



International Interactions

Empirical and Theoretical Research in International Relations

ISSN: 0305-0629 (Print) 1547-7444 (Online) Journal homepage: <http://www.tandfonline.com/loi/gini20>

Blurred Lines: Public-Private Interactions in Carbon Regulations

Jessica F. Green

To cite this article: Jessica F. Green (2016): Blurred Lines: Public-Private Interactions in Carbon Regulations, *International Interactions*, DOI: [10.1080/03050629.2016.1210943](https://doi.org/10.1080/03050629.2016.1210943)

To link to this article: <http://dx.doi.org/10.1080/03050629.2016.1210943>



View supplementary material [↗](#)



Accepted author version posted online: 11 Jul 2016.
Published online: 11 Jul 2016.



Submit your article to this journal [↗](#)



Article views: 10



View related articles [↗](#)



View Crossmark data [↗](#)

Blurred Lines: Public-Private Interactions in Carbon Regulations

Jessica F. Green

New York University

ABSTRACT

Carbon markets are flourishing around the globe, created both by governments and by nonstate actors. In this article, I investigate when and why governments choose to interact with and use private rules about carbon offsets in public regulatory arrangements. The analysis demonstrates that there is “blurring” between public and private authority, insofar that there are a multiple interactions between the two spheres. However, a closer look reveals that most of these are of a relatively weak nature, since private standards are used for voluntary rather than compliance purposes. To explain this trend, I use qualitative and quantitative analysis and find that NGOs are the main catalysts for the interaction between public and private rules. States are most likely to interact with private regulations when they have large numbers of NGOs active within their borders. In short, private authority is largely a complement to public regulatory arrangements. While previous work that suggests that private authority arises when there are gaps in public rules, the analysis here demonstrates that at the domestic level, this logic does not hold.

KEYWORDS

Carbon markets; carbon offsets; climate change; network analysis; private regulation; transnational actors


Why Do States Recognize Private Regulations?

In the past 15 years, carbon offsets have emerged as a new and prominent regulatory tool. In the public sphere, the Clean Development Mechanism (CDM) of the Kyoto Protocol has been the main public offset market. In the private sphere, a vibrant voluntary market has emerged, in which offsets are created using standards crafted by nonstate actors and then traded among firms and other nonstate actors. Globally, carbon markets were valued at just under US\$50 billion in 2015, and this only covers 12% of global emissions (World Bank and Ecofys 2014).

These reductions in greenhouse gas emissions are used to “neutralize” emissions made elsewhere and have transformed from a distant glint in the eye of a few diplomats to a vast global market, in both the public and the private sectors. Carbon offset markets are now some of the largest and best-developed pollution

CONTACT Jessica F. Green  Jessica.green@nyu.edu  New York University, Department of Environmental Studies, 285 Mercer Street, Room 905, New York, NY 10003.

Color versions of one or more of the figures in the article can be found online at www.tandfonline.com/gini.

 Supplemental data for this article can be accessed on the [publisher's website](#).

© 2016 Taylor & Francis

markets and will only grow in importance as states increasingly implement carbon pricing policies to address climate change.

Traditionally, these two markets have been largely separate. The CDM was created to help states meet their Kyoto targets. The voluntary market was for do-gooders, usually corporations, to atone for their carbon sins. However, the shape of the climate change regime is rapidly shifting due, in large measure, to the Paris Agreement of December 2015 and the process leading up to it. Among many other attributes, the Paris Agreement emphasizes the role of nonstate and transnational actors to help states collectively reach the goal of keeping global temperatures from rising beyond 1.5 degrees Celsius. The Paris Agreement further solidifies a pattern that has been percolating over the last few years: the blurring between public and private rules.

Both of these empirical trends—the growth in carbon markets and the new role for nonstate actors in the Paris Agreement—indicate the need to understand carbon offset markets and their interactions with national and international policy.

This article examines how the lines between public and private carbon markets are gradually eroding—though not in ways that profoundly alter the distribution of authority. Specifically, it provides the first in-depth analysis of the interaction between public and private markets at the transnational *and* national levels. Using new data and network analysis, I find that the interactions between the Kyoto and voluntary markets are growing. As domestic carbon regulations are put in place around the globe, some countries have chosen to utilize private standards in their public rules in various ways. However, these interactions are not an indication of a deep transfer of authority from states to nonstate actors. My analysis shows that interactions are driven by nonstate actors, specifically by civil society, and are rarely used for compliance with national regulations. The data illustrate that states are willing to accept private offsets in their *voluntary* carbon initiatives but seldom do so for compliance purposes. Of the 41 states¹ with policies that include offsetting provisions, only three—Switzerland, the United States, and Canada—use private rules in some capacity for compliance purposes.

These findings have mixed implications for the role of private regulation in the climate regime and domestic climate policies. Private carbon regulations are by no means replacing public power, and their peripheral role vis-à-vis domestic regulation shows that their value as a complement is also somewhat limited. Yet their relatively widespread use in voluntary public rules suggests that governments view them as a legitimate strategy in an “all of the above” approach to mitigating greenhouse gas emissions.

¹This includes the 28 member states of the European Union (EU). If the EU is counted as one state (since it has a collective commitment as set forth in its Intended Nationally Determined Contribution), then the number of relevant states falls to 14. I discuss this decision further subsequently.

The article makes four important contributions with regard to regulation and transnational actors. First, using network analysis, it provides descriptive analysis of the nature of interactions between public and private authority. Second, because the universe of cases is small, I am able to disaggregate the dependent variable—interactions—into two different types. This allows for better understanding of what interactions *really* mean for climate politics at the domestic level. Third, the analysis moves beyond many of the useful, though largely untested, typologies that describe interactions by systematically analyzing various extant explanations for public-private interactions. The findings demonstrate that private rule makers' regulatory impact on national policy is limited. This suggests that the likelihood of institutionalizing private authority through public policy is low and that private rule makers should seek other avenues for effecting policy change. Finally, by shifting the analysis from the transnational to the domestic level, the findings add important nuance to previous work, which argues that private authority arises when there are gaps in public rules. The analysis here demonstrates that at the domestic level, this logic does not hold.

Public/Private Interactions: Definitions and Theory

Private authority can be understood as situations in which nonstate actors make rules or set standards that other actors in world politics adopt (Green 2014). Entrepreneurial authority can be understood as one form of private authority in which “private actors strike out on their own, serving as de facto rule makers in world politics” (Green 2014:7). For example, entrepreneurial authority occurs when an NGO or group of NGOs decides what practices constitute “sustainable fishing.” These actors create rules without the explicit permission of the state and persuade others to adopt them. Since authority is a reciprocal relationship between rule maker and rule adopter, rule makers do not enjoy authority unless someone decides to follow the rules (Lake 2009; Raz 1990). Similar to entrepreneurial authority, Cashore, Auld, and Newsome (2004) have described private standard-setting as “non-state market driven” governance, which uses authority generated by the supply chain to change environmental practices. In the context of climate governance, Hoffmann (2011) refers to climate “experiments” that are engaged in rule making independent from the Kyoto process or national regulatory measures, and occur transnationally.

Figure 1 demonstrates the growth in entrepreneurial authority in the area of carbon offsets.² There has been a veritable explosion in private offset standards in the last 15 years. This rapid growth motivates the research question: Are these standards relevant to international and national climate policies, and if so, how?

²I describe how these data were gathered in the section on Research Design and Data.

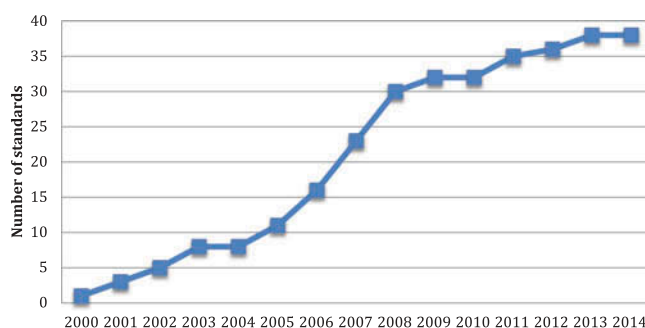


Figure 1. Growth in private regulation on carbon offsets.

An examination of the interactions between public and private offset standards provides some preliminary insights into this question.

There are a variety of explanations for the emergence of private authority. Some argue that private regulations emerge when there is a “gap” in global rules (Cashore et al. 2004) or a lack of state capacity (Borzel and Risse 2005). Others maintain that private regulations are a way for business and industry to protect their interests, through a globalized version of regulatory capture (Buthe and Mattli 2011). Still others maintain that private regulation is a strategy for nonstate actors motivated by their desire to “do good” in a way that is consonant with global norms of neoliberalism (Bernstein 2001).

Though the focus of this article is private rules’ interactions rather than their emergence, it is important to note that actors likely have diverse motivations for creating these rules. While some may create regulations to create public goods, others may simply seek regulatory authority; that is, private regulations do not necessarily serve collective interests (Scott, Cafaggi, and Senden 2011). These varying interests are also reflected in the thematic focus of various private carbon standards: For instance, some focus on biodiversity, while others on improving livelihoods or the well-being of women.

Interactions are “the myriad ways in which governance actors and institutions engage with and react to one another” (Eberlein, Abbott, Black, Meidinger, and Wood 2014:12). There are a number of other scholars who view public-private interactions in similar terms. For example, Abbott and Snidal’s (2009:48) work on regulatory standard setting demonstrates that “the simple view of the state as centralized, mandatory regulator is inapplicable in the transnational realm.” Oberthur and Stokke (2011:4) examine institutional interactions—“situations in which one institution affects the development or performance of another institution.” Some work on regime complexity also examines how public and private rules overlap (Abbott 2012; Green 2013).

These interactions can take place at multiple levels: micro, meso, or macro (Eberlein et al. 2014). At the microlevel, they occur between individuals. At the mesolevel, they occur between rule-making organizations. Rule makers

may be private or public or both (Eberlein et al. 2014:8). Most broadly, at the macrolevel, interactions occur across different regulatory issue areas, such as between trade and environmental regulations. As will be discussed further, this article examines interactions at the mesolevel—primarily between public and private regulators.

Interactions can take on a number of forms. Eberlein et al. (2014) offer four categories: competition, coordination, cooptation, and chaos. When examining interactions between public and private rules, competition is unlikely, since private regulation is voluntary (Green and Auld 2016). More probable are coordination interactions, where actors emulate each other or undertake conscious coordination or division of labor, or cooptation interactions, where private rules are subsumed into public ones. In another form of cooptation, private pressure on global regulatory processes can give rise to capture (Mattli and Woods 2009). Since private standards always exist within a broader field of laws and regulations, Bartley (2011) characterizes the interaction between public and private rules as “layering.” For example, private standards can require compliance with international law, go beyond compliance, or they may be de facto equivalents to public rules (Bartley 2011:525).

Other works are more sanguine, emphasizing the complementary nature of public/private interactions over time. Vogel (2005) suggests that corporate social responsibility can provide incentives for private firms to move “beyond compliance” and exceed regulatory requirements. Similarly, Cashore, Auld, Bernstein, and McDermott (2007) suggest that properly constructed, public policies can help “ratchet up” the effects of private regulations. Mayer and Gereffi (2010:19) argue similarly that private governance must be “supplemented and reinforced by public institutions” in order to be effective. Knill and Lekhmuhl (2002) acknowledge the “synergetic relationships” between public and private authority, which vary with the governance capacity of each actor. Gulbrandsen (2014) argues that state responses vary from mutually reinforcing to state reappropriation of authority, depending on the structure of the policy domain and the evolution of the issue area. Abbott, Green, and Keohane (2016) view the provision of complementary private rules as a strategy to preserve organizational autonomy. Delegation to private actors is yet another positive interaction, where states select private actors to carry out specific governance functions (Buthe 2008; Buthe and Mattli 2011; Green 2014). Others view private regulations as a realm of experimentation, where rules are set up to be regularly reviewed and revised; lessons can then be passed along to public rule makers (Sabel and Victor 2015; Sabel and Zeitlin 2010).

Hypotheses

I offer three explanations for the interactions between public and private authority. These can be roughly sorted into *intrinsic* and *extrinsic* explanations.

The intrinsic explanations posit that recognition of private authority is driven by governmental factors—their preferences and capabilities. The extrinsic explanation suggests that actors *outside* of government, including civil society and firms, are the primary reason that offset programs recognize private authority.

The first hypothesis is that recognition of private authority occurs when the government lacks capacity or the technical expertise necessary to create or enforce rules. This hypothesis is consistent with accounts of private authority that attribute its emergence to instances in which states are unable to govern—a dominant explanation in the literature. Cashore et al. (2004) argue that NGOs created private forestry standards in part to respond to states' failure to craft a multilateral forest agreement in 1992. Bütte and Mattli (2011:5) argue that the privatization of governance with respect to international technical standard setting is driven “in part, by governments' lack of requisite technical expertise, financial resources or flexibility to deal expeditiously with ever more complex . . . regulatory tasks.” It is also consistent with conceptualizations of limited statehood, in which states may “lack the ability to implement and enforce rules . . . with regard to specific policy areas” (Krasner and Risse 2014). Note that this view does not require that the state be a “failed state,” only that it is more efficient for actors *other* than the government to carry out the regulatory tasks.

This argument follows theories of delegation: Delegation is premised on specialization and the resulting division of labor. When states have insufficient capacity to create or enforce rules—that is, they do not possess adequate specialization—they delegate to those who are more expert in the area, choosing to “buy” expertise rather than “make” it in-house (Alchian and Demsetz 1972). And, as Tierney et al. note, “gains from specialization are likely to be greatest when the task to be performed is frequent, repetitive and requires specific expertise or knowledge” (Hawkins, Lake, Nielson, and Tierney 2006:14).

H1: Governments that lack technical expertise are more likely to incorporate private rules into national policy, all else equal.

If this hypothesis holds, two observable implications should follow. First, developed countries—which presumably have greater regulatory capacity—should be *less* likely to recognize private standards. Second, states should *only* utilize private standards in their climate regulation; that is, we should only observe *strong* forms of interaction—instances in which government programs accept private standards for compliance purposes. (The distinction between strong and weak interactions is described further in the following section.) They should not also have their own government-created standards, since doing so would be an indication of sufficient capacity.

A second possible explanation, also grounded in rationalist theories of institutions, is that recognition of private authority is simply a way for

governments to lower the costs of governing. Recognition of multiple private standards can save governments the time and trouble of developing their own standards. Governments choose to “buy” standards not because they lack the capacity to develop them but rather because it is simply more expedient—both politically and economically—to do so (Alchian and Demsetz 1972). Recognition of multiple private standards can increase the availability of low-cost carbon offsets, since presumably a larger market means greater efficiency and liquidity. It can also lower risks for market participants who can potentially participate in multiple markets.

H2: Governments in carbon-intensive economies are more likely to incorporate private rules into national policy, all else equal.

Carbon-intensive countries will face higher costs when reducing emissions; this will likely translate to political opposition. As such, governments of carbon-intensive countries will try to lower the costs of reductions as much as possible. There are two observable implications of this hypothesis. First, governments should interact with private standards that dominate the voluntary market. These market leaders are already widely accepted by consumers (often institutional consumers like firms), who would benefit from their incorporation into regulatory regimes. Use of these already-implemented standards is likely to lessen objections from reluctant interests. Governments should also interact with those private standards that are the most “prestigious”—those that are the most recognized by *other* standards. The same logic applies here: The most prestigious standards, as defined by network analysis, have the most interaction with other standards. Therefore, they are the most likely to enhance compatibility across regulatory regimes and thus liquidity. For example, if the Gold Standard is accepted as a legitimate offset standard in markets A and B, it allows firms that purchase Gold Standard offsets to participate in both markets.

Second, countries that interact with private standards as a way to lower transaction costs should be more likely to link their markets to others, as a further way to lower transaction costs. “Linked” markets accept each others’ offsets, thereby expanding the total number of credits available, thus lowering the costs of compliance (Green, Sterner, and Wagner 2014).

The third and final explanation is that interactions can be explained by factors *extrinsic* to governments. Specifically, H3 posits that nonstate actors, often private regulators themselves, drive interactions: They create rules and then push for their use by governments. This hypothesis stands in contrast to much of the received wisdom about private authority, which suggests that private regulation arises as a way to fill a gap in public rules (Cashore et al. 2004; Gulbrandsen 2004). Thus, by focusing on interactions, rather than emergence of private regulation, H3 departs from standard accounts in the

literature; it posits that the presence of private authority, coupled with its political power, is the main explanation for its recognition. Andonova and Levy (2004) make a similar argument with respect to public-private partnerships, which tend to be initiated by international organizations. Thus, the engine of these new governance initiatives is not an unfulfilled need but rather a savvy entrepreneur.

If H3 is correct, we should expect states with more NGOs and greener firms to be the ones interacting with private offset regulations. These nations are more likely to have private actors organized and prepared to supply regulations.

H3: Governments with an active civil society and a green private sector are more likely to incorporate private rules into national policy, all else equal.

Research Design and Data

Research Design

The research design proceeds in three steps. First, I conduct network analysis to understand the relationship among private standards. Before examining interactions between public and private rules, it is important to understand whether some private standards are more influential than others. I describe the compilation of this data in further detail in the following. Second, I use quantitative analysis to uncover whether there are relationships between public-private interactions and the independent variables put forth in the hypotheses. Finally, descriptive inference and qualitative data probe the causal mechanisms. This mixed-method research design proceeds sequentially. The network and quantitative analyses provide the starting point for probing mechanisms that are examined qualitatively, both through descriptive inference and interview research (Tarrow 2004).

The following network data are a useful contribution to the study of transnational climate governance. They provide an in-depth analysis of the *content* of rules, rather than a mere counting of their presence. Understanding interactions through an analysis of shared content is a relatively new approach to studying private regulation (Green 2013; Hafner-Burton, Kahler, and Montgomery 2009) and provides a useful baseline data for future longitudinal studies. In addition, this is one of few studies that examines the content of rules as the basis for network analysis. Other studies focus on shared membership (Hafner-Burton and Montgomery 2009; Hadden 2015; Widerberg 2016) as the basis for analysis. This is a relatively weak tie, as actors may be the members of the same organization without sharing other traits. By contrast, looking at the content of rules provides a robust and internally valid measure of the relationship between rule-making organizations.

The quantitative analysis then presents new data, in which the dependent variable is interactions between the *contents* of the rules—offset standards. There are a number of different types of organizations that generate standards. Offset *standards* are the rules that define the scope of eligible activities and provide detailed instructions on calculating a baseline and the projected reductions. Offset *programs* are the organizations that actually issue the offsets. In some cases, standards are created by the issuing organization.³ In other cases, an organization has created a standard but does not issue the actual offsets. For example, the International Organization for Standardization has created a suite of carbon-related standards, but it does not carry out offset projects or certify them. For the purposes of this analysis, the institutional form of the rule-making organization is less important than the rules themselves. For this reason, I refer generally to offset standards, though in some instances, this may be coterminous with an offset program, an add-on standard, or refer to a set of rules that have no corresponding program.⁴ All different organizational forms share the common feature of having rules that govern offsets.

Data and Methods

According to data that I compiled, in 2014 there were 39 different transnational private regulations governing carbon offsets created by NGOs, firms, and networks comprised of both. Standards are included in this analysis if they meet three criteria. First, they must be private—created and administered by nonstate actors. Second, they must deal primarily with carbon measurement and offsetting. Thus, general sustainability standards are excluded. Third, they must operate transnationally—in two or more countries. To be included, the offset standard must also promulgate at least some independent rules. There are a number of carbon retailers, which simply sell offsets generated by others' rules; these are not included in the data set.

I compiled this information by triangulating among a number of sources (Kollmuss, Zink, and Polycarp 2008; Peters-Stanley and González 2014; World Bank and Ecofys 2014). The data were initially collected in 2009, using the sources previously stated. I updated the data in 2014 by rechecking all of the Web sites and consulting policy reports by the World Bank and Ecosystem Marketplace to see if there were additional standards to add.

Nonstate actors, as characterized previously, created all of the offset standards in the data set. For example, the Climate, Community and Biodiversity (CCBA) standard was created by five international NGOs to ensure that climate mitigation activities also promoted poverty alleviation. By contrast, the Verified Carbon Standard was created by several business

³This is not universally true. For example, anyone can propose an offset standard (or methodology) to the Clean Development Mechanism. After peer review, it decides whether or not to accept the proposed standard.

⁴I am grateful to an anonymous reviewer for this useful distinction.

NGOs, including the International Emissions Trading Association (an industry group), the World Business Council on Sustainable Development, and the World Economic Forum. Some standards differentiate themselves through the provision of other “co-benefits” in addition to the reduction of carbon emissions, such as improvements in health, economic, and environmental quality.

The network analysis provides a broad overview of how the different private standards relate to each other. It is meant to show the “big picture” of the relative importance of standards, rather than a detailed analysis of individual relationships. Although, as I have suggested, some have slightly different goals, these standards are in the same policy space and compete for resources and for regulatory share (Abbott et al. 2016). In some cases, the relationships are complementary. For example, the CCBA is an “add-on” standard, which provides additional sustainability criteria for existing projects. It is often coupled with the VCS standard. In other cases, the relationships are competitive. For example, both Plan Vivo and the CCBA are add-on standards with the same goal of promoting local sustainability. Finally, in some cases, the relationship is unclear.

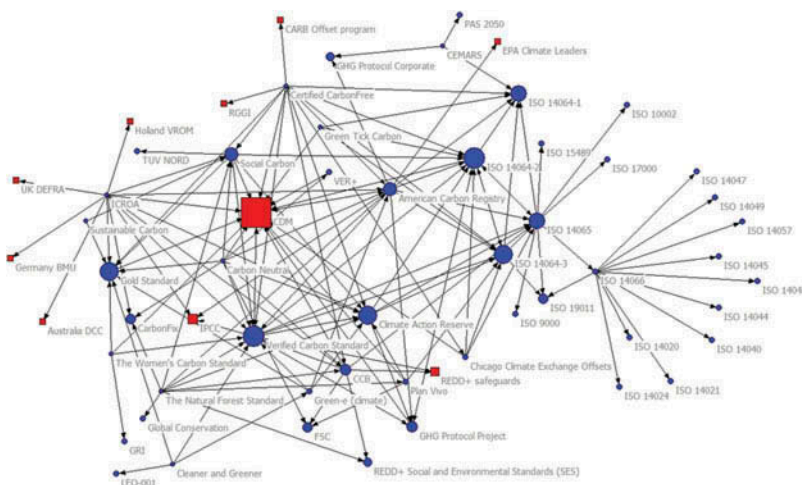
To evaluate the relationships among offset standards, I read the contents of each standard. I coded each one for interactions with other standards—to see whether they build upon or use the contents of other private standards. I refer to this process of referencing other rules as an “interaction.” Interaction was determined by triangulating among several sources. First, I used the Web site for each organization to see whether they self-identify as linked to any other standards in the data set. Second, I read the documents for each of the standards. Almost all of the standards have a publicly available document that explains how the rules work. This includes what other standards they build on or recognize. The network includes both the original 39 private standards, as well as any other standards they build on or recognize. These may include public standards, or in some cases, carbon accounting standards. Thus, the total number of nodes in the network (60) is greater than the number of carbon standards.

For example, the Verified Carbon Standard (VCS), a leading private offset regulation, states that “[a]ny methodology developed under the United Nations Clean Development Mechanism can be used for projects and programs registering with VCS. The same is true for methodologies developed by the Climate Action Reserve with the exception of their forest protocols.”⁵ Virtually all standards state their policy of interaction within the document or explain whether and how their standard builds on others. In cases where I could not discern this information from documentation, a brief email questionnaire was sent.

⁵<http://www.v-c-s.org/methodologies/what-methodology>

There are three key findings from these data. First, it is clear both visually and in terms of descriptive statistics that some standards are more important than others—in the sense that they are recognized by more standards. In the parlance of network analysis, these are “prestigious” standards: They possess a large number of incoming ties or “indegree centrality.” Graphically, these are represented as the largest nodes.

These descriptive statistics provide a more nuanced picture of the field of private standards. There are clearly leaders, who occupy a more central position in the network than others. Moreover, there is not simply an unchecked proliferation of different rules; rather these rules have some shared content.



⁶The exception is the ISO 14064 standard, which is a carbon accounting standard rather than an offset standard.

private standards are created “equal”; some are more important, as indicated by their central position in the network and by their market share. More significantly, “important” private standards are also those that interact with public rules under the CDM. Thus, despite a nominal division between the CDM and voluntary markets, there is considerable overlap in the content of rules. These observations motivate the hypotheses, which seek to explain the interactions between domestic public carbon regulations and private offset standards.

Mapping the Dependent Variable: Public/Private Interactions

What does the variation in interactions actually look like? I focus my analysis on carbon-pricing schemes that could potentially include offset policies: emissions trading schemes, carbon taxes, and an “other” category of voluntary reduction schemes. This “other” category includes offset programs, crediting schemes, and efforts at achieving carbon neutrality. In constructing the universe of cases this way, I exclude general policies on energy, agriculture, or adaptation, which do not have any scope for offsets.

Interaction with private standards occurs when governments agree to accept voluntary offsets in lieu of or in addition to government-created ones. It also occurs when governments explicitly appropriate private standards into their own rules, as characterized in Table 1. For example, Australia has a voluntary program called the “Carbon Neutral Program” that certifies products, firms, and events as carbon neutral. Participants may use the government’s National Carbon Offset Standard to achieve neutrality. Alternatively, the government also accepts offsets generated and verified by the Gold Standard and the Verified Carbon Standard.⁷

As outlined previously, interactions can take a variety of forms. But the goal of this article is to conduct a systematic analysis; as such, some simplification of the nature of the interactions is necessary. I have therefore classified them into two categories: weak and strong.

Table 1. Types of Interaction among Public and Private Rules.

	Compliance Programs	Voluntary Programs
Strong interactions	Incorporate content of private standards into public ones Allow private standards in lieu of or in addition to a publicly created standard	Accept private offset standards in lieu of public ones
Weak interactions	Build on or adapt contents of private standards	Promote the use of private standards in addition to public ones Build on or adapt contents of private standards

⁷Data on file with the author.

Interactions between public and private rules are strong if public rules adopt the content of private offset standards. I note here that I use standards as shorthand for all rules governing offsets, which may include offset programs or add-on standards; I explain this decision further in the following. Thus, private rules are “imported” into public regulations that are used for compliance purposes. In another strong type of interaction, public regulations accept private offsets in lieu of or in addition to public ones—again, for compliance purposes. Weaker interactions occur when offsets created by private rules are a supplement to existing public regulations. For example, states may allow private offsets to be used in lieu of offsets created by public rules. Alternatively, they may accept them in addition to other offsets. These interactions are summarized in Table 1.

To construct the data set, I used the World Bank’s report, the *State and Trends of Carbon Pricing 2014*, as a starting point for compiling an exhaustive list of all active ETS and carbon taxes. In addition, I drew from a report by the think tank Ecosystem Marketplace, which analyzes government programs involved with the voluntary carbon market (Peters-Stanley 2012). I then compared this list to other documents and Web sites that purportedly provide a comprehensive list of carbon pricing mechanisms.⁸ Finally, using government documents, policy reports, and other Web sites as relevant, I determined whether these programs contained some provision for offsets.

This coding process yielded 41 countries with climate policies that could potentially include some offsetting provision; 28 of these are in the EU. Table 2 provides a list.

The fact that more than half of the sample is comprised of EU nations presents some challenges. On one hand, it suggests that the overall number of nations with climate policies is actually smaller, since the EU effectively functions as a single actor under the Kyoto Protocol. However, there is variation among EU member states on voluntary initiatives. For example, there is a voluntary trading program in northeastern Italy that promotes offsetting through local mitigation projects in agro-forestry.⁹ This program is completely separate from the EU-ETS. Similarly, the Netherlands has had a carbon tax in place since 1990, well before the EU climate policy was put in place. For this reason, I consider the EU as one entity when considering compliance-based programs and as separate nations when examining voluntary programs.

Table 3 shows the 12 countries that have an offsetting program interact with one or more private standards (29% of the total).¹⁰ These countries can

⁸http://www.eesi.org/files/FactSheet_Carbon_Pricing_101712.pdf; <http://www.edf.org/climate/worlds-carbon-markets>; <https://icapcarbonaction.com/component/attach/?task=download&id=152>

⁹<http://www.carbomark.org/?q=en/node/8>

¹⁰Since some of these are European nations with domestic policies distinct from the EU-wide policy, it makes sense to treat EU nations as independent observations, at least in the descriptive data. I was unable to get detailed information in English about emissions trading programs in Kyoto and Saitama in Japan. Thus, it is possible that these too contain offsetting provisions.

Table 2. Countries with Offsetting Provisions in Their Carbon Regulations (*N* = 41).

<i>Australia</i>	<i>Republic of Korea</i>
Austria	Latvia
Belgium	Lithuania
Brazil	Luxembourg
Bulgaria	Malta
<i>Canada</i>	Mexico
China	<i>Netherlands</i>
<i>Costa Rica</i>	New Zealand
Croatia	Norway
Cyprus	Poland
Czech Republic	Portugal
Denmark	Romania
Estonia	Slovakia
Finland	Slovenia
France	Spain
Germany	Sweden
Greece	<i>Switzerland</i>
Hungary	<i>Thailand</i>
Ireland	<i>United Kingdom</i>
<i>Italy</i>	<i>United States</i>
<i>Japan</i>	

Note. **Bold** indicates interactions with private standards.

Table 3. Recognition of Private Standards by Government Programs.

Country	Examples of Recognized Standards	Type of Government Program
Australia	Gold Standard, Verified Carbon Standard	Voluntary
Canada	ISO 14064-2, Climate Action Reserve, Verified Carbon Standard, GHG Protocol for Project Accounting	Mandatory
Costa Rica	Gold Standard, Verified Carbon Standard	Voluntary
Italy	Verified Carbon Standard	Voluntary
Japan	ISO 14064-2, ISO 14064-3, ISO 14065	Voluntary
Mexico	Verified Carbon Standard, Gold Standard, Plan Vivo, Climate Action Reserve	Voluntary
Netherlands	CarbonFix Standard	Voluntary
Republic of Korea	ISO 14064 series, ISO 14065	Voluntary
Switzerland	Gold Standard	Mandatory
Thailand	ISO 14064-2, ISO 14064-3	Voluntary
United Kingdom	Gold Standard; Verified Carbon Standard; the Climate, Community and Biodiversity Standards, Plan Vivo	Voluntary
United States	American Carbon Registry, Climate Action Reserve, Verified Carbon Standard, Chicago Climate Exchange, GHG Protocol for Project Accounting	Mandatory/ Voluntary*

Note. *Some state-specific programs with carbon offsetting mechanisms are mandatory (for example, California), while other are voluntary (for example, Oklahoma).

all be characterized as rich, green, and free. They are developed nations, which have relatively strong environmental records and high levels of political freedom. A quick glance shows that the majority are located within

North America and Europe. The shaded rows indicate those *mandatory* programs that interact with private standards; these are strong interactions as characterized by Table 1. Although there is some interaction between public and private rules on offsets, the majority of interactions are weak, in that they do not occur for compliance-based rules.

Evaluating the Evidence

The previous section demonstrates that states that interact with private regulations tend to be rich, green, and free. Which hypotheses best explain this pattern of participation in transnational climate governance? To investigate, I evaluate the evidence among the 41 countries with policies that contain offsetting provisions. Since the N for this study is relatively small, I use a multiple methods approach (Lieberman 2005). There are three forms of evidence to evaluate the hypotheses: descriptive inference, multivariate logit analysis, and indicative qualitative evidence.

Descriptive Inference

The descriptive data demonstrate three important trends. First, for countries with emissions regulations, offsetting is a widely used policy instrument: At least 89% of the emissions trading schemes in the data set include provisions for offsets.¹¹ Similarly, 100% of the voluntary initiatives include offset provisions. Clearly, studying offsets is important; they are a prominent fixture of carbon pricing policies.

Second, offsets, and carbon pricing in general, are generally used in the developed world. This suggests preliminary evidence *against* H1, which posits that governments lacking in regulatory capacity will be more likely to interact with private standards. Using wealth as a rough proxy for regulatory capacity, we would expect poorer countries to interact with private standards, yet this is not the variation that we observe. Since wealth is correlated with CO₂ emissions, the observed variation provides preliminary support for H2: Carbon-intensive economies are more likely to interact with private standards.

Roughly one-third (29%) of all states with carbon pricing mechanisms interact with private standards in some way. If one treats the EU as a single entity, then the figures change. There are 14 entities with an offsetting mechanism in their policy, and 12 of them (85%) interact with private regulations.

Third and most importantly, the vast majority of these interactions are “weak,” as characterized by Table 1. Private standards are used in voluntary initiatives, as opposed to mandatory regulations, and/or in addition to the use of public offset standards. Only three nations have the “strong” form of

¹¹As noted, it is possible that Japan does not, since I could not obtain documents in English.

interaction—Canada, Switzerland, and the United States—utilizing private standards in mandatory programs.

Thus, the first key finding is that there is “blurring” of the lines between public and private authority, insofar that there are a multiple interactions between the two spheres. However, a closer look reveals that most of these are of a relatively “weak” nature.

Multivariate Analysis

The second form of evidence is a systematic examination of the relationship between the dependent variable (interaction with private carbon standards) and different operationalizations of explanatory factors as per the hypotheses. I first explain the dependent variable and then describe the other factors that I expect to influence interaction as set forth in each of the hypotheses. Table A2 in the online appendix provides summary statistics of the variables used, and Table 4 presents the results of the analysis.

The dependent variable is interaction with private standards. The universe of cases is the 41 countries listed in Table 3 with carbon pricing policies. Because of the relatively small *N*, I treat interactions as a dichotomous variable, rather than distinguishing between weak and strong, as I do in the following qualitative analysis.

To conduct the analysis, I begin by examining each hypothesis separately, using both independent variables. Moreover, since 28 of the 41 states with offset programs are in the EU, I also include a control for EU membership in each model.

Table 4. Determinants of Interactions between Public and Private Carbon Regulations.

	Model 1	Model 2	Model 3	Model 4	Model 5
GDP Per Capita	1.74* (1.05)			1.26 (1.26)	
Government effectiveness	−1.62 (1.37)			−1.74 (1.54)	−0.59 (1.01)
CO ₂ emissions per capita		0.12 (0.09)		0.18 (0.21)	0.23 (0.22)
Fossil Fuel Exports		−0.04 (0.04)		−0.05 (0.06)	−0.04 (0.07)
Number of NGOs (logged)			1.39** (0.64)	1.35* (0.78)	1.58* (0.74)
Number of ISO14001 firms (logged)			0.18 (.31)	.1671507 (.36)	.0811244 (.33)
EU membership	−3.25*** (0.99)	−3.23*** (0.98)	−2.86 *** (1.10)	−3.67** (1.64)	−3.19*** (1.45)
Constant	−13.99 (8.61)	.20 (0.95)	−3.15 (2.45)	−13.60 (11.11)	−3.25 (2.87)
<i>N</i>	40	40	37	36	36
Log Likelihood	−15.40	−15.98	−12.45	−10.57	−11.09
LRchi ²	16.25	15.09	21.72	23.16	22.14
Prob > chi ²	0.00	0.00	0.00	0.00	0.00

Note. **p*<.01, ***p*<.05, ****p*<.01. Standard errors indicated in parentheses.

H1 posits that states interact with private standards because they lack the capacity to create their own rules. I operationalize capacity with two different measures. First, I use GDP per capita, with the assumption that richer countries have greater capacity to create their own rules and thus will not need to “borrow” from private rule makers. I use an additional measure of capacity, government effectiveness, which is drawn from the World Bank’s Worldwide Governance Indicators. This variable measures the ability of the government to create and implement policies. Averaged from 1996–2010, government effectiveness ranges in value from –2.5 (weak) to 2.5 (strong). (For a similar approach, see Andonova, Hale, and Roger 2014). If H1 is correct, then we should expect to see a negative correlation between the variables: As capacity decreases, interactions with private regulations increase.

H2 posits that carbon-intensive economies are more likely to interact with private standards. Both per capita emissions and fossil fuel exports capture the extent to which a country’s economic well-being depends on fossil fuels and thus would be negatively impacted by reductions requirements. Per capita emissions data are from the World Bank’s World Development Indicators. Their emissions calculation, averaged from 1990–2014, is based on “burning of fossil fuels and the manufacture of cement,” and is measured in metric tons per capita.¹² Fuel exports data are also from the World Bank’s Indicators and are averaged over the same time period. They are measured as a percentage of total merchandise exports.

If H2 holds, we should expect a positive relationship between both independent variables and the dependent variable: As reliance on fossil fuels increases, there should be an increase in interaction as a way to defray political and economic costs.

To evaluate H3, the notion that private regulators themselves are driving the interactions with government, I use two measures—one for civil society and the other for firm activity. Unfortunately, there is no country-level data on the number of private regulators. As a second-best solution, I evaluate the activity of nonstate actors more generally. First, I use a count of the number of NGOs active in the country, using data drawn from Bernauer, Bohmelt, and Koubi (2013) and Andonova (2014). Second, to distinguish between NGO and firm activity, I also include a measure of the number of firms with the ISO14001 sustainability certification, also drawn from Andonova (2014).

All models include only those states that have some public carbon regulation—an ETS, a tax, or a voluntary program such as those outlined previously in the “other” category. This limits the sample to those states that can possibly choose to recognize a private standard—an *N* of 41. The dependent variable, whether or not there is an interaction with private regulations, is

¹²<http://data.worldbank.org/indicator/EN.ATM.CO2E.PC>

dichotomous, with a 1 assigned to all public regulations that interact with private standards.

Model 1 examines whether state capacity, measured by GDP per capita and government effectiveness, affects interactions with private regulations. If H1 were correct, we would expect the relationship to be *negative*: As per capita GDP falls, the probability of interaction rises. However, we observe the opposite relationship. Similarly, since weaker governments score negatively on the World Bank Indicators, confirmation of H1 would require a negative sign of that coefficient, which is not evident. The large standard errors for both coefficients also indicate reason for concern—an issue I return to later.

Model 2 examines the effects of fossil fuel dependency on the interaction between public and private standards. The relationship between per capita emissions and probability of interaction is positive, as we would expect, though not significant: An increase in emissions increases the likelihood of interacting with private standards. In addition, as fossil fuel exports rise, the probability of private interaction falls, which is the *opposite* of what we should expect.

Model 3 tests whether nonstate actor involvement explains interactions with private standards. Here, I find support for NGOs but *not* for firms. For each additional NGO, the odds of using private rules in public regulations increase by a factor of 1.39.¹³ The very small coefficient for ISO14001 suggests that the number of ISO14001-certified firms in a country has no effect on the use of private regulations. This provides evidence debunking the notion that green firms are pushing for private regulations.

To further probe the relationships presented in each hypothesis, I also conducted trivariate logit analyses, examining each independent variable and again controlling for EU membership. In these analyses, once again, only the number of NGOs and EU membership had a statistically significant effect on the dependent variable.¹⁴

Model 4 presents all of the covariates. Holding all other variables constant, only the number of NGOs and EU membership increase the likelihood of interactions with private offset standards. Controlling for the other variables, each additional NGO present in a country increases the odds of interacting with private offset regulations increases by 21.3% ($p < .05$).¹⁵ Interestingly, this runs counter to Bernauer, Bohmelt, and Koubi's (2013) assertion that there is a "democracy-civil society paradox" where the effect of NGOs on green behavior is less pronounced in democracies than in nondemocratic regimes. By contrast, these findings demonstrate that the presence of NGOs

¹³ use the `listcoef` command to generate this outcome.

¹⁴ The results of these analyses are accessible through the replication data.

¹⁵ I use the `listcoef percent` command to generate this outcome; see replication data for further detail. For ease of interpretation, this is done with the absolute number of NGOs rather than with the log.

spurs *more* green behavior, in the form of interacting with private carbon standards.

Model 4 also surprisingly shows that EU membership drastically reduces the likelihood of interaction with private standards. States within the EU are 98% less likely to interact with private standards than other states with carbon regulations. Though the EU is generally considered a climate leader, only three EU nations (Italy, the Netherlands, and the United Kingdom) interact with private carbon regulations. And since all 28 EU member states are included in the sample, this means that compared to other wealthy nations, EU is by no means a leader.

I also find robust evidence that private authority does not serve a “gap-filling” function, as many have claimed. For each point government capacity falls, the probability of interacting with private standards decreases by 91.5%. Thus, less capable governments *do not* turn to private standards to fill regulatory gaps.

To ensure that there is no multicollinearity among the variables, I examine the variance inflation factor. Table A4 (in the online appendix) demonstrates that all variables are within the acceptable range. The VIF values for per capita GDP and government effectiveness are much higher than the rest. As a result of this finding, I omit per capita GDP and reexamine the VIF values (see the online appendix). Here, the diagnostics indicate considerably less collinearity. As a result of this finding, Model 5 examines whether omitting the potentially (though not definitively) collinear variable changes the findings. It does not.

Clearly, the multivariate analysis is most supportive of H3: The presence of NGOs matters for whether or not states choose to interact with private offset regulations. Importantly, the same is not true for firms. For further confirmation of the strength of H3, I consider qualitative evidence for all three hypotheses in the following.

Qualitative Evidence

The quantitative evidence provides one indication that NGO presence is an important factor in interaction with private offset regulations, as posited by H3. However, I also investigate additional qualitative evidence for each of the hypotheses.

Qualitative evidence comes from two sources. I examine how variation in the dependent variable conforms or departs from the expected observable implications outlined previously. I then supplement these inferences with insights from policymakers involved with both public and private regulation. I interviewed eight people from seven different organizations involved with either public or private offsetting.

I find little support for the intrinsic explanations and relatively strong support for the role of NGOs (as opposed to firms). In general, the findings suggest that interactions between public and private rules are not driven by

governments but by NGOs and civil society in both domestic and global politics. I should note, however, that these hypotheses are not mutually exclusive, so these conclusions indicate which actors have the most (rather than the sole) influence on the recognition of private authority. Certainly, governments are not irrelevant; but their preferences do not appear to be the main driver of interaction.

If H1 is correct, states recognize private authority because they lack the regulatory capacity to create their own rules. Thus, we should expect wealth to be inversely related to recognition of private offset standards. Wealthier states should have ample capacity to create and enforce their own regulations. Table 3 overwhelmingly shows that the opposite is the case: With the exception of Thailand, *only* OECD nations interact with private regulations. Rich countries, which generally have higher governmental capacity, are *most* likely to recognize private standards—contrary to expectations. However, they are also more likely to have carbon pricing schemes; thus, this observation only provides preliminary evidence for the hypothesis.

More convincingly, the majority of countries that recognize private regulations *also* have their own government-created rules. For example, the Canadian province of Alberta created an emissions trading scheme in 2007. It allows for the use of offsets and has its own standard but also interacts with private standards such as the Climate Action Reserve. The presence of its own rules clearly indicates that the provincial government does not lack capacity.

Additional evidence contravenes H1: “weak” interactions are dominant. Thus, private regulations are rarely used for compliance purposes. Instead, states interact with private regulations through voluntary programs that serve as an additional approach to mitigating climate change. Indeed, only three states—Canada, the United States, and Switzerland—recognize private regulations for compliance purposes. This is persuasive evidence that recognition of private authority is viewed as an “extra”—a set of activities that exists in addition to the “real work” of public regulation. Private authority is rarely recognized as a *sole* source of rules. Thus, there is little qualitative evidence to support the hypothesis that private authority serves as a substitute for public regulation.

The cases of strong interaction merit further investigation, given that they align with the observable implications of H1. All three states use private standards in addition to public ones, rather than in lieu of them. Switzerland allows offsets *certified by* the Gold Standard, rather than created by Gold Standard’s rules. Thus, interaction with the Gold Standard is at the level of certification, rather than creation or utilization of rules. In Alberta, Canada, the emissions trading scheme draws from other rules, meaning that “[Alberta] reviews the content of these protocols when developing Alberta based

¹⁶Email communication, Amanda Bambrick, Senior Offset Policy Advisor, Alberta Canada, November 26, 2015.

protocols to ensure prior learning [sic] best practices are incorporated.”¹⁶ In this case, interaction is a type of consultation with private rules.

The strongest interaction occurs in California, which accepts offsets that are created by the Climate Action Registry and the American Carbon Registry—both private offset standards. Interestingly, the Climate Action Registry was originally the *California* Climate Action Registry (CCAR), created by the state legislature of California. The state of California was preparing to regulate emissions but was not yet ready to do so. It created CCAR as a first step, to help businesses prepare for forthcoming regulation and potentially get credits for early reduction action.¹⁷ Creating CCAR was a way to develop capacity for future regulation. Thus, history plays an important role in explaining the strong interaction between public and private rules in the California case. Essentially, the state government delegated to a private actor, CCAR, which eventually became the Climate Action Registry. When AB 32 was passed, creating a cap and trade system in California, the legislature turned to the Climate Action Registry because of the “comfort level” with the organization and its work.¹⁸

This brief history of the interaction with the Climate Action Registry provides definitive evidence *against* H1. The strongest interaction between public and private rules occurs in California, precisely because the private actor *was created by the state*. The government designed CCAR, predecessor to the Climate Action Registry, to fulfill a specific regulatory role; in essence, this is a form of delegation to a private actor (Green 2014).

If H2 is correct, interactions with private standards are driven by the desire to lower costs for those participating in mandatory regulations or voluntary initiatives. To do this, they will utilize a variety of different offset standards in their policies, maximizing compatibility with other standards and expanding network effects. In particular, we should expect strong interactions with those private standards that dominate the voluntary market. These standards have the largest market share and are likely to have strong interactions with *other* private standards. In the parlance of network analysis, these are “prestigious” standards, in the sense that many other standards choose to recognize some or all of their rules. We should also expect to see linkage among different carbon markets; indeed, this would provide much stronger evidence for concerns about controlling costs.

The evidence for H2 is mixed. In 2013, the last year for which data were available, the Verified Carbon Standard and the Gold Standard were also two of the top three most widely used standards, capturing the largest share of the voluntary market (Peters-Stanley and González 2014:xiv). Governments

¹⁷Interview, Rachel Tornek, Vice President for Programs, Climate Action Registry and Craig Ebert, Vice President for Policy, Climate Action Registry, November 24, 2015.

¹⁸*Ibid.*

frequently interact with these two standards, as indicated in Table 4, though through weak interactions.

Moreover, the network analysis demonstrates that the most prestigious standards are often those with which governments choose to interact. The Gold Standard and the VCS are among the most prestigious private standards—in the sense that they are recognized by the most other standards. All of the strong interactions are with prestigious standards: the Gold Standard, VCS, ISO 14064-2, Climate Action Reserve, and the American Climate Registry.

However, interviews revealed that these interactions were not driven by concerns about costs. One government representative explained their use of the Verified Carbon Standard: “We generally try to focus on protocol systems that are widely recognized and used internationally ...”¹⁹ But the rationale is not lowering the costs of compliance but rather “to ensure prior learning [and] best practices are incorporated.”²⁰

Linkages among different carbon markets would provide stronger network effects-based evidence of concerns about costs. When states officially link their markets, they increase the overall pool of credits and allowances, thereby reducing compliance costs for regulated entities. This strategy has been hailed by optimists as an important strategy for lowering the costs of expanding carbon markets (Jaffe, Ranson, and Stavins 2009). Yet there is little evidence that this logic is driving state behavior. Despite the fact that about 40 national and 20 subnational jurisdictions have a price on carbon, only two emissions trading schemes—in California and Quebec—are linked (World Bank and Ecofys 2014).

The final hypothesis is that the presence and activity of rule *makers*—that is, the private regulators themselves—rather than governments, best explain the interaction with private regulations. We should therefore expect states with large civil society sectors to be more likely to have these interactions. In addition, evidence that private rule makers are actively promoting their standards would affirm H3.

Here the qualitative variation is not terribly instructive, since most nations that recognize private regulations are relatively free. However, a difference in means test reveals that countries that recognize private standards have roughly four times more active environmental NGOs than those that do not ($p < .01$). This provides additional evidence for H3.

Stronger evidence in support of this hypothesis comes from interviews with a variety of policymakers. Australia accepts the Gold Standard in its voluntary initiative that promotes carbon neutrality—the National Carbon Offset Standard (NCOS). Ingrid Kroopman, the Assistant Director for the Carbon Neutral Program, explains this design choice:

¹⁹Email communication, Amanda Bambrick, Senior Offset Policy Advisor, Alberta Canada, November 26, 2015.

²⁰*Ibid.*

During the creation of the NCOS, voluntary market stakeholders were consulted ... about what if any international [carbon] units should they considered to be credible for use under the NCOS. The feedback from this consultation was that ... the Gold Standard and ... the [Verified] Carbon Standard should be included.²¹

Thus, when the Australian government solicited input from private rule makers and participants in the voluntary market (voluntary market stakeholders) about what public/private interactions, if any, should be recognized, they made a strong case for the inclusion of private rules.

Thus, taken together, the descriptive inference, the quantitative and qualitative analyses, provide the most support for the extrinsic explanation of public/private interactions that private regulators—and specifically NGOs—are the main engine for interaction. Countries with more civil society activity and active private regulators are also more likely to interact with private rules. The qualitative evidence shows that private regulators have advocated for these interactions when given the opportunity to do so.

Conclusion

This article contributes to our collective understanding of domestic variation in participation in transnational climate governance. It examines a specific form of the institutionalization of private carbon offset standards: the extent to which domestic carbon regulations choose to interact with private rules.

Perhaps the most important finding is that the interactions between public and private authority, though fairly common, are generally weak. Private standards are not substituting for weak government capacity but are instead serve the interests of those who create them. The second key finding is that the presence of NGOs matters: It meaningfully and substantively affects whether states choose to recognize private offset standards. Thus, the impetus for “blurring the lines” between public and private does not come from governments or firms but rather from nonstate actors who are pushing their own regulatory agenda.

Another key finding is the order that emerges out of the apparent chaos of the voluntary carbon market. There are clear market leaders, who are also the best connected within the network of carbon rules. These leaders are most often the ones recognized by governments. Thus, governments are taking their cues from the voluntary market, in which certain actors dominate. This raises the question: What makes *these* private regulators successful?

Fortunately, the evidence indicates that the most successful private regulations are also deemed to be the “greenest,” according to an independent alliance of standard setters. (Of course, this poses a problem of infinite regress, since one could legitimately ask whether they are sufficiently impartial to make

²¹Email communication, November 25, 2015.

such an evaluation.) This provides some reason for optimism: The blurring of public and private tends to promote strong rather than weak rules.

In the end, these findings raise more questions than they answer. As I have argued elsewhere, private authority does not occur in a vacuum; public authority is always present. In some cases, however, private rule makers are able to create their own opportunities, persuading governments to use their rules in addition to public ones. But the interactions are “weak” in the sense that they are not supplanting public rules, merely complementing them. These findings indicate that the domestic politics can, under certain conditions, provide an environment hospitable to the expansion of private authority.

Acknowledgments

The author would like to thank the project organizers—Liliana Andonova, Tom Hale, and Charlie Roger—as well as Jennifer Hadden and Gerald Schneider for their comments on earlier drafts. I am grateful to Quentin Karpilow for his outstanding research assistance and to three anonymous reviewers for their comments.

References

- Abbott, Kenneth W. (2012) The Transnational Regime Complex for Climate Change. *Environment and Planning C: Government and Policy* 30(4):571–590.
- Abbott, Kenneth W., Jessica F. Green, and Robert O. Keohane. (2016) Organizational Ecology and Institutional Change in Global Governance. *International Organization* 70 (2):247–277.
- Abbott, Kenneth W., and Duncan Snidal. (2009) The Governance Triangle: Regulatory Standards Institutions and the Shadow of the State. In *The Politics of Global Regulation*, edited by W. Mattli and N. Woods. Princeton, NJ: Princeton University Press, pp. 44–88.
- Alchian, Armen A., and Harold Demsetz. (1972) Production, Information Costs and Economic Organization. *American Economic Review* 62(5):777–795.
- Andonova, Liliana B. (2014) Boomerangs to Partnerships? Explaining State Participation in Transnational Partnerships for Sustainability. *Comparative Political Studies* 47(3):481–515.
- Andonova, Liliana, Thomas Hale and Charles Roger. (2014) How Do Domestic Politics Condition Participation in Transnational Climate Governance? Paper Presented at the Political Economy of International Organizations conference, Princeton, NJ, January 16–18.
- Andonova, Liliana B., and Marc A. Levy. (2004) Franchising Global Governance: Making Sense of the Johannesburg Type II Partnerships. *Yearbook of International Cooperation on Environment and Development 2003–04: An Independent Publication of the Fridtjof Nansen Institute, Norway*. London: Earthscan, pp. 19–31.
- Bartley, Tim. (2011) Transnational Governance as the Layering of Rules: Intersections of Public and Private Standards. *Theoretical Inquiries in Law* 12(2):517–542.
- Bernauer, Thomas, Tobias Böhmelt, and Vally Koubi. (2013) Is There a Democracy–Civil Society Paradox in Global Environmental Governance? *Global Environmental Politics* 13 (1):88–107.
- Bernstein, Steven. (2001) *The Compromise of Liberal Environmentalism*. New York, NY: Columbia University Press.

- Borzel, Tanya and Thomas Risse. (2005) Public-Private Partnerships: Effective and Legitimate Tools of Transnational Governance. In *Reconstituting Political Authority: Sovereignty, Effectiveness, and Legitimacy in a Transnational Order*, edited by Edgar Grande and Louis W Pauly. Toronto: University of Toronto Press.
- Buthe, Tim. (2008) The Globalization of Health and Safety Standards: Delegation of Regulatory Authority in the SPS Agreement of the 1994 Agreement Establishing the World Trade Organization. *Law and Contemporary Problems* 71(1):219–256.
- Buthe, Tim, and Walter Mattli. (2011) *The New Global Rulers: The Privatization of Regulation in the World Economy*. Princeton, NJ: Princeton University Press.
- Cashore, Benjamin, Graeme Auld, Steven Bernstein, and Constance McDermott. (2007) Can Non-State Governance “Ratchet Up” Global Environmental Standards? Lessons from the Forest Sector. *Review of European Community & International Environmental Law* 16 (2):158–172. <http://doi.org/10.1111/j.1467-9388.2007.00560.x>
- Cashore, Benjamin, Graeme Auld, and Deanna Newsom. (2004) *Governing Through Markets: Forest Certification and the Emergence of Non-State Authority*. New Haven, CT: Yale University Press.
- Eberlein, Burkard, Kenneth W. Abbott, Julia Black, Errol Meidinger, and Stepan Wood. (2014) Transnational Business Governance Interactions: Conceptualization and Framework for Analysis. *Regulation & Governance* 8(1):1–21.
- Green, Jessica F. (2013) Order out of Chaos: Public and Private Rules for Managing Carbon. *Global Environmental Politics* 13(2):1–25.
- Green, Jessica F. (2014) *Rethinking Private Authority: Agents and Entrepreneurs in Global Environmental Governance*. Princeton, NJ: Princeton University Press.
- Green, Jessica F., and Graeme Auld. (2016) Unbundling the Regime Complex: The Effects of Private Authority. *Transnational Environmental Law*. Available on CJO. <http://dx.doi.org/10.1017/S2047102516000121>
- Green, Jessica F., Thomas Sterner, and Gernot Wagner. (2014) A Balance of Bottom-Up and Top-Down in Linking Climate Policies. *Nature Climate Change* 4(12):1064–1067.
- Gulbrandsen, Lars H. (2004) Overlapping Public and Private Governance: Can Forest Certification Fill the Gaps in the Global Forest Regime? *Global Environmental Politics* 4 (2):75–99.
- Gulbrandsen, Lars H. (2014) Dynamic Governance Interactions: Evolutionary Effects of State Responses to Non-State Certification Programs. *Regulation & Governance* 8(1):74–92.
- Hafner-Burton, Emilie, Miles Kahler, and Alexander Montgomery. (2009) Network Analysis for International Relations. *International Organization* 63(3):559–592.
- Hadden, Jennifer. (2015) *Networks in Contention: The Divisive Politics of Climate Change*. Cambridge, UK: Cambridge University Press.
- Hawkins, Darren G., David A. Lake, Daniel L. Nielson, and Michael J. Tierney. (2006) Delegation under Anarchy: States, International Organizations and Principal-Agent Theory. In *Delegation and Agency in International Organizations*, edited by D. G. Hawkins, D. A. Lake, D. L. Nielson, and M. J. Tierney. Cambridge, UK: Cambridge University Press.
- Hoffmann, Matthew. (2011) *Climate Governance at the Crossroads*. Oxford: Oxford University Press.
- Jaffe, Judson, Matthew Ranson, and Robert Stavins. (2009) Linking Tradable Permit Systems: A Key Element of Emerging International Climate Policy Architecture. *Ecology Law Quarterly* 36(4):789–808.
- Knill, Christopher, and Dirk Lehmkuhl. (2002) Private Actors and the State: Internationalization and Changing Patterns of Governance. *Governance* 15(1):41–63.

- Kollmuss, Anja, Helge Zink, and Clifford Polycarp. (2008) *Making Sense of the Voluntary Carbon Market: A Comparison of Carbon Offset Standards*. Stockholm Environment Institute and Tricorona. Retrieved from http://assets.panda.org/downloads/vcm_report_final.pdf
- Krasner, Stephen D., and Thomas Risse. (2014) External Actors, State-Building, and Service Provision in Areas of Limited Statehood: Introduction. *Governance* 27(4):545–567.
- Lake, David A. (2009) *Hierarchy in International Relations*. Ithaca, NY: Cornell University Press.
- Lieberman, Evan S. (2005) Nested Analysis as a Mixed-Method Strategy for Comparative Research. *American Political Science Review* 99(3):435–452.
- Mattli, Walter, and Ngaire Woods. (2009) *The Politics of Global Regulation*. Princeton, NJ: Princeton University Press.
- Mayer, Frederick, and Gary Gereffi. (2010) Regulation and Economic Globalization: Prospects and Limits of Private Governance. *Business & Politics* 12(3):1–25.
- Oberthur, Sebastian, and Olav Schram Stokke, eds. (2011) *Managing Institutional Complexity*. Cambridge, MA: The MIT Press.
- Peters-Stanley, Molly. (2012) *Bringing It Home: Taking Stock of Government Engagement with the Voluntary Carbon Market*. Washington, DC: Ecosystem Marketplace.
- Peters-Stanley, Molly, and Gloria González. (2014) *Sharing the Stage: State of the Voluntary Carbon Markets 2014*. Washington, DC: Forest Trends' Ecosystem Marketplace.
- Raz, Joseph. (1990) *Authority*. New York: New York University Press.
- Sabel, Charles F., and David G. Victor. (2015) Governing Global Problems under Uncertainty: Making Bottom-Up Climate Policy Work. *Climatic Change* 1–13.
- Sabel, Charles F., and Jonathan Zeitlin, eds. (2010) *Experimentalist Governance in the European Union: Towards a New Architecture*. Oxford: Oxford University Press.
- Scott, Colin, Fabrizio Cafaggi, and Linda Senden. (2011) The Conceptual and Constitutional Challenge of Transnational Private Regulation. *Journal of Law & Society* 38(1):1–19.
- Strange, Susan. (1996) *The Retreat of the State*. Cambridge, UK: Cambridge University Press.
- Tarrow, Sidney G. (2004) Bridging the Quantitative-Qualitative Divide. In *Rethinking Social Inquiry: Diverse Tools, Shared Standards*, edited by H. Brady and D. Collier. Oxford: Rowman & Littlefield.
- Vogel, David. (2005) *The Market for Virtue*. Washington, DC: The Brookings Institution.
- Widerberg, Oscar. (2016) Mapping Institutional Complexity in the Anthropocene: A Network Approach. In *Environmental Politics and Governance in the Anthropocene: Institutions and Legitimacy in a Complex World*, edited by Philipp Pattberg and Fariborz Zelli, 81–102. New York, NY: Routledge.
- World Bank and Ecofys. (2014). *State and Trends of Carbon Pricing 2015*. Washington, DC: The World Bank.