

# HOW DO DOMESTIC POLITICS CONDITION PARTICIPATION IN TRANSNATIONAL CLIMATE GOVERNANCE?

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## *Abstract*

How do national contexts affect sub- and non-state actors' participation in transnational climate governance? Existing explanations tend to focus on international processes of diffusion or the micro-incentives facing individual actors. These approaches tend to assume, often implicitly, that the domestic contexts in which cities, NGOs, firms, and other transnational actors are embedded do not shape their engagement in transnational governance. The paper uses a new dataset of cross-national variation in sub- and non-state actor participation in transnational climate governance to examine this assumption. We find a) substantial cross-national variation, and b) robust evidence that domestic institutions and policies shape participation in transnational climate governance. The findings suggest that domestic politics “matter” for transnational governance, and suggest that participation in TCG will be greatest in countries with strong civil liberties, decentralized government, competent bureaucracies, and pro-environment policies.

## 1. Introduction

Despite two decades of negotiation, countries have yet to agree on a binding international treaty that would substantially restrict emissions of greenhouse gases (GHGs), the pollutants that cause climate change. At the same time, a host of governance initiatives have arisen at the regional, national, and sub-national levels, and in the private and non-profit sectors. Examples include “unilateral” reductions by municipalities, voluntary reductions by firms, and various rules and means for pricing and trading carbon credits. Many of these actions are linked across borders via transnational governance arrangements, which we understand as “the processes and institutions, formal and informal, whereby rules are created, compliance is elicited, and goods are provided in the pursuit of collective goals” when the actors involved are sub- and non-state actors from at

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least two different countries (Hale and Held 2011, p. 12, 15). In this way, climate change resembles other global issue areas in which transnational governance plays an important role, including global health, transborder commerce, global financial regulation, and policing. As in these areas, many of the transnational governance arrangements in the domain of climate change are increasingly attracting the attention of both scholars and policymakers (Backstrand 2007, Pattberg and Stripple 2008, Toly 2008, Andonova, Betsill et al. 2009, Abbott 2010, Bulkeley 2010, Hoffmann 2011, Hale and Roger 2012, Hale and Roger ND).

Some observers have suggested that transnational climate governance (hereafter TCG) might hold some promise for mitigating the worst consequences of climate change and filling the “governance gap” left by the lackluster multilateral process (Au, Conrad et al. 2011). Ultimately, however, whether these non-multilateral actions are able to provide a meaningful complement, catalyst, or even alternative to a “global deal” depends to a significant extent on whether or not they come to include meaningful participation by a sizeable number of emitters, especially those in the rapidly developing countries of the Global South. Yet, at present, we still have little understanding of the prevalence of TCG initiatives across countries. Existing studies have examined patterns of participation in individual countries or across small groups of countries (Zhang 2004, Heggelund and Buan 2009, Hale and Roger 2012), but offer no comprehensive picture of the scale, scope and robustness of participation. How many actors are actively involved in TCG across different countries? What kinds of TCG initiatives do these actors participate in, and which actors have been involved, in particular? Without answers to these questions, our ability to gauge the prospects of TCG remains limited.

This crucial policy question turns around a deeper theoretical lacuna in the study of global politics: we have, at present, only a partial understanding of how and why actors participate in TCG, or in transnational governance more generally. Research has primarily focused on when we can expect different forms of transnational governance to arise (Andonova 2010; Green 2013; Hale & Roger 2013; Roger & Dauvergne 2013), leaving aside questions about why actors adhere to transnational rules after they are created. Insofar as they exist, prevailing explanations have primarily focused on the transnational “diffusion” processes through which social and material pressures are transmitted (Baron 2009; Bartley 2010; Garcia-Johnson 2000; Graham & Woods 2007; Dauvergne & Lister 2010; Lee 2013; Perkins and Neumayer 2010; Prakash 2001). Participation in voluntary programs, in this view, is largely determined by the extent to which sub-state and non-state actors are culturally, economically or politically linked to international networks, whether through supply chains or public or private networks of various kinds. It is through these channels that different kinds of actors become socialized or incentivized to adhere to transnational rules.

Such explanations abstract from the domestic contexts in which sub- and non-state actors operate. Given the widespread understanding that domestic politics condition state involvement in global governance (Milner 1997, Moravcsik 1997), it would be reasonable to expect that the propensity of actors to engage in transnational governance is not only a matter of global connectedness but also of local conditions. Indeed, in many respects, national levels of openness and connectedness to the rest of the international system are themselves dependent on domestic politics (Milner & Keohane 1996). In line with the insights from this past research, then, as well as more recent research on how transnational governance operates across different political and institutional contexts (Andonova 2014;

Bartley 2011; Bütthe and Mattli 2011; Hale and Roger 2014; Kollman and Prakash 2001), the present paper considers how country-level variables condition levels of participation in transnational governance. In particular, we show how two crucial political variables dampen or boost the effects transnational diffusion processes: domestic political institutions, and the policies of national governments toward climate change.

To do so, the paper employs a new dataset that measures how many sub- and non-state actors from each country participate in TCG initiatives. Scholars of transnational governance have recently pieced together a comprehensive picture of TCG at the global level (Hoffmann 2011; Bulkeley et al. 2012, 2014; Hale and Roger 2013), allowing for analyses that stretch beyond individual cases and can identify broader patterns and trends. This data gathering effort has uncovered a wide variety of TCG schemes (75 are recorded in our database), composed of different types of actors (e.g. cities, companies, NGOs), addressing many different issues related to climate change. Building on previous efforts, we have coded levels of participation in TCG by country. This new, cross-sectional dataset allows us to assess, for the first time, the cross-national patterns of involvement in TCG.

The paper proceeds as follows. Section two describes the nature, distribution, and evolution of TCG, explaining the patterns identified in the database. Section three then considers existing explanations of participation in TCG, and develops new hypotheses that postulate how these mechanisms are conditioned by domestic institutions and national policies, and the interaction between them. Sections four and five present our statistical analysis and section six concludes.

Overall, the paper demonstrates that participation in TCG varies widely across countries, and that this variation is driven in large part by country-level factors such as size, the civil liberties that non-state actors enjoy, the level of political centralization, the capacity of domestic bureaucracies, and the climate policies that national governments adopt. It also shows that some international linkages enhance participation. However, in general, there is less empirical evidence showing that processes of diffusion through global networks have substantial causal effects.

## 2. Mapping Participation in Transnational Climate Governance

Transnational climate governance occurs when cities, companies, NGOs, and other sub- and non-state actors coordinate across borders to govern climate change. We term each instance of TCG a TCG initiative. This paper presents a new dataset of participation in the known universe of 75 TCG initiatives across 191 countries from 1990-2012. The database is an extension of the one used in Hale and Roger (2013), which in turn builds upon those by Hoffmann (2011) and Bulkeley et al. (2013), and additional discussions of the coding can be found in those sources and online.<sup>4</sup>

To be included in the database, an initiative had to meet several criteria. First, of course, initiatives had to address climate change. A broad criterion, initiatives could be intended to govern a variety of different aspects of the problem, from mitigation to adaptation, from deforestation to energy efficiency, from regulating carbon offsets to channeling funding to carbon offset projects, etc. Initiatives that simultaneously address non-climate change-related issues were included as well. For example, ICLEI - Local Governments for Sustainability was established in order to govern a broad range of sustainable development

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<sup>4</sup> A document entitled “Coding the Database of Transnational Governance” can be found at <http://link.springer.com/article/10.1007/s11558-013-9174-0>

problems; climate change is only one of its main concerns. Data were obtained primarily from initiative' mission statements or similar statements of purpose.

Second, an initiative needed to qualify as an instance of governance. This is, admittedly, at times difficult to determine given that the term itself is subject to considerable interpretation. We argue - along the lines set out by Andonova et al (2009) - that governance occurs when networks of actors explicitly seek to authoritatively steer constituents, be they individuals, firms, governments or otherwise, towards public goals. This may or may not occur through the explicit setting of regulations, standards or rules, whether voluntary or mandatory. A governance initiative may also seek to steer behavior by providing collective goods such as capacity building services, knowledge dissemination, technical assistance, financing or specific kinds of information provision. Its primary purpose in doing so must, however, be explicitly public in nature and intended to change behavior. Borderline cases exist, of course, and initiatives may or may not be effective in meeting their goals. Examples of potential candidates that we excluded as cases of "non-governance" were NGOs, private consulting firms, lobbying groups, specialized news services, and networking forums.

Third, in keeping with the literature on transnational actors in world politics (Risse-Kappen 1995), an initiative needed to include at least one sub-state or non-state actor, either as a member, participant, user or partner. This was determined, typically, by analysis of membership lists, participant registries, etc. Although sometimes unconventional, intergovernmental treaties and organizations that did not include such participants, such as several bilateral and multilateral climate change memorandums of understanding (for example, the US-China Memorandum of Understanding to Enhance Cooperation on

Climate Change, Energy and the Environment), or “mini-lateral” fora such as the Major Economies Forum were excluded.

Fourth, to be included, initiatives must have members, participants, users or partners from at least two different states. Again, this was determined by analysing membership lists.

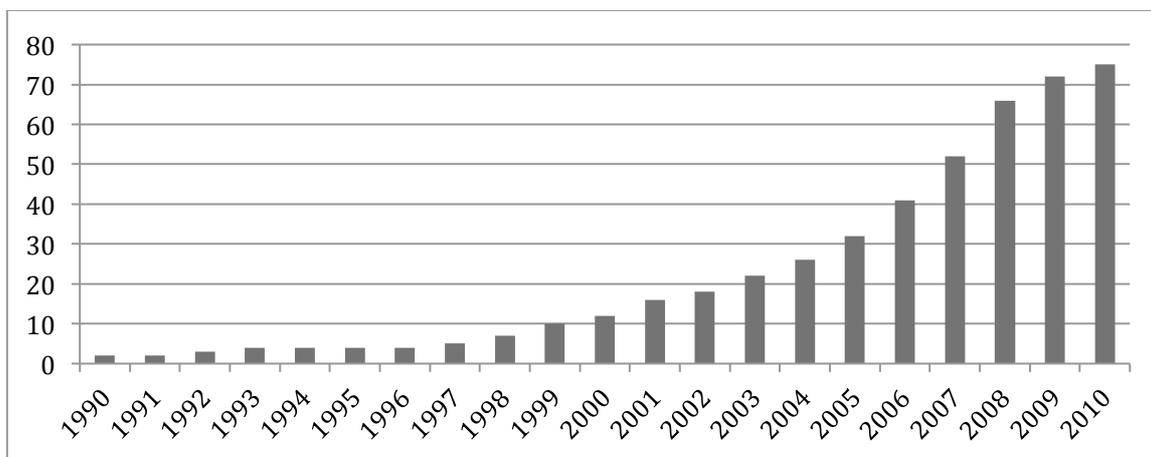
The Western Climate Initiative, which includes participants (provinces and states) from the United States and Canada, is transnational. Refrigerants, Naturally!, which includes participants such as Coca-Cola, an American multinational corporation (MNC), and Unilever, a British-Dutch MNC, among others, also qualified. By contrast, the Regional Greenhouse Gas Initiative and the National Association of Counties’ Climate Protection Program, whose governance activities are entirely confined to the United States territory, were excluded.

Fifth, we removed single organizations and corporations. Although they may sometimes engage in governance-like activities (providing information, awareness-raising, etc.) and/or may be directly involved in a number of TCG initiatives, organizations such as PointCarbon, the World Business Council for Sustainable Development, the Red Cross/Red Crescent Climate Centre, which were included in other databases, were excluded. Similarly, although a case can be made for regarding corporate social responsibility schemes (CSR) as a powerful form of global governance, we did not include single MNC CSR schemes within our database. In each case, we did not consider these to be our primary unit of analysis, which is the “initiative,” “scheme” or “standard,” involving a network of actors.

Examples of TCG initiatives include the C40, a network of cities that seek to collectively lower emissions via information sharing and peer pressure, and the WWF ClimateSavers initiative, through which an environmental NGO works with large corporations to reduce their carbon footprints. Note that TCG does not include purely domestic activities (e.g. a city or company “unilaterally” deciding to reduce its carbon emissions), nor does it include advocacy work in which NGOs or companies, for example, lobby policymakers. The universe of initiatives was identified by reviewing all academic and policy-related literature on transnational climate governance, scanning the agendas of international conferences where TCG initiatives were likely to be noted (e.g. UNFCCC meetings, the Commission on Sustainable Development meetings), and by discussions with a wide range of practitioners. We are unable to claim it exhausts the total universe of TCG, but we are confident it captures all of the key initiatives. However, the data may be unrepresentative in several specific ways. Larger and well-resourced initiatives will be overrepresented in the sample, since they are likely to last longer and attract more attention. Initiatives involving less prominent actors, or actors on the periphery of central climate governance networks, are likely to be underrepresented. This will possibly lead to a bias in the sample towards initiatives created by actors in the global North.

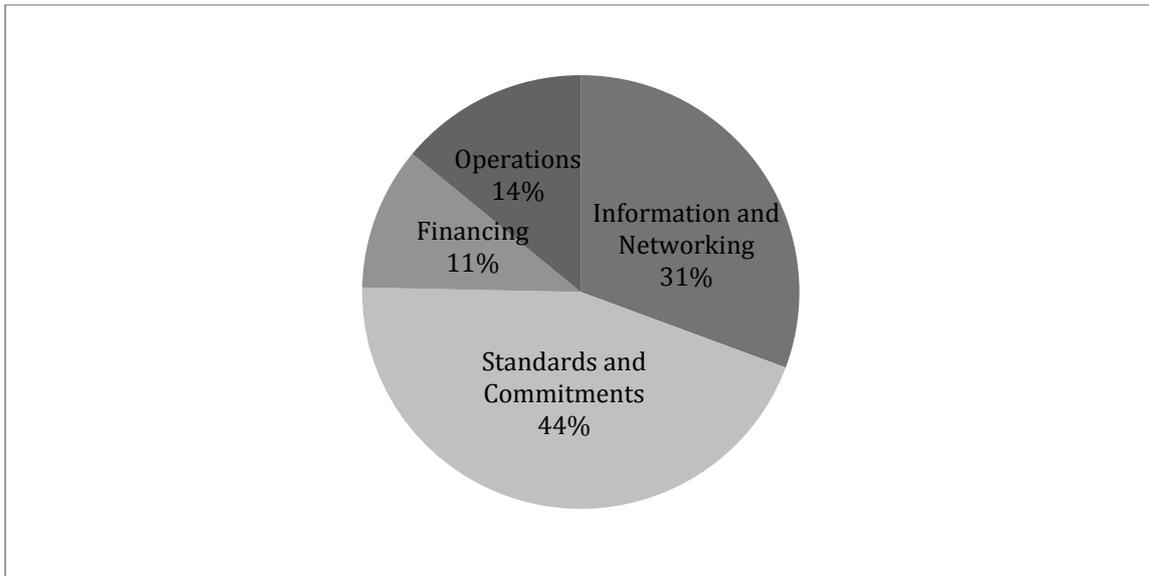
TCG has grown rapidly since efforts to govern climate change began in earnest in the late 1980s and early 1990s. TCG initially emerged rather haltingly, with only a few initiatives appearing around the time of the 1992 Earth Summit, such as Energie Cities (created in 1990) and the E8 (created in the wake of the 1992 Rio Summit, and now known as the Global Sustainable Electricity Partnership). More, and more diverse, schemes began to appear around the time of Kyoto. Then, as Hoffmann (2011) has observed, TCG “took off” in the 2000s. This exponential growth can be seen in figure one.

Figure 1: Number of TCG Initiatives, Cumulative Total, 1990-2010



These 75 TCG initiatives have engaged in a wide variety of governance activities, as Figure 2 reveals, including the provision of information sharing and networking services, setting standards and enforcing commitments, specific operational activities, and financing (Abbott 2013). “Information and networking” initiatives are those explicitly designed to build capacity by sharing knowledge, experiences and information, or which record emissions and commitments. “Standards and commitments” schemes, by contrast, are primarily involved in coding and enforcing specific rules. Initiatives engaged in “operations” activities are those that perform certain governance-type services or provide collective goods. These often build the institutional infrastructure that makes it possible for other TCG initiatives to operate. Finally, “financing” initiatives are a specific class of operations schemes that help to facilitate, direct, and sometime provide funding directly to climate change related projects.

Figure 2: Composition of Governance Activities in 2010

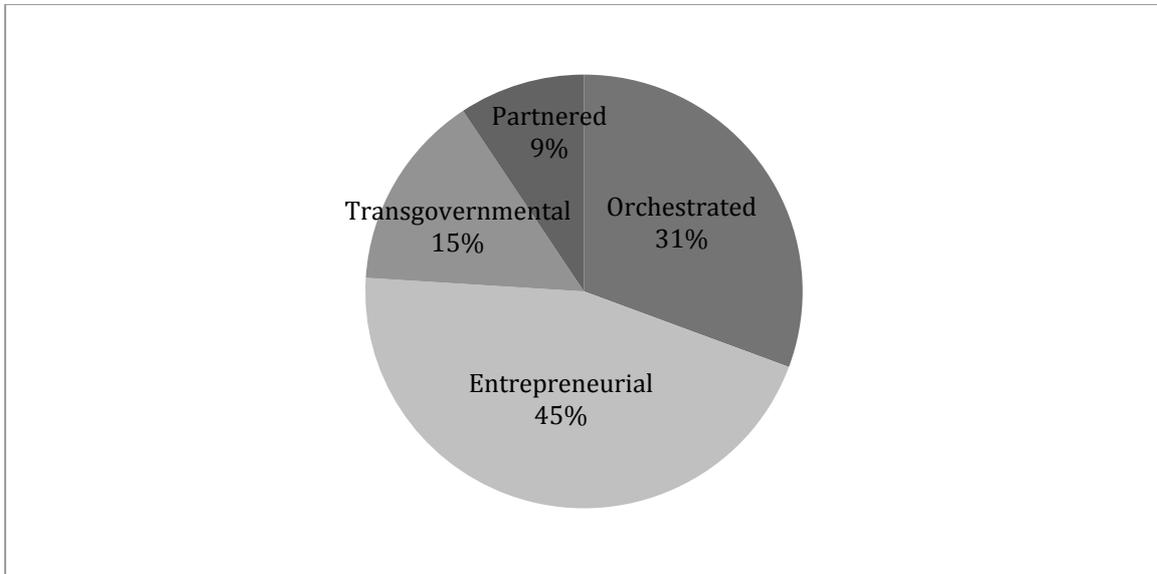


The composition of actors involved in these schemes also varies a great deal, as Figure 3 demonstrates. Some “entrepreneurial” schemes, like the Verified Carbon Standard, involve only (or mainly) private actors such as non-governmental organizations (NGOs) and corporations. Others are comprised primarily of sub-national public actors, such as provinces or municipalities. The most prominent “transgovernmental networks” of this sort include the C40 Cities Climate Leadership Group and the International Council for Local Environmental Initiatives (ICLEI)’s Cities for Climate Protection (CCP) campaign. “Partnered” schemes, by contrast, involve at least one sub-national public actor and one non-state actor.<sup>5</sup> Finally, “orchestrated” schemes combine public and non-state actors, but differ from partnered schemes because a state or international organization plays a leading role by initiating or shaping the scheme via its public functions (Andonova 2010; Hale & Roger 2013).

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<sup>5</sup> The term “partnered” governance was introduced by Hale & Roger (2013) in order to distinguish forms of transnational governance involving mixes of sub-national and non-state actors from those that also involved “traditional” public actors, like states and intergovernmental organizations. The term is therefore related to but distinct from the broader concept of “public-private partnerships”, which includes both variants. For a comprehensive review of the broader concept in the context of sustainable development efforts consult Andonova and Levy 2003; Andonova 2010; Pattberg, Biermann et al. (2012).

Figure 3: Types of TCG initiatives in 2010



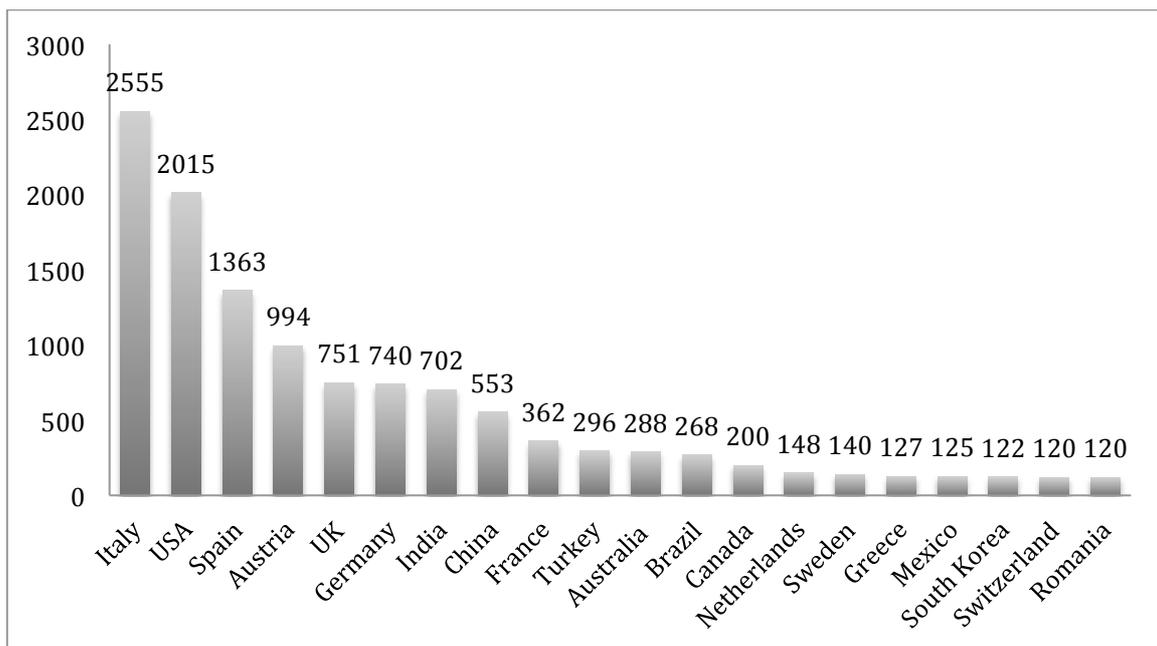
Where are the actors that participate in these 75 TCG schemes located? Hoffmann (2011) and Bulkeley et al. (2012) collected data on the different “regions” that participants were “active” in, revealing an “uneven geography” of TCG activity (see Bulkeley et al. 2014). To isolate the effect of national contexts, we collected data on the locations of all the actors that publicly claim to participate in the 75 schemes in our dataset.<sup>6</sup> This was possible for a total of 71 schemes that included some kind of online registry that publicly recorded actors’ participation. Using United Nations membership as baseline, we then went through each registry and recorded the locations of those actors. By summing the total number of actors involved across the 71 initiatives, we obtained a measure of the number of sub- and non-state participants from each country.

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<sup>6</sup> Lists of participants (usually a list of members, rule-adopters or users) were often available through the initiatives’ websites, but occasionally data was collected via email or secondary sources. Only three initiatives were dropped because of inadequate data.

In total, the database records over 14,000 instances of participation in TCG. The average number of participants is 76, with a standard deviation of 282. Figure 4 shows the 20 countries with the largest number of actors participating in TCG. Interestingly, over 10,000 of these actors come from just 10 countries (in declining order: Italy, US, Spain, Austria, UK, Germany, India, China, France and Australia). Italy, with 2,555 participants, has the largest number of actors involved in TCG, while a total of 31 countries have 0 and another 29 have just 1. The top 100 countries have at least 5 participants, and this group includes a diverse mix of developed and developing, and autocratic and democratic countries from all major regions of the world.

**Figure 4: Countries with the largest number of sub-state and non-state actors participating in TCG**



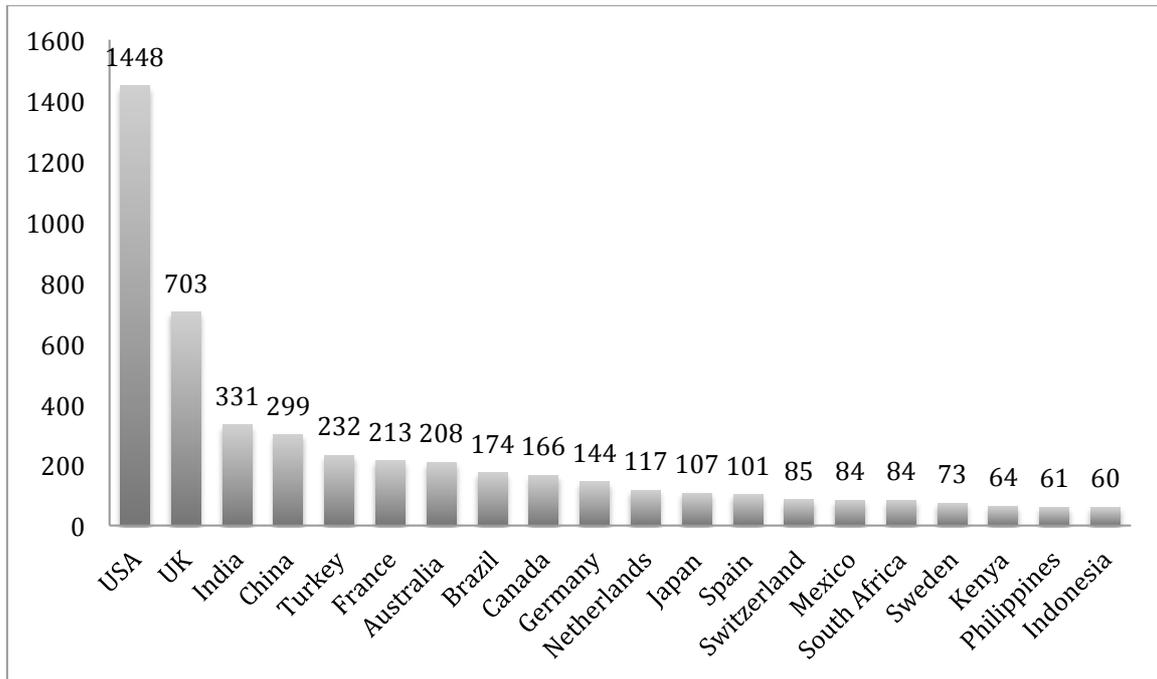
This measure of cross-national variation in TCG merits several caveats. First, it treats each instance of participation as equivalent. In reality, initiatives vary significantly in effectiveness, exigency, ambition, and cost. Moreover, the participation of some non- and sub-state actors is more meaningful than others (for example, the C40 is a network of

mega-cities, while ICLEI is a network that includes both large and small municipalities). We should therefore be circumspect in attributing substantive effects to participation. Our premise, nonetheless, is that meaningful inferences can be made about cross-national variation by looking at participation on its own.

Second, note that the database counts instances of participation, not the number of non- or sub-state actors that participate in any TCG initiative. In other words, a company that participates in 70 initiatives would be counted 70 times in the database. This characteristic of the data is likely benign in practice because, anecdotally, non- and sub-state actors tend to participate in only a handful of initiatives at most, and the number of initiatives is small compared to the instances of participation.

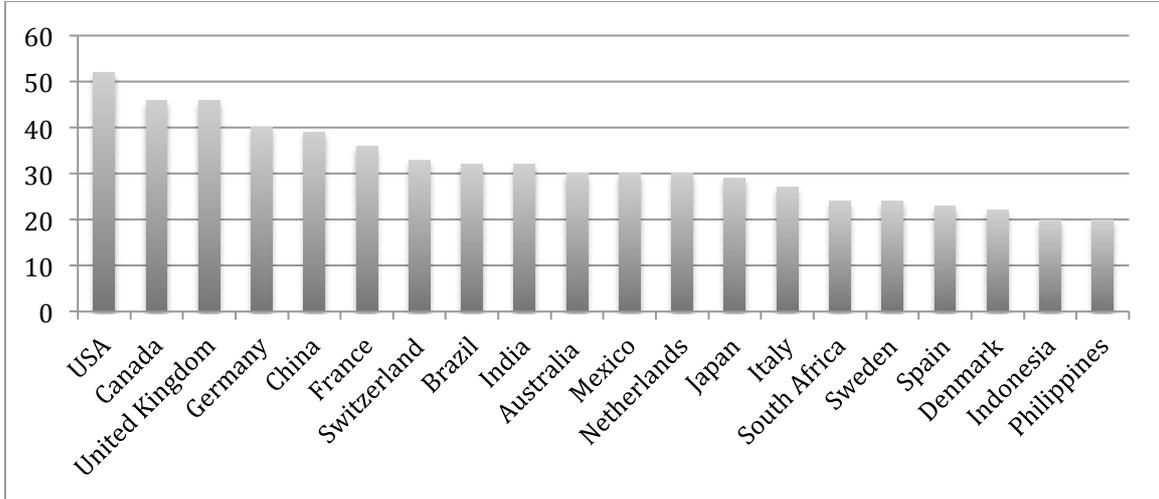
Third, a small number of initiatives have a very large number of participants, which may paint a picture of participation unduly influenced by just a few initiatives. Excluding just the four initiatives with over 900 participants, which cluster together at the far end of the distribution, yields a revised ranking (figure 5). This alternative measure is used as a robustness check in the analysis below.

Figure 5: Countries with the largest number of sub-state and non-state actors participating in TCG (excluding the four initiatives with over 900 participants)



Fourth, we may be concerned that some initiatives are “naturally” likely to have a large number of participants (e.g. corporate disclosure schemes), while others are smaller by nature (e.g. sectoral initiatives in oligopolistic industries). We therefore create a further alternative measure of national participation in TCG that codes an initiative as being “active” in country when at least one public or private actor from that state either initiates or becomes a participant in a particular scheme during the period 1990-2012. For example, if a sub- or non-state actor from China participates in a given initiative we count the scheme as being active in China. If an initiative does not include members or users from a particular country, by contrast, we count it as inactive. This measure is the count of the initiatives active in each of the 191 countries in the dataset. The average number of initiatives that states participate in is roughly 7.4, and the maximum number that a single state participates in is 52. Figure six lists the top 20 countries by this measure, which, again, is used as an alternative dependent variable below.

Figure 6: Countries whose sub- and non-state actors participate in the largest number of TCG initiatives



Finally, we may also want to account for differences in size between countries. The multivariate regression below will allow us to do so more rigorously, but from a descriptive standpoint, it is interesting to rank countries in terms of participation per unit GDP (figure 7) and per tons of CO2 emitted (figure 8).

Figure 7: Top 20 countries by TCG participation per unit GDP

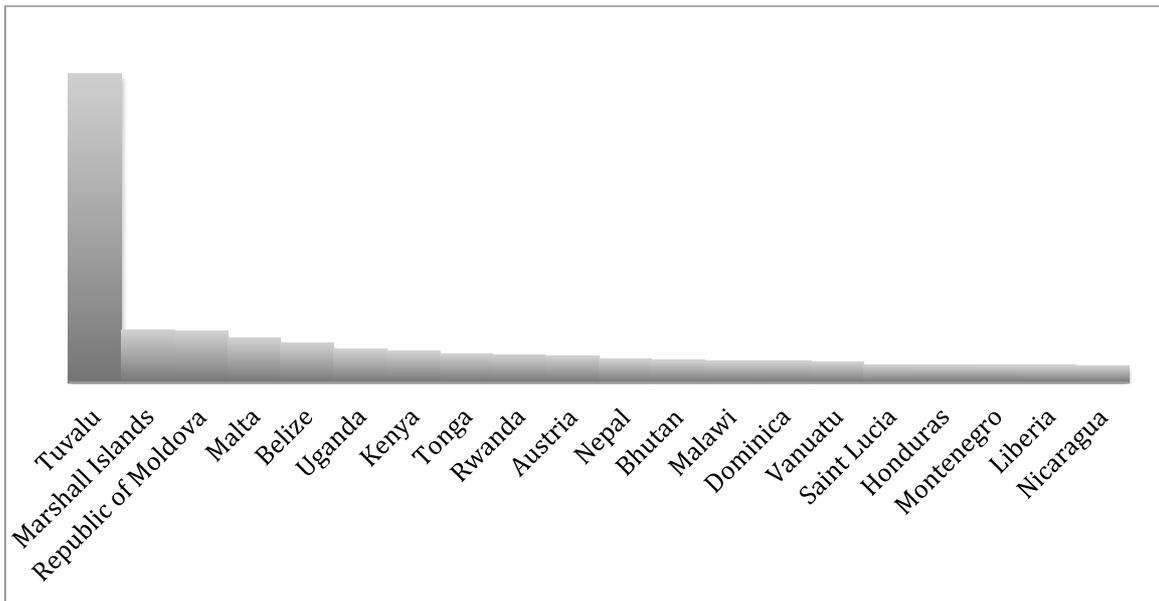
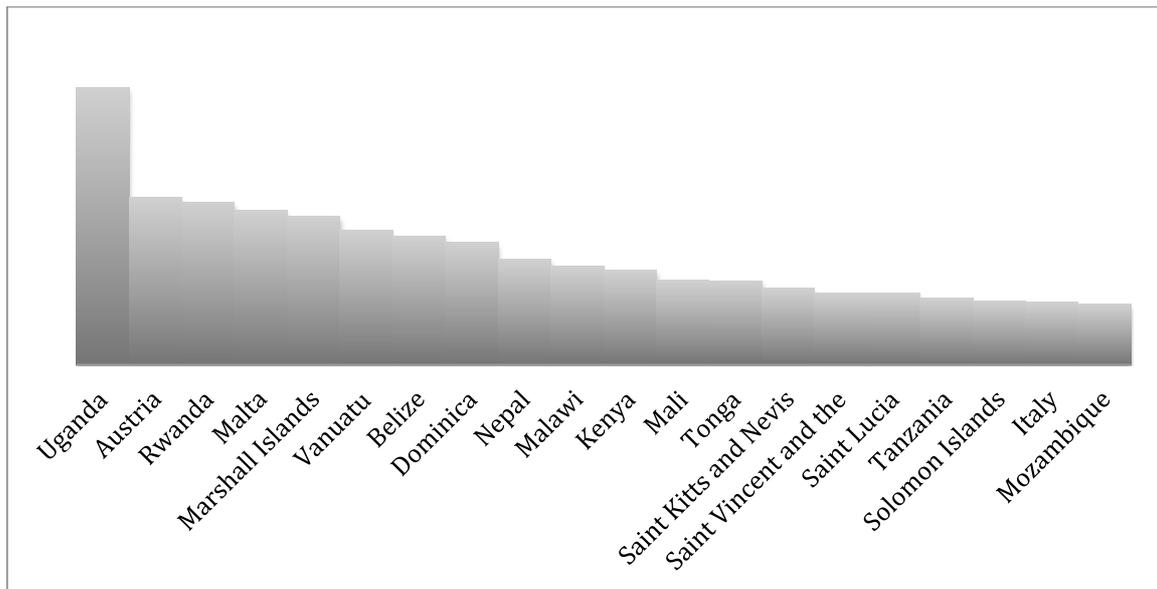


Figure 8 Top 20 countries by TCG participation per unit CO<sub>2</sub> emissions



The comparative mapping of TCG across countries thus reveals highly variable engagement of sub- and non-state actors in TCG across countries. This variation does not follow neatly a regional or North-South divide may be anticipated by the existing literature on transnational actors and governance. It prompts further comparative examination on what types of political structures and agency may account for participation in TCG to better understand the larger implications of such initiatives for managing climate change.

### 3. Domestic Politics and Participation in Transnational Climate Governance

What explains the cross-national variation in participation that our database reveals? Our analysis departs from existing studies in two ways. First, most of the empirical research on transnational governance has tended to focus on explaining the conditions under which different forms of transnational governance arise, and how individual schemes operate (Andonova 2010, 2014; Green 2013; Hale & Roger 2013). This has been a very productive line of research, particularly in the field of global environmental governance, generating important insights that can be extended to other areas International Relations (Roger &

Dauvergne 2013). However, much less has been done to explain what drives actors' decisions to adhere to transnational rules once they have been created, particularly with respect to TCG.

Second, much of the comparative research on transnational governance has sought to explain participation in one or two initiatives or in one or a small number of countries (see, for example, Betsill and Bulkeley 2001; Garcia-Johnson 2000; Cashore et al. 2006; Espach 2009). More recently several large N studies have analyzed the variable nature of participation in and diffusion of specific transnational governance initiatives such as the ISO14000 environmental management certifications, the Global Compact, international accounting standards, or transnational partnerships for the environment (Andonova 2014; Prakash & Potoski 2006; Lee 2013; Büthe and Mattli 2011, Perkins and Neumayer 2010). Theories of participation frequently focus on variables that structure payoffs and socialize non-state and sub-state actors. They participate, on this view, when there is an economic payoff to doing so, or when doing so is deemed appropriate (Baron 2010a, 2010b). The economic incentives to adhere to transnational rules that scholars have identified include product differentiation, risk management, improved reputations, and greater access to resources and information (Baron 2009; Lee 2013). But the primary independent variable that most studies use to predict when actors will act on these incentives is usually levels of cultural, political or economic "connectedness" to the rest of the international system. It is through channels such as global markets, foreign direct investment and supply chains (Potoski & Prakash 2007; Bartley 2010; Lee 2013), social pressure from networks of NGOs (Potoski & Prakash 2006; Baron 2010), and the actions of intergovernmental organizations (Hale & Roger 2013) that material and social pressures to adhere to transnational rules are transmitted.

However, such explanations often assume, implicitly, that sub- and non-state actors, when they act transnationally, are somehow transported out of the domestic political contexts in which they are embedded.<sup>7</sup> This assumption is often a useful one, as it allows scholars to develop general and parsimonious explanations for an increasingly significant dimension of world politics. But students of IR have, of course, long recognized the importance of domestic politics for foreign policy and international organization (Schattschneider 1935). Further, one of the chief developments in IR theory in the 1990s was to develop more theoretically precise accounts of how domestic politics “mattered” for explaining international cooperation (Milner 1997; Moravcsik 1997; Fearon 1998;). In much of this work, openness or “connectedness” to the international system is itself endogenous to domestic politics (Milner & Keohane 1996). Domestic political structures were also found to be important for explaining patterns of transnational activism and norm diffusion ((Risse 1995). We would, therefore, reasonably expect analogous relationships between domestic political conditions and transnational governance.

To be sure, scholarship has not been ignorant of the role that domestic politics can play. Bartley (2010), for example, has studied how the implementation of corporate certification schemes for forestry and apparel in Indonesia are affected by local conditions. He concludes that quite specific factors, such as the nature of property rights over forests, as well as the government’s dependence on the pulpwood industry, strongly reduced the efficacy of transnational governance programs. Others have looked at China (and Asia, more broadly) and found, generally, that the weakness of civil society under China’s authoritarian system limits participation in ISO 14001 (Di 1999, Christmann and Taylor

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<sup>7</sup> This assumption is most explicit in the work of Baron (2010a). Government (or “public politics”) is “not present” in his “private politics” model of credence standards (see page 46 of Baron 2010a).

2001, Drezner and Lu 2009, Hale and Roger 2012). Policies seem to matter, too. Espach (2009), for example, has examined how variation in FSC certification and adoption of the Responsible Care standard have been influenced by industrial policies, and Hale & Roger (2014) find that the Chinese government's policies have promoted participation in certain TCG schemes. Prakash and Potoski (2006) also find that the stringency of laws and their enforcement characteristics matter for adoption of the ISO 14001 standard. Büthe and Mattli (20011) and Andonova (2014) emphasize on the relevance of the state and domestic institutional structures in influencing respectively private regulations and participation in global public-private partnerships, two very different domains of transnational governance. While the specific findings of such studies may not be immediately generalizable to other cases, they offer compelling evidence that domestic policies and institutions can make a major difference for participation in transnational governance.

Drawing on this literature, we aim to state a more general set of conditions under which domestic politics affects participation in transnational governance. We focus on two core explanatory variables, as well as the interaction between them

First, a set of mechanisms links the openness and flexibility of the political system to the agency of sub- and non-state actors to engage in transnational governance. When transnational governance is created “bottom up,” it relies on the initiative and entrepreneurship of sub- and non-state actors. Such agency is likely limited in authoritarian regimes in which the central government effectively sets the policy agenda and enforces a “party line” on the private sector, civil society, and other levels of government. It may also be reduced in centralized systems in which municipalities and other sub-national governments possess little agency. If sub- and non-state actors do not

hold policy preferences at odds with the state (because they are controlled by the central state itself), or if they cannot act on policy preferences that differ from those of the state (because the political system sanctions such actions), then these groups will have neither the desire or the capacity to supplement or circumvent official policy by participating in transnational governance initiatives. Hence:

*Hypothesis 1: when domestic political institutions give sub- and non-state actors more agency to engage in governance activities, participation in TCG will be greater.*

Hypothesis one posits an “institutional” effect on participation. Hypothesis two instead looks at governmental policy. When states take unilateral, domestic leadership in environmental policies (with international spillover effects), or are concerned about deadlock or implementation failures of international treaties, units of the states often seek to engage their counter-parts across borders or non-state actors in exporting policy capacity and initiative. This phenomenon has been referred to as “disaggregated sovereignty” (Slaughter 2004) or the “rearticulated state” (Andonova 2014). Given the stagnation of the international climate regime and the divergent leadership in national climate approaches both in the North and in the South , we expect

*Hypothesis 2: When governments hold pro-climate policy goals, it is likely to promote opportunities for both public and private actors to engage in TCG.*

It is also likely that domestic institutions and policy interact. We hypothesize two potential relationships. Where sub- and non-state actors enjoy considerable resources and are free of political constraints, they may be more likely to act when their national government fails

to enact the policies that they support. This dynamic seems to apply, for example, in the United States, where federal action on climate change remains stalled, but US states, cities, regions, companies, and NGOs are creating and participating a wide variety of TCG schemes. By one estimate, nearly half of US emissions are covered by city- and state-level commitments {Lutsey, 2008 #281}. In other words, blockages at the national and intergovernmental levels may lead interest groups to pursue pro-climate policies in transnational fora when they possess the agency to do so. The following hypothesis captures this logic:

*Hypothesis 3: When sub- and non-state actors enjoy considerable agency and do not see pro-climate policies enacted at the national level, they will be particularly likely to participate in TCG.*

Alternatively, when a government holds a pro-climate stance, the chilling effect of authoritarianism and centralization on participation in TCG may be reduced. After all, even governments that enjoy a high level of control may be happy for sub- and non-state actors to engage in transnational governance that is consistent with the government's policy objectives. Participation in TCG initiatives may even facilitate a state's goals, particularly when schemes offer access to valuable markets, resources and information. Qualitative work has found strong evidence for this mechanism in China, for example. Although China is widely regarded as a "laggard" in the international negotiations, the government nevertheless appears to take the problem quite seriously, and, as a result of its actions in the area, the country can be regarded as a leader when it comes to domestic climate policymaking in several respects (Held et al. 2013; Conrad 2012). Its reluctance about adopting binding targets at the international level also appears to have not hindered

participation in TCG, which is quite significant, particularly in areas where such participation helps to facilitate the government’s policy objectives, such as building carbon markets and renewable energy capacity (Hale and Roger 2012). More generally, therefore, we would expect

*Hypothesis 4: When governments hold pro-climate policy goals, the negative effect of authoritarianism on participation in TCG will be reduced.*

In sum, while we expect that levels of political, economic and cultural “connectedness”—the key independent variable driving participation in most previous studies—are important, we hypothesize that governmental policy and domestic institutions condition international linkages. The hypotheses are summarized in table one. When political institutions give actors little agency, then participation will generally be low. However, if the government’s policies are proactive in the area of interest, then participation will tend to be higher. Moreover, when domestic institutions grant sub- and non-state actors of agency, then participation will be greatest when the government’s policies are not proactive enough in the eyes of sub-state and non-state actors. On the other hand, if a government backs pro-climate policies, then the chilling effect of authoritarian institutions will be reduced.

**Table 1: Predicted interaction between the domestic institutional and policy effects**

	<b>Sub- and non-state actors have agency</b>	<b>Sub- and non-state actors do not have agency</b>
<b>National government policies pro-active</b>	Greater participation, the German, Italian, Spanish cases (H1, H2)	Greater participation, the Chinese case (H4)
<b>National government policies not proactive</b>	Greater participation, the US case (H3)	Less participation, the Russian case (H1, H2)

Our theoretical argument suggests a more complex interplay between formal institutions and policy on one hand and transnational governance on the other than previously

recognized. This may help to account for the great variety of initiative and agency described briefly in section one, as well as for diversity of participation across national jurisdictions. While we do not consider cross-temporal variation in the present analysis, over time these dynamics may produce an endogenous effect of transnational governance influencing government preferences and domestic policy via policy learning, capacity building, or the expansion of domestic constituencies for climate protection (Dai 2005; Andonova 2014). The rest of the paper evaluates these core hypotheses, using our new dataset of participation in TCG as well as a series of instruments to take into account the potential for some degree of endogeneity between domestic policy and transnational governance.

#### 4. Data and Methods

How can we explain the cross-national variation described in the data presented above? As noted, this paper employs three cross-national measures of participation in TCG (see table 2):

1. **TCG\_count**: the count of participants in all initiatives from each country
2. **TCG\_countadj**: the count of participants from each country in all but the four largest schemes (those over 900 participants), and the count of initiatives
3. **TCG\_total**: the number of initiatives in which at least one actor from each country participates.

These variables measure “total” participation in TCG from 1990-2012. Unless otherwise specified, time-varying independent variables are measured as averages across the same period. For example the variable “GDP” for a country is that country’s average GDP from 1990-2010 (in current terms).

**Table 2: Summary statistics for dependent variables**

Variable	Obs	Mean	Std. Dev.	Min	Max
<b>TCG_count</b>	189	76.45	281.55	0	2555

<b>TCG_countadj</b>	189	32.06	124.73	0	1448
<b>TCG_total</b>	189	7.50	9.99	0	52

A first set of explanatory variables seeks to capture how institutional structures influence the variable agency of sub- and non-state actors varies across countries. We expect the agency of non-state actors like NGOs to be largely related to the freedom these actors enjoy to engage in policy advocacy and to create programs and organizations with “governance” aims (Hypothesis 1). Agency should thus vary with regime type, with more liberal regimes in which civil society flourishes allowing greater participation in TCG. We rely chiefly on the Freedom House measure of civil liberties to represent this idea,<sup>8</sup> though measures of political rights (also Freedom House), regime type (Polity IV), and citizens’ voice and accountability (World Governance Indicators) are considered as robustness checks (the latter two measure substantially fewer countries than the Freedom House data). To measure the effect of decentralization on the agency of sub-state actors like cities and regions (H1), we use a binary variable that measure whether a country is federal or not (Forum of Federations 2012).

Second, we seek to measure how “pro-environment” national governments’ policies are, as per H2. This concept is the most difficult to operationalize, because it may both cause and be caused by the actions of sub- and non-state actors (i.e. suffer from endogeneity). It may also seem to correlate with participation in TCG, but actually just be the product of some third, potentially unobservable variable, that drives both national policies and engagement with TCG. We employ various measures and testing strategies to mitigate these concerns. One, we use the amount of particulate air pollution (PM10) a country emits as a proxy of

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<sup>8</sup> The original measure is an ordinal scale of 1-7, with 1 representing high levels of civil liberties. To facilitate interpretation, we have subtracted the Freedom House scores from 7, changing the measure to an ordinal scale of 0 to 6, with 6 indicating higher civil liberties. A similar transformation was applied to political rights.

its commitment to environmental protection and the percentage of a country's land area that it has protected (World Development Indicators). PM10 is a particularly effective proxy because this pollutant is relatively easy and inexpensive to control, countries with strong commitments to environmental protection will be very likely to have done so, even if they have high emissions (the correlation between PM10 and CO2 emissions is -0.06). Two, we use the count of all international environmental agreements ratified by a country.<sup>9</sup> As robustness checks, we employ more qualitative measures of environmental performance from the Environmental Performance Index (EPI), which measures a host of environmental policies and indicators (Emerson et al. 2012). We only use the pre-2000 data, however, which predates 65 of the 75 TCG initiatives in the database. We can therefore be largely certain that the EPI score for these countries captures their historical commitment to environmental protection, and is not itself driven by participation in TCG. We also use the sub-set of the EPI index that focuses on climate policy in particular.

A third set of variables seeks to capture the state's capacity to engage sub- and non-state actors in climate governance. The logic of the "rearticulated state" (H2) requires state to not only hold pro-environmental policies, but also to purposively engage sub- and non-state actors in TCG as a way to achieve those goals. We therefore expect state capacity to also enhance participation under TCG under H2. Our chief measure of state capacity is the composite measure of "government effectiveness" from the World Bank's Worldwide Governance Indicators database, which combines a host of factors related to policy implementation, revenue collection, and other tasks of government (we average countries' scores over the period covered by the WGI, 1996-2011). As robustness checks, we also employ the "regulatory quality" measure from the WGI, as well as a separate 'relative

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<sup>9</sup> Data from Ronald B. Mitchell. 2002-2014. *International Environmental Agreements Database Project (Version 2013.2)*. Available at: <http://iea.uoregon.edu/>. Date accessed: 7 January 2014

political capacity' (RPC) index, which is the "ability of a government to extract resources from a population given their level of economic development" (Arbetman-Rabinowitz and Johnson 2007, p. 2; Ward, Cao and Mukherjee 2012) an estimated index that compares the actual level of taxation to the predicted level.

Finally, two sets of control variables are included. First, we seek to capture differences in national size and wealth. In general, states that are larger or which have more wealth are inherently expected to have more TCG initiatives, on balance. With more potential sub-state and non-state participants, who themselves have more material resources, there is likely a greater probability that we will observe a larger number of actors participating in TCG, independently of any of the factors discussed above. We therefore include countries GDP per capita. We also include the amount of CO<sub>2</sub> a country emits, as this is likely to make it a target for transnational governance initiatives. Because CO<sub>2</sub> emissions are largely a function of population and wealth, including CO<sub>2</sub> also allows us to control for the different sizes of countries. This set of variables allows us to control for "natural" variation in TCG participation. All the data used for these variables are from the World Bank World Development Indicators, and are constructed by taking the average of the observed values between 1990 and 2010. We employ the natural log of several variables to facilitate analysis.

The second set of control variables considers countries' locations in the economic and political networks that previous scholarship has found to be important for the diffusion of TCG. Crudely, we approximate countries' integration into the global economy by considering the percentage of trade that comprises its GDP, as well as the amount of FDI it receives, also relative to GDP. This data is taken from the International Monetary Fund's

World Economic Outlook database. Our intention is, in a future version of this paper, to employ more precise measures (e.g. a spatial weight variable that measures how much a country trades with countries that participate extensively in TCG). As a proxy, we consider the number of firms from each country that have received ISO14001 certification, a voluntary transnational environmental certification. Previous research as show ISO14001 certification to be driven by supply chain-based demand from firms in pro-environmental jurisdictions CITE. We would therefore expect it to correlate with participation in TCG to the extent supply chain pressures drive engagement with TCG. Finally, we consider the number of international environmental NGOs present in a country is considered, using data developed by Bernauer et al. (2013) and Andonova (2014) and based upon data from the International Union for Conservation of Nature (IUCN). This measure unfortunately covers only a subset of the countries in the database, limiting the inferences that can be drawn from it.

**Table 3: Summary of independent variables**

<b>Variables</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
<b>Principal</b> Robustness checks					
<b>CO<sub>2</sub> emissions (log)</b>	183	9.10	2.57	3.29	15.51
<b>GDP/capita (log)</b>	183	7.88	1.52	4.95	11.04
<b>Civil liberties</b>	192	3.53	1.77	0.00	6.00
Polity score	129	3.27	6.38	-10.00	10.00
Pol. representation	192	3.51	2.07	0.00	6.00
Voice and account.	191	2.43	0.99	0.34	4.10
<b>Federalism</b>	192	0.12	0.33	0	1
<b>Air pollution</b>	176	59.46	41.36	7.61	222.14
<b>IEA ratifications</b>	191	51.00	24.48	10.00	144.00
Envi. Performance index	131	50.08	9.32	25.60	76.20
EPI climate	132	45.06	23.11	1.80	95.70
<b>Government effectiveness</b>	189	2.42	0.97	0.32	4.66

Relative pol. capacity	129	0.97	0.43	0.25	2.37
Regulatory quality	189	2.41	0.96	0.11	4.42
<b>Openness</b>	181	85.20	43.44	2.15	365.66
<b>FDI</b>	186	5.51	17.56	-5.70	236.58
<b>ISO14001</b>	192	1145.95	5251.07	0.00	55316.00
<b>NGOs</b>	149	4.17	6.75	0.00	51.53

## 5. Analysis and Empirical Findings

Because the dependent variable is a count, a Poisson or a more general negative binomial regression measured by maximum likelihood is usually considered the most appropriate methodology. These forms of regression do not assume a normal distribution, and accommodate variables bounded at zero. A Poisson is usually only useful if there is no serious “overdispersion” problem. This problem is likely when the count dependent variable’s conditional variance is not equal to the conditional mean (see Cameron and Trivedi 1998, p. 77), which is the case here. Standard tests confirmed that overdispersion was indeed a problem, and so below we employ a negative binomial regression model.<sup>10</sup> Regression results are reported in table four. Column one reports the baseline model, in which all TCG initiatives are included. Column two performs a similar analysis with the count of participation that excludes the largest initiatives. Column three uses the count of initiatives for each country. Column four presents the same model found in column one, with the NGO variable. In general, strong evidence is found that country-level characteristics and domestic politics condition participation in transnational governance.

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<sup>10</sup> To determine the appropriate form of regression, we conducted several tests for over-dispersion, such as those suggested by Cameron and Trivedi (2008, p. 77-79). These included using the `predict` command after estimating Poisson and negative binomial regressions and comparing the conditional means and variances; using the `estatgof` command to determine the model’s goodness-of-fit after a Poisson regression; and a likelihood ratio test of the hypothesis that the overdispersion parameter,  $\alpha$ , following a negative binomial regression is not equal to zero ( $G^2 = 1.88, p < .1$ ). These all confirmed that overdispersion was indeed present, and therefore that the negative binomial regression model is preferred to the Poisson regression model.

Table 4: Results of negative binomial regressions<sup>11</sup>

	1	2	3	4
VARIABLES	TCG_count	TCG_countadj	TCG_total	TCG_count
<b>GDP/capita (log)</b>	-0.662*** (0.106)	-0.772*** (0.106)	-0.444*** (0.0605)	-0.644*** (0.125)
<b>CO<sub>2</sub> emissions (log)</b>	0.506*** (0.0554)	0.513*** (0.0544)	0.292*** (0.0287)	0.518*** (0.0696)
<b>Civil liberties</b>	0.242*** (0.0888)	0.117 (0.0868)	0.138*** (0.0480)	0.320*** (0.107)
<b>Federalism</b>	0.603** (0.239)	0.364 (0.235)	0.200* (0.112)	0.619** (0.281)
<b>Gov. effectiveness</b>	0.862*** (0.190)	1.112*** (0.197)	0.633*** (0.103)	0.743*** (0.231)
<b>Air pollution</b>	-0.00367* (0.00221)	-0.00281 (0.00220)	-0.000805 (0.00126)	-0.00315 (0.00247)
<b>IEA ratifications</b>	0.0190*** (0.00616)	0.0105** (0.00516)	0.00814*** (0.00243)	0.0183*** (0.00678)
<b>Openness</b>	-0.00345* (0.00201)	-0.00437** (0.00190)	-0.00251** (0.00120)	-0.00246 (0.00230)
<b>FDI</b>	0.00453 (0.00391)	0.00289 (0.00415)	0.00360* (0.00202)	0.00394 (0.00414)
<b>ISO14001</b>	5.45e-05** (2.45e-05)	1.03e-05 (1.52e-05)	5.60e-06 (5.81e-06)	5.49e-05** (2.59e-05)
<b>NGOs</b>				-0.00203 (0.0163)
<b>Constant</b>	-0.537 (0.574)	0.129 (0.581)	0.106 (0.350)	-0.816 (0.677)
<b>lnalpha</b>	-0.232** (0.118)	-0.315** (0.131)	-2.470*** (0.312)	-0.156 (0.127)
<b>Observations</b>	165	165	165	137

Consider first the control variables. Surprisingly, rich countries are less likely than poor ones to see their sub- and non-state actors participate in TCG initiatives, all things equal. The effect is substantively large; reducing a country's GDP/capita by an order of magnitude reduces TCG participation by approximately 50 percent. This finding confirms the descriptive evidence presented above, which showed that though most TCG participation comes from rich countries, it is poorer nations that engage more than would be expected. CO<sub>2</sub> emissions, instead, are strongly positively correlated with participation.

<sup>11</sup> \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This confirms the expectation that larger countries will see more participation than smaller ones, and that large emitters will be more targeted than others.

Also surprising, the various measures of country's location in global networks do not yield strong results. Puzzlingly, the openness of the economy seems to in fact reduce participation, though the effect is substantively small. FDI is weakly correlated with participation, as is the more precise measure of ISO14001 certification. The presence of international NGOs does not seem to drive participation either.

Let us now consider the specific hypotheses. H1 postulates a relationship between agency and participation, and we indeed find that civil liberties and decentralization are strongly and robustly correlated with participation. A one-unit increase in civil liberties (a seven-point scale) leads to a 27 percent increase in participation.<sup>12</sup> Federalism also proved to be a strong driver of participation, with federal countries' participation almost 90 percent above non-federal countries, holding all over factors constant.

Turning to the effect of government preferences (H2), we find that pro-environmental policy is positively correlated with participation in TCG, though only slightly (note that the countries with lower air pollution scores are measured as more environmental, so the negative coefficient indicates a positive relationship between the variables of interest).<sup>13</sup> The effect is substantively small, however. A similar pattern holds for MEA ratification, and for alternative measures of government policy toward the environment. Interestingly, governmental effectiveness is much more strongly correlated with participation in TCG. A standard deviation increase in the World Bank indicators nearly doubles participation in

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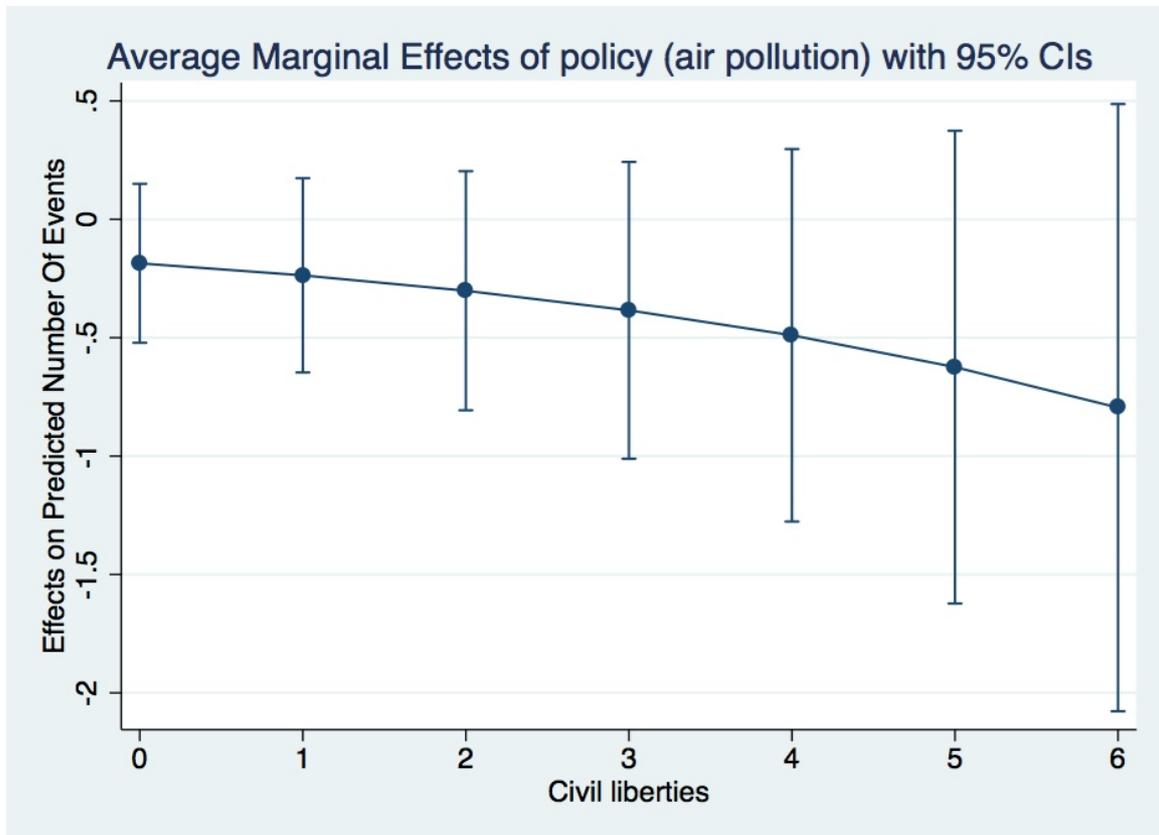
<sup>12</sup> The other measures of civil liberties performed similarly.

<sup>13</sup> This relationship holds for alternative measures of government policy.

TCG. The finding is particularly interesting given that wealth, on average, is negatively correlated with participation.

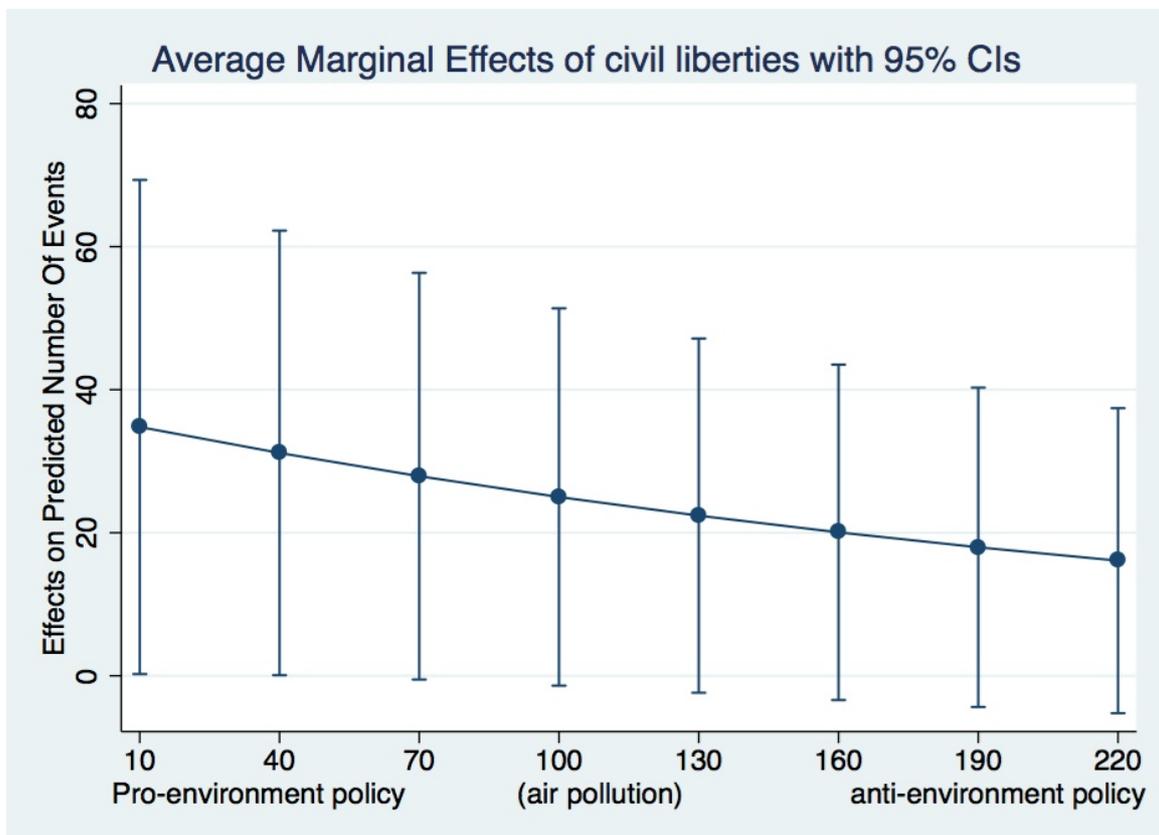
Turning to the interaction between institutions and policy, we would like to know how the effect of civil liberties and decentralization changes under pro-environment governments and less-pro-environment governments. Under H3, we would expect participation to increase when government policy is weak but sub- and non-state actors enjoy considerable agency. Figure 9 plots the marginal effect of policy at different levels of civil liberties. Contra H3, it seems that worse government policy (more air pollution) is weakly correlated with less participation, though the confidence intervals overlap, making the point estimates statistically insignificant. The marginal effect of federalism was also tested; it echoed the findings for civil liberties

Figure 9: Variation in the effect of policy at different levels of civil liberties



H4, instead, would expect the chilling effect of authoritarianism to be ameliorated when government policy is in favor of environmental action. That is, civil liberties should have less impact when pro-environmental policies are in place. Figure 10 plots the marginal effect of civil liberties at different levels of government policy, measured by air pollution. Again, the hypothesis is refuted; civil liberties seem to have a slightly higher impact on participation in countries with stronger environmental policies, though the effect is statistically insignificant.

Figure 10: Variation in the effect of civil liberties at different levels of policy



## 6. Conclusion

This paper has presented new data describing how sub- and non-state actors' participation in TCG varies across countries. It also posited a number of relationships between TCG and

domestic politics and tested several hypotheses deriving from these ideas, as well as alternative explanations that focus instead on international-level factors.

The findings strongly support the idea that domestic politics “matter” for TCG. We show that the agency of sub- and non-state actors, particularly the civil liberties they enjoy, is a powerful driver of TCG participation. Equally important, however, is the position of the government and its capacity. Pro-environmental governments with effective bureaucracies are strongly correlated with participation in TCG, suggesting that states are in some ways re-articulating themselves to act via transnational means.

At the international level, the findings show that broad measures of international networks are fairly poor predictors of TCG participation. Interestingly, a country’s commitment to the UNFCCC process is correlated with TCG participation, though at least some if this effect seems to be driven by the government’s general commitment to the environment.

From a theoretical perspective, the findings suggest that we need to think much more carefully about the interaction between the domestic political environment in different states and transnational governance. Process of diffusion may be important, but it seems clear that their effects are crucially mediated by country-level factors.

The lessons for policy are somewhat less clear, unfortunately. While the proliferation of TCG around the world and in large emitters is encouraging, the paper notes some conditions that will likely circumscribe this diffusion. The findings cast doubt on the ability of TCG to penetrate deeply into certain types of countries: those that lack civil liberties or grant little authority to sub-national governments, possess weak bureaucracies,

and have little concern for the environment, will be particularly unlikely to participate. Unfortunately, a number of countries in the top quartile of global emissions fit one or more of these criteria, as defined in the present study, including Nigeria, Pakistan, Venezuela, Egypt, Thailand, Turkey, Saudi Arabia, Indonesia, Russia, and China. Policymakers should therefore understand the way in which these policy tools will be constrained by domestic level factors, and seek to mitigate these blockages when designing TCG initiatives.

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Participants in transnational climate governance by country, 1990-2012

