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Explaining the International Environmental Cooperation of Democratic Countries

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<https://escholarship.org/uc/item/0gn942xm>

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Publication Date

2001-08-01

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In the twentieth century, nation-states have enacted a host of new treaties directed at protecting natural resources and the environment. In 1920, the estimated total number of environmental treaties was only eight. This grew to about 20 by 1940 and then dramatically expanded to about 100 by 1970. In 2000, the cumulative number of environmental treaties, bi-lateral, regional, multilateral, and international, is estimated to be about 160 (United Nations 2000). From conservation, resource-based issues (such as ocean preservation) to ecological issues (such as biological diversity and global warming) nations have steadily agreed to collaborate and enact a wide range of rules and agreements to protect the environment. Understanding the motives of state international cooperative behavior is an especially complex problem to resolve because the “remote” international arena displays much weaker sets of norms and sanctions than the domestic arena or regional-level interactions.

State commitments to international environmental treaties have consequently been far from uniform and vary enormously from “isolationist” to “internationalist” behaviors (Choucri 1993). One theoretical explanation for these differences is that the “same” international policy commitment in a treaty affects each nation differently because each country’s material, power, and economic interests vary substantially. Realist theorists emphasize that the state’s interactions with their *systemic* conditions, such as the nation’s economic development and ecological circumstances, underlie their power-based strategies related to international collaboration (Sprinz and Vaahutoranta 1994; Kegley 1995; Sandler 1997). For realists, state calculations of what can be gained or lost made by committing to treaty provisions is the primary motivation for international cooperation. In contrast, liberal theorists argue that international commitment is derived from a broader set of dynamics and interests rooted within domestic and transnational pressures (Axelrod 1984). Liberal theorists stress that *unit-level* characteristics, such as the citizenry’s ideological interests and interest group demands, constructs and shapes different international policy positions (Rosenau and Czempiel 1989; Sprinz and Vaahutoranta 1994; Meyer et al. 1997b). The essential theoretical dilemma to resolve is whether international environmental commitments are formed by the state’s calculations of power or are derived through internal or external pressures upon the state.

Participation in environmental treaties provides an almost ideal issue-area for comparisons and evaluating fundamental and long standing theoretical claims about international state behaviors. Certain international policies, such as security or immigration, may have unequal policy relevance and salience or so differ in national conditions that cross-national comparisons are difficult to make. Environmental pollution, however, is a fairly universal political issue and can not necessarily remain within national boundaries and political jurisdictions. Democratic states must also resort to some sort of action during the course of treaty making, even if it is not to participate in

the negotiations at all. Quite simply, nations must take one of four courses of action: not to participate at all in treaty negotiations, to participate in the negotiations but not sign the treaty, to sign but not ratify the treaty, or sign and ratify the treaty.¹

The paper aims at explaining international environmental engagement of eighteen democratic states by exploring their participation across fifteen international environmental treaties. Previous studies of environmental treaty participation have focused on one particular treaty (e.g., Benedick 1991), a specific country's international environmental commitments (e.g., Choucri 1993; Haas, Levy and Parson 1992; Sprinz and Vaahoranta 1994), or looked exclusively at the explanatory power of a single theory (e.g., Meyer 1997a; Meyer 1997b). Although case studies provide useful clues and insights, they do not generate reliable, systematic evidence that transcends the context and particularities of each case. The value of this study is to develop a better understanding and theoretical account of the general patterns of state international environmental engagement. Understanding broader processes and strengthening theoretical explanations provides a useful framework for exploring specific historical events, state behaviors, and international activity.

The paper proceeds in four steps. First, we present an overview of four theoretical perspectives of international environmental engagement that provide a comprehensive and divergent set of hypotheses for empirical evaluation. Second, we introduce the measure used to rank and compare each nation's overall commitment to international treaties. Third, statistical tests explore the connection between competing explanatory variables and international treaty engagement. Fourth and finally, the conclusion reflects on implications for our understanding of cooperative international behavior.

Explaining International Environmental Treaty Engagement: Four Theoretical Perspectives

This study examines a comprehensive and comparable standard of governmental performance and international cooperation: state commitments to international environmental treaties. The focus is exclusively on policy "outputs" and the legal passage or ratification of environmental treaties. According to David Easton (1979), policy *outputs* are those legal systems enacted that deal with rules and regulations, whereas policy *outcomes* are the actual impact of laws. In terms of international treaties, a policy output signifies formal ratification of the treaty, whereas a policy outcome is the actual effect of the implementation of that treaty. The analysis thus focuses exclusively on signing and ratifying an international environmental treaty, rather than its effective political execution or impact on ecological or environmental quality.

Realist and liberal theories emphasize different key elements for state international behavior and the potential for cooperative international arrangements. According to realists, what ultimately matters is whether the state's security and strategic concerns are accomplished by adopting or rejecting international accords (Kegley 1995). Realists argue that sovereignty grants policy-makers the ability to do whatever is necessary to maximize national interests in relation to systemic opportunities and constraints. Domestic political institutions and procedures shield policy makers from public and international pressures that may infringe upon the state's "rational" utility-

oriented goals. Realists stress that the state's interactions with the systemic environment, such as economic development and political institutions, provides the critical lens underlying rational-oriented calculations of national interests (Keohane 1986).

Rather than solely maximizing national interests and power, liberal theorists argue that states could effectively meet their interests by pooling sovereignty collectively and cooperating internationally to promote shared concerns. Liberal theorists claim that in a growing interdependent world a diverse array of factors and processes constructs state objectives and interests. Interest group demands and ideological preferences from sub-national, national, and supra-national forces can effectively place their concerns on a democratic state's international policy agenda (Rosenau and Czempiel 1989; Meyer et al. 1997b). Liberal theory identifies domestic and transnational pressures as critical factors making democratic states more amenable to international negotiation and collaboration (Keohane and Nye 1989; Kegley 1995).

Realist and liberal perspectives provide the general formulations and key contentions for four theoretical perspectives: systemic constraint, institutional theory, interest-based, and international connectivity. These four theories provide more elaborated and fully specified operational hypotheses required for empirical testing. *Systemic constraint* theory deals explicitly with realist contentions about state interactions and rational-oriented calculations with structural conditions (e.g., economics, environmental pollution, etc.). *Institutional* theory examines realist considerations regarding the primacy of state sovereignty and autonomous, policy-making processes and calculations. *Interest-based* theory analyzes liberal theory's stress upon internally driven constituent pressures and domestic, ideological preferences. *International connectivity* theory centers on the influence of external, transnational pressures and global interactions.

The *structural constraint* theory predicts that "objective" systemic considerations influence state international commitments. Although the source of many environmental problems, economic development provides the financial resources and tax revenues that can be allocated for environmental protection. Countries that have already attained material prosperity are also expected to have citizens secure enough to forsake further consumption and economic gains. In strategic cost/benefit terms, with increasing economic wealth, a condition of "declining marginal utility" develops whereby further economic gains and accumulation might not be as valued as non-economic concerns, such as environmental protection. In contrast, less developed economies appear primarily motivated by increasing economic prosperity and are consequently more likely to avoid international accords that might inhibit economic growth (Hurrell and Kingsbury 1992; Haas, Keohane and Levy 1993). The specific operational indicators and data sources used to test this theory are summarized in the appendix. Economic development is measured by 1996 World Bank data on per capita Gross Domestic Product; consumption pattern figures are taken from 1992 energy efficiency figures.

The structural constraint theory also implies that ecological deterioration will create strong incentives for coordinating the management of environmental pollution at international forums (Caldwell 1990; Lester 1994). More visible consequences of industrialization, population density, deforestation, and pollution should lead to stronger state responses for international environmental standards. Severe ecological problems are expected to lead states to use treaties as a mechanism to improve the country's

general pollution levels and prevent external sources of pollution. Ecological severity is measured through population density data from the *Environmental Almanac*, and through the Palmer Index that summarizes a nation's per capita carbon dioxide emissions, fertilizer consumption, and deforestation.

The *institutional* theory maintains that domestic institutional arrangements, mainly the degree to which decision-making is centralized and has limited veto points, may encourage international policy commitments (Weaver and Rockman 1993). Helen Milner (1993: 347) states that state capacity to make international commitments involves mainly, "the ability to impose losses on powerful groups, represent diffuse interests, and maintain policy stability." The objective of environmental treaties is directed at collective goods and their diffuse benefits are granted to the general public, rather than a particular constituency or sector. Environmental treaty commitments may intrude on specific domestic industries, organizations, or practices affected by accepting new environmental regulations. Thus, the overall ability of political institutions to ward off "narrow" interests and represent general interests is expected to facilitate international cooperation.

Majoritarian political institutions, with power centralized in a central location, appear to have a stronger capacity to constrain the access of minority "veto" groups and provide for wider engagement in international environmental treaties (Milner 1993). Centralized policy making decisions, such as cabinet-level decision-making processes and strong party discipline, may limit the opportunity of well-situated groups and political parties outside these core institutions and organizations the ability to veto foreign policy commitments. However, consensual political institutions, with shared and dispersed policy making processes, accept a wider array of political parties and interests into foreign policy decisions, thereby allowing "parochial" concerns the ability to block the ratification of international treaties. We use Arend Lijphart's (1999) composite score of majoritarian institutions which measures the degree of power concentration and dominance (versus shared and dispersed) in five separate indicators of executive powers and political parties, specifically effective number of parties, one-party cabinet coalitions, executive dominance, group pluralism, and electoral disproportionality (see Appendix).

In addition, Milner maintains that granting exclusive authority to an executive or cabinet allows for more decisive and stable international policy commitments because legislators cannot encroach on foreign policy decisions. Executive-centered institutions empower the executive with almost complete control over international negotiations and secure domestic passage of international treaties. On the other hand, an executive dependent upon legislative support for international engagements allows for the possibility of legislative vetoes. Weak executives share ratification procedures with legislators, thereby allowing parochial concerns the opportunity to block treaty ratification. The executive dominance scale from Lijphart (1999) effectively measures the degree to which executives and cabinets are granted independence and control over legislation and treaty ratification.²

The *interest-based* theory argues that democratic states respond to public pressures and the internal dispositions, cognition, and organizational affiliations of the citizenry. Liberal theorists claim that democratic policy makers act upon and anticipate diffuse, ideological dispositions of the citizenry and organized interests (Keohane and Nye 1989; Sprinz and Vaahtoranta 1994). The impact of values and ideology is mediated

and channeled primarily through elections, and political representatives behave in a manner that mirrors the values of their domestic constituents (Katz and Wessels 1999).

Group theorists, from James Madison to Gabriel Almond, contend that the essence of politics is a struggle amongst rival groups. Group interactions and influences have a powerful effect on individual attitudes and behaviors and quite importantly may shape the content and substance of foreign policy behaviors. Environmental organizations are an effective integrative mechanism that can articulate and aggregate environmental interests toward decision-makers, elites, and the general public (Milbrath 1984; Dalton 1994). As Russell Dalton (1994: 1) contends, “the existence of an active environmental movement is a sign of the public’s interest in environmental issues, as well as a stimulant for politicians and the public to pay even greater attention to environmental concerns.”

Educated publics and post-material value orientations are also strongly associated with support for environmentalism and internationalism. For quite some time, highly educated publics have been seen as a significant precursor of environmentalism (Milbrath 1984; Inglehart 1995). The correlation between education and environmentalism is so solid that some see environmental concern and education as intertwined. In addition, Ronald Inglehart (1995; 1997) argues that environmentalism epitomizes core elements of the post-material shift that has occurred in advanced industrial societies. Inglehart shows through survey research that when material and security concerns are satisfied, quality-of-life concerns, such as environmentalism, take greater priority over economic growth. Post-material orientations have also been linked with stronger support for supra-national affiliations and institutions, such as the European Union, foreign aid, and international law. Most of the value-based factors are taken from the 1992 results of the World Values survey (Inglehart 1992).³ Left-wing ideology, values, post-material orientations, and environmental group membership scores are the self-identified values given by the respondents.⁴ Educational levels are taken from 1997 World Bank directory.

The *international pressure* theory declares that stronger global interdependency and connections with international society provide the main force underlying international engagement (Ruggie 1998). John Meyer (1997a; 1997b) argues that the overall effects of discourse and exchange by multitudes of transnational relationships and international organizations has potent effects that leads nation-states to forgo strategic concerns and respond in a regular, cooperative manner. International organizations, such as Greenpeace and Friends of the Earth, and international regimes, such as the United Nation Environmental Program, are expected to open democratic regimes outwardly toward deeper supra-national affiliations and acceptance of international collaboration (Kegley 1995). International organizations and regimes enhance cooperation because they perform the valuable tasks of discourse, linkage, and trust without frontally challenging state sovereignty (Dietz and Kalof 1992; Roberts 1996).

The overall degree of trade flows provides a critical indicator for economic interdependency. Trade relations indicates the state's overall economic exchanges and connectivity with other countries. This measure is the taken from World Bank data from 1990 to 1992.⁵ Another area of international connectivity is each country’s participation in intergovernmental organizations, such as The World Conservation Union and International Chamber of Commerce, and international environmental organizations, such

as Earthwatch and World Wildlife Fund for Nature. The data is taken from the Green Globe Yearbook of International Co-operation on Environment and Development (1994) that assesses each country's involvement in twenty-three intergovernmental organizations and international environmental organizations. A third indicator is each state's involvement in international regimes or institutions, such as the International Bureau of Education or the United Nations Environmental Program. The measure is taken from sixty indicators compiled by the *Directory of International Organizations* (Schraepfer 1996).

Measuring State Engagement in International Treaties

This section measures cooperative state international environmental behavior in a comprehensive and longitudinal manner. Our analyses are based on fifteen *international* environmental treaties deposited in the United Nations registry and the Consortium for International Earth Science Information Network as of August 6, 2000. The registry includes all of the international environmental treaties over the past twenty years.⁶ Furthermore, all of the nations in this study were invited and capable of participating in the forums. There are many other environmental treaties, but these are often strictly bilateral or regional commitments, such as the protection of the Black Sea, or European Union environmental accords, and were explicitly excluded. In sum, the international treaties deal with a wide and diverse range of policy domains, from the protection of marine fisheries to air pollution, sulfur emissions, hazardous waste, climate change, and biological diversity. Table 1 lists and provides general information on the international environmental treaties used in the analysis.

The eighteen nation-states selected are countries that have been continuous democracies for at least 20 years. Democratic regimes generally exhibit features of compromise and accommodation necessary for international cooperation. Democracies also provide a way to evaluate key theoretical assertions regarding the interplay of systemic (i.e., rational calculations) and unit-level (i.e., public pressure) forces. The nations included in the study are all industrial economies and significant international actors that are normally invited to take part in international treaty negotiations. These criteria avoid any potential biases that may occur when including industrializing countries, such as India, that might be concerned solely with economic development, or small democratic countries, such as the Bahamas, that are not regularly included in treaty negotiations. By selecting only democratic countries with similar political, economic, and international positions, we can hold non-essential, extraneous factors "constant" and focus directly on the causal force of those variables under theoretical consideration.

TABLE 1. Environmental Treaties Used for Rankings

TREATY	YEAR	SIGNED	RATIFIED
1. Prohibition of Hostile Use of Environmental Modification Techniques	1976	16	12
2. Prohibitions of the Use of Certain Conventional Weapons	1980	17	16
3. UN Convention on the Law of the Sea	1982	15	13
Reduction of Sulfur Emissions by 30 per cent	1985	12	12
5. Vienna Convention for Protection of Ozone Layer	1985	18	14
6. Montreal Protocol on Substances that Deplete Ozone Layer	1987	18	18
7. Basel Convention on the Movements of Hazardous Wastes	1989	18	16
8. Convention on Oil Pollution Preparedness, Response, and Cooperation	1990	13	11
9. Convention on Environmental Impact Assessment	1992	15	10
10. UN Framework Convention on Climate Change	1992	18	18
11. Convention on Biological Diversity	1992	18	17
12. Convention on Chemical Weapons	1993	18	15
13. UN Convention to Combat Desertification	1994	18	11
14. Comprehensive Nuclear Test Ban Treaty	1996	18	11
15. Prohibition on Anti-Personnel Mines	1997	16	13

NOTES: Year: The year in which the treaty was adopted.; Signed (*Signatories*) Counts the 18 states in the sample listed as signatories in the United Nations report; Ratified (*Ratification*) Counts the 18 states in the sample listed as ratifiers of the treaty in the United Nations report.

International treaty engagement essentially comes down to two stages: (1) the signing of the treaty at an international forum, and then (2) ratification of the treaty by domestic policy makers and institutions. Although a critical step, a country's signature on a treaty is an initial *symbolic* gesture of a nation's support for the treaty and reflects mainly the preferences of the country's executive. Ratification reflects the formal legitimacy of the nation as a whole and legally binds the nation domestically and internationally. Most democracies appear willing to "sign" international environmental treaties, but are much more reluctant to ratify. Out of the eighteen countries in this study, signatures were placed on environmental treaties in 90 per cent of the instances, whereas ratification occurred only 73 per cent of the time.⁷ Since the legitimacy of a treaty depends primarily upon ratification, both in principle and empirically, we placed more weight on ratification in measuring overall state engagement. A nation is given a single point for being a signatory on the treaty and three additional points are then added for ratification. In sum, a non-signatory country receives zero points, a state that signs but does not ratify a treaty is granted a point, and a nation that signs and ratifies a treaty receives four points.⁸

Table 2 lists the rankings of the 18 states in terms of their overall commitment to international environmental treaties. The one immediate pattern is the fairly distinct regional differences. Five Nordic countries occupy the top seven positions, with Norway, Sweden, and Finland in the top three positions and the Netherlands and Denmark in the fifth and seventh positions, respectively. Germany and Canada round out the upper rankings, with Italy, the United Kingdom, and France in the middle portions. The two largest economies in the world, the United States and Japan, occupy two of the three lowest rankings. Situated alongside these economic superpowers are the less economically developed countries in the sample, such as Spain, Ireland, and Portugal.

Table 2. Rankings and Scores of 18 Countries

Nation	Total Score	Signed	Ratified
1. Norway	57	15	14
1. Sweden	57	15	14
3. Finland	56	14	14
3. Germany	56	14	14
5. Denmark	53	14	13
6. Netherlands	51	14	12
7. Italy	50	15	12
7. United Kingdom	50	14	12
7. Canada	50	14	12
10. France	49	13	12
11. Switzerland	48	15	11
12. Austria	47	14	11
13. Belgium	47	14	11
14. Spain	46	13	11
15. Japan	43	13	10
16. Ireland	42	12	10
17. Portugal	37	13	8
18. United States	30	12	6

NOTES: ** Score represents overall index of state commitment to international environmental treaties, the dependent variable. For each treaty, a single point is granted for a signature, and three points are granted for ratification.

Predicting Environmental Treaty Engagement

This section rigorously analyzes the empirical linkages between multiple, rival theoretical indicators and international environmental treaty engagement. Regression analyses measures the independent strength of each factor within their respective theoretical formulations and then evaluates the most powerful factors across theoretical boundaries in an integrated equation. By repeatedly testing each variable and thoroughly evaluating the comparative strength of theoretically relevant variables, we limit the possibility of spurious relationships and biased estimates of causal estimates that occurs from omitted variable bias. For example, international regimes could be significantly correlated with international engagement simply because high concentrations of international regimes

tends to co-exist within those countries with high levels of post-material orientations. As King, Keohane, and Verba contend (1993: 137), omitted variable bias: “limit(s) the generality of our conclusion or the certainty in with which we can legitimately hold it.”

Table 3. Four Regression Models and Integrated Equation of Overall Index

	MODEL I	MODEL II	MODEL III	MODEL IV	MODEL V
VARIABLES	B	B	B	B	B
Consensual Institution	6.8** (3.3)				2.5 (1.2)
Executive Domination	4.6** (3.7)				3.8** (2.8)
Economic development		-0.0007 (-1.1)			-----
Population density		-0.001 (-0.7)			-----
Energy Consumption		.83 (.64)			-----
Ecological Conditions		-.23 (-.72)			-----
Education			.10 (.7)		-----
Left-wing Values			.16 (.56)		-----
Environmental Values			.45 (1.7)		.12 (.98)
Post-materialism			1.5* (2.6)		.98** (2.9)
Green NGO membership			.66 (1.4)		-----
Economic openness				-.003 (.71)	-----
International Organizations				.60 (1.5)	.002 (.13)
Int'l Regime participation				.22 (.60)	-----
Constant	31** (6.0)	79* (2.1)	-6.1 (.37)	17.3 (1.2)	16 (1.8)
F	7.6*	.36	2.0	1.6	6.8**
Adjusted R	.41	.03	.54	.16	.60
N	18	18	18	18	18

NOTES: Numbers in parentheses are t-statistics. * p>= .05; ** p>= .01;

MODEL I: Institutional factors

MODEL II: Economic prosperity/Environmental severity

MODEL III: Political Culture/interest-based variables

MODEL IV: International factors

MODEL V: Integration of various models

Table 3 displays the results of the four theoretical equations and an integrated equation regressed against international environmental treaty engagement. Multivariate analysis is first performed across separate theoretical models to evaluate their overall strength and the explanatory power of each variable while holding other related factors constant. The first equation tests the explanatory power of political institution theory. This analysis reveals that strong executive powers and consensual institutions are both robust predictors. The significant influence of strong executive power confirms the belief that a policy process inhibiting legislative "checks" and centralizing power in an executive appears to widen the state's ability to intervene internationally. However, contrary to expectations, consensual political institutions are seen as quite capable in securing united international policy stances and engaging actively in international treaties. This confirms Lijphart's (1999) assertion that consensual institutions by including more voices and minority concerns promote "kinder and gentler" policies, such as higher levels of public welfare and international aid.

The second equation assesses the impact of the structural constraint variables. All of these factors display weak influences on international engagement levels. Even though only industrial nations were included, income levels were fairly distinct across these nations. Annual per capita income levels range from Portugal's \$13,000 to the United States' \$28,000. We also find that heavily polluted states are no more willing to prioritize international environmental collaboration than states with cleaner environmental standards. These highly polluted states that avoid international environmental treaties, what have been termed "dragger" nations by Sprinz and Vaahtoranta (1994), present a complex governance problem for the overall efficacy of international environmental accords and the ecological sustainability of the global commons. These findings signify that decisive considerations of international collaboration are not related to what are deemed objective, systemic circumstances, such as economic wealth and pollution.

The third equation tests the factors from the interest-based theory. This model provides the strongest overall explanatory power, with an Adjusted R-squared of .54. Citizen-based preferences, namely strong environmental sentiments and post-material value priorities, both display robust connections with international treaty commitments. In fact, post-materialism displays the most robust bivariate correlation. The influence of left-wing ideology and membership in environmental groups appears largely undercut by the presence of these two significant value-based indicators. Left-wing ideology is moderately correlated with post-material orientations ($r=.26$), and environmental groups is significantly correlated with environmental values ($r=.47$). Thus, a causal path between ideology and environmental groups and the two statistically significant values-based factors can be traced, such that, Left-wing ideology \rightarrow Post-materialism, and on the other side, Environmental Groups \rightarrow Environmental Values.

The fourth model presents the international connectivity findings. These analyses reveal that transnational forces weakly impact state levels of international cooperation. Trade flows and participation in international regimes does not provide a causal nexus for state environmental commitments. The increased openness of a country, both economically and politically, does not consistently pave the way for greater international environmental engagement. The presence of international environmental organizations within a country, perhaps statistically insignificant because of multi-collinearity, displays

modest influences on state behavior. Although highly touted by street protestors to political science theorists, empirical evidence shows that global forces does not appear to penetrate into the depths of the state apparatus and construct international environmental behaviors.

The integrated equation includes only those factors that revealed strong empirical connections and theoretical importance: consensual institutions, executive dominance, environmental values, post-materialism, and international organizations. Despite the small sample size, two factors display significant influences on international environmental commitment: post-materialism and executive dominance. Cooperative state international environmental behavior is thus best predicted by citizen's who are willing to prioritize quality of life concerns over economics and institutional procedures capable of readily securing treaty ratification.

Post-material values appear necessary for the public to look beyond material or strategic concerns and accept potential international intrusions on certain economic activities and strategic interests. More importantly, this diminishes the autonomous role of elite "rational" calculations as well as international forces because state international behavior reflects the values of ordinary citizens. Post-material orientations appear to be easily transferred onto a democratic country's foreign policy agenda. As Ronald Inglehart (1997) argues, post-materialists are better educated, participate more in politics, and are more willing to take elite-challenging forms of behaviors. Citizen interests might require vocal articulation and efficacious participatory acts to move beyond abstract notions to concrete policy positions.

Post-materialist publics are noted for their strong acceptance of international connectivity, international aid, and supra-national regimes and institutions, including the European Union and the North American Free Trade Agreement (Inglehart 1997). According to Gallup survey results (Dunlap et al. 1993), those countries with high levels of post-materialists strongly support contributing tax money and giving authority to an international environmental agency.⁹ Germans, Dutch, and Finnish citizens, with some of highest levels of post-materialists, express the strongest support for contributing money and granting authority for an international environmental agency. This contrasts with the United States and Japan's relatively low level of post-materialism and tepid financial and political support for an international environmental agency. Thus, materialists tend to favor economic considerations and display "isolationist" sentiments, whereas post-material orientations appear to tap into a cosmopolitan world-view and "internationalist" tendency within a polity. This post-material value dimension should be accorded greater attention by scholars as a key influence on the promotion of non-strategic behavior and international collaboration.

Secondly, when supportive orientations are present, an executive-centered policy process provides the necessary mechanism to avoid domestic checks and ensure international collaboration. The two first place nations, Norway and Sweden, had only one executive signature that failed to convert into ratification and were able to successfully transfer their executive's signature into formal ratification in 93 per cent of the instances. Strong executive states converted signatures into ratification 90 per cent of the time, while weak executives secured ratification at a lower rate, 82 per cent.¹⁰ Executive-centered states ratified on average 12.4 treaties and 83 per cent out of the possible treaties, whereas weaker executives ratified on average 11 treaties and 73 per

cent of the potential cases. Executive-centered procedures clearly appear more capable of transferring signatures into ratification and avoiding vetoes by “isolationist” forces within domestic political institutions. If, as Weaver and Rockman (1993) contend, maintaining international commitments is an important indicator of governmental performance, strong executive powers might be necessary to bolster the regime’s capacity to overcome powerful veto groups and secure ratification.

Our empirical evidence implicates shared legislative power and weak executives as institutional obstacles to international collaboration. For instance, the United States and Portugal, with very weak executive powers, both failed to transfer their executive’s support for the Convention of Environmental Impact Assessment into formal ratification. The American and Portuguese executives have transferred their signature into ratification at the *lowest* rates, 58 percent and 75 per cent of the time, respectively. The average signature to ratification conversion rate for the other countries is 88 percent. Rather than faulting their political executives for uncooperative tendencies, the passive international role of the United States and Portugal can be partially attributed to the reluctance of “anonymous” legislators within their political system. Weak executives might compromise the credibility and legitimacy of the country's negotiating positions because the bargaining team cannot guarantee domestic ratification.

The American constitution explicitly stipulates that treaty ratification is shared co-equally across the executive and legislative branches and based on the "advice and consent" of the U.S. Senate. The United States has probably the most stringent treaty ratification requirements out of any democracy, a "super-majority" threshold of two-thirds of the Senate. Therefore, the United States constitution was designed to deliberately make it difficult for the country to make treaty commitments. Over the past five years, the U.S. Senate has demanded an even larger role over international environmental negotiations. For instance, before the Kyoto global warming negotiations even started, the Senate unanimously (99-0) passed a resolution demanding that three conditions be inserted into the agreement in order for it to be ratified by the Senate. Institutional mechanisms are rules and procedures that certainly promote or inhibit ratification, but depend largely upon the dominant values and interests for their direction and function. Thus, the United States’ last place ranking can be attributed mainly to the combination of severe legislative encroachments and the American public’s relatively low levels of support for post-materialist values and internationalism.

Conclusion

Empirical analysis finds that a parsimonious explanation of state cooperative behavior can be achieved through an integration of a key element of liberal theory, citizen orientations, and realist theory, state sovereignty. The orientations and value priorities of "ordinary" citizens are critical in the construction and development of international environmental rules and conventions. Post-materialist values amongst the citizenry appear essential for the state to set aside economic and strategic considerations and accept international environmental accords. The reality of increasing international treaty commitments confirms liberal contentions that states perceive treaties as a beneficial way to “pool sovereignty” and promote common interests with other like-minded countries.

However, the state is not simply a neutral arena mediating citizen interests and carrying out public opinion. Formal treaty ratification for democratic nations must be channeled through institutional procedures dictated by constitutional or legal provisions. As realists argue, ratification procedures that enhance the ability of legislators to reject international commitments allow for domestic concerns and strategic considerations to prevail. Strong executive-based ratification power paves the way for international commitments by avoiding checks and vetoes from isolationist or anti-environmental legislative forces.

There are three important implications of the analysis. First, the weak empirical connection between pollution levels and international collaboration suggests that severely polluted states have not made serious efforts to counter-act their environmental deterioration. These “dragger” states may continue to avoid international environmental accords, while emitting high levels of pollution within and across their borders. An inducement to involve “dragger” states in international environmental conventions would be to make participation in other important international policy domains, such as economics, trade, currency, regimes, and the like, contingent upon environmental treaty ratification.

Second, as we see, not only does centralizing power in an executive increase state capacity to declare war, strong executive power also enhances the prospects for *peaceful* and cooperative forms of behavior. One possible procedural solution for enhancing treaty ratification prospects is to explicitly restrict legislative encroachments on the negotiation process and treaty approval. For example, the United States has limited legislative considerations during trade negotiations by granting its president “fast track” authority, which was seen as critical for passage of the North American Free Trade Agreement (Recchia 1996). Rather than excluding legislators, another solution would be to directly include and build consensus with influential legislative leaders and political party leaders. Directly inviting key legislators into the negotiation process would give them a vested interest in the proceedings and allow them to voice their essential conditions for treaty ratification. Therefore, the proper choice of inclusion or exclusion depends upon the country’s particular executive-legislative relations and international sentiments.

Finally, most democratic countries do not react automatically to structural “objective” economic and ecological conditions or externally driven international pressures. The study suggests that states behave fairly predictably based upon their own internal processes and definitions of national priorities. Executives sign treaties and secure ratification after they respond to their citizen’s demands for international environmental protection. The growing development of international environmental cooperation shows that democratic state officials are willing to assent to limitations on the nation-state as an autonomous policy making agency and entity.

As a word of caution, the future viability of international environmental cooperation is not necessarily inevitable or a straightforward task. Since authoritarian regimes are dominated by a clan or a single political party, treaty ratification depends almost entirely upon the concerns and whims of the ruling elite, rather than public opinion or procedural processes. A potentially more onerous problem is that conflicting cultural orientations and levels of economic development across 180 states and billions of

people should make it very difficult to agree upon a common framework and appropriate methods for managing environmental threats.

Appendix
Predictors of International Environmental Treaty Engagement

Categories of Variables	Operational Definition	Data Source
Political Institution Theory		
<i>Majoritarian vs. consensual features</i>	Overall index of 5 variables (Parties, Cabinet coalitions, Exec. Dominance, Group pluralism, Electoral Disproportionality)	Lijphart (1999)
<i>Executive Powers (subset of index)</i>	Executive Dominance	Lijphart (1999)
Structural Constraint Theory		
<i>Wealth</i>	Per capita GDP, 1996	World Bank (1997)
<i>Consumptive patterns</i>	Population Density, 1993	Environmental Almanac (1993)
	Energy Efficiency, 1990-94	UNEP
<i>Environmental Severity</i>	Index of carbon dioxide emissions, fertilizer consumption, and deforestation	Palmer (1994)
Interest-based Theory		
<i>Education</i>	Years of schooling, 1991	World Bank (97)
<i>Ideology</i>	Self-identification as Left-wing, 91	Inglehart (1992)
<i>Values</i>	Willingness to accept higher taxes for environmental protection, 1991	Inglehart
	Postmaterialist scale, 1991	Inglehart
<i>Group-based</i>	Per capita membership in environmental group, 1991	Inglehart
International Connectivity Theory		
<i>World Embeddedness</i>	Openness of Trade flows, 1990-92	World Bank (1997)
<i>Transnational forces</i>	Level of involvement in intergov'tal and international environmental orgs	Green Globe Yearbook (94)
<i>Regimes and international institutions</i>	State involvement in international regimes and international institutions	Schraepler (1996)

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ENDNOTES

¹ Another important factor of international environmental commitment is the implementation of the treaty, which is beyond the scope of the study.

² The scale ranges from 1 to 5.52. A high score signifies relatively autonomous treaty ratification processes for the executive, whereas a low score signifies a "shared" ratification process between the executive and legislature.

³ Just as any other survey, the results from the World Values Survey may have certain flaws and do not fully capture citizen attitudes. However, for advanced industrial democracies, the survey methods are conducted by well-established, professional survey organizations, such as "Faits et Opinion" in France, Gallup-Canada, and the Danish National Institute of Social Research, and are seen as the most reliable and accurate. As Inglehart states (1997, 346-347), "The surveys from low-income countries tend to have larger error margins than those from other countries." The sample sizes in advanced democracies are also larger, thereby reducing sampling errors. National indicators for post-materialism and environmental values are highly correlated ($r=.95$) across the 1981 and 1990 World Values Survey. Spain and Italy were the only countries in the sample with substantial changes from 1981 to 1990s. Furthermore, the results from the World Values Survey are very similar to those found by other surveys. Another comprehensive sixteen-nation survey of environmental attitudes conducted by the Gallup International Institute (Health of the Planet, 1993), Eurobarometer surveys, and survey analysis performed by Riley Dunlap (1997) displays very similar patterns with the World Values Survey.

⁴ Ideology: In political matters, people talk of the "Left" and the "Right." How might you place your views on this scale, generally speaking; Environmental Values: I would agree to an increase in taxes if the extra money is used to prevent environmental pollution; Post-materialism: 12-item indicator; Environmental Group membership: Which, if any, groups or voluntary associations do you belong to: Conservation, the environment, ecology.

⁵ The openness of trade flows is measured by the addition of a state's imports to its exports, and then dividing this number by current international prices.

⁶ The time frame ranges from 1976 to 1994 to allow an appropriate time lag for state ratification.

⁷ This was derived by taking the actual amount of signatures or ratification in the numerator and dividing it by the maximum possible amount of opportunities for signature or ratification in the denominator. The key point is that signatures are almost universally granted by most democratic countries, whereas ratification procedures, the formal acceptance of the treaty, are more difficult.

⁸ The importance of granting more weight to ratification relates to the formal and legal legitimacy conferred upon ratification, both domestically and internationally. More importantly, it makes virtually no statistical difference whether ratification was increased exponentially by a sum of 2, 4, and 6. Correlation analysis across different indexes that weighed the ratification variable differently were very strong and over ($r=.99$). In addition, reliability analysis was performed on each item (signing and ratifying) to determine their internal consistency for summation purposes and to identify potentially incompatible problem cases. The reliability estimate had a Cronbach alpha of .78, exceeding minimal requirements, and the split half method also displayed significant intra-class correlations. The results are sufficiently robust to use the coding scheme as an additive index and as an indicator of international environmental engagement (McIver and Carmines, 1981, Dunn 1989).

⁹ The question asked respondents, "would you favor or oppose giving an international agency the authority to influence our government's policy in environmentally important areas: strongly favor, somewhat favor, somewhat oppose, or strongly oppose?"

¹⁰ Relatively strong executives signifies the group of countries above the median score for executive dominance.