

The Politics of Climate Policy Instruments

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Reducing greenhouse gas emissions that are causing climate change requires the adoption of costly policies with often uncertain efficacy and distributional consequences. Because these emissions occur across sectors of the economy—electricity, transportation, and agriculture—and the built environment, and they require action at all levels of government—global, national, regional, and local—there is no single “silver-bullet” solution.

This article reviews current political science scholarship that explores the politics of climate policy instrument choice, focusing on climate mitigation options. There is a substantial body of work—spanning subfields and methodological approaches—that investigates the choices that government agencies are making, not only about whether to address climate change but how to address it. The discussion is organized around what has been a central question for policy makers for more than four decades: Should governments use markets (i.e., taxes, cap-and-trade programs, and subsidies) or regulation (i.e., emissions caps and technology requirements) to address environmental problems? Although political scientists also have contributed arguments and empirical analysis of other policy instruments, such as voluntary approaches and information-based policies (Hsueh and Prakash 2012; Matisoff 2013), much of the climate-change literature focuses on the choice between market-based and regulatory strategies. In focusing attention on these issues within the political science literature, this article neither incorporates related work from other disciplines (e.g., Blackman, Li, and Liu 2018) nor covers related subjects from within the discipline, such as mitigation questions in the context of international institutions, nongovernmental organizations, and climate finance.

The purpose of reviewing the relevant literature is not to be exhaustive but rather to highlight the principal questions that political scientists ask and the approaches they take to understand the politics of climate policy instrument choice. My objective is to identify key findings and themes, innovative theoretical and empirical approaches, and questions that require further inquiry.

PRICING CARBON

The use of markets to mitigate carbon emissions typically involves carbon pricing, either directly through the imposition of a tax on emissions or on the carbon content of fossil fuels, or

alternatively by creating a cap-and-trade system in which government sets an allowable quantity of tradeable emissions and then, in turn, allows the market to set the price. Both approaches are in use throughout the world to address climate change. As of March 2023, 27 countries had imposed a carbon tax (World Bank 2023), as have numerous subnational governments. Carbon emissions trading systems also are prevalent. The European Union (EU) created the Emissions Trading System (ETS) in 2005 as a coordinated approach to help EU nations achieve the Kyoto Protocol’s emissions targets. In the United States, 12 Northeastern states currently participate in the Regional Greenhouse Gas Inventory (RGGI) system. California has had its own carbon market since 2013, which is now linked with a similar market in Quebec, Canada. Several other countries also have adopted emissions trading including China, New Zealand, and South Korea.

Political scientists have examined various dimensions of carbon-pricing policies, including the decision of governments to adopt (or not) carbon pricing. Studies that investigate this question range from single-case studies (Heggelund et al. 2019; Wettestad 2014) to comparative analyses of multiple cases (Andersen 2019; Gulbrandsen et al. 2019; Houle, Lachapelle, and Purdon 2015; Rabe 2018) to large-N cross-national studies (sometimes including subnational jurisdictions) (Betsill and Hoffman 2011; Narassimhan et al. 2018). Among the common themes that emerge from this work are the important roles of domestic political institutions, economic structure, administrative capacity, and policy diffusion.

Although large-N studies provide important insights about the factors associated with carbon-pricing adoption, most do not make theoretical or empirical distinctions among different approaches. For example, studies by Levi, Flachsland, and Jakob (2020) and Skovgaard, Ferrari, and Knaggård (2019) grouped carbon-pricing policies together, ignoring differences in price-based versus quantity-based approaches. Moreover, although these studies are useful for identifying macro-level correlates, they are less effective for pinpointing specific country-level factors that enable or obstruct policy adoption. Mildenerger’s (2020) historical institutionalist approach is a good example of the benefits of using techniques such as process tracing to identify within-case, causal factors that explain climate-policy outcomes. Mildenerger showed that industry and labor have found common cause in objecting to

the adoption of multiple types of carbon-pricing regimes in Australia, Norway, and the United States.

Several studies in the literature examine specific carbon-pricing design choices. With respect to carbon taxes, scholars have considered the correlates of price levels, which are a strong indicator of policy ambition. For example, Levi, Flachsland, and Jakob (2020) analyzed the determinants of carbon-pricing levels across national and subnational contexts. They found that democratic governance and greater public concern about climate change are positively associated with higher carbon prices, whereas more reliance on fossil fuels is associated with lower prices. Mahdavi, Martinez-

allowance-auction revenues to disadvantaged communities to overcome environmental justice opposition.

Rabe's (2018) study provides perhaps the most comprehensive treatment of the politics of carbon pricing in the literature. Through detailed case studies of carbon-tax and cap-and-trade adoption and implementation in Canada and the United States, Rabe explored the complicated politics of adoption and the durability of carbon pricing in the face of changing political preferences (e.g., when legislatures and gubernatorial offices change party control), economic shocks, and evolving managerial challenges. His work shows that the political resilience of carbon-pricing programs stems from their flexibility and ability

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Alvarez, and Ross (2022) conducted a cross-national study of fossil fuel taxes and subsidies. They concluded that globally there has been only modest changes in net fuel taxes and subsidies, policies are driven more by domestic-level fiscal politics as opposed to the presence of democratic institutions, and that country-level changes are due largely to local, idiosyncratic factors.

Analyses of cap-and-trade systems emphasize the role of political forces in shaping important design choices, including the level of ambition, source coverage, and the allowance-allocation process. In the years after the Kyoto Protocol and the emergence of the EU ETS, there was expectation that emissions trading systems would converge in design, creating the possibility for the cross-national linkage of markets. In practice, this type of policy diffusion has not occurred. Gulbrandsen et al. (2019) argued in their study of nine systems—the EU ETS, RGGI, California, Tokyo, New Zealand, Australia, China, South Korea, and Kazakhstan—that the observed divergence is due in large measure to differences in local political contexts (e.g., administrative capabilities and the relative power of affected industries) as well as policy learning and a lack of relevant international standards.

Raymond (2016) argued that specific policy design choices were critical to RGGI's success, emphasizing that the decision to direct most revenues to public goods (e.g., energy efficiency and renewable energy) helped to overcome concerns that the system would generate private profits instead of public benefits. Bang, Victor, and Andresen (2017) argued that California policy makers designed the state's cap-and-trade system so as to avoid what they perceived as flaws in the EU ETS and RGGI. Specifically, they emphasized the role of policy learning as a key mechanism of diffusion, noting how decisions about the allocation of permits, compliance rules, offset practices, and price setting were influenced by other jurisdictions' experiences. They further argued that local politics shaped other design choices, including the creation of a program to distribute

to build constituencies through the allocation of benefits.

REGULATORY APPROACHES

The study of climate policy instruments within political science has also considered the role of regulation or what sometimes is referred to as “command and control.” One area of climate-related regulation that has received extensive attention is the mandates that require utilities to generate electricity from renewable energy sources, such as the renewable portfolio standards (RPS) in place in more than 30 US states. Much of the empirical work has focused on identifying the determinants of adoption, including state political ideology, environmental interest-group influence, and citizens' demands (Bromley-Trujillo et al. 2016; Matisoff 2008). Recent research has also examined the politics of retrenchment in state renewable-energy policy. For example, Stokes (2020) argued that organized fossil fuel interests—especially electric utilities—have successfully orchestrated state policy roll backs through aggressive lobbying, efforts to mold public opinion, and political contributions.

Studies also have examined whether patterns of US state RPS adoption can be explained—at least partially—by interstate policy diffusion, finding that such diffusion occurs through mechanisms such as policy information networks, policy learning, and shared ideological commitments (Bromley-Trujillo et al. 2016; Nicholson-Crotty and Carley 2016). In related work, Parinandi (2020) analyzed state legislative policy making regarding RPS and found that government ideology is correlated with efforts to invent new policy, whereas electoral vulnerability is a stronger predictor of borrowing policy from other states. Studies of diffusion of renewable-energy policies also have extended to the cross-national level. For example, Baldwin, Carley, and Nicholson-Crotty (2019) found that both developed and developing nations emulate the policies of political peers and that developing countries also follow the path of their donors.

European regulatory policies to promote renewables more often have been in the form of price regulations—for example,

through the use of feed-in-tariffs (FITs) in many European countries, in which governments pay providers a fixed tariff for each unit of renewable electricity produced. Many less-developed countries also have adopted FITs to promote renewable energy. Bayer and Urpelainen (2016) argued that a common denominator of countries adopting FITs is democracy and that democratic governments use them to achieve environmental gains and reap the political benefits of broadly distributing benefits.

COMPARING POLICY INSTRUMENTS

There is a general tendency in the political science literature to examine climate policy instruments in isolation (e.g., a study might consider carbon taxes or regulation but not both); however, there are notable exceptions that consider the choices that governments make among policy instruments. For instance, Hughes and Urpelainen (2015) created a typology of energy-related climate policies based on two dimensions: (1) a distributive dimension, such that a policy either distributes concentrated benefits to particular industries or imposes costs on large segments of voters and/or industries; and (2) a policy instrument type, which they divided into a tax, subsidy, or regulation. Their analysis sought to understand the conditions and factors associated with a government's policy choice along these dimensions, finding that countries with higher institutional capacity are more likely to favor regulatory instruments versus financial instruments. Meckling and Jenner (2016) argued that, in practice, many European countries and US states are adopting hybrid climate policies that rely on multiple policy instruments—that is, regulation and markets—which they argued is a result of both international policy diffusion and domestic coalitional politics.

Several studies in the public opinion literature also simultaneously consider multiple policy instruments. (Of course, there also is extensive work in public opinion on climate policy instruments that is not comparative.) Lachapelle, Borick, and Rabe (2012) compared attitudes toward cap-and-trade and carbon taxes, finding overall higher support for each type of instrument in Canada than in the United States and broad agreement on potential uses of revenue generated from a carbon-pricing program. Similarly, Ansolabehere and Konisky (2014) compared Americans' attitudes toward regulating emissions levels, a cap-and-trade market, and a carbon tax, finding the most support for regulation. Moreover, when decomposing the factors that explain varying levels of support, they found that the main difference across these policy instruments was not concern about climate change itself but rather perceptions of the local environmental harms and costs of energy sources.

Another stream of research examined the effects of policy bundling. In a comparative study of nationally representative samples in China, Germany, and the United States, Wicki, Fesenfeld, and Bernauer (2019) considered preferences toward different policy instruments when they are included as part of policy packages. This analysis included both market and regulatory policies that varied in their coerciveness and the visibility of costs. The authors found that the publics in these

countries supported otherwise unpopular policies when they were bundled together with those that are more politically feasible. Bergquist, Mildemberger, and Stokes (2020) similarly examined the effects of policy bundling, finding through conjoint experimental analysis that combining economic and social policies (e.g., affordable housing, a \$15 minimum wage, and health insurance) increases support among Americans for a carbon tax.

CONCLUSION

Research in political science has made important contributions to understanding the choices that national and subnational governments make about policy instruments to address climate change, as well as the preferences of their citizens toward different approaches. A common theme across many of these studies is that local political and economic factors are the most important determinants; however, there also is an important role for policy learning and diffusion. These themes emerge across studies of different policy instruments, methodological approaches, and geographic contexts. More specifically, whereas the political ideology of decision makers matters, so also does the influence of industrial interests, civil society, and the administrative capacity of the institutions charged with making policy-design decisions.

There are other avenues for research to which political science can make important contributions. First, extant scholarship focuses disproportionately on market instruments—specifically taxes and emissions trading—which makes sense given their prevalence across the world. However, some countries are turning to subsidies as part of more explicit industrial policies as a strategy to curb emissions (e.g., the 2022 Inflation Reduction Act in the United States). The coupling of climate-change mitigation with industrial policy through massive public subsidies is a hallmark of Green New Deal proposals in the United States, Europe, and elsewhere, and it is an area ripe for future research. In addition, most studies to date have focused on Global North contexts, raising important questions and opportunities to consider similar questions in Global South countries.

Second, political scientists might give more attention to questions about implementation. Among the potentially promising areas for inquiry are those pertaining to whether (and how) instrument choices disrupt or reinforce existing political coalitions—specifically, how these choices influence the positioning and preferences of advocacy groups and the behavior of firms in incumbent and emerging industries. In addition, although climate policy often is made at the national level, its ultimate implementation relies on the actions of multiple agencies and subnational governments, which may have conflicting preferences, varying capacities and organizational cultures, and heterogeneous interest-group environments. This type of variation in institutional context may produce divergent outcomes that require careful attention to politics to diagnose. Moreover, focusing on the domestic politics of implementation is particularly salient given the need to track progress on nationally determined contributions pledged as part of the Paris Agreement.

Third, political scientists might devote more research to how choices about climate policy instruments intersect with issues of social justice. The politics of climate change in many countries has changed in recent years, reflected in deepening coalitions between environmental and climate justice groups and mainstream advocacy organizations and in the merging of social-justice and climate-policy agendas. The changing political coalitions have produced calls for more ambitious decarbonization goals along with other economic and social policies, as well as calls for the use of different policy instruments to achieve these goals. Are these new dynamics fleeting or enduring? How do these policy approaches vary across developed and developing nations? Moreover, will these new approaches generate public support for additional action on climate change or perhaps instead produce resentment and hostility toward future climate policy? Political science has unique theoretical and analytical tools to answer these questions.

CONFLICTS OF INTEREST

The author declares that there are no ethical issues or conflicts of interest in this research. ■

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