consumers, including tax incentives for utilities to switch to renewable energy; tax credits for consumers to buy energy efficient appliances and hybrid cars; and tax credits for coal-fired power plants that find ways to reduce pollution from their smokestacks.¹³⁸ Moreover, Republican voters strongly support

130, at 5; PEW RESEARCH CENTER, *Little Enthusiasm, Familiar Divisions After the GOP's Big Midterm Victory*, 15 (Nov. 12, 2014), <http://www.people-press.org/files/2014/11/11-12-14-Post-election-release.pdf> [<https://perma.cc/TX7X-QBQT>]; Sarah Mills et al., *Widespread Public Support for Renewable Energy Mandates Despite Proposed Rollbacks*, ISSUES IN ENERGY & ENVTL. POL'Y 1 (June 2015), <http://closup.umich.edu/files/ieep-nsee-2015-renewable-portfolio-standards.pdf> [<https://perma.cc/H99D-94JD>] (“A strong majority (74%) of Americans agree that state governments should require a set portion of all electricity to come from renewable energy sources such as wind and solar power.”); Nisbet & Myers, *supra* note 130, at 465–67.

¹³⁴ N.Y. TIMES & STANFORD UNIV., *supra* note 130, at 39.

¹³⁵ *Id.* In eight separate polls spanning nearly eighteen years, support for emissions limits has ranged from 77% to 91%.

¹³⁶ *Id.* at 23.

¹³⁷ *Not All Republicans Think Alike About Global Warming*, YALE PROGRAM ON CLIMATE CHANGE COMM. (Jan. 12, 2015), <http://environment.yale.edu/climate-communication/article/not-all-republicans-think-alike-about-global-warming/> [<https://perma.cc/LKC5-N8D9>] [hereinafter YALE PROGRAM ON CLIMATE CHANGE COMM].

¹³⁸ See Bowman et al., *supra* note 133, at 77–95; Leiserowitz et al., *Climate Change*, *supra* note 130, at 20; Leiserowitz et al., *Public Support*, *supra* note 130, at 25; Nisbet & Myers, *supra* note 130, at 467; N.Y. TIMES & STANFORD UNIV., *supra* note 130, at 45.

environmentally friendly tax expenditures, such as tax rebates for people who buy solar panels and fuel-efficient cars.¹³⁹

3. *Diminishing Support When Opportunity Costs Are Salient*

If the public's support for subsidies and command-and-control results largely from opportunity cost neglect, then it should decrease when pollsters word questions in a way that makes opportunity costs salient. Consistent with this hypothesis, polls that draw attention to costs generally do find lower levels of support than polls that do not.¹⁴⁰

But the most compelling evidence of opportunity cost neglect comes from polls that ask two versions of the same question—one version that identifies the policy without highlighting tradeoffs and one version that draws attention to tradeoffs. These polls find that making tradeoffs salient significantly reduces support for the policy in question.

One example is the 2015 National Surveys on Energy and Environment.¹⁴¹ This poll found that 74% of those surveyed agreed that “state governments should require a set portion of all electricity to come from renewable energy sources such as wind and solar power.”¹⁴² But support for the proposal declined by over 20% when researchers added the phrase, “even if it increases the cost of electricity by about 25 dollars per family per year.”¹⁴³ The fact that mentioning a very small cost (around \$2 per month per family) triggered such a large reduction in support suggests that many of those who expressed support in response to the first version of the question simply were not thinking about the tradeoffs involved. The second version of the question prompted them to consider the proposal's opportunity cost and led to a decline in support.

Similarly, a survey by the Nathan Cummings Foundation found that support for various climate change policies dropped dramatically from their initial levels when the survey questions were modified to highlight costs.¹⁴⁴ For example, 84% of respondents initially supported a subsidy program described as follows:

The Apollo Energy Act would invest \$300 billion over 10 years to develop new, low-cost clean energy technologies and industries. The goal of the project would be to eliminate America's dependence on foreign oil within

¹³⁹ YALE PROGRAM ON CLIMATE CHANGE COMM., *supra* note 137.

¹⁴⁰ *See infra* Section III.A.

¹⁴¹ *See* Mills et al., *supra* note 133, at 6.

¹⁴² *Id.*

¹⁴³ *Id.* Cf. Leiserowitz et al., *Public Support*, *supra* note 130, at 25 (surveying registered voters and finding that support for a carbon tax on fossil fuel companies fell from 55% to 36% when the question indicated that the tax would cost the average household \$180 per year).

¹⁴⁴ *New Poll Finds Hurdles, Opportunity on Global Warming*, NATHAN CUMMINGS FOUND. 4–7 (Sept. 20, 2007), <http://thebreakthrough.org/blog/GlobalWarmingSurveyRelease92507.pdf> [<https://perma.cc/TT5C-PXBZ>].

ten years, create jobs in new clean energy industries, and dramatically reduce US carbon emissions.¹⁴⁵

Nonetheless, in response to a subsequent question, 72% of respondents said they were less likely to support the program after having received the following information: “This proposal would cost hundreds of billions of dollars yet there is no plan for how to pay for it. That means that either our taxes will go up or the federal deficit will increase.”¹⁴⁶ The fact that the clean energy subsidy described in this survey would necessitate tradeoffs should have been obvious even without this additional language. After all, the original version of the survey question explicitly stated that the government “would invest \$300 billion” in the project.¹⁴⁷ But even when opportunity costs should be obvious, the public often fails to consider them unless pollsters make them painfully explicit.

4. *Lack of Support for a Carbon Tax*

Recall the study by Eva Mueller in which she found that support for increased government spending dissipated when she asked study participants whether they would be willing to pay taxes to fund it. Mueller’s study suggests that, in contrast to questions that ask only about spending, the mere mention of taxes causes people to think about opportunity costs. Similarly, the 2010 version of the National Survey of American Public Opinion on Climate Change found that support for a carbon tax was the same (i.e., 32%) whether the poll mentioned a cost of \$15 per month or mentioned no cost at all.¹⁴⁸ In other words, contrary to what we have seen for regulation and subsidies, support for a carbon tax does not diminish simply because the pollster mentions a small cost. This suggests that simply hearing the words “carbon tax” triggers consideration of tradeoffs in a way that questions about regulation and subsidies do not.

As a result, we would expect that a carbon tax, despite its favored status among economists, will be less popular with the public than regulation and subsidies. To put it mildly, the evidence comports with this prediction. Polls generally find that less than 40% of the public supports addressing global warming via a broad-based carbon tax or through taxes on gasoline, electricity, or natural gas.¹⁴⁹

¹⁴⁵ *Id.* at 5.

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

¹⁴⁸ See Borick et al., *supra* note 132, at 12.

¹⁴⁹ See David Amdur et al., *Nat'l Surveys on Energy & Env't, Public Views on the Carbon Tax Depend on the Proposed Use of Revenue*, 3 (July 2014), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2652403 [<https://perma.cc/26E7-P983>] (finding that when no use of the revenue was specified, only 34% of those surveyed supported a carbon tax); Bowman et al., *supra* note 133, at 77–95; N.Y. TIMES & STANFORD UNIV., *supra* note 130, at 44–45 (finding that only 25% of adults support a tax on electricity and 36% support a tax on gasoline to reduce global warming).

III. IMPLICATIONS FOR CARBON TAX ADVOCATES AND OPPONENTS AND FOR PUBLIC POLICY

Part II argued that opportunity cost neglect helps explain why the public favors command-and-control regulation and green subsidies over a carbon tax. This Part discusses some important ramifications of opportunity cost neglect for both carbon tax advocates and opponents. I also argue that the influence of opportunity cost neglect will cause any real-world carbon tax to be less efficient than traditional economic analysis suggests.

A. *Reducing the Salience of Carbon Tax Opportunity Costs*

One potentially important implication of the discussion in Part II is that carbon tax proponents could increase public support for a carbon tax by making the opportunity costs less salient. A recent New York Times poll suggests one technique for accomplishing this objective.¹⁵⁰ The poll began with the following question:

For each of the following, please tell me whether you favor or oppose it as a way for the federal government to try to reduce future global warming. Each of these changes would increase the amount of money that you pay for things you buy. Increasing taxes on electricity so people use less of it?¹⁵¹

Predictably, only 25% of respondents supported the electricity tax.¹⁵² A similarly worded question asking about increasing the gas tax elicited only 36% support.¹⁵³ As discussed in Part II, these findings are consistent with numerous polls on carbon and similar taxes conducted by a variety of pollsters over a long period of time.

The interesting finding in the Times poll came in response to the following follow-up question: “Do you think the federal government should or should not require companies to pay a tax to the government for every ton of greenhouse gases the companies put out?”¹⁵⁴

In response, 61% of those polled answered yes.¹⁵⁵ What is strange about this result is that a carbon tax imposed on “companies” would largely be passed through to consumers, thereby increasing the price of all carbon-intensive goods, including electricity and gasoline.¹⁵⁶

¹⁵⁰ See N.Y. TIMES & STANFORD UNIV., *supra* note 130, at 44–45.

¹⁵¹ *Id.* at 44.

¹⁵² *Id.*

¹⁵³ *Id.*

¹⁵⁴ *Id.* at 48.

¹⁵⁵ *Id.*

¹⁵⁶ For a discussion of the factors that determine who bears the burden of a tax, see ROSEN & GAYER, *supra* note 27, at 305–16.

So, why would people who strongly oppose electricity and gas taxes also strongly support a carbon tax as long as it is imposed on “companies”? A number of possibilities exist. But the simplest and most plausible explanation is that many Americans do not understand basic economics. They instead subscribe to what economists derisively refer to as the flypaper theory of tax incidence. In other words, they believe that the burden of a tax, like a fly landing on flypaper, sticks where it first lands.¹⁵⁷ They do not believe that a carbon tax imposed on “companies” will trickle down to consumers. This view is consistent with a Yale University poll that found that support for a carbon tax on “fossil fuel companies” fell from 55% to 36% when researchers added language to the question indicating that the tax would cost the average household \$180 per year.¹⁵⁸

The New York Times and Yale University polls suggest that when poll questions emphasize that a carbon tax will be imposed on firms rather than consumers, the opportunity costs of the tax become less salient. In their communications, then, carbon tax advocates may want to frame the tax as the price that firms have to pay because they pollute rather than a cost that consumers must incur to keep the planet from warming. This technique, however, is deceptive given that firms generally will pass the tax through to consumers.

The public’s failure to understand the economics of taxation presents a second possibility for reducing the salience of opportunity costs. As discussed in Part II, the likely reason that opportunity costs are more salient for a carbon tax than for regulations is that paying taxes involves an out-of-pocket expenditure by taxpayers. The prospect of paying the tax highlights the existence of tradeoffs. Ironically, from society’s perspective, the payment of the tax does not itself represent a cost; it is simply a transfer from the taxpayer to the government, which the government can use to fund public goods or could return to the public via tax cuts or a rebate check.¹⁵⁹

¹⁵⁷ See BERNARD SALANIÉ, *THE ECONOMICS OF TAXATION* 41 (2d ed. 2011); cf. HSU, *supra* note 25, at 169 (discussing attempts by the New Democratic Party in British Columbia to promote cap-and-trade as superior to a carbon tax by arguing that the former would cap emissions of polluters whereas the latter would impose costs on consumers).

¹⁵⁸ See Leiserowitz et al., *Public Support*, *supra* note 130, at 25.

¹⁵⁹ I acknowledge two important caveats to this statement. The first stems from the tax-interaction effect. A broad-based tax on carbon emissions will increase the price of all carbon-intensive goods. In this way, it will reduce the real return to both labor and capital and, indirectly, constitute a tax on the factors of production. As a result, a carbon tax will exacerbate existing distortions in labor and capital markets caused by income and other taxes. This tax-interaction effect will increase the cost of the carbon tax. The government could significantly mitigate the tax-interaction effect by using carbon tax revenue to cut other distortionary taxes. But the final cost of a carbon tax will depend on how the government uses the resulting revenue. See Goulder, *supra* note 33, at S4–9; see also Williams III & Wichman, *supra* note 33, at 84–89 (discussing possible uses of the revenue). Note that command-and-control regulations cause similar distortions, but do not generate revenue to fund cuts to existing taxes. See Nordhaus, *supra* note 28, at 305–06.

The second caveat stems from the possibility of rent-seeking costs and inefficient transfers. If special interest groups lobby Congress for handouts funded by carbon tax revenue, the lobbying activity represents a real resource cost of the tax. Similarly, if Congress

In reality, the social cost of a carbon tax consists of the resources that society uses and the opportunities that people must forgo to reduce carbon emissions.¹⁶⁰ For example, power companies will switch from cheap fossil fuels to more expensive alternatives, increasing their costs. Higher electricity prices will force consumers to either conserve energy or cut back on consumption of other goods. Similarly, higher gasoline and jet fuel prices mean that people will drive and fly less than they would otherwise prefer. These sacrifices, and not the payment of the tax, constitute the true social cost of mitigating global warming.

The public's confusion on this point creates an opportunity for carbon tax proponents. Pointing out that tax payments represent transfers rather than social costs should reduce the salience of opportunity costs. One way to do this is to highlight the potential uses of carbon tax revenue.

Consistent with this hypothesis, a recent Michigan University poll found that support for the carbon tax increases if the poll question specifies that the government will return all tax revenues in the form of a rebate check or will dedicate carbon tax revenue to subsidizing renewable energy.¹⁶¹ Specifically, the poll found that only 34% of those surveyed supported a carbon tax when the question did not specify what the government would do with the revenue.¹⁶² Support increased to 56% when the question indicated that the government would send rebate checks and to 60% if the government subsidized renewable energy programs.¹⁶³

Drawing attention to potential uses of carbon tax revenue does not raise the same concerns about deception as do attempts to market the tax as a penalty paid by polluters. The reason is that certain uses of carbon tax revenue will in fact reduce the overall cost of mitigating climate change. But details matter. The most efficient way to use carbon tax revenue is to reduce the deficit (thereby avoiding future tax increases) or to cut distortionary taxes (especially taxes on capital).¹⁶⁴ Relative to cutting distortionary taxes, mailing out rebate checks increases costs because it does nothing to increase incentives to work and save.¹⁶⁵ Similarly, the government could potentially benefit society by spending carbon tax revenue on valuable public goods, including research and development related to renewable energy. But increasing spending would reduce efficiency unless the spending provides benefits at least as large as those that would stem from the forgone tax cuts,¹⁶⁶ and this is questionable given the many rent-seeking interest groups that would lobby Congress for their

gives carbon tax revenue to special interest groups using inefficient transfer mechanisms, then that will increase the policy's cost. For more on these points, see *infra* Section III.D.

¹⁶⁰ See Krupnick et al., *supra* note 24, at 22–23.

¹⁶¹ See Amdur et al., *supra* note 149, at 1; see also Hsu et al., *supra* note 83, at 3615–16 (reporting the results of a survey in Vancouver that found that support for a gas tax increased somewhat when respondents were told that the government would use the revenue to cut other taxes or fund investment in environmental technologies).

¹⁶² See Amdur et al., *supra* note 149, at 1.

¹⁶³ *Id.*

¹⁶⁴ Carbone et al., *supra* note 33, at 7–22.

¹⁶⁵ *Id.* at 7–8.

¹⁶⁶ Parry, *supra* note 49, at 33; Williams III & Wichman, *supra* note 33, at 90–91.

share of the carbon tax pie. In addition, while polls show some support for using carbon tax revenue to fund rebate checks and subsidies for renewable energy, they also show much less support for using the revenue to cut taxes or reduce the deficit.¹⁶⁷ In other words, the potential uses of revenue that appeal to the public tend to be those that would make a carbon tax less efficient.

Moreover, educating the public about how the government might efficiently use carbon tax revenue could prove difficult. Americans are notoriously uninformed about policy matters in general¹⁶⁸ and assuming that a large fraction of the public will learn the nuances of carbon tax policy is dubious to say the least.¹⁶⁹ And even if the message gets through, people may not take politicians at face value when they make promises about how they will spend the government's newfound treasure.¹⁷⁰

B. Drawing Attention to the Opportunity Costs of Other Policies

Rather than trying to make the opportunity costs of a carbon tax less salient, carbon tax proponents might try instead to make the opportunity costs of regulations and subsidies more salient.¹⁷¹ The objective would be to increase the appeal of the carbon tax vis-à-vis alternative policies by pointing out that those policies would in fact cost more.

A potential problem with this strategy is the possibility that it may backfire. Rather than encouraging support for a carbon tax, it could simply cause the public to lose enthusiasm for other forms of government intervention.

In fact, public opinion research suggests that this might happen. As discussed in detail below, people tell pollsters that they are concerned about climate change and want the government to act, but they also express doubts about the seriousness and immediacy of the threat. Moreover, survey evidence suggests that the public is unwilling to make the sacrifices needed to seriously address the problem. In other words, regulations and subsidies may appeal to the public precisely because they conceal tradeoffs. We have already seen that support for these policies declines when pollsters draw attention to the tradeoffs they entail. As a result, highlighting the costs of regulations and subsidies will not suddenly make the carbon tax the public's policy instrument of choice.

¹⁶⁷ Amdur et al., *supra* note 149, at 1 (finding that only 38% of those surveyed support a carbon tax if the government would use the revenue for deficit reduction); Leiserowitz et al., *Public Support*, *supra* note 130, at 25 (finding that only 31% of registered voters support increasing the gas tax by twenty-five cents even if the government would use the revenue to cut income taxes).

¹⁶⁸ See *supra* text accompanying note 10.

¹⁶⁹ See Leiserowitz et al., *Climate Change*, *supra* note 130, at 12.

¹⁷⁰ See HSU, *supra* note 25, at 101–02 (discussing skepticism among voters in British Columbia about whether the government returns all carbon tax revenue to the public, despite the fact that the province sends rebate checks to its residents).

¹⁷¹ *Id.* at 149–93 (arguing that pollsters and policy makers should draw attention to the fact that, as with a carbon tax, regulations and subsidies require tradeoffs).

If this analysis is correct, then, from the perspective of carbon tax proponents, the problem with public opinion is on the benefit side of the ledger as well as on the cost side. Advocates of a carbon tax do not simply need to convince people that alternative policies impose unnecessary costs. They must also succeed in the perhaps even more difficult task of persuading the public that global warming presents a danger that society should mitigate even if doing so requires sacrifices.

A number of findings support the conclusion that the public is not seriously committed to taking costly action to prevent global warming. First, while a substantial majority of the public claims to be concerned about global warming, only a minority expresses serious concern, and many people acknowledge that they have doubts.¹⁷² For example, in a recent New York Times poll, only 42% of those surveyed stated that global warming is an extremely or very important issue to them personally.¹⁷³ Similarly, in a recent Yale University poll, only 37% stated that they are extremely or very sure that global warming is happening.¹⁷⁴

Second, when researchers ask the public about policy priorities, taking steps to address global warming ranks low on the list.¹⁷⁵ For example, a recent poll by the Pew Research Center found that only 38% of adults believe that President Obama and the Congress should make global warming a top priority, which placed climate change behind twenty-one other issues about which the public is more concerned.¹⁷⁶

Third, while people believe that global warming will cause significant damage in the distant future, many do not believe that it poses an immediate threat that will affect them personally. For example, in a recent New York Times poll, 59% of those surveyed stated that if left unchecked, global warming would hurt future generations either a great deal or a lot.¹⁷⁷ But only 34% thought that they personally will be hurt a great deal or a lot, while 45% stated they would suffer only a little or not at all.¹⁷⁸

¹⁷² GfK PUBLIC AFFAIRS & CORP. COMM., THE AP-GfK POLL MARCH, 2014 2 (2014), http://ap-gfkipoll.com/main/wp-content/uploads/2014/04/AP-GfK-March-2014-Poll-Top-line-Final_SCIENCE.pdf [<https://perma.cc/D8A6-HHXZ>].

¹⁷³ N.Y. TIMES, & STANFORD UNIV., *supra* note 130, at 23; *see also* HART RES. ASSOC. & PUB. OPINION STRATEGIES, NBC NEWS/WALL STREET JOURNAL SURVEY 23 (2014), <http://online.wsj.com/public/resources/documents/wsjnbc06182014.pdf> [<https://perma.cc/YG5V-8E95>].

¹⁷⁴ Leiserowitz et al., *Climate Change*, *supra* note 130, at 6; *see also* PEW RESEARCH CENTER, *supra* note 130, at 37 (finding that 47% of adults say either that “there is no solid evidence” of global warming or that it is occurring “because of natural patterns”).

¹⁷⁵ *E.g.*, N.Y. TIMES, & STANFORD UNIV., *supra* note 130, at 2.

¹⁷⁶ *Public’s Policy Priorities Reflect Changing Conditions at Home and Abroad*, PEW RESEARCH CENTER 15 (Jan. 15, 2015), <http://www.people-press.org/2015/01/15/publics-policy-priorities-reflect-changing-conditions-at-home-and-abroad/> [<https://perma.cc/D6DH-XJAX>].

¹⁷⁷ N.Y. TIMES, & STANFORD UNIV., *supra* note 130, at 21.

¹⁷⁸ *Id.* at 20; Leiserowitz et al., *Climate Change*, *supra* note 130, at 14 (noting that only 36% of adults think that global warming will cause at least moderate harm to them personally and concluding that “[m]ost Americans think that global warming is a relatively distant threat”).

Finally, it is unlikely that the public is currently willing to incur the costs that experts believe are necessary to significantly reduce damage caused by global warming. Based upon a detailed cost-benefit analysis, William Nordhaus concludes that the optimal worldwide climate policy would seek to limit global warming to between two and three degrees Celsius above preindustrial levels.¹⁷⁹ Nordhaus also finds that achieving this goal would cost between 0.5% and 1.5% of global income on an annual basis.¹⁸⁰

Moreover, Nordhaus's cost estimate may be too low. First, Nordhaus's estimate assumes (unrealistically) that all countries participate in climate change mitigation efforts and adopt economically efficient policies, such as carbon taxes, rather than inefficient regulations.¹⁸¹

Second, Nordhaus's analysis ignores possible climate tipping points, which are highly unpredictable environmental changes, such as the collapse of the Gulf Stream, that scientists speculate might occur as the globe warms and that would likely produce extreme environmental and economic damage.¹⁸² Nordhaus leaves tipping points out of his analysis because they are difficult to model, but he points out that the possibility that they exist "will generally lower the optimal [temperature] target to provide insurance against the worst-case outcomes."¹⁸³ (Partly for this reason, the Paris Agreement on climate change states that signatory countries will take steps to limit global warming to less than two degrees Celsius.¹⁸⁴) Moreover, a recent study by Thomas Lontzek and his colleagues concludes that adding tipping points to Nordhaus's model would significantly increase the optimal carbon tax, which would also increase the cost of climate change mitigation.¹⁸⁵

Is the public willing to pay the cost? The answer is almost certainly no, at least not if the cost is transparent. A World Bank poll asked Americans whether they would support "taking steps against climate change [that] would increase costs to the average person for energy and other products by" either \$38.93 per month (or 1% of per capita GDP) or \$19.47 per month (or 0.5% of per capita GDP).¹⁸⁶ A majority stated that they were willing to pay the lower amount but not the higher

¹⁷⁹ NORDHAUS, *supra* note 25, at 205–19. To be more precise, Nordhaus estimates that optimal climate policy, which assumes efficient intervention and global participation, would limit the temperature increase to 2.8 degrees Celsius. *Id.* at 212.

¹⁸⁰ *Id.* at 177–212.

¹⁸¹ *Id.* at 205–12.

¹⁸² *Id.* at 212.

¹⁸³ *Id.*

¹⁸⁴ UNITED NATIONS, ADOPTION OF THE PARIS AGREEMENT 22 (2015).

¹⁸⁵ Thomas Lontzek et al., *Stochastic Integrated Assessment of Climate Tipping Points Indicates the Need for Strict Climate Policy*, 5 NATURE CLIMATE CHANGE 441, 441–43 (2015).

¹⁸⁶ WORLD BANK, PUBLIC ATTITUDES TOWARD CLIMATE CHANGE: FINDINGS FROM A MULTI-COUNTRY POLL 30–35 (2009).

amount.¹⁸⁷ Other surveys have found even less support for expensive measures. In general, polls find majority support for policies that would impose a small cost,¹⁸⁸ but not for policies that are even moderately expensive.¹⁸⁹

In addition, not only is the public's stated willingness to pay for climate policies low relative to expert cost estimates, but stated willingness to pay likely overstates what people are in fact willing to pay. Talk is cheap, and telling a pollster that you are willing to spend money to protect the environment does not require that you actually incur a cost. Rather, it is an inexpensive way to confirm to yourself and to the pollster that you are a good person who is willing to sacrifice to make the world a better place. A number of studies find that people are more willing to spend hypothetical money in the context of surveys and experiments than they are to spend real money.¹⁹⁰ In particular, when asked about their willingness to pay for environmental goods, people frequently state very high amounts that constitute an unrealistically large part of their incomes.¹⁹¹

In sum, public support for serious action on climate change may be more apparent than real. People claim to be concerned about global warming, but are not willing to make the sacrifices that experts argue are needed to significantly reduce carbon emissions. This suggests that increasing support for a carbon tax will require more than simply pointing out that alternative policies necessitate tradeoffs. Carbon tax advocates will also have to convince the public that addressing global warming is important enough to warrant sacrifice.

C. *A Pyrrhic Victory for Carbon Tax Opponents?*

Conservative groups that oppose the carbon tax often interpret the lack of public support for the policy as evidence of success.¹⁹² But to the extent that these groups

¹⁸⁷ *Id.*

¹⁸⁸ Leiserowitz et al., *Climate Change*, *supra* note 130, at 20 (finding that 66% of adults support “[r]equiring electric utilities to produce at least 20% of their electricity from wind, solar, or other renewable energy sources, even if it costs the average household an extra \$100 a year”); Leiserowitz et al., *Public Support*, *supra* note 130, at 17 (asking the same question of registered voters and finding 56% support).

¹⁸⁹ Borick et al., *supra* note 130, at 11–12 (finding that only 13% of Americans are willing to pay \$100 or more per year to increase renewable energy production and that support for a carbon tax (or cap-and-trade) among Americans declined from 32% (39%) when the question specified no cost to 15% (18%) when the question specified a cost of \$50 per month); Leiserowitz et al., *Climate Change*, *supra* note 130, at 19 (finding that 27% of adults support “a large scale effort [to address global warming] even if there are large economic costs”).

¹⁹⁰ For a review of the literature on this point, see Karen Blumschein et al., *Eliciting Willingness to Pay Without Bias: Evidence from a Field Experiment*, 118 *ECON. J.* 114, 114–15 (2008).

¹⁹¹ Peter A. Diamond & Jerry A. Hausman, *On Contingent Valuation Measurement of Nonuse Values*, in *CONTINGENT VALUATION: A CRITICAL ASSESSMENT* 3, 18–19 (J.A. Hausman ed., 1993).

¹⁹² See e.g., Kenneth Artz, *Survey: Public Overwhelmingly Opposes Carbon Tax*,

are motivated by a desire to avoid climate policies generally, rather than a carbon tax in particular, then their victory may prove hollow. While the public does not take climate change as seriously as many climate scientists, people do believe that global warming is a problem. In addition, the public overwhelmingly favors green subsidies and command-and-control regulations as the preferred solution precisely because these policies conceal opportunity costs. The public's continued belief in a free lunch—a costless solution to the global warming problem—very likely makes government intervention inevitable.

In fact, the government is already using command-and-control regulation and green subsidies to address global warming. Moreover, both the pace and scope of interventions are increasing. For example, in recent years, the federal government has adopted regulations dramatically increasing automobile fuel efficiency standards and substantially strengthening energy efficiency standards for appliances and other equipment.¹⁹³ As we have seen, the public generally approves of these efforts despite the fact that the current approach will likely prove more expensive and less effective than an economy-wide carbon tax.

Given the high likelihood that the government will continue to increase its efforts to combat global warming, a number of conservative and libertarian scholars have begun to argue for a carbon tax.¹⁹⁴ In response, some conservative policymakers have objected that, because of strong opposition to the carbon tax

HEARTLAND INST. (Aug. 5, 2013), <https://www.heartland.org/news-opinion/news/survey-public-overwhelmingly-opposes-carbon-tax> [<https://perma.cc/Y4QG-D7K8>].

¹⁹³ *History and Impacts*, ENERGY.GOV (last visited Oct. 15, 2015), <http://energy.gov/eere/buildings/history-and-impacts> [<https://perma.cc/MJN4-57SK>]; 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 Fed. Reg. 62,624 (Oct. 15, 2012); *see also* GRAETZ, *supra* note 24, at 197–200 (describing the history of energy efficiency and fuel efficiency standards). In addition to mitigating global warming, energy efficiency and fuel efficiency standards are sometimes justified on the grounds of other market failures (e.g., the claim that consumers irrationally refuse to pay more for energy-efficient durable goods even though experts argue that doing so would minimize the discounted value of overall costs due to substantial future energy savings). This rationale for regulation is controversial in part because it is not always clear that energy-efficient goods are comparable in all respects to their less energy-efficient counterparts. For reviews of the literature, see Dallas Burtraw & Karen L. Palmer, *Mixing It Up: Power Sector Energy and Regional and Regulatory Climate Policies in the Presence of a Carbon Tax*, in IMPLEMENTING A U.S. CARBON TAX 191, 199–200 (Ian Parry et al. eds., 2015) (suggesting that more research is needed before drawing definite conclusions about energy efficiency standards); Ian Parry & Kenneth A. Small, *Implications of Carbon Taxes for Transportation Policies*, in IMPLEMENTING A U.S. CARBON TAX 211, 218–20 (Ian Parry et al. eds., 2015) (reaching the same conclusion with respect to fuel efficiency standards). As a tool for reducing carbon emissions, estimates of the cost of energy efficiency and fuel efficiency standards are very sensitive to assumptions about whether the standards address irrationality and other market failures. *See* KRUPNICK ET AL., *supra* note 60, at 53–93. In any event, efficiency standards are limited in terms of the size of emissions reductions they can produce.

¹⁹⁴ *See supra* text accompanying notes 24 and 25.

among Republican voters, any conservative politician who embraced the policy would be committing political suicide.¹⁹⁵

Nonetheless, conservative policymakers should keep three points in mind. First, as discussed in the Introduction, the EPA recently adopted the Clean Power Plan, which imposes state-specific limits on carbon emissions from power plants.¹⁹⁶ The EPA's regulations give each state a lot of flexibility to determine exactly what policies it will adopt to achieve the emissions reductions required within its borders. One possibility is that the states would use carbon taxes.¹⁹⁷ By vocally opposing this option, conservative policymakers may inadvertently facilitate the adoption of less efficient policies, including excessively complicated and expensive regulatory schemes. In other words, conservative policymakers who oppose action on climate change are on the horns of a dilemma. Do they oppose a carbon tax knowing that this may lead to expensive regulations and subsidies? Or should they accept a carbon tax because they regard it as the lesser evil?¹⁹⁸

Second, several recent polls show that a majority of Republicans now believe that climate change is occurring.¹⁹⁹ And as we have seen, many Republican voters support action on climate change. The problem is that they support wasteful and ineffective policies. As a result, the conservative cause would arguably be better served if conservative leaders participated in shaping the government's response to global warming rather than maintaining that the government should not respond at all—a position that has fallen out of favor with the public, including many Republican voters.

¹⁹⁵ E.g., Ed Gillespie, *Reader's View: Former GOP Chief Says Embracing a Carbon Tax Would Doom that Party's Nominee*, COLORADO INDEPENDENT (Oct. 26, 2015), <http://www.coloradoindependent.com/155828/readers-view-embracing-a-carbon-tax-would-doom-gop-nominee> [<https://perma.cc/EG96-MDQX>].

¹⁹⁶ Carbon Pollution Emissions Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662, 64,836 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60).

¹⁹⁷ *Id.*

¹⁹⁸ Cochrane, *supra* note 23 (“The strongest case for a carbon price is, I think, that if we’re going to have anti-carbon policies and energy conservation policies—and we do, and we are, like it or not—then a carbon price is a far better way to implement them than direct regulations.”); see also Shi-Ling Hsu & Yoram Bauman, *Ten Reasons*, 30 ENVTL. F. 26, 30 (2013) (arguing that conservatives should support a carbon tax because it is more efficient than regulation).

¹⁹⁹ Christopher Borick et al., *Acceptance of Global Warming Among Americans Reaches Highest Level Since 2008*, ISSUES IN ENERGY & ENVTL. POL’Y 1 (2015), <http://closup.umich.edu/files/ieep-nsee-2015-fall-climate-belief.pdf> [<https://perma.cc/T57J-YYU8>] (“A majority of Republicans (56%) now believe that there is solid evidence of global warming.”); *Energy Poll: 3 out of 4 Believe Climate Change Is Occurring; Views of Key Energy Issues Are Shaped by Partisan Politics*, UNIV. TEX. AT AUSTIN 1 (2015), <http://www.utenergypoll.com/wp-content/uploads/2014/04/October-2015-UT-Energy-Poll-Final2.pdf> [<https://perma.cc/54A3-A5CR>] (finding that 59% of Republicans believe that climate change is occurring).

Finally, to the extent that conservative policymakers believe that a carbon tax is preferable to alternative climate policies, they may be able to persuade conservative voters to change their minds. A study by Robert Brulle and his colleagues found that cues from Republican politicians, including public statements about climate change and votes on climate change bills, have a significant effect on people's views about climate change.²⁰⁰ Given that conservative leaders have long argued in favor of lower taxes and have specifically argued against the carbon tax,²⁰¹ switching positions now would no doubt incite some resistance among Republican voters. But we have reason to believe that Republican elites can influence voter opinion on this issue.

D. Why Opportunity Cost Neglect Will Make the Carbon Tax Less Efficient

Up to this point, I have argued that opportunity cost neglect explains why the public supports green subsidies and command-and-control, but not a carbon tax. In this Section, I discuss the possibility that opportunity cost neglect would make any real-world carbon tax less efficient than traditional economic models suggest.

Some economists argue that, in theory, an optimal climate policy would combine a carbon tax with carefully crafted subsidies for basic research related to climate change and for renewable energy, and perhaps even with narrowly tailored regulations.²⁰² But in the real world, political forces rather than environmental objectives often determine which activities the government subsidizes and how it regulates.²⁰³ Moreover, using carbon tax revenue to fund subsidies could increase the program's cost by precluding cuts to distortionary taxes.²⁰⁴ So, part of the appeal of a broad-based carbon tax is that by pricing all carbon emissions, it generally serves as a substitute for deeply flawed alternative policies.²⁰⁵ In other words, it largely eliminates the need for both subsidies and command-and-control.²⁰⁶

²⁰⁰ Robert J. Brulle et al., *Shifting Public Opinion on Climate Change: An Empirical Assessment of Factors Influencing Concern Over Climate Change in the U.S., 2002-2010*, 114 CLIMATIC CHANGE 169, 181 (2012).

²⁰¹ See REPUBLICAN NAT'L COMMITTEE, REPUBLICAN PLATFORM 20 (2016), [https://prod-static-ngop-pbl.s3.amazonaws.com/media/documents/DRAFT_12_FINAL\[1\]-ben_1468872234.pdf](https://prod-static-ngop-pbl.s3.amazonaws.com/media/documents/DRAFT_12_FINAL[1]-ben_1468872234.pdf) [<https://perma.cc/3PMX-U778>].

²⁰² E.g., Krupnick & Parry, *supra* note 24, at 19–20; David Popp, *Innovation and Climate Policy*, 2 ANN. REV. RESOURCE ECON. 275, 279–88 (2010).

²⁰³ E.g., GRAETZ, *supra* note 24, at 186–88 (“When it comes to subsidies, however, Congress is very much in the business of picking winners and playing favorites. . . . [and] the government's spending priorities are not set by scientists and engineers.”).

²⁰⁴ Richard G. Newell, *The Role of Energy Technology Policy Alongside Carbon Pricing*, in IMPLEMENTING A U.S. CARBON TAX 178, 180–85 (2015).

²⁰⁵ E.g., Burtraw & Palmer, *supra* note 193, at 191 (stating that an effective carbon tax would mean that policies “that promote new technology can be scaled back” and “carbon taxes could make other regulations . . . irrelevant”); Parry, *supra* note 49, at 33 (“Be wary of earmarking carbon tax revenues, such as for clean energy programs [and] climate adaptation.”).

²⁰⁶ Krupnick & Parry, *supra* note 24, at 19 (arguing that subsidies and mandates that

The public, however, is likely to view the carbon tax as a complement to these other policies rather than as a substitute. Part II argued that opportunity cost neglect causes people to view command-and-control and subsidies as providing a free lunch—environmental benefits at no cost. If that view is correct, then even if the public ultimately becomes comfortable with a carbon tax, it will not necessarily sour on these psychologically appealing alternatives. Why not combine a carbon tax with mandates requiring power companies to use renewable energy? Better yet, why not use carbon tax revenue to fund tax credits for hybrid cars?

In addition, the public will likely be particularly receptive to exempting certain sectors of the economy from a carbon tax (or applying lower rates to some sectors).²⁰⁷ Recall that opportunity cost neglect biases people in favor of tax expenditures. If the government imposed a carbon tax, adding exemptions to it would constitute a form of tax expenditure. If, as existing evidence suggests, the public would view these exemptions as imposing no cost, then politicians would have every reason to hand them out to favored constituencies.

Moreover, the public will not be alone in its support for regulations, subsidies, and exemptions. On the one hand, environmental groups will support regulations and, in some cases, subsidies.²⁰⁸ These groups generally favor more government intervention on behalf of the environment, not less. Many environmentalists are also generally skeptical of pricing pollution and prefer command-and-control mechanisms instead.²⁰⁹ On the other hand, industry groups will fight for both subsidies and exemptions as well as regulations if those regulations create barriers to entry or otherwise harm competitors.

Given the political environment, we should expect that any carbon tax enacted into law in the United States will contain significant exemptions and will also be accompanied by subsidies and command-and-control regulation. In fact, the closest that the country has come to adopting a law that approximates a carbon tax was the Waxman-Markey cap-and-trade bill that passed the House of Representatives in 2009 before ultimately dying in the Senate.²¹⁰ In addition to creating a cap-and-trade

promote clean technology “should be a complement to, not a substitute for, emissions mitigations policies” and noting that these policies “need to be carefully scaled and designed.”).

²⁰⁷ Cf. Cochrane, *supra* note 23 (“People who ‘need’ to ‘drive long distances to work,’ and ‘can’t afford’ new energy-efficient cars, farmers, small business, people who live in cold climates (we already have a home heating oil subsidy), high energy industries (aluminum, concrete), and so on and so forth will all clamor for exemptions. And will get them.”).

²⁰⁸ See e.g., N. Gregory Mankiw, *The Key Role of Conservatives in Taxing Carbon*, N.Y. TIMES (Sept. 4, 2015), <http://www.nytimes.com/2015/09/06/upshot/the-key-role-of-conservatives-in-taxing-carbon.html> [<https://perma.cc/SX7U-UPHP>] (discussing opposition among environmentalists to a revenue-neutral carbon tax proposal in Washington state on the grounds that the government should spend the tax revenue on environmental and other government programs).

²⁰⁹ GRAETZ, *supra* note 24, at 209 (discussing the desire among environmentalists to cap emissions rather than price them).

²¹⁰ American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (1st Sess. 2009).

program, the Waxman-Markey bill contained numerous and detailed regulations; billions of dollars of subsidies for oil refineries, the coal industry, and other special interest groups, and exemptions for important industries.²¹¹ Similarly, carbon taxes enacted in countries such as Norway, Finland, Sweden, and Denmark contain exemptions for certain industries.²¹²

Taking for granted that any real-world carbon tax will be accompanied by regulations, subsidies, and exemptions, why does that matter? The reason is that these carbon tax add-ons will increase the cost of addressing global warming while providing little if any benefit.²¹³

As explained in Part I, the objective of a carbon tax is to impose a uniform price on all carbon emissions, which provides all sources of emissions with the same incentive to abate. In theory, all sources will abate emissions until the marginal cost of doing so exceeds the tax. Thus, all sources will face the same marginal cost of abatement so that no opportunity exists to increase efficiency by reallocating abatement from one economic sector to another. By contrast, regulations, exemptions, and subsidies can cause the marginal cost of abatement to vary across sectors, which means that it would be possible to achieve the same level of emissions reduction at a lower cost or a higher level of emissions reduction at the same cost.

Moreover, using carbon tax revenue to fund subsidies can itself impose real costs on society. First, revenue used in this way cannot also be used to cut distortionary taxes. The failure to use carbon tax revenue to cut existing taxes could substantially increase the cost of addressing global warming.²¹⁴

Second, handing out green subsidies encourages rent-seeking industry groups to squander resources lobbying Congress to fund projects that may very well constitute bad investments. Recall from Part I that the government has a poor record when it comes to choosing which ostensibly environmentally friendly technologies it should subsidize. It is easy to recognize that the government wastes resources when it builds bridges to nowhere. While less obvious, the same is also true when the government subsidizes technologies that are doomed to fail or that are counterproductive.

In sum, opportunity cost neglect will likely make any carbon tax adopted by the United States less efficient than economic theory suggests. Not only will special interest groups lobby for expensive add-ons in the form of regulations, subsidies, and exemptions, but they will find a convenient ally in the public, which generally ignores the costs of these policies.

²¹¹ GRAETZ, *supra* note 24, at 239–45; HSU, *supra* note 25, at 61–62; *Buried Code*, WASHINGTONPOST.COM (June 7, 2009), <http://www.washingtonpost.com/wp-dyn/content/article/2009/06/06/AR2009060601797.html> [<https://perma.cc/644Y-VCCN>].

²¹² David G. Duff & Shi-Ling Hsu, *Carbon Taxation in Theory and Practice*, in VIII CRITICAL ISSUES IN ENVIRONMENTAL TAXATION 261, 269–75 (2010).

²¹³ See generally Burtraw & Palmer, *supra* note 193, at 191 (noting that in the presence of an optimal carbon tax, other climate policies tend to increase inefficiency, but discussing the possibility that carefully crafted regulation and subsidies might improve upon a suboptimal carbon tax).

²¹⁴ Goulder, *supra* note 33, at S7.

Although they do not highlight the role played by opportunity cost neglect, some influential conservatives and libertarians have expressed skepticism that the carbon tax will supplant regulations and subsidies.²¹⁵ While the analysis in this Section supports that conclusion, I caution that this does not mean that on net, the benefits of a carbon tax do not outweigh the costs. In particular, as discussed in Section C of this Part, significant action to mitigate climate change is highly probable. In the absence of a carbon tax, the government is and will likely continue to address the problem using costly and ineffective means. Moreover, conservatives and libertarians have long argued that disasters and emergencies often facilitate permanent and harmful expansions of government power.²¹⁶ If the globe continues to warm, then pressure for the government to take drastic action will increase substantially.

In light of these considerations, some conservative and libertarian thinkers have recently begun to promote the idea of a grand bargain with environmentalists.²¹⁷ The bargain would entail a policy swap in which conservatives would agree to a revenue-neutral carbon tax and environmentalists would agree to the repeal of existing green subsidies and global warming regulations and to limiting the ability of federal agencies to regulate carbon emissions in the future.

Robert Murphy, an influential conservative and a critic of the policy swap proposal, has argued that it is unrealistic to believe that environmentalists, politicians, and bureaucrats would agree to it in the first place.²¹⁸ Moreover, even if the bargain were struck, Murphy claims that it would unravel over time as special interest groups and power-seeking bureaucrats work to impose new regulations and subsidies in addition to the existing carbon tax.²¹⁹

On one hand, because certain special interest groups favor regulations and subsidies and because the public views these policies as imposing little or no cost, Murphy is right that they will be difficult to eliminate. On the other hand, Murphy's position rests on the implicit assumption that conservatives will best advance their goal of limited government by continuing to oppose virtually any significant climate policies. This Article calls that claim into question.

For advocates of small government, the question then is whether promoting a carbon tax that will be imperfect in practice, but that limits the role of regulation and

²¹⁵ Jeffrey Miron, *Do We Need New Climate Change Guidelines?*, ORANGE COUNTY REGISTER (July 29, 2013), <http://www.ocregister.com/articles/carbon-518840-tax-policies.html> [<https://perma.cc/N7UJ-CQ8L>]; Robert Murphy, *Jerry Taylor Shows the Weakness of a Case for a Carbon Tax*, INST. FOR ENERGY RESEARCH (Mar. 26, 2015), <http://instituteeforenergyresearch.org/analysis/jerry-taylor-shows-the-weakness-of-case-for-a-carbon-tax/> [<https://perma.cc/962Z-SACT>].

²¹⁶ See generally ROBERT HIGGS, CRISIS AND LEVIATHAN: CRITICAL EPISODES IN THE GROWTH OF AMERICAN GOVERNMENT 3–4 (1987) (making this argument).

²¹⁷ See *supra* text accompanying note 23.

²¹⁸ Murphy, *supra* note 215. For a response, see Jerry Taylor, *Debating the Carbon Tax*, NISKANEN CENTER (Mar. 30, 2015), <https://niskanencenter.org/blog/debating-the-carbon-tax/> [<https://perma.cc/5SMY-7FD5>].

²¹⁹ Murphy, *supra* note 215.

subsidies, is better than accepting the government's current approach focusing on regulation and subsidies. With respect to this point, the economist Tom Tietenberg has reviewed studies of existing pollution and carbon pricing schemes, and he concludes that "they typically find that the cost savings from shifting to [taxes or cap-and-trade] are considerable, but less than would have been achieved if the final outcome had been fully cost effective."²²⁰

Tietenberg's findings suggest that, at the very least, conservatives should be open to the idea of negotiating with environmentalists for a carbon tax, at least as long as it largely supplants existing regulations and subsidies. In spite of unyielding conservative opposition, the government has been and likely will continue to take significant action on global warming using inefficient measures, and it is doing so with strong public support, some of which comes from Republican voters. Once regulations and subsidies become entrenched, they will be hard to repeal.²²¹ Arguably then, conservatives would better advance their goals by playing a constructive role early on in the process of developing the nation's policy response to global warming. After all, what is the harm in advocating a less expensive and more effective approach while continuing to oppose wasteful alternatives, especially when the current practice among conservatives of denying the importance of climate change has largely failed to achieve the goal of thwarting government action?

CONCLUSION

This Article contributes to the emerging literature in behavioral public choice by showing how opportunity cost neglect influences public opinion regarding climate change policy. The public favors command-and-control regulations and green subsidies because these policy instruments conceal opportunity costs. Paradoxically, the carbon tax, which is the most efficient instrument available, attracts little public support because it draws attention to tradeoffs. The challenge presented to carbon tax advocates is convincing the public that mitigating global warming is an objective worthy of sacrifice when the public believes that regulations

²²⁰ Tom H. Tietenberg, *Reflections—Carbon Pricing in Practice*, 7 *REV. OF ENVTL. ECON. & POL'Y* 313, 317 (2013).

²²¹ See Stephen J. Choi & A.C. Pritchard, *Behavioral Economics and the SEC*, 56 *STAN. L. REV.* 1, 45 (2003) (arguing that securities regulations are difficult to repeal even when they are harmful because they confer concentrated and highly salient benefits on a minority of investors while the losses suffered by others are diffuse and obscure); Sam Peltzman, *Regulation and the Wealth of Nations: The Connection Between Government Regulation and Economic Progress*, 3 *NEW PERSP. ON POL. ECON.* 185, 194 (2007) (making a similar point with respect to the Americans with Disabilities Act); Jeffrey J. Rachlinski & Cynthia R. Farina, *Cognitive Psychology and Optimal Government Design*, 87 *CORNELL L. REV.* 549, 604–05 (2002) (arguing that "regulatory stickiness" partially stems from loss aversion and the fact that those who are harmed by regulatory reform fight harder against it than those who would gain are willing to fight for it).

and subsidies offer a free lunch. Opposition by conservatives makes this task difficult. But conservatives should consider whether defeating the carbon tax simply paves the way for less efficient alternatives that entail greater government intrusion in people's lives, but that the public strongly supports.