

**THE INFLUENCE OF NON-STATE ACTORS ON INTERNATIONAL
ENVIRONMENTAL POLICY**

A Dissertation

by

ZOWIE NATASHA HAY

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2010

Major Subject: Political Science

The Influence of Non-state Actors on International Environmental Policy

Copyright 2010 Zowie Natasha Hay

**THE INFLUENCE OF NON-STATE ACTORS ON INTERNATIONAL
ENVIRONMENTAL POLICY**

A Dissertation

by

ZOWIE NATASHA HAY

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Approved by:

Chair of Committee,	Ahmer Tarar
Committee Members,	Elena McLean
	Ken Meier
	Scott Robinson
Head of Department,	James R. Rogers

December 2010

Major Subject: Political Science

ABSTRACT

The Influence of Non-state Actors on International Environmental Policy.

(December 2010)

Zowie Natasha Hay, B.A., Lancaster University;

M.A., University of Durham

Chair of Advisory Committee: Dr. Ahmer Tarar

This dissertation examines the sources and consequences of non-state actor influence in international environmental policymaking. I argue that non-state variables inside of a country, such as the strength of environmental non-governmental organizations (ENGOS), public attitudes towards the environment, and the level of interpersonal trust between citizens, can act as important determinants of state actions in the international environmental policymaking realm.

The empirical analyses of these propositions provide the main bulk of this project. My first empirical chapter tests the hypothesis that the strength of domestic non-governmental organizations can affect the likelihood of a country participating in international environmental agreements, and finds that countries with more ENGOS are party to more international environmental agreements than countries with fewer ENGOS. My second empirical chapter examines the impact of public opinion on the treaty ratification behavior of a country, and finds that the greater the level of public support for the use of international environmental agreements to address environmental

problems, the faster a country ratifies the Kyoto Protocol. My final empirical chapter demonstrates how levels of inter-personal trust between citizens can impact the extent to which a state complies with its environmental treaty obligations, and shows that higher levels of trust are linked to higher rates of compliance with environmental treaties, but that this effect is mediated by the degree of ethnic diversity within a country.

Given the significance of my findings, I conclude with the argument that non-state actors are able to influence the participation, ratification and compliance behavior of states in international environmental policymaking arena.

TABLE OF CONTENTS

	Page
ABSTRACT	iii
TABLE OF CONTENTS	v
LIST OF FIGURES	vii
LIST OF TABLES.....	viii
 CHAPTER	
I INTRODUCTION: INCORPORATING NON-STATE ACTORS INTO INTERNATIONAL RELATIONS THEORY	1
II ENGO STRENGTH AND STATE PARTICIPATION IN INTERNATIONAL ENVIRONMENTAL AGREEMENTS	10
Previous Research: Establishing the Impact of ENGOs.....	12
Hypothesis.....	18
Empirical Model and Data.....	19
Results.....	25
Conclusions.....	28
III PUBLIC ATTITUDES, PUBLIC ACTIONS, AND THE RATIFICATION OF THE KYOTO PROTOCOL	29
The Impact of Public Opinion on Government Policy.....	31
Hypotheses.....	35
Empirical Model and Data.....	36
Results	42
Discussion and Conclusion.....	47
IV TRUST, ETHNIC FRACTIONALIZATION, AND COMPLIANCE WITH INTERNATIONAL ENVIRONMENTAL AGREEMENTS...	50
Related Literature	52
Theoretical Framework and Hypotheses	57
Empirical Model and Data.....	59

CHAPTER	Page
Results	64
Conclusions.....	69
V CONCLUSIONS: ASSESSING THE INFLUENCE OF NON- STATE ACTORS ON INTERNATIONAL ENVIRONMENTAL POLICY	71
REFERENCES	74
APPENDIX A.....	84
APPENDIX B.....	86
VITA.....	91

LIST OF FIGURES

	Page
Figure 1 Variation in International Environmental Treaty Participation across Countries.....	20
Figure 2 Coordination Game	57
Figure 3 Total Infringements of Community Law by Member States, 2006 and 2007	60
Figure 4 Marginal Effect of Trust on Infringements	66
Figure 5 Marginal Effect of Fractionalization on Infringements	67

LIST OF TABLES

		Page
Table 1	Correlation between ENGO Number, Greenpeace Membership per Capita, and Control Variables	23
Table 2	Negative Binomial Regression of ENGO Strength on Participation in International Environmental Agreements	26
Table 3	Descriptive Statistics for Ratification Delay Times	37
Table 4	Expected Relationship between Rising Variable Values and the Hazard Rate	42
Table 5	Summary of Proportional Hazard Models.....	43
Table 6	The Impact of Public Support and Public Action on the Speed of Ratification for Annex 1 Countries	44
Table 7	The Impact of Public Support and Public Action on the Speed of Ratification for Non-Annex 1 Countries	46
Table 8	Negative Binomial Regression of the Effect of Trust and Fractionalization on Infringements.....	65

CHAPTER I
INTRODUCTION: INCORPORATING NON-STATE ACTORS INTO
INTERNATIONAL RELATIONS THEORY

The primary goal of this dissertation is to account for the influence of non-state actors in international environmental politics. I do this by examining the way in which a country's behavior in the international environmental arena can be governed by forces whose origins lie outside of the purview of the state. I argue that non-state variables inside of a country, such as the strength of environmental non-governmental organizations (ENGOS), public attitudes towards the environment, and the level of interpersonal trust between citizens, can act as important determinants of state actions in the international environmental policymaking realm. By examining the role of non-state factors over the various stages of international environmental policymaking – the initial decision to participate in an international environmental treaty, the dynamics of treaty ratification, and post-agreement compliance behavior – I hope to provide a fuller picture of the sources and consequences of non-state actor influence in international environmental politics.

The empirical analyses of these propositions provide the main bulk of this project. In Chapter II, I test the hypothesis that the strength of domestic non-governmental organizations can affect the likelihood of a country participating in international environmental agreements. The aim of this chapter is to demonstrate how

This dissertation follows the style of *American Political Science Review*.

the initial decision of a state to address environmental problems at the international level can be influenced by the presence of interested non-state actors. In Chapter III, I investigate the effect of another potential non-state influence on government action, the role of public opinion. Using the context of Kyoto Protocol ratification, I demonstrate that public attitudes towards the use of international environmental agreements to address environmental problems can affect the speed in which a government ratifies the Kyoto Protocol. Chapter IV centers on the post-agreement stage of international environmental policymaking. In this chapter I demonstrate how levels of inter-personal trust between citizens can impact the extent to which a state complies with the treaty obligations of the international environmental agreements that it signs.

The realm of international environmental policymaking provides a fruitful context for examining the role of non-state behavior on international outcomes. International environmental problems are often characterized as being both “global and local” (Skaereth 2003). Environmental crises arise from the aggregation of local resource management decisions which originate at the “household level” (Princen et al. 1994, Auer 2000), and yet the consequences of these actions can spill across the boundaries of the nation-state. Conversely, international environmental policy is formed at the global level, but often requires implementation at the local level in order to be effective (Brunner and Klein 1999). Therefore, it seems reasonable to expect that research examining attempts to mitigate international environmental problems should conduct itself across these multiple levels of analysis and examine multiple stakeholders and actors in order to fully capture the range of actors and processes involved. However

including non-state actors in explanations of international outcomes becomes problematic given the current orientation of international relations theory, which is shaped by a state-driven view of international action.

This assumption of the state as the primary actor has its origins in the dominant theoretical paradigms of international relations theory where states are considered the primary actors in international affairs (Russett and Starr 1996). Traditional neo-realist and neo-liberal views of the international system both promulgate a systemically determined view of state behavior. Therefore, these theories relegate forces arising from beneath or outside of the state to secondary explanatory status, or they ignore their potential impact entirely.

Within the neo-realist framework, the international system exists in a state of anarchy, meaning that there is no central authority with which to set or enforce rules of behavior. The choices that states can make in international affairs are constrained by the structure of the international system (Waltz 1979; Keohane 1984). Interactions between states within this anarchical structure are governed by the distribution of power among states, and states are thus motivated to seek to increase their share of this power in order to preserve their continued existence in the international system (Waltz 1979). The neo-liberal paradigm also subscribes to this logic of international anarchy, but differentiates itself from neo-realism by highlighting the role that international institutions can play in mitigating the effects of anarchy. As in neo-realism, the state is the primary actor, although neo-realism does allow on occasion for the inclusion of domestic-level determinants of state behavior, such as regime type, though the variables it considers are

still very much tied to the apparatus of the state. Regardless of whether state behavior is influenced horizontally by the power capabilities of other states, or whether it is constrained vertically by institutional rules and norms, both theories appoint the state – or state derived institutions - as the natural locus of agency and the only actor with which we need to be theoretically concerned. While they acknowledge that non-state actors exist, they are considered irrelevant to explanations of international politics (Waltz 1979).

While state-centered explanations of interactional action remain dominant in international relations discourse, there has been an increasing demand for a method by which non state actors can be incorporated into explanations of international outcomes (Auer 2000). This new literature attempts to provide a “fuller picture” of who participates in IR by allowing explanations that move beyond traditional state-based systemic determinism to allow for other sources of influence (Zakaria 1992: 198). In addition, prominent scholars have leveled criticisms against the restrictive nature of both neo-realism and neo-liberalism, arguing that the theories need to be able to take account of non-traditional actors in order to fully capture the dynamics of the international system. For example, Snyder (1991: 319) argues that more attention needs to be paid to the *interaction* between international and domestic politics and less to making assertions about the primacy of one or the other in international affairs. Similarly, Keohane regards the state as unitary actor assumption with some suspicion, arguing in *After Hegemony* that “no systemic analysis can be complete...that is, we will have to introduce some unit level analysis as well (Keohane 1984: 26). There is a movement therefore reject the

state-as-primary-actor assumption and find a way to incorporate the role of non-state actors into existing explanations of international outcomes.

Research on international environmental policy has not been immune to the general progression of IR theory towards the inclusion of domestic-level variables in explaining international outcomes (cf. Putnam 1988, Moravcsik 1997). However, the prominence of regime theory in analyses of international environmental cooperation has resulted in a largely state-centered theory of international action in the international environmental policymaking realm (Newell 2000, Skaereth 2003). Regime theory seeks to explain how cooperation can occur between sovereign nations in different issue areas, despite the absence of a higher authority to enforce agreed-upon rules.¹ Early attempts by researchers to explain international environmental cooperation often utilized this regime approach in their analysis (Young 1989; Paterson 1996; Rowlands 1995). States are credited with providing the impetus for regime formation, and these regimes increase predictability and security in international affairs by guiding the behavior of the regime participants (Young 1980; Rittberger 1993). While disagreement exists as to why regimes form and endure, for example whether they are power-based or interest-based; the state is commonly credited as a single unitary actor within a regime.

Similar state-centric explanations for behavior also extend to the post-agreement stage, in which states are expected to comply with the provisions of the international agreements that they have signed. Explanations of non-compliance are driven by the

¹ The following is a commonly cited definition of regimes: "Regimes are sets of implicit or explicit principles, norms, rules and decision making procedures around which actors' expectations converge in a given issue area of International Relations" (Krasner 1983:3).

traditional assumption that states are rational self-interested actors and are able to accurately determine the costs and benefits of different actions. Quite simply, non-compliance is a realization that the costs of following an agreement outweigh the benefits – what Underdal (1998) terms the ‘calculus of compliance’. Key to this strand of research is that the decision to sign an agreement and the decision to comply with an agreement are modeled as separate choices. Therefore there are instances where a state may sign an agreement in order to reap political benefits, such as enhancing its international reputation (Keohane 1984) or appeasing domestic constituents (Roginko 1994) while ultimately lacking the sincere intention to comply. When it comes to the compliance decision, factors such as the ability to free-ride (Stein 1983) and how close the finished treaty is to a state’s ideal point in the negotiation stage (Fearon 1998) can be used to explain why some states comply more than others when it comes to honoring international commitments.

This research has been disputed by those who argue that the decision to cooperate and the decision to comply cannot be so easily disentangled. Chayes and Chayes (1995) stress that the amount of time and resources a state spends negotiating and ratifying agreements makes it unlikely that these are just empty gestures of cooperation. This is part of a school of literature argues that non-compliance is not a result of state unwillingness, but rather the inability of a state to comply with the provisions of an agreement due to a lack of state capacity at a technical and

administrative level.² Good-faith efforts to comply with the provisions of an agreement may be hampered by the inefficiency of the state due to the administrative burden implementing legislation places on a state. Various studies of compliance behavior have lent support to these arguments. For example, in comparing rates of compliance with environmental accords across nine countries, Jacobson and Brown Weiss (1995) conclude that the administrative capacity of the state is a crucial explanatory variable. Similarly, Mbaye (2001) examines the link between compliance and capacity, finding that infringement cases fall as bureaucratic efficiency rises.

However, these explanations of compliance still focus on state-level variables as the primary determinants of compliance behavior. Yet actual compliance behavior is often not the purview of states, but rather the individual citizens of a state. While international obligations are often framed in terms of state obligations, they are usually directed at regulating the behavior of private actors that exist within the purview of the state (Chayes and Chayes 1995; Simmons 2010). This is particularly true with respect to international environmental treaties given that the environmental problems they are designed to address are simultaneously both global and local (Mitchell 1992; Skaereth 2003).

Attempts to move beyond the state-centered regime approach highlighted the role of non-state actors in the international policy process, with a particular focus on the impact of transnational groups (Princen et al. 1994; Risse-Kapan 1995; Wapner 1996).

² Capacity in this context is broadly defined as the efficiency and expertise of a bureaucracy, and the amount of fiscal resources a state has to implement an agreement (Chayes and Chayes 1993; Jacobson and Brown Weiss 1995).

These findings suggest that non-state actors may wield significant influence, for example, transnational epistemic communities³ are found to be essential in the provision and dissemination of the knowledge required to create international policy (Haas 1992, Hawking 1993). Liftin (1993) also draws attention to instances in which regime formation was not initiated by states, but rather the impetus for regime creation was provided by non-state actors, for example the role of the World Wildlife Foundation in pushing for the Convention on International Trade of Endangered Species (CITES). Yet despite this evidence, our theories have no way to account for the prominence of non-state actors in international environmental policymaking. This becomes a problem because:

If it can be shown that non-governmental actors have some influence on the interests and expectations that states bring to the process of institutional bargaining in the international fora, then an important challenge is posited to the way in which we currently seek to explain policy (Newell 2000: 27).

In this dissertation I will attempt to remedy this gap in current international relations theory. This project considers the influence of non-state actors at various stages of the international environmental policy process; specifically the way these actors influence a nation state's participation in, ratification of, and compliance with international environmental agreements. This research does not explicitly reject the idea

³ An epistemic community is: "a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy relevant knowledge within than domain or issue-area" (Haas 1992:3)

that states are the primary actors in international affairs, but rather argues the inclusion of non-state actors in theories of international outcomes is necessary to provide a fuller explanation of the sources of state behavior. This is not to argue there is no merit to the proposition that non-state actors can also assert an independent influence in the international environmental area, but rather to declare a primary interest in elucidating the mechanisms by which non-state actors can influence *state* behavior and how this can be incorporated into current international relations theory. I identify three major non-state sources of influence as being relevant to state behavior in the international environmental policymaking arena; these are environmental non-governmental organizations, the strength of public support for international environmental action, and the levels of domestic inter-personal trust between citizens. The following empirical chapters demonstrate the significant role that factors originating from outside the state play at various stages of international environmental policymaking, and make a case for their inclusion into existing frameworks of international relations theory.

CHAPTER II

ENGO STRENGTH AND STATE PARTICIPATION IN INTERNATIONAL ENVIRONMENTAL AGREEMENTS

While many scholars have remarked upon the proliferation of international environmental agreements to solve environmental problems, national responses to the existence of these agreements are not uniform. As such, we observe great variation in participation rates across states, with some states becoming party to nearly all possible agreements, while other states actively resist being entangled in international environmental regulation (Victor and Skolnikoff 1999; Meyer et al. 1997; Roberts 1996, 2001). Explanations to account for this variation have mostly centered on state-level characteristics, from economic to environmental factors (see Timmons-Roberts, Parks and Vasquez 2004). In contrast to this line of research, I posit that this variation in participation behavior can be explained by the varying strength of environmental non-governmental organizations (ENGOS) across countries.

Interest in the potential impact of non-governmental organizations (NGOs) on political outcomes is not new, and evidence for the influence of these groups can be seen in a variety of different issue areas. NGOs have been credited with playing a key role in the passage of various international laws and treaties throughout history. NGO activities in the 1800s have been linked to the eventual passage of anti-slavery laws in England and Europe (Quirk 2006); and in the early 1900s, the Anglo-Oriental Society for the suppression of the opium trade were part of an anti-drug movement that successfully pressured states into passing the 1912 Hague Opium Convention (Loy 2000). From case

studies addressing the impact of specific NGOs on specific policy to more general treatises on multi-level governance and global civil society, an increasing number of scholars have applied themselves to elucidating the mechanisms by which NGOs interact with national and international decision-makers and the precise manner in which these groups can affect political outcomes.

In the context of environmental issues, ENGOs have been shown to have some impact on domestic environmental behavior, but it is not yet clear if this influence extends to motivating national decision-makers to participate in the international environmental arena. While there is an established research framework to examine the effects of ENGO participation in international environmental negotiations and how they can influence treaty provisions (Betsill 2002; Betsill and Corell 2001), there is less research available that addresses the mechanisms by which ENGOs affect the initial decision of a country to join an environmental agreement. By examining the effect of domestic ENGO strength across countries, I hope to clarify the impact of ENGOs on state behavior by demonstrating how they can pressure states into participating in international environmental agreements. This research also provides an alternative explanation for the variation in participation rates across states in international environmental agreements by using a framework that is able to incorporate the role of non-state actors into accounts of state behavior.

This chapter proceeds in the following way. First I review previous research examining the impact of environmental non-governmental organizations on both the domestic and international environmental behavior of a state, using this literature as a

jumping off point to explain in more detail how I expect ENGO strength to condition state participation in international environmental agreements. After hypothesizing on the effects of ENGO strength on participation rates and providing a description of my main independent and control variables, I test my hypothesis using a negative binomial regression of ENGO strength on participation in international environmental agreements for 107 countries. After presenting my empirical findings and discuss the ways in which they support my hypothesis, I use the final section to discuss the implications of my results and draw conclusions regarding the appropriateness of using ENGO strength to explain the variation in participation rates in international environmental agreements across countries.

PREVIOUS RESEARCH: ESTABLISHING THE IMPACT OF ENGOS

There has been an abundance of research which suggests that the presence of ENGOs in a country has a positive effect on the degree to which a country works to protect the environment. At the domestic level ENGOs are thought to be able to encourage the passage of pro-environmental legislation through various lobbying activities directed at national policymakers. At the international level, it has been demonstrated that states grant ENGOs access to environmental negotiations due to their issue-specific expertise, and it is through this expertise ENGOs are able to influence the content of international environmental agreements. Yet neither strand of this literature has yet to satisfactorily ascertain if ENGOs affect the initial decision of a state to participate in international environmental agreements. This literature review will briefly

review findings for both strands of research before developing a theory of how ENGO presence can affect a country's level of international environmental commitment.

The first part of this literature review addresses the work that attempts to find for ENGO influence on environmental outcomes at the domestic level. In terms of influence on national policymaking, ENGOs are thought to act in the same way as other types of domestic interest groups by lobbying policymakers in an attempt to secure the passage of environmental legislation. These lobbying activities are intended to convince policymakers that undertaking pro-environmental actions will translate into greater political support (Ainsworth and Sened 1993; Austen-Smith 1993; Grossman and Helpman 2001).

However, while a number of formal models and qualitative case studies have been used to illustrate the ways and conditions under which ENGOs can play a role in determining the direction of a country's environmental policy (Hurrell 1992; Fredriksson 1997; Birner and Wittner 2003; Conconi 2003), the quantitative empirical evidence is less convincing, and has been unable to fully test many of the assertions made by this literature. In contrast, the empirical literature attempts to find a link between the actions of a particular ENGO and the passage of a specific piece of environmental legislation rather than testing for the effect of ENGO influence in general, and is thus unable to fully test the mechanisms by which this influence may operate. In addition, the majority of this work is restricted to case studies of US environmental policy, making it difficult to draw conclusions about the importance of ENGOs outside of this specific political context.

This is not to say that these studies are not useful in tracing the mechanisms of ENGO action. This research also demonstrates that in the context of US environmental policy, ENGOs are able to wield some influence over policy outcomes, providing some empirical foundation for theorizing that this relationship might also exist in other countries, or at least in countries with similar political systems. Unfortunately, the magnitude of this ENGO effect is found to be small. Two separate studies examining the impact of ENGOs on the passage of coal strip mining legislation in the US House and Senate conclude that ENGOs only have a weak impact on voting outcomes. Kalt and Zupan (1984) demonstrate that membership in ENGOs influence the voting decision in the US senate, while Durden et al (1991) find a positive effect for ENGO contributions on voting outcomes in the US House of Representatives. However both studies find that this influence is below average when compared to the effect of other factors influencing the voting decision. Similarly, in their study of the effect of grassroots environmental lobbying, Fowler and Shaiko (1987) show that ENGOs have a positive impact on the passage of environmental policies in the US Senate. However, they caution that this effectiveness of ENGOs is contingent on other factors such as issue-type and state-level variables.

There have been a few attempts to explore the relationship between ENGOs and domestic environmental policy outside of the US domestic political context, although this research mainly takes the form of qualitative case studies. This research yield findings similar to the empirical literature discussed above, that ENGOs have some influence, but that this influence may be mediated by other factors. Hurrell (1992)

examines the impact of Brazilian ENGOs in pressuring the government to cease Amazonian deforestation. While he found that they were effective in creating an awareness of the problem, the author concludes that actual policy change was ultimately driven more by external pressures. In their study of social capital on a Community Forestry bill in Thailand, Birner and Wittner (2003) find ENGOs have a significant impact on legislation. These case studies of successful ENGO action have also been useful in providing examples of some of the mechanisms by which ENGOs are able to succeed. Using the case of ENGO activism in Botswana, Thomas (2003) explores the mechanisms by which these environmental groups were able to halt the proposed development of the Okavango Delta in 1990, identifying the ability of ENGOs to provide governments with expertise as a crucial factor explaining their success. Likewise the Birner and Wittner (2003) study suggested that ENGOs were most successful at achieving their goals when they played a role in disseminating knowledge about the environmental issue to the public.

Attempts to draw conclusions concerning the influence of ENGOs outside of specific case studies prove more difficult as cross-national empirical studies of ENGO influence are still relatively rare. In addition these studies often use outcome measures of environmental quality as their dependent variable, implicitly assuming that positive environmental outcomes can be traced to the successful passage of the relevant legislation. For example Fredriksson et al (2005) find that the number of ENGOs in a country has a negative effect on lead content levels in gasoline, while Binder and Neumayer (2005) show that national ENGO strength is significantly related to lower

levels of domestic pollution. In the study with the largest cross-national sample, Fredriksson et al (2005) look at the relationship between environmental pressure group strength and environmental policy stringency across 92 countries. Their findings demonstrate that an increase in environmental pressure group strength is associated with an increase in the strictness of environmental regulation, but the authors also use an outcome measure as their dependent variable – in this case lead content levels in gasoline – rather than an actual legislative measure. However, as previously mentioned, outcome measures may not be appropriate to gauge the impact of ENGOs as it implicitly assumes that it has been legislative action that has caused an environmental condition, whereas the environmental outcome can also be the result of a number uncontrolled for factors.

Moving to the international level, there is a significant amount of research activity which focuses on the influence of ENGOs during international environmental policymaking. The majority of research is directed at the role that these organizations play in the negotiation of international environmental agreements. ENGOs have been portrayed as key players in the negotiations of various international environmental agreements, ranging from the adoption of the Cartagena Protocol on Biosafety (Betsill 2002), to a continued influence in the International Whaling Commission (Andresen and Skodvin 2003). The reason identified for this influential role during international negotiations is widely agreed to be the provision of expertise and technical knowledge that ENGOs are able to provide during the treaty making process. Thomas (2003) characterizes the ENGO-state relationship as one of repeated interactions, where ENGOs

are keen to provide relevant and useful information to governments, and in turn governments come to increasingly rely on their expertise. Thomas argues that this is the way that ENGOs have become woven into the international environmental policymaking process. There has been some empirical evidence to support these theoretical claims. In their case study of ENGO influence in international lawmaking for the protection of the ocean, Stairs and Taylor (1992) found the informational role of ENGOs to be key to their incorporation into the negotiation process. Corell and Betsill (2002) find that ENGO knowledge of local and traditional development tasks helped to explain their influence in the negotiations on the Convention to Combat Desertification (UNCDD), and ENGO influence in Kyoto Protocol negotiations can similarly be explained by the provision of technical expertise, in this case sinks and emissions trading.

It is theorized that the influence of ENGOs in the international area have expanded as a result of their provision of this expertise. Environmental interest groups write and distribute briefing books to delegates prior to debates on international environmental issues (Smith and Connelly 1999), and in rare cases some are even granted power to act on behalf of the state. Stairs and Taylor (1992) use the cases of New Zealand and Vanuatu to demonstrate how this facet of ENGO influence grows from their informational expertise. In the negotiations over waste disposal at sea, New Zealand assigned one of its delegation positions to a national Greenpeace staff member. Similarly, when participating in climate change negotiations, Vanuatu appointed two ENGO members to their delegation who were especially skilled in environmental law.

However, while this research is useful in elaborating on some of the mechanisms

by which ENGO influence is thought to operate at the international level, these studies fail to address whether ENGOs may have had an impact on the initial decision of a state to participate in the negotiations. I use the logic of the literature on ENGOs and domestic environmental outcomes to posit that ENGOs provide some impetus for a country to address its environmental problems by joining international environmental agreements.

HYPOTHESIS

Due to the trans-boundary nature of environmental problems countries increasingly use international environmental agreements to address these environmental problems, yet we see variation in international environmental treaty participation. I argue that variation in domestic ENGO strength across countries can help to explain this finding. If, as demonstrated by previous research, ENGOs can successfully apply pressure to governments at the domestic level to follow more environmentally desirable policies, then ENGOs will also pressure governments to participate in international environmental agreements, one of the main tools countries currently use to address environmental problems.

I expect that governments under a greater degree of pressure from environmental groups will participate in more international environmental agreements. This leads me to my main hypothesis for this chapter.

Hypothesis 1: The greater the strength of ENGO presence in a country, the more international environmental agreements in which a country participates.

The following section describes the data and empirical model I use to test my hypothesis, along with a discussion of additional control variables to be included in the analysis.

EMPIRICAL MODEL AND DATA

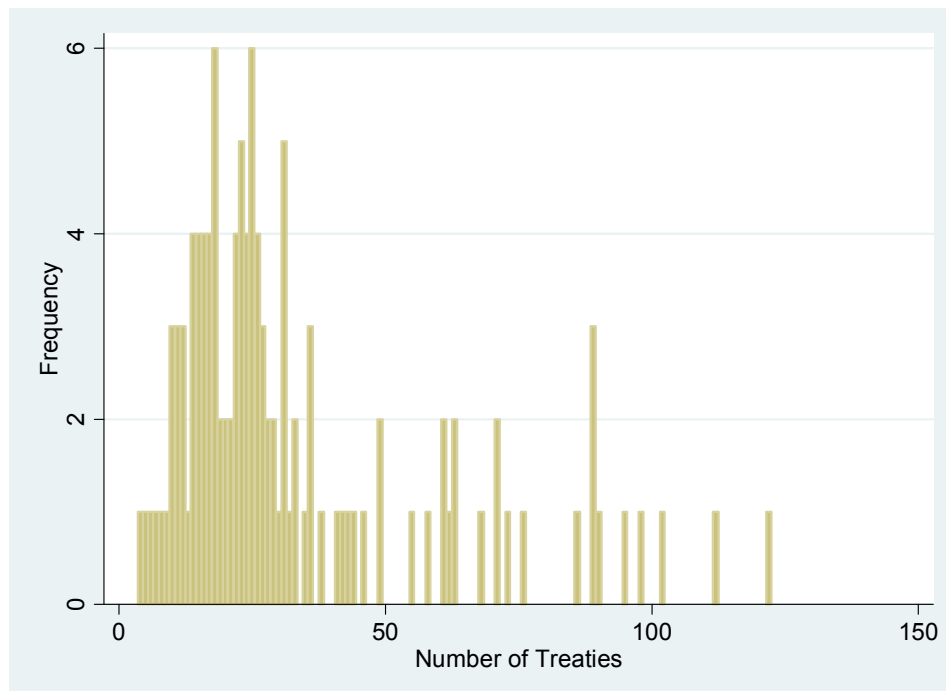
In order to establish the role ENGOs play in influencing a country's international environmental treaty participation behavior, I examine how domestic ENGO strength affects the likelihood of joining international environmental treaties in general. I test my hypothesis using a sample which consists of 107 different countries drawn from all regions of the globe. Figure 1 shows the variation in international environmental treaty participation behavior across the sample.⁴

Given that my dependent variable is a count variable (number of treaties joined), usual OLS regression models are not suitable for this analysis. The level of dispersion in the dependent variable indicates that a negative binomial model would be the most appropriate method with which to test my hypothesis. While time-series data would be preferable, given the problems of data availability for my independent variable of ENGOs strength, I do not include data across multiple years in my analysis. Therefore this is a simple cross-sectional model, with the dependent variable showing treaty participation across countries for 2003. However, to allow for the fact that treaty participation is not an instantaneous process, data for the independent variables are included at their 2002 values. This also controls for the problem of reverse causality, i.e.

⁴ The graph shows country variation across my dependent variable. The maximum number of treaties available to sign in this instance is 220. Please see the data notes for the dependent variable for more information.

that participating in a treaty resulted in the formation of a related ENGO. The specific question being addressed with this set of data is how well ENGO strength in 2002 explains how many international environmental agreements a country has joined by 2003.

Figure 1: Variation in International Environmental Treaty Participation across Countries.



DEPENDENT VARIABLE

Participation in International Environmental Agreements

Participation in international environmental agreements reflects a country's desire to be seen as working to solve environmental problems on the international stage.

Participation in an environmental agreement does not necessarily mean that a country plans to abide by the provisions of the treaty, nor is it a guarantee of improved environmental outcomes. I make no claim that countries who participate in a greater number of treaties are more environmental than those countries who participate in fewer treaties. Instead I argue that participation in an environmental treaty is a signal that a country's government has responded to domestic pressure to be involved in a specific treaty-making process.

My participation measure is taken from the data records of the Global Civil Society Index. The variable is a measure of the number of treaties signed by each country out of a list of 220 global environmental agreements generally pertaining to environmental conservation.⁵ Data are coded for the year 2003, which was the most recent data update at the time of coding. The country participating in the fewest treaties is Bhutan, with membership in 4 of the 220 treaties. At the other end of the scale is France, with membership in 122 of the treaties.

INDEPENDENT VARIABLES

NGO Strength

A number of researchers have attempted to tackle the problem of measuring NGO strength across countries given the scarcity of comparable cross-national indicators. The most common approach, as exemplified by Fredriksson, Neumayer, and

⁵ The 220 treaties fall into the following categories of environmental issues according to the list maintained by the Environmental Treaties and Resource Indicators (ENTRI) project : animal species protection – management; environmental conservation (general); fishing – management – use of harvestable fish; forest conservation – management – exploitation; hunting – management – use of harvestable species; marine resources conservation – management; natural resources and nature conservation; plant species protection – management; renewable energy sources and energy conservation; soil conservation – management; water resources conservation – management.

Ujhelyi (2007), is to use the number of domestic ENGO groups within a country. This is the approach taken in this analysis. In line with previous literature, ENGO strength is measured as the number of national environmental non-governmental organizations who are registered members of the World Conservation Union. Data are taken from the records of the International Union for Conservation of Nature website, and are coded for the year 2002. Thirty-five countries in the sample have no registered ENGO groups, while the United States had the greatest number of ENGOs, with forty-four registered groups.

Using a count of ENGO groups in a country is admittedly a blunt tool for capturing the concept of ENGO strength. This method implicitly assumes that a country with more domestic environmental non-governmental organizations has a stronger environmental lobby than a country with fewer groups. However, this measure takes no account of group size or group resources, and it is feasible to imagine a scenario where many smaller organizations are less effective than one powerful organization. An ideal measure of ENGO strength would include measures that can capture elements of size and resources, such as membership numbers or operating budgets, but these data do not yet exist on the scale needed for this project.

Another approach to measuring ENGO strength is to look at the domestic membership data for a global environmental group. This is the approach taken by Von Stein (2008), who uses cross-country membership in Greenpeace, one of the most active ENGOs, as her indicator of ENGO strength. While this also has its weaknesses as a measure, for example Greenpeace membership may be lower in countries with a well

developed ENGO sector due to the presence of viable alternatives, it is able to capture additional nuances that a simple count of organizations cannot. Table 1 shows the correlation between the two measures as well as the additional control variables, and the results confirm that these measures are picking up different aspects of ENGO strength.

Table 1: Correlation between ENGO Number, Greenpeace Membership per Capita, and Control Variables.

	ENGO	Greenpeace	Ecorisk	Polity	GDP
ENGO	1.0000				
Greenpeace	0.2853	1.0000			
Ecorisk	-0.0100	0.0861	1.0000		
Polity	0.3170	0.2601	0.1902	1.0000	
GDP	0.4329	0.4865	-0.0760	0.4985	1.0000

Therefore in addition to the number of ENGOs in a country I also analyze the effect of Greenpeace membership per capita. I use Von Stein's measure, which consists of the number of Greenpeace members in a given county, as reported by the organization, divided by the country's population.

CONTROL VARIABLES

Before running my analysis, it is also necessary to consider what other factors could be theoretically expected to influence a country's participation in an international environmental agreement. For this reason, the following variables are controlled for in my model.

Environmental Risk

Given that international environmental agreements are designed to address environmental problems, we would expect that environmental conditions in a country would have some impact on the motivation of a country to participate in an environmental treaty. Specifically, if objective environmental factors drive behavior, countries under a greater degree of environmental risk should join more treaties than countries with relatively unharmed ecosystems. For this reason, I control for the condition of a country's ecosystem as a factor affecting participation in international environmental treaties.

In order to capture the level of environmental risk, I use the percentage of a country's territory classed as a threatened ecoregion. Ecoregions are fundamental to biodiversity, housing a large array of plant and animal species. The higher a country scores on this measure, the more at risk plant and animal species are for extinction. Threatened ecoregions are ecoregions with high ratios of habitat conversion to habitat protection that are classified as endangered or critical (ESI 2005). Data are taken from Hoekstra et al (2005).

Level of Democracy

Previous research has demonstrated that democracies are more likely than non-democracies to engage in international cooperation in general (Mansfield and Pevehouse 2008) and this relationship has been shown to exist with regard to international environmental cooperation, with democracies making more international environmental commitments than non-democracies (Neumayer 2002). Therefore I control for the effect

of democracy in my analysis, using the *polity* variable from Polity IV. This variable ranges from -10 to 10, with -10 being the least democratic and 10 being the most democratic. Across the countries in the analysis, Swaziland is the least democratic with a score of -9, while 26 countries in my sample take on the maximum value of 10.

GDP

Research in economics suggests that environmental quality is not only a collective good, but that it is also a ‘superior’ good, that is, demand for environmental quality rises with income (Franzen 1994). The logic behind this argument is that if resources are scarce, a country would prefer to devote those resources to other areas. This is not to say that environmental concern is lower in poorer countries, but rather – as argued by Neumayer (2008) – that poorer countries prioritize other issues over environmental quality. Therefore, we should expect to see a positive correlation between a country’s wealth and its participation in international environmental agreements. Data are reported as GDP per capita (\$1000) and are taken from the World Bank’s World Development Indicators.

RESULTS

Table 2 shows the impact of ENGO strength on the international environmental participation behavior of countries. As can be seen from the table, when ENGO strength is measured as the number of ENGOs per country, ENGO strength has a positive a significant impact on the number of international environmental treaties in which a country has membership. This finding lends support to my argument that ENGOs are

able to successfully place pressure upon government to address environmental problems through the use of international environmental agreements.

Table 2: Negative Binomial Regression of ENGO Strength on Participation in International Environmental Agreements.

Independent Variables	Coefficient	Robust Standard Error	z-score	P> z
ENGO Number	.0193422*	.004967	3.89	0.000
Greenpeace	.0024334	.0458576	0.05	0.958
Environmental Risk	.0026657*	.0008744	3.05	0.002
Polity	.0356746*	.0078419	4.55	0.000
GDP	.0230312*	.0041318	5.57	0.000
Constant	2.03721	.0779008	26.15	0.000
N = 107				

However, in contrast, when ENGO strength is measured using Greenpeace membership per capita, no significant relationship is found between ENGO strength and the participation behavior of countries. While this result shows that Greenpeace membership per capita has no significant impact on the participation behavior of countries *in general*, it does not necessarily mean that Greenpeace membership per capita has no effect on the motivation of countries to join specific treaties. However,

given the previously discussed significance of the ENGO variable, this finding may also be an indication the variable Greenpeace membership per capita does not adequately capture the concept of ENGO strength, and that measuring the size of one particular ENGO in a country does not lend itself to inferences concerning the level of ENGO strength in a country in general.

In line with previous literature, all of the control variables in my study were found to have a significant impact on a country's participation in international environmental agreements. As expected, domestic environmental conditions have an impact on the likelihood of a country to participate in international environmental agreements. The positive and significant relationship indicates that countries facing a greater degree of environmental risk will participate in more agreements than those countries facing a lesser degree of environmental risk.

The analysis also shows support for the theory that democracies are more likely to engage in international cooperation than non democracies, and finds that this relationship holds for international environmental cooperation. The significance of the polity variable demonstrates that countries with higher democracy scores participate in more international environment agreements than countries with lower democracy scores. Similarly, the significant relationship between GDP and treaty participation is in line with findings demonstrated by previous research investigating the link between a country's wealth and its level of environmental commitment. My findings indicate that countries with higher levels of GDP per capita participate in more international environmental agreements than countries with lower levels of GDP per capita.

CONCLUSIONS

This chapter has demonstrated that the domestic strength of the ENGO lobby in a state is a factor in explaining patterns of environmental treaty participation across countries. Given that countries with a stronger environmental lobby tend to participate in more international environmental agreements than countries with a weaker environmental lobby, this lends support to my argument that ENGOs play a vital part in the initial decision of a state to join an international environmental treaty. Given the reviewed literature on ENGOs and domestic policy, a likely mechanism for this effect is the pressure such groups are able to apply to national decision-makers.

In addition, the findings of this chapter also confirm my overarching proposition that non-state actors affect state behavior in international environmental politics, but that they do not displace the state as a key actor, rather they form part of a country's decision making calculus. The significance of the control variables indicate that traditional state-level characteristics also play a role in explaining whether or not a country chooses to participate in an international environmental agreement. However, this research highlights the necessity of including non-state actors in explanations of state behavior in the international environmental arena, as this analysis shows that ENGOs have a significant impact on the decision to join an international environmental agreement.

CHAPTER III

PUBLIC ATTITUDES, PUBLIC ACTIONS, AND THE RATIFICATION OF THE KYOTO PROTOCOL

Can public pressure move a government to ratify an international environmental agreement? While there is an abundance of research demonstrating the impact of public opinion on domestic environmental policymaking, there has been a paucity of research examining this relationship with regards to international environmental policy. Does the relationship between public opinion and government action still hold for issues that exist outside of the domestic public policy domain? This question becomes increasingly important in the context of environmental policy given the increasing use of bilateral and multilateral agreements by countries to address environmental problems. Are the public still able to influence the actions of policymakers when these actors are operating in the international, rather than domestic, sphere?

Conventional wisdom suggests that governments are still susceptible to public opinion even when operating at the international level. For example, during the recent meeting of the CITIES Conference of The Parties (CoP15), a petition containing 500,000 signatures was presented to the member countries of the African Elephant Coalition.⁶ The signatures were a result of a global online petition criticizing proposals by Zambia and Tanzania requesting permission to be allowed to resume cross-border ivory trading. At the conclusion of CoP15 it was decided that the 21 year ban on ivory

⁶ The petition reads: "To the 175 parties of the UN Convention on International Trade in Endangered Species: As citizens from around the world we call on you to reject any exemptions in the global ban on ivory trade, to extend that ban for at least 20 years, and to take all necessary steps to enforce that ban and protect the elephants. http://www.avaaz.org/en/protect_the_elephants/ Accessed 15th April 2010.

sales would remain in place, and additional proposals to downgrade elephants to a lower level of protected species were also voted down. President of the Species Survival Network, Will Travers, praised the petition, remarking: “the petition no doubt made a difference and helped achieve the right result for elephants everywhere.”⁷

This petition was one of many similar online environmental campaigns run by Avazz.org, a “global online advocacy community that brings people-powered politics to global decision-making.”⁸ The central assumption behind groups such as these is that decision-makers are responsive to public opinion, and that when public opinion is harnessed and directed, e.g. through on-line petitions, it can influence policy decisions that occur at the international level. However, at the heart of this assumption lie several unanswered questions. What role does public opinion play in international environmental policy making? Is public opinion able to affect the decision calculus of policymakers when dealing with issues that exist outside of the domestic sphere, and if so, by what mechanism does this influence operate?

I investigate these questions by looking at the role public opinion plays in a state’s decision to ratify a specific international environmental agreement - the Kyoto Protocol. I argue that among those countries who are signatories to the Kyoto Protocol, the level of domestic public support for the environment will condition how quickly each country ratifies the agreement. I also go beyond current research on public opinion by attempting to parse out the mechanisms by which public attitudes impact policymakers

⁷“Save the Elephants: Stop Bloody Ivory” http://www.avaaz.org/en/protect_the_elephants/ Accessed 15th April 2010.

⁸“About Us” <http://www.avaaz.org/en/about.php> Accessed 15th April 2010.

at the international level. Is it the general expression of pro-environmental attitudes that provide the context in which a government is more likely to ratify an international environmental treaty, or does public opinion have to be channeled through specific avenues, such as petition-signing or protest behavior, before it has an impact? To answer this question I also look at the impact of 'public action' in addition to public opinion as a possible explanation of ratification behavior.

THE IMPACT OF PUBLIC OPINION ON GOVERNMENT POLICY

There has been an abundance of research directed at determining what role the public plays in shaping policy decisions made at the national level, and much of it supports the idea that the public can influence decision-makers in areas of domestic policy such as healthcare (Grogan 1994) and welfare spending (Fording 1997). The logic of median voter theory underpins the theoretical argument made by this literature, in which the nature of electoral politics drives elected officials to seek to minimize the difference between the policy preferences of voters and their own policy choices (Downs 1957). Government officials recognize the need for public support if they are to maintain power, and pay attention to shifts in public opinion so they will be reelected (Burstein 1998; Burstein and Linton 2002). In this way the public are able to act as a constraining mechanism on the policy choices of decision makers, both by electing politicians that share their views and by inducing incumbents to adopt electorally popular policy positions if they wish to remain in power (Erikson, Makuan and Stimson 2002). This relationship has been repeatedly demonstrated by researchers. In his review of thirty studies gathered from the leading political science and sociology journals, Burnstein

(2003) finds that public opinion is found to have a significant impact on domestic policy in 75% of the studies in his sample. Burnstein also highlights the robustness of these findings, noting that the effect of public opinion is significant across time periods and issue-areas.

However, in contrast, there has only been a relatively minor amount of research addressing whether the relationship between public opinion and government action still holds for issues that exist outside of the domestic public policy domain. The growing salience of intermestic issues such as immigration, international trade, and the transnational environment increasingly require the involvement of domestic actors in the international arena, but it is unclear if the constraining effect of public opinion extends to this area. For example, while initial research on the effects of public opinion on American Foreign Policy suggested that the general public has some influence over the actions of national decision-makers in the international arena; subsequent studies have suggested that the magnitude of public influence is less pronounced than at the domestic level. So while Jencks (1985) demonstrated that the correlation between public opinion on defense spending and actual defense spending between 1973 and 1980 was exceptionally high ($r=.94$); further studies in this area have added some caveats. When studying the effect of aggregate public opinion on military spending, Hartley and Russett (1992) also demonstrate that increasing levels of public support are associated with increases in actual defense spending. Yet they find the influence of the public to be less important than other factors operating during this time period, such as political relations with the Soviet Union or the size of the budget deficit. Similarly, in their study of public

opinion change from the 1930s to the 1980s, Page and Shapiro (1983) find that in 62% of cases a change in public opinion was followed by a subsequent change in foreign policy. However, they also argue that policy responsiveness is far from perfect, and that policy can sometimes move in the opposite direction to public opinion. It is unclear from this research whether the 'public-as-constraint' argument holds when looking at international policymaking.

This paper therefore investigates what the impact of public opinion is on international environmental policy. With regard to the environmental policy sphere, the relationship between public opinion and government action seems to mirror the general findings discussed above. At the domestic level, a number of studies have found a link between public attitudes concerning the environment and domestic environmental policy. Looking at the link between public preferences and governmental decision-making, Monroe (1998) compares the distribution of public opinion with policy outcomes across nine policy areas from 1980 to 1993. In the area of energy and the environment he finds consistency between public opinion and subsequent environmental policy in 72% of his cases, with energy and the environment having the second highest consistency rating across all policy areas. Similarly, Brace et al. (2002) examine the relationship between state-level public opinion measures (also across various policy domains, but including environmentalism) and state-specific policies in the United States. They find their public opinion on environmental matters to be correlated with environmental policy outcomes. These findings are also confirmed by Lewis (2005), who tests the influence of public opinion across various public policy areas including

environmentalism in the fifty US states. Lewis finds a positive and significant relationship between public opinion and domestic environmental policy i.e. as a state's public opinion becomes more liberal a states policy becomes more pro-environmental.

However, the nature of studies such as these make it difficult to say with certainty if the link between public opinion and environmental policy operates at the international level, the level at which environmental policymaking is increasingly taking place. The majority of the studies examining this relationship restrict the scope of their analysis to state-level public opinion and environmental policy measures within the United States (cf. Ringquist 1993). While this case study evidence is prevalent and suggests that public opinion plays a role in policymaking, there has been little work which examines this relationship outside of the US context or beyond domestic environmental policy outcomes. In addition, while many studies have found a correlation between public attitudes and domestic policy, there is little attempt to explore the *mechanisms* by which public opinion may be influencing policy. A notable exception is the work by Hays, Elser and Hayes (1996). In their analysis of the determinates of state environmental policy they find that the effect of public opinion on policy outcomes is not a direct one, but rather that public opinion has a direct impact on environmental group membership and elite party liberalism; and that it is the impact of these two variables, not public opinion itself, which affects policy outcomes. Agnone (2007) also characterizes the relationship between public opinion and environmental policy as in indirect one, citing the mediating effect of protest behavior.

Given these concerns, my investigation into the effects of public opinion on international environmental policy improves on existing research in the following ways. I expand beyond the current US based state level analysis to examine if the relationship between public opinion and public policy exists beyond this geographical context. I also conduct one of the first investigations of the impact of public opinion on *international* environmental policy in order to see if this relationship between the public and policymakers is restricted solely to the domestic policymaking arena. In addition, I also refine the concept of public opinion by breaking it down into two separate measures: public attitudes and public action. In this way I attempt to gauge the mechanisms by which the public are able to influence international environmental policy.

HYPOTHESES

Theoretically, if domestic public opinion indicates a demand for environmental protection, then in line with the ‘constraint’ argument, governments should respond to the opinion of their citizens and act in general accordance with their wishes. Therefore, in countries where public opinion shows support for the use of international environmental agreements to address environmental problems, we would expect to see national legislatures choosing to ratify international environmental agreements. This proposition leads to the following hypothesis.

Hypothesis 1: The higher the public support in a country for the use of international environmental agreements to address environmental problems, the faster a country ratifies the Kyoto Protocol.

In addition, I also examine the possibility that it is public action specifically, rather than levels of public support in general that motivates a government to respond to the wishes of its citizens. In this scenario I would expect that environmental activism, for example, contributing money to an environmental group or signing a petition would lead a government to take pro-environmental actions such as ratifying the Kyoto Protocol. This leads to my second hypothesis.

Hypothesis 2: The higher the degree of environmental activism in a country, the faster a country will ratify the Kyoto Protocol.

EMPIRICAL MODEL AND DATA

A Cox proportional hazards/duration model will be used in order to assess the impact of public support and public attitudes on ratification. Countries begin in the model ‘at risk’ of ratification, and exit the sample by ratifying the agreement. Looking at the length of time until ratification has an advantage over studying the dichotomous decision of *whether* to ratify, as it allows for greater variation between countries (Neumayer 2002), and also serves to communicate the intensity of a country’s preference for the agreement (Fredriksson and Gaston 2000). The total sample size consists of forty six countries, with the sample being limited by the availability of public opinion data. All countries for which public opinion data were available were included in the analysis.

DEPENDENT VARIABLE

Ratification Delay

Ratification Delay is the number of days between the agreement being open for ratification and the agreement being ratified by a country. Countries become ‘at risk’ of ratification on March 16th 1998, the date the Kyoto Protocol was opened for ratification. Countries either leave the sample by ratifying the protocol or they remain at risk until the end of the observation period (1st January 2010 – 4308 days). Of the forty six countries in the sample, only the one (the United States) fails to ratify during the observation period, meaning the dependent variable is right censored. Table 3 shows the breakdown of ratification behavior across the sample.

Table 3: Descriptive Statistics for Ratification Delay Times.

Countries	N	Mean	Minimum	Maximum
All	46	1899	427	4308
Annex 1	22	2049	1099	4308
Non-Annex 1	24	1760	427	3474

Across all countries the mean ratification time was 1899 days. The first country in the sample to ratify the protocol was Georgia, after 427 days, and the last was Turkey after 3696 days. When the sample is separated into Annex 1 and Non-Annex 1 countries we find that the mean ratification time is longer for those countries classified as Annex 1.

INDEPENDENT VARIABLES

Public Support

Public support for the use of international environmental agreements to combat environmental problems is calculated using data from the 1995/1998 wave of the World Values Survey. The measure is the percentage of people in each country who ‘strongly agree’ with the statement:

“[COUNTRY]'s environmental problems can be solved without any international agreements to handle them.”⁹

It is assumed that the greater the percentage of people who agree with the statement, the lower the level of public support for international environmental agreements. Data range from a minimum of 3.9% of respondents agreeing with the statement in Norway to a maximum of 56.9% percent of respondents agreeing with the statement in Mexico.

Public Action

The variable of *public action* is constructed from responses to two sets of questions from the 1995/1998 wave of the World Values Survey summed together. The questions ask if the respondent has engaged in environmental actions such as attending a meeting about an environmental issue, signing a letter or petition addressing an environmental problem, or if they have contributed money to an environmental organization. It is assumed that the greater the percentage of people who have engaged

⁹ Please see Appendix A for the full text of the survey questions used in the construction of the independent variables.

in these sorts of activities, the more likely the public is take action over environmental issues in general. The least environmentally active country in the sample is Georgia with only 4.2% of respondents having engaged in the above activities, while the most active is Nigeria, where 64.8% of respondents have taken action over the environment.

CONTROL VARIABLES

It is possible that additional institutional and environmental factors may contribute to the speed in which a government ratifies the Kyoto Protocol. For this reason, the following control variables are also considered.

Commitments under Kyoto: Annex 1 vs. Non-Annex1

The Kyoto protocol classifies countries as either Annex 1 (developed nations and nations with economies in transition) or non-Annex 1 (developing nations).¹⁰ Given that Annex 1 countries have more legal obligations under the Kyoto Protocol than non-Annex 1 countries, it is likely that Annex 1 countries will take longer to ratify the Protocol. To account for this possibility I run my analysis across three models. Model 1 contains the entire sample, whereas Model 2 and Model 3 divide the sample into Annex 1 and non-Annex 1 countries respectively.

NGO Strength

It is possible that the strength of the environmental lobby may impact the time it takes a country to ratify the Kyoto Protocol. Therefore I control for the presence of environmental non-governmental organizations within a country. In line with Fredriksson, Neumayer, and Ujhelyi (2007), ENGO strength is conceptualized as the

¹⁰ Please see Appendix B for the full list of classification by countries.

number of national environmental non-governmental organizations that are members of the World Conservation Union. Data is taken from the official International Union for Conservation of Nature website, and is coded for 1998, the year the Kyoto Protocol was opened for ratification. It is assumed that ENGOs will be in favor of the Kyoto Protocol, and therefore governments in countries with greater ENGO strength will be under more pressure to ratify the agreement, which in turn could affect ratification speed

Executive Constraint

To capture cross-national differences in political institutions that may affect the speed it takes a leader of a country to pass legislation in general, I control for the number of domestic checks and balances an executive faces. Data are taken from the Polity IV project's *xconst* variable, and the measure ranges from a score of 1 (leader has unlimited authority) to 7 (executive parity – other domestic groups have equal authority to the executive in most areas of activity).¹¹ It is assumed that checks and balances in the domestic political arena will hinder the speed of ratification. Data across the sample take a minimum value of 2 and a maximum value of 7. The variable is recorded for 1998.

Democracy

It has been argued that countries with democratic institutions and democratic values are more likely to participate in international environmental agreements, and are more likely to have progressive domestic environmental policies in general (Congleton 1992; Deacon 1999). Therefore we might expect that more democratic countries will ratify an environmental agreement sooner than less democratic countries. For this reason

¹¹ Polity IV Codebook: p23-24

I control for cross national variations in the level of democracy. The democracy variable is coded for 1998 and data are taken from the Polity IV dataset and range from 0 (non-democratic) to 10 (fully democratic).

CO₂ Emissions

The central purpose of the Kyoto Protocol is to reduce the amount of greenhouse gases emitted, of which CO₂ is a major contributor. Therefore we would expect countries with higher CO₂ emissions/per capita will find it more costly to comply with the provisions of the Kyoto Protocol than those countries with lower CO₂ emissions per capita. The higher the cost of compliance, the more reluctant a government may be to ratify the agreement, which may lead to a longer ratification period, or the decision not to ratify the agreement at all. Therefore I control for a CO₂ emissions per capita. Data are taken from the World Bank's World Development Indicators and are recorded at their 1998 values. Across the sample CO₂ emissions range from 0 metric tons per capita (Bangladesh and Nigeria) to 20 metric tons per capita (United States).

GDP

Many studies find a positive effect of per capita income on environmental quality (Millimet et al 2003; Neumayer 2008). There is also a documented link between national wealth and general government capacity. Therefore richer countries might ratify environmental agreements more quickly than poorer countries. Data on GDP per capita (\$1000) are taken from the World Bank's World Development Indicators and are entered into the dataset at 1998 levels.

Table 4 provides a summary of my theoretical expectations concerning the relationships between rising values of the variables of interest as measured in the data and their predicted effect on the hazard rate.

Table 4: Expected Relationship between Rising Variable Values and the Hazard Rate.

Variable	Effect on Hazard Rate
Public Support	↓
Public Action	↑
ENGO	↑
Executive Constraint	↓
Democracy	↑
CO ₂ Emissions	↓
GDP	↑

RESULTS

Table 5 provides a summary of the effect of public support and public attitudes on the speed of ratification across the three different model specifications. As evidenced by Table 5, none of the variables in Model 1, in which the sample for the analysis includes both Annex 1 and non-Annex 1 countries, managed to achieve significance. However, when Annex 1 and non-Annex 1 countries are analyzed separately (Models 2 and 3), we see that multiple variables of interest have a significant impact on the time it takes for a country to ratify the Kyoto Protocol.

Table 5: Summary of Proportional Hazard Models.

Variable	Model 1: All Countries	Model 2: Annex 1	Model 3: Non-Annex 1
Public Support	.9860505 (.0257233)	.8785849* (.0684039)	.9981587 (.0344642)
Public Action	.9994386 (.0008197)	.9981164 (.0013187)	1.000474 (.0016598)
ENGO	.9796739 (.0289548)	.8099551** (.0537925)	1.139105** (.0697881)
Executive Constraint	.7795835 (.2652051)	1.217053 (.7410753)	1.080853 (.6500391)
Democracy	1.159138 (.2289087)	.9118597 (.3475998)	.8215222 (.2717607)
CO₂ Emissions	.9107491 (.0525759)	1.136898 (.1071173)	.9316694 (.1380393)
GDP	1.038145 (.0261868)	1.100484** (.0351782)	1.137533 (.1489867)
N	46	22	24
Hazard rates are reported. (Standard Errors in parenthesis)			
*p > 0.1			
**p > 0.05			

Table 6 shows the full results of Model 2, the impact of public support and public action on the speed of ratification for Annex 1 countries.

Table 6: The Impact of Public Support and Public Action on the Speed of Ratification for Annex 1 Countries.

Variable	Hazard Ratio (s.e)	Z	P> [z]
Public Support	.8785849* (.0684039)	-1.66	0.096
Public Action	.9981164 (.0013187)	-1.43	0.154
ENGO	.8099551** (0537925)	-3.17	0.002
Executive Constraint	1.217053 (.7410753)	0.32	0.747
Democracy	.9118597 (.3475998)	-0.24	0.809
CO₂ Emissions	1.136898 (.1071173)	1.36	0.173
GDP	1.100484** (.0351782)	3.00	0.003
N = 22			

As predicted by my first hypotheses, the higher the level of public support for the use of international agreements to solve environmental problems, the less time it takes for a country to ratify the Kyoto Protocol. The survival analysis shows that a percentage point increase in the number of people in the country who strongly agree that international environmental problems can be solved without the use of environmental agreements corresponds to a 12.2% decrease in the hazard rate i.e. a decrease in the

likelihood that the agreement will be ratified. The substantive interpretation of this relationship is that the lower the level of public support in a country for taking international action to address environmental problems, the longer that country takes to ratify the Kyoto Protocol. Therefore in Annex 1 countries, public support is shown to have a significant effect on the speed in which a country ratifies the Kyoto protocol.

My second hypothesis, that those countries demonstrating a higher degree of environmental activism would ratify the Kyoto Protocol faster than countries with less environmental activism, is not supported by the findings of this model. Neither did the findings reflect any significant effects for the control variables, with the exception of ENGO strength and GDP per capita. However, somewhat surprisingly in this case, the effect of ENGO strength on the speed of ratification is in the opposite direction as that predicted by the theoretical literature. The analysis shows that for every additional national environmental non-governmental organization that is a member of the World Conservation Union, the hazard rate of ratification decreases by around 19%. Therefore, in this instance, an increase in ENGO strength is associated with an increase in the length of time it takes to ratify the Kyoto protocol. In contrast the GDP variable is significant and in the direction suggested by previous research. The data show that for every \$1000 increase in GDP per capital, the likelihood that the Kyoto Protocol will be ratified increases by roughly 10%.

Table 7 shows the results of the survival analysis for Model 3, Non-Annex 1 countries.

Table 7: The Impact of Public Support and Public Action on the Speed of Ratification for Non-Annex 1 Countries.

Variable	Hazard Ratio (s.e)	z	P> [z]
Public Support	.9981587 (.0344642)	-0.05	0.957
Public Action	1.000474 (.0016598)	0.29	0.775
ENGO	1.139105** (.0697881)	2.13	0.034
Executive Constraint	.1.080853 (.6500391)	0.13	0.897
Democracy	.8215222 (.2717607)	-0.59	0.552
CO₂ Emissions	.9316694 (.1380393)	-0.48	0.633
GDP	1.137533 (.1489867)	0.98	0.325
N = 24			

When the analysis is restricted to the sample of non-Annex 1 countries the data fail to show support for either of my hypotheses. Neither levels of public support nor the degree of public action have a significant impact on the speed of ratification. In addition, the majority of the control variables remain insignificant. Once again, the exception is ENGO strength. In Non-Annex 1 countries, ENGO strength appears to reduce the amount of time it takes for a country to ratify the Kyoto Protocol. For every additional

national environmental non-governmental organization that is a member of the World Conservation Union, the hazard rate of ratification increases by 13.9%.

DISCUSSION AND CONCLUSION

The results of the survival indicate that studies attempting to explain factors influencing the ratification of the Kyoto Protocol should distinguish between Annex 1 and Non-Annex 1 signatories. My variables of interest had different relationships to the dependent variable depending on which group of countries was analyzed. These findings lend support to the idea that the degree of formal obligations contained in a treaty can have an impact on ratification speed. In addition, given that the selection of countries into Annex 1 and Non-Annex 1 categories is not random but is based upon key national characteristics, these characteristics may help reveal some of the mechanisms by which the independent variables are operating. For example, public support was found to be a significant variable in Annex 1 countries, but insignificant in Non-Annex 1 countries. By distinguishing difference between these two countries it may be possible to identify for future research why public support affects ratification speed in one set of countries and not the other. One possibility could lie in the interaction between public opinion and democracy, as in general, democracies are thought to be more responsive to their citizens than autocracies, and across the two samples Annex 1 countries have a higher mean democracy score than Non-Annex 1 countries.¹²

Public action was not found to have a significant effect on ratification speed in any iteration of the analysis. This has different implications for Annex 1 and non-Annex

¹² Across the 46 countries in the sample, Annex 1 countries had a mean democracy score of 8.5 while Non-Annex 1 countries had a mean democracy score of 6.1.

1 countries. In Annex 1 countries it appears that a government responds to general levels of public support, such as those attitudes picked up by survey questions, but there is no additional impact on the government if those attitudes are manifested into actions. In non-Annex 1 countries the government is not seen as responding to public sentiment at all, whether it is expressed through attitudes or behavior.

The significance of the ENGO strength variable may also provide an explanation as to why public action was not found to impact ratification delay. The survey question includes the response ‘contributing to an environmental organization’ as an example of a public action. This leads to the possibility that public action is being channeled through the activities of ENGOs and thus accounts for their impact. So for non-Annex 1 countries where ENGO strength is found to decrease ratification delay, it seems feasible to suggest that successful ENGO action may be determined in part by the amount of contributions it receives from the public. I will attempt in future research to disaggregate the sources of public action so that the role of contributions to ENGOs can be parsed out. In addition the variable of ENGO strength should be modified to take account of the financial resources of a group. These steps could help to clarify this relationship.

This chapter lends support to the argument that the attitudes of the domestic public may have an influence on the ratification stage of international environmental policy. However, this finding seems to be sensitive to country characteristics, and in this analysis public support was only found to affect the ratification behavior of Annex 1 countries. The next step in determining the influence of the public attitudes on ratification behavior is to identify the specific country characteristics which influence

this relationship. However, these initial findings lend support to the argument that non state actors can have an impact on the speed in which a country ratifies international environmental legislation.

CHAPTER IV

**TRUST, ETHNIC FRACTIONALIZATION, AND COMPLIANCE WITH
INTERNATIONAL ENVIRONMENTAL AGREEMENTS**

The fact that states are able to come together to collectively address environmental problems is indisputable. The sheer number of multilateral environmental agreements present in the international system show that under the right circumstances states are able to cooperate with each other in addressing environmental problems.¹³ Yet this portrait of cooperation becomes less rosy when we look at the rate at which states comply with the environmental agreements that they have signed. What becomes clear when looking at post-treaty behavior is that, as far as environmental agreements are concerned, compliance is the exception and not the rule (Weiss and Jacobson 1998; Perkins and Neumayer 2004). What factors explain this lack of compliance, and why do some states honor their treaty commitments more than others?

Current theory is not well-equipped to answer this question. Despite a growing scholarly interest in issues of compliance (Simmons 2010), research addressing questions of international environmental cooperation mainly focuses on how states are *initially* able to cooperate. It is generally assumed that states will comply with the agreements that they sign. Given that participation in international agreements is not mandatory, and the international system possesses no overriding authority, we would expect states to self-select only into those agreements that they want to join and are prepared to implement. In fact, the very power of these agreements rest on the

¹³ Mitchell (2003) puts the number of MEAs at over 700, this is in addition to the 1500 bilateral agreements that also exist between states.

assumption that once ratified, the provisions of the agreement will be faithfully enforced. This is further exemplified by the fact that many research designs operationalize cooperation as ratification, with little attention paid to the post-ratification behavior of the state. Yet despite this logic, we see cross-national variation in compliance rates of international environmental agreements. The prevalence of non-compliance across states suggests that the traditional definition of cooperation is too narrow and that the scope of traditional study is too limited.

It is for this reason that I focus on the post-agreement stage of environmental cooperation, drawing attention to factors that explain why states do not successfully comply with international environmental agreements that they choose to sign. I argue that international environmental problems have specific characteristics that make compliance with agreements problematic, specifically the fact that the environment is a public good with non-excludable benefits. In addition I argue that in order to explain the variation in compliance rates across countries we need to move beyond the traditional state centered approach and incorporate factors which arise from the interactions of actors *within* a state. By clarifying the microfoundations of compliance behavior within a state we can more effectively account for variable compliance rates *across* states in international environmental agreements.

This chapter proceeds in the following way. First I examine previous explanations of compliance, and explain in more detail why I feel it is necessary to move beyond state-centered accounts and incorporate the role of non-state actors into theories of compliance behavior. Secondly, I propose a theoretical framework that models

compliance as a collective action game and examines the effect of trust and degree of ethnic fractionalization *within a state* on the likelihood of state compliance with international environmental agreements. Thirdly, I provide a description of the data and the type of empirical analysis used to test my hypotheses. In section five I present my main estimation results and discuss the ways in which they support my hypotheses. I use the final section to discuss the implications of my results and draw conclusions regarding the impact of trust and ethnic fractionalization on compliance behavior.

RELATED LITERATURE

EXPLANATIONS FOR NON-COMPLIANCE

Previous research has suggested a variety of reasons why states may not comply with the international agreements that they choose sign.¹⁴ Much of this work is driven by the assumption that states are rational self-interested actors and are able to accurately determine the costs and benefits of different actions. Quite simply, non-compliance is a realization that the costs of following an agreement outweigh the benefits – what Underdal (1998) terms the ‘calculus of compliance’. Key to this strand of research is that the decision to sign an agreement and the decision to comply with an agreement are modeled as separate choices. Therefore there are instances where a state may sign an agreement in order to reap political benefits, such as enhancing its international reputation (Keohane 1984) or appeasing domestic constituents (Roginko 1994) while ultimately lacking the sincere intention to comply. When it comes to the compliance

¹⁴ I define compliance as a “state of conformity or identity between an actor’s behavior and a specified rule” (Mitchell 1994: 30). In line with this logic, non-compliance occurs when “actual behavior departs significantly from prescribed behavior” (Young 1979). This definition of compliance is not concerned with the actual outcomes of an agreement, but rather with a state’s ability to adhere to an agreed-upon rule.

decision, factors such as the ability to free-ride (Stein 1983) and how close the finished treaty is to a state's ideal point in the negotiation stage (Fearon 1998) can be used to explain why some states comply more than others when it comes to honoring international commitments.

However, this line of research has been disputed by those who argue that the decision to cooperate and the decision to comply cannot be so easily disentangled. Chayes and Chayes (1995) stress that the amount of time and resources a state spends negotiating and ratifying agreements makes it unlikely that these are just empty gestures of cooperation. This is part of a school of literature argues that non-compliance is not a result of state unwillingness, but rather the inability of a state to comply with the provisions of an agreement due to a lack of state capacity at a technical and administrative level.¹⁵ Good-faith efforts to comply with the provisions of an agreement may be hampered by the inefficiency of the state due to the administrative burden implementing legislation places on a state. Various studies of compliance behavior have lent support to these arguments. For example, in comparing rates of compliance with environmental accords across nine countries, Weiss and Jacobson (1998) conclude that the administrative capacity of the state is a crucial explanatory variable. Similarly, Mbaye (2001) examines the link between compliance and capacity, finding that infringement cases fall as bureaucratic efficiency rises.

¹⁵ Capacity in this context is broadly defined as the efficiency and expertise of a bureaucracy, and the amount of fiscal resources a state has to implement an agreement (Chayes and Chayes 1993; Jacobson and Brown Weiss 1995).

However, these explanations of compliance still focus on state-level variables as the primary determinants of compliance behavior. Yet actual compliance behavior is often not the purview of states, but rather the individual citizens of a state. While international obligations are often framed in terms of state obligations, they are usually directed at regulating the behavior of private actors that exist within the purview of the state (Chayes and Chayes 1995; Simmons 2010). This is particularly true with respect to international environmental treaties given that the environmental problems they are designed to address are simultaneously both global and local (Mitchell 1992; Skaersth 2003).

It is for this reason that I argue that interactions at the sub-state level need to be taken into account when explaining the compliance behavior of states. In line with some of the aforementioned literature I argue that signing and complying with an agreements are two separate decisions, however, I propose that the compliance decision is not one made by the state, but rather by the individuals within a state. Therefore we need to consider variables that exist at this level of analysis which might make an individual more likely to comply with domestic regulations. Interpersonal trust has been theorized to have such an effect.

THE ROLE OF TRUST IN COMPLIANCE BEHAVIOR

Research on the role of trust suggest that it can be instrumental in solving collective action problems, as when trust is high there is an expectation of burden-sharing, as well as the belief that cooperative actions will be reciprocated. (Ostrom 1990; Oakerson 1993; Pretty and Ward 2001). Trust is theorized to increase compliance with

agreements by reducing problems of free-riding and cheating, as the presence of trust increases the expectation that other actors will also comply. This theory assumes that non-compliance is a result of infringements by individual citizens who defect out of fear of being a ‘sucker’ and complying with a law that others are shirking. Experimental findings support this line of reasoning, demonstrating that individuals are less likely to comply with environmental regulations when they also suspect others of non-compliance (Boix and Posner 1998).

There is also empirical evidence linking trust and compliance with domestic law, in areas ranging from taxpayer compliance to compliance with government sponsored water bans (Scholz and Pinney 1995, Tyler and Degoey 1995). With regards to international law, Lampinen and Uusikylä (1998) find a positive relationship between trust and the successful implementation of EU directives. This points to the fact that trust may have a positive effect on compliance behavior in general.

A CAVEAT: THE CONDITIONAL EFFECT OF TRUST

Despite the positive effect of trust is expected to have on compliance behavior, I also caution that the effect of trust on compliance is mediated by the degree of ethnic fractionalization in a country. There is research to suggest that, under certain circumstances, high levels of trust may generate negative externalities. This is in line with the social capital literature which distinguishes between positive social capital (‘bridging’) and negative social capital (‘bonding’). Important differences exist between bridging and bonding social capital in terms of the kinds of relationships generated between individuals and the types of outcomes we expect to observe.

Bridging social capital is thought to produce ties that span across different groups and social networks, bringing people together who have similar interests and goals, although not necessarily similar social backgrounds. Bridging social capital is regarded as the desirable type of social capital, and is thought to stimulate collective action and positive outcomes (Paxton 1999; Putnam 2000; Woolcock and Narayan 2000). Conversely, bonding social capital is thought to be a product of division and exclusion, and only works to cement homogenous groups together, strengthening ties within, but not across, groups. In some cases, bonding social capital has been linked with undesirable outcomes, such as inter-group conflict (Hardin 1995; Berman 1997; Gittel and Vidal 1998; Beugelsdijk and Smulders 2003). Moreover, Colletta and Cullen (2000) demonstrate an association between high levels of bonding social capital and the eruption of ethnic violence in Cambodia, Rwanda, Guatemala, and Somalia.

Using this logic I posit that a similar type of relationship exists for trust.¹⁶ There is some research to support this. Uslaner (2000) theorizes that there is a difference between generalized and particularized trust. He argues that particularized trust is a characteristic of bonding social capital and generalized trust is a characteristic of bridging social capital. In sum, just like social capital, there may be a 'dark side' to trust. Given this, I argue that in ethnically diverse societies, high levels of trust may be indicative of high levels of polarization. In this case the *type* of trust being measured is

¹⁶ I discuss social capital and trust as separate concepts, even though the terms are often interchangeable. Some studies use trust as their sole indicator of social capital (David 2007). Sonderskov (2007) even advocates that all studies should define social capital as trust in order to make studies more consistent and comparable.

likely to be ‘in-group’ trust and is not expected to have a positive effect on compliance behavior.

THEORETICAL FRAMEWORK AND HYPOTHESES

I model compliance as a coordination game between individual actors at the local level. In a traditional coordination game, as displayed in Figure 2, players have the following payoff structures:¹⁷

Figure 2: Coordination Game.

		Player 2	
		Comply	Shirk
Player 1	Comply	2,2	0,1
	Shirk	1,0	1,1

The coordination game has two equilibria, (C, C) or (S, S) i.e. both players comply or both players shirk. Both players have receive payoffs if they can coordinate on the compliance equilibrium than if they both shirk, but no player wants to receive the ‘sucker payoff’ of complying while the other player shirks, resulting in the (S, S)

¹⁷ Bryant (1983)

equilibrium. In sum, it is the fear of the sucker payoff can prevent players converging on the compliance equilibrium.

I argue that the levels of trust in a society help to mitigate the fear that the other player will shirk, resulting in a greater likelihood that players will be able to achieve the outcome with the highest payoff – the one in which both players comply. As discussed earlier, trust can increase compliance behavior by decreasing fears of free-riding and increasing norms of reciprocity. Therefore countries that have a high level of trust will be more likely to converge on the ‘contribute’ equilibrium choice rather than the shirking equilibrium, and will therefore demonstrate higher levels of compliance with international environmental agreements. This leads me to my first hypothesis:

Hypothesis 1: The higher the level of trust in a country, the lower the number of compliance violations.

THE CONDITIONAL EFFECT OF TRUST: MODELING COMPLIANCE AS A COORDINATION GAME BETWEEN DIFFERENT ETHNIC GROUPS

In contrast to Hypothesis 1, I also argue that in fractionalized countries, high levels of trust make individuals more likely to converge on the non-compliance equilibrium. This is due to the fact that diverse societies are more likely to generate the type of trust that can be linked to negative societal outcomes. In a fractionalized society with high levels of trust, compliance is the likely equilibrium outcome between members of the same ethnic group, but this belief that other people will not shirk does not extend

to individuals who are members of *other* ethnic groups. As the number of ethnic groups in a society increases (i.e. as society becomes more fractionalized) the less likely it is that the compliance equilibrium will be a collective outcome. Therefore in those countries where a high level of trust is also accompanied by a high level of ethnic diversity, trust will result in higher levels of non-compliance with international agreements. This is the logic behind hypothesis two:

Hypothesis 2: In highly fractionalized countries, the higher the level of trust, the higher the number of compliance violations.

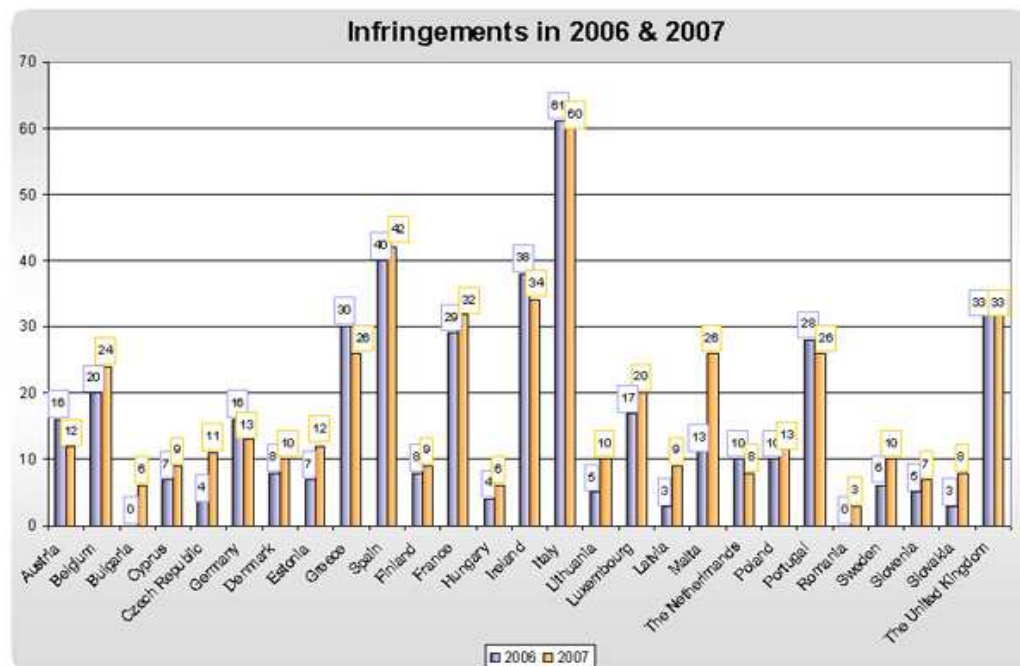
EMPIRICAL MODEL AND DATA

To establish the theoretical and substantive importance of trust on compliance, I examine the impact of levels of trust on the number of environmental violations that occur within a state. I test this hypothesis using the original fifteen member states of the European Union. The baseline political and economic criteria required for EU membership helps create a most similar systems design, which controls for a number of unobserved variables across the sample. In addition, EU membership means that citizens of each member state are complying or not complying with the same set of laws. Yet, as shown in Figure 3, there still exists substantial variation across member countries in rates of compliance. Therefore the EU-15 seems an ideal sample on which to examine the impact of trust on compliance.

Given that the dependent variable is a count variable, and the data is over-dispersed, a negative binomial model is used to empirically assess the relationship

between trust and domestic compliance with IEA provisions. While collected across multiple years, the model is not run as a time series due to breaks in the data. Instead the model is considered cross-sectional with multiple observations per country. Data are clustered by member state to account for problems of non-independence. Lower levels of trust in a member state should increase the number of times a country violates an international environmental agreement. In addition, the inclusion of an interaction variable to capture the relationship between trust and ethnic fractionalization reflects the expectation that the effect of trust will be conditional upon the degree of fractionalization in a country.

Figure 3: Total Infringements of Community Law by Member States, 2006 and 2007.



DEPENDENT VARIABLE

My dependent variable of non-compliance is coded as the number of open infringements per country per year, as recorded by the European Court of Justice. These data are found in the *Annual Survey on the Implementation and Enforcement of Community Law*, a report released by the European Commission and available through their website. This report contains statistics on the number of infringements of community law by sector and member state.¹⁸

There is a potential concern that using infringement data from the European Court of Justice does not accurately reflect the number of violations actually occurring inside a member state. Only a fraction of the number of violations that occur may get reported to or detected by the ECJ, the majority may be dealt with by domestically or not be detected at all. However, in line with Borzel et al. (2007) I would argue that there is no reason to suspect a systematic bias in the data, as there is no evidence to suggest that the ECJ concentrates its efforts on one member-state rather than another. So while infringement proceedings may be a blunt measure of compliance, it is currently the best measure available, and is at least equally blunt across all member-states.

The Commission classifies open infringements into three categories, *non-communication* (Member-states have failed to notify the Commission on their efforts to implement the law), *bad application* (the law has been implemented incorrectly), and *non-compliance* (the law has been violated). In line with my theory of compliance, I only consider cases of non-compliance; cases of non-communication and bad application seem more suited to system level explanations. Cases are also not double-counted if they

¹⁸ The ECJ also maintains a searchable database of all actions and rulings. This can be found at <http://curia.europa.eu/jurisp/cgi-bin/form.pl?lang=en> (Accessed February 7th 2009)

remain in the court system long enough to appear in multiple years. Given the data availability for the independent variable, data for the dependent variable is coded for 2002, 2004, and 2006. The number of environmental infringements per country/year range from 6 (Sweden, 2006) to 77 (Italy, 2006).

INDEPENDENT VARIABLES

Trust

My main independent variable of trust relies on survey data taken from the 2002, 2004, and 2006 waves of the European Social Survey. It is coded as the percentage of people in each country who answer ‘10’ on a Likert scale in response to the following question:

“Using this card, generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people? Please tell me on a score of 0 to 10, where 0 means you can't be too careful and 10 means that most people can be trusted.”

In the sample, trust ranges from 0.7% (Greece) to 7.9% (Sweden).

Ethnic Fractionalization

Fractionalization data is taken from Alesina et al (2003). Data is derived from multiple sources of demographic data (Encyclopedia Britannica/CIA Data/Minority Rights Group International) which are checked against each other for consistency. The score given is the probability that two people drawn at random from the population belong to different ethnic groups and is calculated using the following formula:

$$\text{FRACT}_j = 1 - \sum_{i=1}^N s_{ij}^2$$

where s_{ij} is the share of the group $_i$ ($i = 1 \dots n$) in country $_j$. For interpretation purposes, ‘1’ would represent a diverse society and ‘0’ would represent a completely homogenous population. In the sample, fractionalization ranges from 0.04 (Portugal) to 0.5 (Belgium). A country’s fractionalization score does not vary across the time period.

CONTROL VARIABLES

In my analysis I also control for system-level explanations previously advocated in the literature in order to assess the true impact of trust on compliance. As previously mentioned, given the baseline political and economic criteria required for EU membership, it should not be necessary to control for a wide range of institutional factors. However, there are two main variables that are frequently cited in the compliance literature, and thus these are included as controls in the analysis.

Government Effectiveness

It is argued that basic governmental competence is required in order for a society to be able to monitor and respond to environmental pressure (Fredriksson and Svensson 2003). It is possible that levels of compliance may be driven by the capacity a government has to implement and enforce legislation domestically. Government effectiveness is defined as ‘quantity of public service provision, the quality of bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government’s commitment to policies.’ Country scores on government effectiveness are taken from the Worldwide Governance Indicators project at the World Bank, which aggregates twenty-five sources of

information on government effectiveness in order to produce comparable indicators. Scores are standardized z-scores ranging from 0.74 (Greece) to 2.3 (Denmark).

GDP

It has been suggested that environmental performance increases as income per capita increases. Dasgupta, Mody, and Wheeler (2001) found strong correlation between level of economic development and various environmental indicators. It is also possible that ensuring compliance with environmental agreements requires resources for monitoring and enforcement at the domestic level, and those countries with more resources therefore have less violations. GDP data are taken from the World Development Indicators database at the World Bank and operationalized as GDP per capita. Data range from \$10,654/capita (Portugal) to \$51,108/capita (Luxembourg).

RESULTS

Table 8 shows the effects of trust and fractionalization on infringements. The trust variable is significant and in the expected direction, supporting the hypothesis that higher levels of trust between citizens of a country leads to higher levels of compliance with EU environmental law. This lends support to the argument that trust in fellow citizens helps decrease fears of free-riding, enabling individuals to escape from the ‘tragedy of the commons’.

However, as predicted by my second hypothesis, the effect of trust on compliance is conditioned by the degree of ethnic fractionalization in a society. When trust and ethnic fractionalization are entered into the model as an interaction variable, the results suggest high levels of trust in highly fractionalized societies leads to an increased

number of infringements. This lends support to the argument that there are circumstances in which high levels of trust can produce negative externalities.

Table 8: Negative Binomial Regression of the Effect of Trust and Fractionalization on Infringements.

Independent Variables	Coefficient	Robust Standard Error	z-score	P > z
Trust	-.2135059*	.0643007	-3.32	0.001
Ethnic Fractionalization¹⁹	-.8521527	.5850885	-1.46	0.145
Trust x Ethnic Fractionalization	.8365611 *	.2284301	3.66	0.000
Government Effectiveness	-.2104707	.3300576	-0.64	0.524
GDP	-.0000328	.0000191	-1.71	0.087
Constant	4.552271	.4295445	10.60	0.000
N = 41				

The following marginal effects graphs better illustrate how ethnic diversity conditions the impact of trust on compliance:

¹⁹ Following Brambor, Clark, and Golder's (2006) suggestion, the analysis includes all the constituent terms used in the interaction variable to avoid biased estimates and omitted variables bias. Therefore Ethnic Fractionalization is also included by itself as a separate variable.

Figure 4: Marginal Effect of Trust on Infringements.

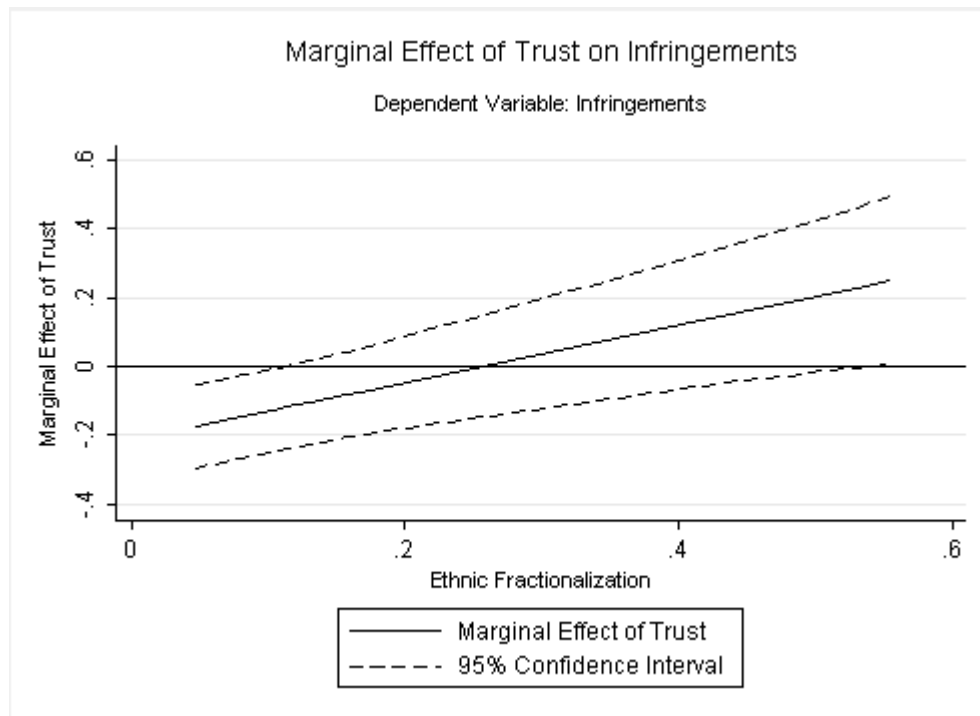


Figure 4 helps to clarify the marginal effect of trust on number of infringements as ethnic fractionalization ranges from zero to one. Trust has a negative and significant impact on the number of infringements only in societies with low levels of fractionalization (0.1145 and below), indicating that trust only decreases infringements in relatively homogenous countries. This result accounts for around 40% of my cases. In contrast, at higher levels of fractionalization (0.554 and above) trust increases the number of infringements, suggesting that trust can have a detrimental impact on compliance in ethnically diverse societies. While this result only accounts for around 2% of my sample, it is worth noting that in relative terms the EU-15 do not possess the ethnic diversity of some African countries such as Gambia (0.78), Liberia (0.9), and Sierra Leone (0.81). If the relationship between trust and compliance was examined over

an extended sample, it is likely we would see more cases falling into the range at which trust increases infringements.

In countries registering an ethnic fractionalization score of around 0.15-0.54, there seems to be no relationship between trust and environmental infringements. This suggests that trust only matters in mostly homogenous or mostly heterogeneous societies.

Figure 5: Marginal Effect of Fractionalization on Infringements.

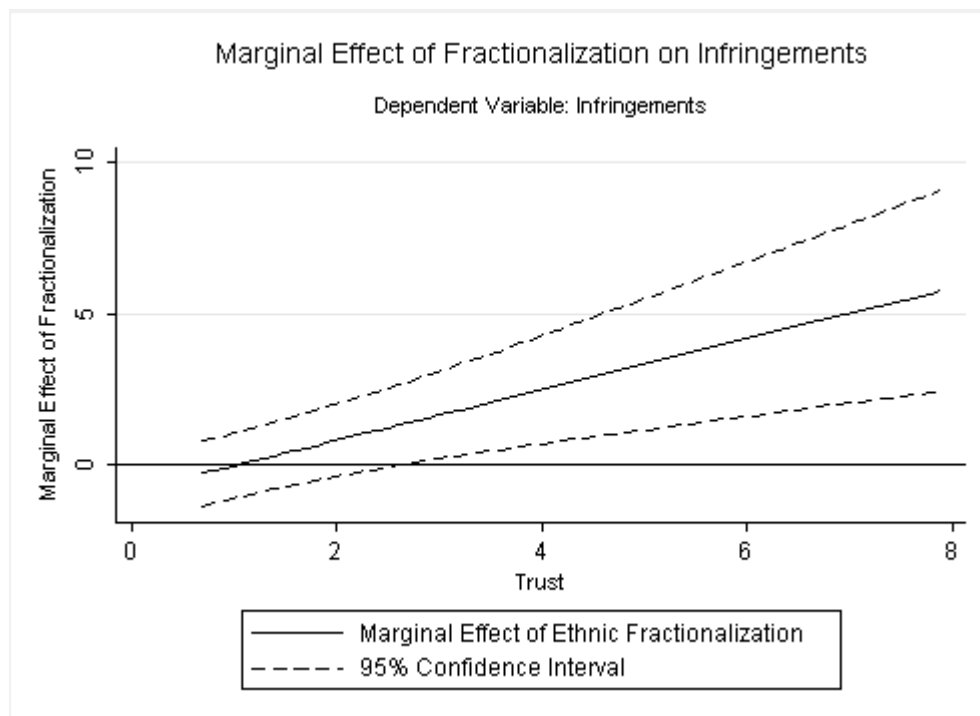


Figure 5 helps to further elucidate the relationship between the variables. The graph shows the marginal effects of ethnic fractionalization over increasing levels of

trust. My theory proposed that ‘high’ levels of trust in a fractionalized society would have a detrimental impact on compliance behavior. It is now possible to quantify this statement with the finding that fractionalization starts to increase the number of environmental infringements in a country when more than 3% of the population would answer ‘10’ when presented with a 0-10 scale asking whether they agree that ‘most people can be trusted’.

It may seem counter-intuitive that trust can be linked to negative outcomes in diverse societies given the way the measure of trust is obtained by the European Social Survey. It would be expected that the way the question is worded ‘in general, most people can be trusted’, coupled with the way the variable is coded (only taking into account the people who responded ‘10’) would tap into how a respondent feels about society as a whole, not just people in their own ethnic group. However, it is feasible that polarized societies that exhibit minimal mixing between groups, respondents to the survey could infer ‘people’ to mean people of their own ethnic group i.e. they trust the people that they know. These findings support the idea that there can be different types of trust and, as with social capital, there is some evidence for the existence of a ‘dark side’ to trust. These findings also serve as an important caveat to researchers who utilize measures of trust from these kinds of surveys as a proxy for generalized trust. We may in fact be dealing with something far more specific.

The state-level control variables also bring to light some interesting results. While producing coefficients in the direction predicted by previous research, neither government effectiveness or GDP manage to achieve significance, suggesting that once

you account for citizen dynamics at the local level, state-level variables wash out of the model. This further speaks to the importance of moving beyond the state-as-unitary-actor approach when attempting to explain cross-country variations in compliance with international law.

CONCLUSIONS

This chapter has demonstrated that trust has a significant impact on compliance behavior. In the case of the EU-15, countries with higher levels of trust infringe less on EU environmental law. I argue that this is because citizens trust each other not to violate the law, and that this facilitates convergence on the ‘contribute’ equilibrium of the collective action game. Additionally, the significant effect of the interaction variable indicates that the effect of trust is mediated by the degree of ethnic fractionalization. In an ethnically diverse society, high levels of trust can generate negative externalities. The type of trust present in these kinds of societies does not help all citizens to trust each other; trust instead works to bond the members of the same ethnic group together, while those outside of the group are regarded with suspicion. Due to this, the belief that these ‘other’ people will defect or free-ride is still present as the expectation of cooperative behavior only exists between members of one’s own group. Therefore, in these countries, trust is not able to ameliorate the collective action problem.

These findings also have several theoretical implications for future research. Firstly, IR theory needs to pay more attention to what happens after an agreement is signed and ratified. The variations in compliance across countries would seem to indicate that not all completed agreements should be counted as a ‘success’. Secondly, as

previously discussed, this research demonstrates that trust has a far more nuanced effect than it is usually assigned, and scholars dealing with aggregate levels of trust should consider the ways in which ethnic fractionalization may condition the effect trust has on other variables.

Finally, this chapter demonstrates that looking beyond state-level explanations can be fruitful in explaining the dynamics of compliance behavior. As shown by this study, not only are state-level variables not sufficient in explaining variations in levels of compliance, but when analyzed in conjunction with variables that focus on sub-state processes, they can lose their explanatory power altogether.

CHAPTER V

CONCLUSIONS: ASSESSING THE INFLUENCE OF NON-STATE ACTORS

ON INTERNATIONAL ENVIRONMENTAL POLICY

This dissertation analyzed the influence of non-state actors at three different stages of the international environmental policymaking process. I theorized that that in the area of international environmental cooperation, ENGOs and the public attitudes of the domestic population work to pressure state decision-makers to take more pro-environmental action, in this case the joining of international treaties or the length of time it takes a country to ratify the Kyoto Protocol. In the post-agreement state I argued that levels of interpersonal trust between citizens could help explain the variation in compliance rates across states. In all cases, these hypotheses were tested cross-nationally in order to be able to draw general conclusions about the influence of non-state actors in international environmental policymaking.

The empirical results support these hypotheses to some extent. In Chapter II I showed that countries displaying a stronger ENGO base were found to participate in more international environmental agreements in general than countries with a weaker ENGO base, although this finding is sensitive to how the variable of ENGO strength is specified. In this instance I found that the number of ENGOs in a state is positively and significantly related to the number of international environmental treaties that the state joins, but an alternative measure of ENGO strength that has been used in the literature, Greenpeace strength per capita, was not found to be a significant predictor of treaty participation behavior across countries.

My findings in Chapter III demonstrated the influence of public attitudes on the speed in which a country ratifies the Kyoto Protocol. In this analyses I find that the greater the level of public support for the use of international environmental agreements to solve environmental problems the smaller the ratification delay for the Kyoto Protocol. However, this finding is only significant for those countries designated as Annex-1 in the Kyoto process, though the impact of ENGOs on ratification delay was significant in both Annex 1 and non-Annex 1 countries. In the final empirical chapter I find evidence for the proposition that the higher the level of inter-personal trust between citizens the more likely they are to comply with environmental legislation, and I used cross-national variation in inter-personal trust to explain the cross-nation variation in compliance rates. Thus my empirical work in this dissertation has found for an influence of non state actors in these three areas of international environmental policymaking.

I aimed to contribute to the existing literature in the following ways. My empirical work in this dissertation also makes a contribution to previous research by examining to role of non-state influence across multiple countries. In a field usually dominated by a case study approach in which the effect of a specific non-state actor on a specific policy is analyzed, I test for ENGO influence across 107 countries. I also test for the effect of participating in environmental agreements in general rather than a specific environmental agreement. Similarly, when examining the impact of public attitudes on Kyoto Protocol ratification, I move beyond the traditional approach of using a dichotomous outcome as my dependent variable, i.e. was the protocol ratified or not. Instead I use survival analysis to consider the speed at which a country ratifies the Kyoto

Protocol, allowing a more nuanced examination of the ratification process in a way that is amenable to assessing influence. Finally, when using levels of trust to explain compliance behavior, I also demonstrate how non-state influences can interact with other factors, causing their relationship to outcomes to be changed. In this case of this research, I found that trust improves compliance rates, but in countries where there is high trust and high fractionalization, we see an increase in the number of compliance violations.

The results of my empirical analyses also have theoretical implications. My research in this dissertation confirms the proposition that - in contrast to the dominant state-centered view of international relations theory to explain the various aspects of international environmental politics - non-state actors have a significant impact on the process. Therefore these actors need to be theoretically incorporated in to our frameworks of explanation I also suggest a mechanism by which this influence may be operating. My argument is that while the state is still a key actor in the international arena, non state actors have a role to play. Specifically, I propose that non-state actors work to change the decision-making calculus of a state by applying pressure to policymakers and causing the state to pursue more pro-environmental policies. Therefore future research in this area should move away from the ‘death of the state/rise of non-state actors’ debate alluded to in my introductory chapter, and instead focus on mapping the interactions between non-state actors and national governments, particularly with regard to how these interactions affect international outcomes.

REFERENCES

- Agnone, Jon. 2007. "Amplifying Public Opinion: The Policy Impact of the U.S. Environmental Movement." *Social Forces* 85: 1593-1620.
- Ainsworth, Scott, and Itai Sened. 1993. "The Role of Lobbyists: Entrepreneurs with Two Audiences." *American Journal of Political Science* 37 (3): 834-66.
- Alesina, Alberto, Arnaud Devleeschauwer, William Easterly, Sergio Kurlat, and Romain Wacziarg. 2003. "Fractionalization." *Journal of Economic Growth* 8 (2): 155-94.
- Andresen, Steinar, and Tora Skodvin. 2003. Nonstate influence in the International Whaling Commission, 1970-1990. *Global Environmental Politics* 3 (4): 61-86.
- Auer, Mathew. 2000. "Who Participates in Global Environmental Governance? Partial Answers from International Relations Theory." *Policy Sciences* 33: 155-80.
- Austen-Smith, David. 1993. "Information and Influence: Lobbying for Agendas and Votes." *American Journal of Political Science* 37 (3): 799-833.
- Berman, Sheri. 1997. "Civil Society and Political Institutionalization." *American Behavioral Scientist* 40 (5): 562-74.
- Betsill, Michele M. 2002. "Environmental NGOs Meet the Sovereign State: The Kyoto Protocol Negotiations on Global Climate Change." *Colorado Journal of International Environmental Law and Policy*. 13: 49-64
- and Elizabeth Corell. 2001. "NGO Influence in International Environmental Negotiations: A Framework for Analysis." *Global Environmental Politics* 1 (4): 65-85.
- Beugelsdijk, Sjoerd and Sjak Smulders. 2003. "Bridging and Bonding Social Capital: Which Type is Good for Economic Growth?"
http://spitswww.uvt.nl/web/fsw/lustrum/papers/sjak_sjoerd_revised.pdf (15th April 2007).
- Binder, Seth, and Eric Neumayer. 2005. "Environmental Pressure Group Strength and Air Pollution: An Empirical Analysis." *Ecological Economics* 55: 527-38.
- Birner, R. and H. Wittmer. 2003. "Using Social Capital to Create Political Capital: How Do Local Communities Gain Political Influence?" In *The Commons In The New Millennium*, eds. N. Dolsak, and Elinor Ostrom. Cambridge, MA: MIT Press.

- Boix, Carles, and Daniel N. Posner. 1998. "Social Capital: Explaining its Origins and Effects on Government Performance." *British Journal of Political Science* 28: 686-93.
- Börzel, T., M. Dudziak, T. Hoffman, D. Panke, and C. Surungk. 2007. "Recalcitrance, Inefficiency, and Support for European Integration: Why Member States Do (not) Comply with European Law." *Working Paper Series #151* Cambridge, MA: Harvard Center for European Studies.
- Brace, Paul, Kellie Sims-Butler, Kevin Arceneaux, and Martin Johnson. 2002. "Public Opinion in the American States: New Perspectives Using National Survey Data." *American Journal of Political Science* 46 (1): 173-89.
- Brambor, Thomas, William Clark and Matt Golder. 2006. "Understanding Interaction Models: Improving Empirical Analyses." *Political Analysis* 14: 63-82.
- Brunner, R.D., and R. Klein. 1999. "Harvesting Experience: A reappraisal of the US Climate Change Action Plan." *Policy Sciences* 32 (2): 133-61.
- Bryant, J. 1983. "A Simple Rational Expectations Keynes-type Model." *Quarterly Journal of Economics* 98: 525-8.
- Burnstein, Paul. 1998. "Bringing the Public Back In: Should Sociologists Consider the Impact of Public Opinion on Public Policy?" *Social Forces* 77 (1): 27-62.
- and April Linton. 2002. "The Impact of Political Parties, Interest Groups, and Social Movement Organizations on Public Policy: Some Recent Evidence and Theoretical Concerns." *Social Forces* 81: 380-408.
- 2003. "The Impact of Public Opinion on Public Policy: A Review and Agenda." *Political Research Quarterly* 56 (1): 29-40.
- Chayes, Abram, and Antonia H. Chayes. 1993. "On Compliance" *International Organization* 47 (2): 175-205.
- 1995. *The New Sovereignty* Cambridge, MA: Harvard University Press.
- Colletta, Nat J. and Michelle L Cullen. 2000. *Violent Conflict and the Tragedy of Social Capital: Lessons from Cambodia, Rwanda, Guatemala, and Somalia*. Washington DC: World Bank.
- Conconi, Paola. 2003. "Green Lobbies and Transboundary Pollution in Large Open Economies." *Journal of International Economics* 59: 399-422.

- Congleton, Roger D. 1992. "Political Institutions and Pollution Control." *Review of Economics and Statistics* 74 (3): 412-21.
- Corell, E., and M. Betsill. 2002. "A Comparative Look at NGO Influence in International Environmental Negotiations: Desertification and Climate Change." *Global Environmental Politics* 1 (4): 86-107.
- Dasgupta, Susmita, Ashoka Mody, Subhendu Roy, and Davis Wheeler. 2001. "Environmental Regulation and Development: A Cross-Country Empirical Analysis" *Oxford Development Studies* 29 (2): 173-87.
- David, Antonio C. 2007. *HIV/AIDS and Social Capital in a Cross-Section of Countries*. World Bank Policy Research Paper: WPS4263.
- Deacon, Robert T. 1999. "The Political Economy of Environment-Development Relationships: A Preliminary Framework." *Economics Working Paper Series* 1172.
- Downs, Anthony. 1957. *An Economic Theory of Democracy*. New York: Harper.
- Durden, G.C., J.F. Shogren, and J.I. Silberman. 1991. "The Effects of Interest Group Pressure on Coal Strip-Mining Legislation." *Social Science Quarterly* 72: 239-50.
- Erikson, Robert S., Michael B. MacKuen, and James A. Stimson. 2002. *The Macro Polity*. Cambridge, UK: Cambridge University Press.
- Fearon, James. 1998. "Bargaining, Enforcement, and International Cooperation." *International Organization* 52 (2): 269-305.
- Fording, RC. 1997. "The Conditional Effect of Violence as a Political Tactic: Mass Insurgency, Welfare Generosity, and Electoral Context in the American States." *American Journal of Political Science*: 41: 1-29
- Fowler, L.L., and R.G. Shaiko. 1987. "The Grass Roots Connection: Environmental Activists and Senate Roll Calls." *American Journal of Political Science* 31: 484-510.
- Franzen, Axel. 1994. "Group Size Effects in Social Dilemmas: A Review of the Experimental Literature and Some New Results for One-Shot N-PD Games." In U. Schulz, W. Albers, and U. Meuller, eds. *In Social Dilemmas and Cooperation*. New York: Springer-Verlag.

- Fredriksson, Per G. 1997. "The Political Economy of Pollution Taxes in a Small Open Economy." *Journal of Environmental Economics and Management* 33: 44-58.
- and N. Gaston. 2000. "Ratification of the 1992 Climate Change Convention: What Determines Legislative Delay?" *Public Choice* 104: 345-68.
- and Jakob Svensson. 2003. "Political Instability, Corruption and Policy Formation: The Case of Environmental Policy." *Journal of Public Economics* 87: 1383-1405.
- and E. Neumayer, R. Damania, and S. Gates. 2005. "Environmentalism, Democracy, and Pollution Control" *Journal of the Environment, Economics, and Management*, 49 (2): 343-65.
- and E. Neumayer, and G. Ujhelyi. 2007. "Kyoto Protocol Cooperation: Does Government Corruption Facilitate Environmental Lobbying?" *Public Choice* 133: 231-51.
- Gittel, Ross, and Avis Vidal. 1998. *Community Organizing: Building Social Capital as a Development Strategy*. Thousand Oaks, CA: Sage Publications.
- Grogan, Colleen. 1994. "Political-Economic Factors Influencing State Medicaid Policy." *Political Research Quarterly* 47 (3): 589-622.
- Grossman, Gene M., and E. Helpman. 2001. *Special Interest Politics*. Cambridge, MA: MIT Press.
- Haas, Peter. 1992. "Introduction: Epistemic Communities and International Policy Coordination." *International Organization* 46 (1): 1-35.
- Hardin, Russell. 1995. *One for All*. Princeton, NJ: Princeton University Press.
- Hartley, Thomas, and Bruce Russett. 1992. "Public Opinion and the Common Defense: Who Governs Military Spending in the United States?" *American Political Science Review* 86: 905-15.
- Hawkins, Ann. 1993. "Contested Ground: International Environmentalism and Global Climate Change." In *The State and Social Power in Global Environmental Politics*. Ken Conca and Ronnie Lipschutz, eds. New York: Columbia University Press: 221-45.
- Hays, Scott P., Michael Esler, and Carol E. Hays. 1996. "Environmental Commitment among the States: Integrating Alternative Approaches to State Environmental Policy." *Publius: The Journal of Federalism* 26 (2): 41-58.

- Hurrell, A. 1992. Brazil and the International Politics of Amazonian Deforestation. In *The International Politics of the Environment* A, Hurrell, and B. Kingsbury, eds. Oxford: Oxford University Press.
- Jacobson, Harold K, and Edith Brown Weiss. 1995. "Strengthening Compliance with International Environmental Accords: Preliminary Observations from a Collaborative Project" *Global Governance* 1 (2): 119-148.
- Jencks, Christopher. 1985. "Methodological Problems in Studying Military Keynesianism." *American Journal of Sociology* 91: 373-79.
- Kalt, Joseph P., and Mark A. Zupan. 1984. "Capture and Ideology in the Economic Theory of Politics." *American Economic Review* 74: 279-300.
- Keohane, Robert. 1984. *After Hegemony: Cooperation and Discord in the World Political Economy*. Princeton, NJ: Princeton University Press.
- Krasner, Stephen. 1983. *International Regimes*. Ithaca, N.Y.: Cornell University Press
- Lampinen, Peter and Petri Uusikylä. 1998. "Implementation Deficit – Why Member States Do Not Comply with EU Directives?" *Scandinavian Political Studies* 21 (3): 231-251
- Lewis, Daniel C. 2005. "Public Opinion and Interest Group Influence: An Analysis of Policy Variation in the American States." Presented at the State Politics and Policy Conference, East Lansing, MI.
- Liften, K. 1993. "Eco-Regimes: Playing Tug of War with the Nation State." In *The State and Social Power in Global Environmental Politics*. Ken Conca and Ronnie Lipschutz, eds. New York: Columbia University Press: 94-117.
- Loy, Frank. 2000. "Public Participation in the World Trade Organization." In *The Role of the World Trade Organization in Global Governance* Gary Sampson, ed. Tokyo: United Nations University Press: 113-35.
- Mansfield, Edward D., and Jon C. Pevehouse. 2008. "Democratization and the Varieties of International Organizations." *Journal of Conflict Resolution* 52 (2):269-294.
- Mbaye, Heather. 2001 "Why National States Comply with Supranational Law: Explaining Implementation Infringements in the European Union, 1972-1993." *European Union Politics* 2 (3): 259-81.

- Meyer, John W., David John Frank, Ann Hironaka, Evan Schofer, and Nancy Brandon Tuma. 1997. "The Structuring of a World Environmental Regime, 1870–1990." *International Organization* 51 (4): 623–29.
- Millimet, D.L., J.A. List, and T. Stengos. 2003. "The Environmental Kuznets Curve: Real Progress or Misspecified Models?" *Review of Economics and Statistics* 85: 1038-1047.
- Mitchell, Ronald B. 1992. *From Paper to Practice: Improving Environmental Treaty Compliance* PhD dissertation: Harvard University.
- . 1994. "Regime Design Matters: Intentional Oil Pollution and Treaty Compliance" *International Organization* 48 (3): 425-458.
- . 2003. "International Environmental Agreements: A Survey of Their Features, Formation, and Effects" *Annual Review of Environment and Resources* 28: 429-461.
- Monroe, Alan D. 1998. "Public Opinion and Public Policy: 1980-1993." *Public Opinion Quarterly* 62: 6-28.
- Moravcsik, Andrew. 1997. "Taking Preferences Seriously: A Liberal Theory of International Politics." *International Organization* 51: 513-53.
- Neumayer, Eric. 2008. "Death Penalty Abolition and the Ratification of the Second Optional Protocol." *International Journal of Human Rights* 12(1): 3-21.
- . 2002. "Do Democracies Exhibit Stronger International Environmental Commitment? A Cross-Country Analysis." *Journal of Peace Research* 39(2): 139-64.
- Newell, Peter. 2000. *Climate for Change*. Cambridge, UK: Cambridge University Press.
- Oakerson, Ronald J. 1993. "Reciprocity: A Bottom-up View of Political Development." In *Rethinking Institutional Analysis and Development Issues, Alternatives and Choices*. Vincent Ostrom, David Freeny, and Hartmut Picht, eds. San Francisco: ICS Press, 141-58.
- Ostrom, Elinor. 1990. *Governing the Commons*. New York: Cambridge University Press.
- Page, Benjamin I., and Robert Y. Shapiro. 1983. "Effects of Public Opinion on Policy." *American Political Science Review* 77: 175-90.

- Paterson, Matthew. 1996. "IR Theory: Neo-Realism, Neo-Institutionalism and the Climate Convention." In *The Environment and International Relations*. John Volger, and Mark Imbers, eds. London: Routledge: 59-77.
- Paxton, Pamela. 1999 "Is Social Capital Declining in the United States? A Multiple Indicator Assessment." *American Journal of Sociology* 105 (1): 88-127.
- Perkins, Richard, and Eric Neumayer. 2004. "Europeanisation and the Uneven Convergence of Environmental Policy: Explaining the Geography of EMAS." *Environment and Planning C* 22 (6): 881-97.
- Pretty, Jules and Hugh Ward. 2001. "Social Capital and the Environment." *World Development* 29 (2): 209-27.
- Princen, Thomas, Matthias Finger, and Jack P. Manno. 1994. "Transnational Linkages" In *NGOs in World Politics: Linking the Local and the Global*. Thomas Princen and Matthais Finger, eds. London: Routledge: 217-36.
- Putnam Robert D. 1998. "Diploamcy and Domestic Politics: The Logic of Two Level Games." *International Organization* 42 (3): 427-60
- , 2000. *Bowling Alone*. New York: Simon and Schuster.
- Quirk, Joel. 2006. "The Anti-Slavery Project: Linking the Historical and Contemporary." *Human Rights Quarterly* 28: 565-98.
- Ringquist, Evan J. 1993. *Environmental Protection at the State Level*. Armonk, NY: M. E. Sharpe.
- Risse-Kappen, Thomas, ed. 1995. *Bringing Transnational Relations Back in: Non-State Actors, Domestic Structures, and International Institutions*. Cambridge, UK: Cambridge University Press.
- Rittberger, Volker, ed. 1993. *Regime Theory and International Relations* Oxford: Clarendon Press.
- Roberts, J. Timmons. 1996. "Predicting Participation in Environmental Treaties: A World System Analysis." *Sociological Inquiry* 66 (1): 38-57."
- , 2001. "Global Inequality and Climate Change." *Society and Natural Resources* 14 (6): 501-509.

- Roginko, Alexei. 1994. "Domestic Compliance with International Environmental Agreements: A Review of Current Literature." *International Institute for Applied Systems Analysis Working Paper WP-94-128*.
- Rowlands, Ian. 1995. *The Politics of Global Atmospheric Change*. Manchester, UK: Manchester University Press.
- Russett, Bruce, and Harvey Starr. 1996. *World Politics: The Menu for Choice*. 5th ed. New York: W.H. Freeman.
- Scholz, John, and Neil Pinney. 1995. "Duty, Fear, and Tax Compliance: The Heuristic Basis of Citizenship Behavior." *American Journal of Political Science* 39: 490-512.
- Simmons, Beth. 2010. "Treaty Compliance and Violation." *Annual Review of Political Science* 13: 273-96.
- Skaereth, Jon Birger. 2003. "Managing North Sea Pollution Effectively: Linking International and Domestic Institutions." *International Environmental Agreements: Politics, Law and Economics*. 3: 167-90.
- Snyder, Jack. 1991. *Myths of Empire: Domestic Politics and International Ambition*. Ithaca, NY: Cornell University Press.
- Sønderskov, Kim Mannemar. 2007. "Social Capital, Collective Action, and the Environment." Paper presented at *Social Capital: Building Bridges between the Social Sciences*, University of Aarhus, Denmark.
- Smith, Graham, and James Connelly. 1999. *Politics and the Environment* London, UK: Routledge.
- Stairs, K., and Taylor, P. (1992). Non-Governmental Organizations and the Legal Protection of the Oceans: A Case Study. In: A. Hurrell, and B. Kingsberry, eds. *The International Politics of the Environment* Oxford, UK: Clarendon Press: 110-141.
- Stein, Arthur A. 1983. "Coordination and Collaboration: Regimes in an Anarchic World" In *International Regimes*. Stephen D. Krasner, ed. Ithaca, NY: Cornell University Press: 115-40.
- Thomas, A. 2003. "NGO's Role in Limiting National Sovereignty over Environmental Resources of Global Significance: The 1990 Campaign against the Southern Okavango Integrated Water Development Project." *Journal of International Development* 15: 215-29.

- Timmons-Roberts, J., Bradley C. Parks, and Alexis A. Vasquez. 2004. "Who Ratifies Environmental Treaties and Why? Institutionalism, Structuralism and Participation by 192 Nations in 22 Treaties." *Global Environmental Politics* 4 (3): 22-64.
- Tyler, Tom R., and Peter Degoey. 1995. "Collective Restraint in Social Dilemmas: Procedural Justice and Social Identification Effects on Support for Authorities." *Journal of Personality and Social Psychology* 69:482-97.
- Underdal, Arild. 1998. Explaining Compliance and Defection: Three Models *European Journal of International Relations*. 4 (1): 5-30.
- Uslaner, Eric M. 2000. "Producing and Consuming Trust" *Political Science Quarterly* 115 (4): 569-90.
- Victor, David G., and Eugene B. Skolnikoff. 1999. "Translating Intent Into Action: Implementing Environmental Commitments." *Environment* 41 (2): 16–20, 39–43.
- Von Stein, Jana. 2008. The International Law and Politics of Climate Change. *Journal of Conflict Resolution* 52 (2): 243-68.
- Waltz, Kenneth. 1979. *A Theory of International Politics*. New York: McGraw-Hill
- Wapner, P. 1996. *Environmental Activism in World Civic Politics*. Albany: State University of New York Press
- Weiss, Edith Brown, and Harold K. Jacobson. 1998. *Engaging Countries: Strengthening Compliance with International Environmental Accords*. Cambridge, MA: MIT Press.
- Woolcock, Michael, and Deepa Narayan. 2000. "Social Capital: Implications for Development Theory, Research, and Policy." *World Bank Research Observations* 15 (2): 225-49.
- Young, Oran. 1979. *Compliance with Public Authority*. Baltimore, MD: Johns Hopkins University Press
- 1980. "International Regimes: Problems of Concept Formation." *World Politics* 32 (3): 331-356.
- 1989. *International Cooperation: Building Regimes for Natural Resources and the Environment*. Ithaca, NY: Cornell University Press.

Zakaria, Fareed. 1992. "Realism and Domestic Politics: A Review Essay." *International Security* 17(1): 177-98

APPENDIX A

WORLD VALUES SURVEY: QUESTIONS USED

PUBLIC SUPPORT

B010- I am now going to read out some statements about the environment. For each one I read out, can you tell me whether you agree strongly, agree, disagree or disagree strongly? (Read out each statement and code an answer for each)

[COUNTRY]'s environmental problems can be solved without any international agreements to handle them.

Possible answers:

- 1 Strongly agree
- 2 Agree
- 3 Disagree
- 4 Strongly disagree

PUBLIC ACTION

B014- Which, if any, of these things have you done in the last 12 months, out of concern for the environment?. Have you decided for environmental reasons to reuse or recycle something rather than throw it away?

Have you attended a meeting or signed a letter or petition aimed at protecting the environment?

Possible answers:

- 0 Have not
- 1 Have done

B015- Which, if any, of these things have you done in the last 12 months, out of concern for the environment? Have you decided for environmental reasons to reuse or recycle something rather than throw it away?

Have you contributed to an environmental organization?

Possible answers:

- 0 Have not
- 1 Have done

APPENDIX B**KYOTO CLASSIFICATIONS: ANNEX-1 / NON-ANNEX 1²⁰**

ANNEX 1 PARTIES TO THE CONVENTION

Australia
Austria
Belarus
Belgium
Bulgaria
Canada
Croatia
Czech Republic
Denmark
Estonia
European Union
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Italy
Japan
Latvia
Liechtenstein
Lithuania
Luxembourg
Monaco
Netherlands
New Zealand
Norway
Poland
Portugal
Romania
Russian Federation
Slovakia **
Slovenia
Spain
Sweden
Switzerland

²⁰ http://unfccc.int/parties_and_observers/items/2704.php

Turkey
Ukraine
United Kingdom of Great Britain and Northern Ireland
United States of America

NON ANNEX 1 PARTIES TO THE CONVENTION

Afghanistan
Albania
Algeria
Angola
Antigua and Barbuda
Argentina
Armenia
Azerbaijan
Bahamas
Bahrain
Bangladesh
Barbados
Belize
Benin
Bhutan
Bolivia
Bosnia and Herzegovina
Botswana
Brazil
Brunei Darussalam
Burkina Faso
Burundi
Cambodia
Cameroon
Cape Verde
Central African Republic
Chad
Chile
China
Colombia
Comoros
Congo
Cook Islands
Costa Rica
Cuba
Cyprus
Côte d'Ivoire
Democratic People's Republic of Korea

Democratic Republic of the Congo
Djibouti
Dominica
Dominican Republic
Ecuador
Egypt
El Salvador
Equatorial Guinea
Eritrea
Ethiopia
Fiji
The former Yugoslav Republic of Macedonia
Gabon
Gambia
Georgia
Ghana
Grenada
Guatemala
Guinea
Guinea-Bissau
Guyana
Haiti
Honduras
India
Indonesia
Iran (Islamic Republic of)
Iraq
Israel
Jamaica
Jordan
Kazakhstan
Kenya
Kiribati
Kuwait
Kyrgyzstan
Lao People's Democratic Republic
Lebanon
Lesotho
Liberia
Libyan Arab Jamahiriya
Madagascar
Malawi
Malaysia
Maldives

Mali
Malta
Marshall Islands
Mauritania
Mauritius
Mexico
Micronesia (Federated States of)
Mongolia
Montenegro
Morocco
Mozambique
Myanmar
Namibia
Nauru
Nepal
Nicaragua
Niger
Nigeria
Niue
Oman
Pakistan
Palau
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Qatar
Republic of Korea
Republic of Moldova
Rwanda
Saint Kitts and Nevis
Saint Lucia
Saint Vincent and the Grenadines
Samoa
San Marino
Sao Tome and Principe
Saudi Arabia
Senegal
Serbia
Seychelles
Sierra Leone
Singapore
Solomon Islands

Somalia
South Africa
Sri Lanka
Sudan
Suriname
Swaziland
Syrian Arab Republic
Tajikistan
Thailand
The former Yugoslav Republic of Macedonia
Timor-Leste
Togo
Tonga
Trinidad and Tobago
Tunisia
Turkmenistan
Tuvalu
Uganda
United Arab Emirates
United Republic of Tanzania
Uruguay
Uzbekistan
Vanuatu
Venezuela (Bolivarian Republic of)
Viet Nam
Yemen
Zambia
Zimbabwe

VITA

Name: Zowie Natasha Hay

Address: Texas A&M University, Department of Political Science,
4348 TAMU, College Station, TX 77843-4348

Email: zowiehay@gmail.com

Education: B.A. Politics and International Relations, Lancaster
University, 2002.

M.A. Contemporary Chinese Studies (International
Relations), University of Durham, 2004.

Ph.D. Political Science, Texas A&M University, 2010.