

III.

Using the Ozone Treaty Set To Test Two Theories of International Relations with Implications for International Law

Parts One and Two of this paper have examined the text of the ozone treaties from the iterative perspective. Earlier work adopting the iterative perspective draws upon the theory of international relations known as neoliberal Institutionalism to argue for the importance of iteration in encouraging the evolution of cooperation. That earlier work argues that neoliberal Institutionalists have paid insufficient attention to the implications of their own theory by failing to operationalize the concept of “iteration” as a real-world phenomenon. That earlier work proposes the treaty process as a real-world phenomenon set against a backdrop of temporally well-defined iterations, with clear methods of determining formal consent to schemes of international cooperation and substantive compliance.

Section A of Part One of this article compared the treaty process to other sources of international legal rules and argued that, from the iterative perspective, treaties are the superior form of international law. Section B of Part One closely examined the text of a pair of related treaties—the Vienna Convention on Protection of the Ozone Layer and the Montreal Protocol on Substances That Deplete the Ozone Layer—and concluded that those documents show a thorough-going, though not theoretically maximal, concern for promoting structured iterations among the participating parties.

Part Two then examined the “outputs” resulting from the “inputs” of the Convention and original Protocol. Part Two concluded that the text and formal expressions of consent associated with the Revisions reflect the evolution over several iterations of a strongly cooperative system, and that the compliance of consenting parties with that text has been substantial, though hardly perfect. With respect to both the “breadth” of chemicals regulated and the “depth” of the percentage reductions, the data associated with the core regulations of the ozone treaty set are both highly objective and highly consistent with the evolution of a cooperative regime. The data on the length of the texts of the ozone treaties is highly objective (perhaps even mechanistic) and consistent with the evolution of a cooperative regime under a number of various interpretations of that data. The analysis of the general “approaches” taken by the ozone

treaties—relying on interpretations both more subjective and more ambiguous than those for breadth and depth and length—suggests that the core regulatory approach of the ozone treaties has remained intact since its initial formulation in the original Protocol, while a handful of supplementary approaches have been created subsequently. As with the textually based measures of breadth, depth, length, and approaches, the data concerning formal expressions of consent to the various enactments—their “coverage”—also strongly implies that the original enactments set in motion an iterative and cooperative process.

This Part also examines quantitative measures associated with the ozone treaty set in order to judge their consistency with certain theoretical perspectives, but the focus of this Part is otherwise quite different from the focus of Parts One and Two. The relevant theories are derived from sources in the field of international relations quite distinct from the hybrid of rational-unitary-actor theory and neo-Wilsonian faith in organizations that comprises neoliberal Institutionalism. This Part instead examines one theory advanced by gimlet-eyed Realists and one theory advanced by the domestically oriented proponents of what I will call the “Liberal” school. The source of the relevant data has a narrower emphasis as well: this Part relies entirely on the coverage data developed in section C of Part Two.

In section A of this part, I briefly describe Realist and Liberal theories of international relations. In section B, I examine the validity of the Liberal hypothesis as tested against the coverage data from the ozone treaty set. I then return, in section C, to analyze a variant of Realism.

A. Realist and Liberal Theories of International Relations

The dominant theory of international relations propounded by political scientists is known as “Realism.” Realists consider international relations to be a constant struggle among nations that behave as if they are rational, that have security concerns uppermost in their calculations, and that measure their gains or losses in comparison to other nations rather than against some more absolutist standard.¹

¹ For discussions of Realism by legal academics, see Anne-Marie Slaughter Burley, *International Law and International Relations Theory: A Dual Agenda*, 87 AM. J. INT’L L. 205 (1993); John K. Setear, *Responses to Breach of a Treaty and Rationalist International Relations Theory: The Rules of Release and Remediation in the Law of Treaties and the Law of State Responsibility*, 83 VA. L. REV. 1, 2-4 (1997). See

It may surprise outsiders to the field of international relations (at least if they read the newspaper) to find that the school of IR theory known as Realism can simultaneously dominate the field and assume that domestic politics is irrelevant to international relations. Nations, argue the Realists, base their decisions about foreign policy on a calculation of national interest. In the Realist view, this national interest is determined by a constellation of “objective” indicators like geography, military force, economic strength, and so forth. Any nation occupying the same objective position would make the same decisions, be it a democracy or a dictatorship, else that nation would not long survive the assumedly ruthless and relativistic competition of international politics.²

Proponents of an alternative school, whom I will call “Liberals,” argue, in contrast, that the structure of domestic politics is the crucial determinant of a nation’s foreign policy.³ The Liberal school places a good deal of emphasis on the “democratic peace,” the idea that democracies do not fight one another in major wars even though democracies as a group are no less likely to become embroiled in conflict than other forms of government.⁴ The democratic peace is a contested notion, at least in part: there is a lively debate as to whether it is a correlative or causal phenomenon,⁵ and as to whether it is a phenomenon limited to the twentieth century.⁶ Nonetheless, the democratic-peace hypothesis is certainly an important strand of thought in international

generally John J. Mearsheimer, *The False Promise of International Institutions*, INT’L SEC., Fall 1994, at 9-12 (summarizing the main assumptions of Realism).

² HANS J. MORGENTHAU, *POLITICS AMONG NATIONS* 6 (3rd ed. 1960) (With respect to states, realism “provides for rational discipline in action and creates that astounding continuity in foreign policy which makes American, British, or Russian foreign policy appear as an intelligible, rational continuum, by and large consistent within itself, regardless of the different motives, preferences, and intellectual and moral qualities of successive statesmen. A realist theory of international politics, then, will guard against two popular fallacies: the concern with motives and the concern with ideological preferences.”); KENNETH N. WALTZ, *MAN, THE STATE, AND WAR* 120-23 (1959) (concluding that the effects of differing domestic regimes are overridden by the international anarchy under which all states live).

³ See Anne-Marie Slaughter Burley, *International Law and International Relations Theory: A Dual Agenda*, 87 AM. J. INT’L L. 205, 227-228 (1993) (outlining the fundamental assumptions shared by all Liberal theories of international relations, including notion that “[l]iberals analyze state behavior primarily as a function of the constraints placed on state actors by being embedded in domestic and transnational civil society” and that “[a]ll governments represent some segment of domestic society, whose interests are reflected in state policy”) (emphasis in original).

⁴ See, e.g., JOHN M. OWEN, *LIBERAL PEACE, LIBERAL WAR: AMERICAN POLITICS AND INTERNATIONAL SECURITY* (1997); Michael W. Doyle, *Liberalism and World Politics*, 80 AM. POL. SCI. REV. 1151, 1151 (1996) (supporting Kantian notion of a “democratic peace” and noting that “[w]hen the citizens who bear the burdens of war elect their governments, wars become impossible”).

⁵ See generally, Christopher Layne, *Kant or Cant: The Myth of the Democratic Peace*, INT’L SEC., Fall 1994, at 5; David E. Spiro, *The Insignificance of the Liberal Peace*, INT’L SEC., Fall 1994, at 50.

⁶ John Mearsheimer, *Back to the Future: Instability in Europe After the Cold War*, INT’L SEC., Summer 1990, at 5, 50-51 (arguing that because “democracies have been few in number over the past two centuries, . . . there have not been many cases where two democracies were in a position to fight each other”).

relations—in significant part because of the threat that it poses to black-box Realism. The democratic-peace hypothesis focuses on “peace” and “war” as the states of “cooperation” and “non-cooperation,” respectively. If one moves from those categories to a consideration of international legal rules, the Liberals can still put forth a theory: democracies will cooperate more effectively with one another using international legal means than those democracies will be able to cooperate with autocracies. Applied in turn to a particular set of treaties, the theory implies that democracies should be more likely to participate and to obey than are autocracies.

The Liberals often use phrases like “liberal democracies” or “free-market democracies” or “rule-of-law nations” to describe those international actors whom they believe are especially likely to cooperate effectively with one another. I will henceforth use the phrase “liberal democracy” to denote the kind of domestic governance structure that the Liberals believe leads to fewer conflicts between nations possessing this form of governance; I will denominate its antithesis the “illiberal autocracy.” I delay the discussion of exactly which nations are liberal democracies and which are illiberal autocracies for a few more paragraphs.)

B. Coverage and a Liberal Theory of International Legal Cooperation

The basic Liberal hypothesis implies both a formal and a behavioral prediction. Liberal democracies should be more likely than illiberal autocracies to give their formal consent to international legal methods of cooperation and actually to comply with the international legal obligations they undertake.⁷ (One might actually hypothesize

⁷ Michael Doyle sees international law as adding a second source—a guarantee of respect—to democratic pacification.

Internationally, free speech and the effective communication of accurate conceptions of the political life of foreign peoples is essential to establish and preserve the understanding on which the guarantee of respect depends. In short, domestically just republics, which rest on consent, presume foreign republics to be also consensual, just, and therefore deserving of accommodation. The experience of cooperation helps engender further cooperative behavior when the consequences of state policy are unclear but (potentially) mutually beneficial.

interactions between these two factors that lead to different predictions. Liberal democracies might worry so much about failing to comply with their obligations that they would commit themselves to fewer such obligations than the more cavalier autocracies. I do not further pursue such interactive hypotheses here, although one could easily use the data presented here to test such hypotheses. The particular interactive hypothesis mentioned above, at least, is unsupported by the coverage data of the ozone treaties.)

The analysis of the ozone treaty coverage data below focuses on the formal implications of the Liberal hypothesis, but one may also use the example of the ozone treaties to explore the substantive behavioral implications of the Liberal hypothesis in a very general way. Russia is the largest source of concern with respect to substantive non-compliance, and Russia is a relatively illiberal state by many standards. The eastern European nations that have also, as a group, presented persistent but moderate non-compliance issues are currently in transition from illiberal autocracy to liberal democracy. (At least, one *hopes* that the end point will be a stable, liberal democracy.) It is fair to say, as a general matter, that these eastern European nations are more liberal than Russia but less liberal than the nation-states of western Europe.⁸ The long-standing liberal democracies of western Europe appear to have a spotless record of compliance. In rough outline and limited to a consideration of the European continent (plus the Asian portion of Russia), therefore, these broad conclusions about compliance with the ozone treaties—persistent and significant difficulties with Russia, persistent but less important problems with eastern European nations, and apparently no problems with western European nations—are consistent with the Liberal hypothesis.

These judgments about compliance or non-compliance rely, as mentioned in Part Two, on self-reporting by the parties.⁹ One may justly be skeptical about the accuracy of self-reporting: it would be rare in domestic criminal law, for example, to rely almost entirely on information provided by the accused in prosecuting (and in deciding whether to prosecute) a case. In the context of evaluating the Liberal hypothesis, however, the self-reporting aspect of the ozone treaties is actually a useful feature, at least on the particular facts as they have developed. Democracies are typically thought to be worse liars than autocracies. The Soviet Union, for example, radically under-reported its catch under the International Convention for the Regulation of Whaling (and did so with sufficient aplomb that the under-reporting came to light only under the successor Russian

Michael W. Doyle, *Kant, Liberal Legacies, and Foreign Affairs*, in *INTERNATIONAL POLITICS: ENDURING CONCEPTS AND CONTEMPORARY ISSUES* 56, 66-67 (Robert J. Art & Robert Jervis eds., 3rd ed. 1992).

⁸ See Table Fifteen, *infra* at __; Table Sixteen, *infra* at __; Table Seventeen, *infra* at __.

⁹ Montreal Protocol, *supra* note __, art. 7, 26 I.L.M. at 1556.

regime,¹⁰ and politically significant segments of the US populace long suspected the Soviets of surreptitiously cheating on its arms-control agreements.¹¹ If liberal democracies are in fact worse liars than illiberal autocracies or transitional governments, then the particular facts surrounding compliance in the ozone regime should give one great confidence that the liberal democracies are (more) compliant than illiberal states: only the latter have actually self-reported any treaty violations. (One might note an alternative explanation, which is that the illiberal states are actually in compliance but are self-reporting violations in order to obtain international funding for clean-up and recycling efforts. The liberal states might then in actuality be no *more* compliant than the illiberal states, although the liberal states under this explanation are still compliant in an absolute sense.)

This sub-section will say no more about compliance. The focus of the remainder of the sub-section—whether liberal democracies are in fact more likely to join the regime at all, and to consent to more extensive obligations within the regime—of course requires a means of determining which nations are liberal democracies and which nations are illiberal autocracies. Theoretical discussions may employ general descriptions such as “a liberal nation has democratic multi-party elections and a market-oriented economy,” but the more concrete analysis of this sub-section requires an actual categorization of all the nations of the world into some set of relevant categories. Because this is intended as a paper about the ozone treaties rather than a paper about what distinguishes a liberal democracy from an illiberal autocracy, I simply adopt Freedom House’s related categorizations of nations as “free,” “partly free,” and “not free.” (Freedom House is an organization founded in 1941 by the evocatively non-partisan pairing of Eleanor Roosevelt and Wendell Wilkie, and its ratings of the degrees of political and civil freedoms actually accorded by a country to its citizens have been used previously by political scientists publishing in the leading political-science journal concerned with international institutions.) In 1997, this tripartite scheme yielded 78 free nations, 59 partly free nations, and 53 nations that are not even partly free.¹² I treat this scheme as equivalent to dividing the nations of the world into “liberal democracies,” “governments possessing a mixture of the characteristics of liberal democracies and illiberal autocracies,” and “illiberal autocracies,” respectively. I call this characteristic

¹⁰ See, e.g., William C. Burns, *The International Whaling Commission and the Future of Cetaceans: Problems and Prospects*, 8 COLO. J. INT’L ENVTL. L. & POL’Y 31, 63 (1997) (noting that “the whaling industry in the former Soviet Union had underestimated its whaling figures for more than forty years by one hundred percent or more”).

¹¹ See, e.g., *Arms Control: Negotiations but No Accords*, XLI CONG. QUARTERLY ALMANAC 175, 177 (1985) (reporting Reagan administration charges of Soviet violations of SALT II and other arms control agreements).

¹² See Table Fifteen, *infra* at __; Table Sixteen, *infra* at __; Table Seventeen, *infra* at __.

“governmental structure” or “degree of liberalism.” Tables 15, 16, and 17 reproduce the Freedom House lists.

TABLE FIFTEEN — NATIONS RATED AS “FREE”
(78 Nations)

Andorra	Luxembourg
Argentina	Malawi
Australia	Mali
Austria	Malta
Bahamas	Marshall Islands
Barbados	Mauritius
Belgium	Micronesia
Belize	Monaco
Benin	Mongolia
Bolivia	Namibia
Botswana	Nauru
Bulgaria	Netherlands
Canada	New Zealand
Cape Verde	Norway
Chile	Palau
Costa Rica	Panama
Cyprus	Philippines
Czech Republic	Poland
Denmark	Portugal
Dominica	Romania
Estonia	Saint Kitts and Nevis
Finland	Saint Lucia
France	Saint Vincent and the Grenadines
Germany	San Marino
Great Britain (excluding Northern Ireland)	Sao Tome and Principe
Greece	Slovenia
Grenada	Solomon Islands
Guyana	South Africa
Hungary	South Korea
Iceland	Spain
Ireland	Sweden
Israel	Switzerland
Italy	Trinidad and Tobago
Jamaica	Tuvalu
Japan	United States of America
Kirbati	Uruguay
Latvia	Vanuatu
Liechtenstein	Venezuela
Lithuania	Western Samoa

TABLE SIXTEEN — NATIONS RATED AS “PARTLY FREE”

(59 Nations)

Albania	Macedonia
Antigua and Barbuda	Madagascar
Armenia	Malaysia
Bangladesh	Mexico
Bosnia and Herzegovina	Moldova
Brazil	Morocco
Burkina Faso	Mozambique
Central African Republic	Nepal
Colombia	Nicaragua
Comoros	Pakistan
Congo (Brazzaville)	Papua New Guinea
Croatia	Paraguay
Dominican Republic	Peru
Ecuador	Russia
El Salvador	Senegal
Eritrea	Seychelles
Ethiopia	Sierra Leone
Fiji	Singapore
Gabon	Slovakia
Georgia	Sri Lanka
Ghana	Suriname
Guatemala	Tanzania
Guinea-Bissau	Thailand
Haiti	Tonga
Honduras	Turkey
India	Uganda
Jordan	Ukraine
Kuwait	Zambia
Kyrgyzstan	Zimbabwe
Lesotho	

TABLE SEVENTEEN — NATIONS RATED AS “NOT FREE”

(53 Nations)

Afghanistan	Lebanon
Algeria	Liberia

Angola
 Azerbaijan
 Bahrain
 Belarus
 Bhutan
 Brunei
 Burundi
 Cambodia
 Cameroon
 Chad
 China
 Congo (Kinshasa)
 Cote d'Ivoire
 Cuba
 Djibouti
 Egypt
 Equatorial Guinea
 Gambia
 Guinea
 Indonesia
 Iran
 Iraq
 Kazakhstan
 Kenya
 Laos

Libya
 Maldives
 Mauritania
 Myanmar [Burma]
 Niger
 Nigeria
 North Korea
 Oman
 Qatar
 Rwanda
 Saudi Arabia
 Somalia
 Sudan
 Swaziland
 Syria
 Tajikistan
 Togo
 Tunisia
 Turkmenistan
 United Arab Emirates
 Uzbekistan
 Viet Nam
 Yemen
 Yugoslavia

The next step is to compare each nation's degree of liberalism, using the categorizations just above, with the degree to which that nation has formally consented to be bound by the rules of the ozone treaties. The relevant data on this latter phenomenon is contained in Table Fourteen, which also appeared in Part Two in the discussion of coverage. That table shows the degree of participation in the treaty regime according to the number of major enactments joined by a nation (but omits the 1997 enactments as too recent to allow a meaningful treatment of formal consents to be fully bound).

TABLE FOURTEEN (REPEATED)—DEGREE OF PARTICIPATION IN OZONE TREATY SET

None {26 Nations}	Exactly One {3 Nations}	Exactly Two {46 Nations}	Exactly Three {43 Nations}	All Four Major Enactments {72 Nations}
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<p>Afghanistan Albania Andorra Angola Armenia Bhutan Cambodia Cape Verde Congo (Kinshasa) Djibouti Eritrea Guinea-Bissau Haiti Iraq Kazakhstan Kyrgyzstan Laos Nauru Oman Palau Rwanda San Marino Sao Tome & Principe Sierra Leone Somalia Tonga</p>	<p>Equatorial Guinea Belize Tajikistan</p>	<p>Benin Bosnia & Herzegovina Brunei Bulgaria Burundi Central African Republic Chad Costa Rica Cuba Dominican Republic El Salvador Estonia Ethiopia Gabon Georgia Guatemala Guyana Honduras Kiribati Latvia Lesotho Libya Lithuania Macedonia Madagascar Mauritania Micronesia Moldova Nicaragua Nigeria North Korea St. Lucia Solomon Islands St. Kitts & Nevis Sudan Suriname Swaziland Syria Togo Trinidad & Tobago Tuvalu United Arab Emirates Uzbekistan Western Samoa Yemen Yugoslavia</p>	<p>Algeria Bahrain Bangladesh Belarus China Comoros Cote d'Ivoire Cyprus Dominica Fiji Gambia Ghana Grenada Guinea India Indonesia Lebanon Maldives Mali Malta Monaco Myanmar [Burma] Namibia Nepal Niger Papua New Guinea Paraguay Peru Philippines Portugal Romania Russia Senegal Singapore Slovakia Slovenia South Africa Tanzania Turkmenistan Uganda Ukraine Venezuela Zambia</p>	<p>Antigua & Barbuda Argentina Australia Austria Azerbaijan Bahamas Barbados Belgium Brazil Bolivia Botswana Burkina Faso Cameroon Canada Chile Colombia Congo (Brazzaville) Croatia Czech Republic Denmark Ecuador Egypt Finland France Germany Great Britain Greece Hungary Iceland Iran Ireland Israel Italy Jamaica Japan Jordan Kenya Kuwait Liberia Liechtenstein Luxembourg Malawi Malaysia Marshall Islands Mauritius Mexico Mongolia Morocco Mozambique Netherlands New Zealand Norway Pakistan Panama Poland Qatar St. Vincent & the Grenadines Saudi Arabia Seychelles South Korea Spain Sri Lanka Sweden Switzerland Thailand Tunisia Turkey United States Uruguay Vanuatu Viet Nam Zimbabwe</p>
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A dichotomous evaluation of the Liberal hypothesis involves comparing those “non-participating” nations joining none of the enactments in the ozone treaty set with those “participating” nations joining one or more enactments. The latter group is, after all, using “international law” to govern its relations concerning the consumption,

production, and trading of ozone-depleting substances, while the non-participating group is not using any international law—or at least not using the only directly relevant rules of international law about ozone-depleting substances to which anyone pays any attention—to govern its international relations on this subject. Table 18 shows the composition, by degrees of liberalism, of these two groups of nations. Table 19 recasts data from Table Echo in various percentage forms.

TABLE EIGHTEEN – NUMBER OF NATIONS BY DEGREE OF LIBERALISM AND PARTICIPATION IN OZONE TREATY REGIME

	Joining Zero Enactments (26 rated nations)	Joining One or More Enactments (164 rated nations)
Not free (53)	12	41
Partly free (59)	8	51
Free (78)	6	72

TABLE NINETEEN – PERCENTAGES RELATING TO NUMBER
OF NATIONS BY DEGREE OF LIBERALISM AND PARTICIPATION IN
OZONE TREATY REGIME

	Percentage of All Nations of a Given Governmental Structure Joining Zero Enactments	Percentage of All Those Nations Joining Zero Enactments that are of a Given Governmental Structure	Percentage of All Those Nations Joining One or More Enactments that are of a Given Governmental Structure	(Percentage of All Nations that are of a Given Governmental Structure)
Not free (53)	23%	46%	25%	(28%)
Partly free (59)	14%	31%	31%	(31%)
Free (78)	8%	23%	44%	(41%)

Table 19 is generally consistent with the Liberal hypothesis. As shown in the left-most column of percentages, 23% of all illiberal autocracies have joined no enactments in the ozone treaty set, while only 8% of all liberal democracies have elected not to participate. An intermediate 14% of all intermediately liberal “partly free” nations have joined none of the ozone treaty enactments.

The three right-most columns in Table 19 take the degree of participation as most salient and examine the distribution of degrees of liberalism between the sets, respectively, of non-participating and participating nations. Forty-six percent of all non-participating nations are illiberal autocracies, even though, as the right-most column shows, the illiberal autocracies constitute only 28% of the universe of nations. Liberal democracies comprise only 23% of the non-participating nations even though they represent 41% of all nations. Conveniently if mostly coincidentally, the intermediately liberal partly free nations represent 31% of non-participants, 31% of participants, and

31% of all nations; they are in effect the pivot point around which the other nations see-saw depending on whether one is examining participation or non-participation.

As discussed in more detail in Part Two, the ozone treaty set includes a variety of enactments, and thus “participation” need not be treated as a unitary alternative to “non-participation.” As also discussed in more detail in Part Two, each enactment in the series of ozone treaties involves broader and/or deeper regulation than earlier enactments, and nations joining a later enactment thereby join all earlier enactments as a matter of either practicality or explicit legal duty. Viewed through the lens of the Liberal hypothesis, one might see in such a scheme an opportunity to test further the relationship between domestic governmental structure and international legal participation. Liberal democracies, for example, should have the strongest tendency to join not merely some enactment in the ozone treaty set but the strongest tendency of any governmental structure to join all enactments; illiberal autocracies which participate at all are presumably more likely to join the least restrictive enactment than the most restrictive; and so forth.

TABLE TWENTY — BREAKDOWN OF “NOT FREE,” “PARTLY FREE,” AND
 “FREE” NATIONS FOR ALL DEGREES OF PARTICIPATION
 BY NUMBERS OF NATIONS

	Joined 0 Documents in Set (26)	Joined 1 Document in Set (3)	Joined 2 Documents in Set (46)	Joined 3 Documents in Set (43)	Joined 4 Documents in Set (72)
Not Free	12	2	16	13	10
Partly Free	8	0	15	17	19
Free	6	1	15	13	43

TABLE TWENTY-ONE – PERCENTAGE OF NATIONS BY GOVERNANCE
STRUCTURE WITHIN EACH DEGREE OF PARTICIPATION

	Joined 0 Documents in Set (26)	Joined 1 Document in Set (3)	Joined 2 Documents in Set (46)	Joined 3 Documents in Set (43)	Joined 4 Documents in Set (72)	(As a percentage of all 190 ranked nations)
Not Free	46%	67%	35%	30%	14%	(28%)
Partly Free	31%	0%	32.5%	40%	26%	(31%)
Free	23%	33%	32.5%	30%	60%	(41%)

Note: Column headings indicate number of documents joined and then, in parenthesis, the number of nations joining exactly that number of documents. For example, of the twenty-six nations that are not party to any of the documents in the ozone treaty set, 46% are rated in the “not free” category, while 31% fall into the “partly free” category and 23% are considered “free” nations.

Table 21 shows the distribution of participation in the ozone treaty set by degree of liberalism and degree of participation. These data are quite consistent with the hypothesis that liberal nations are more likely than their illiberal counterparts to consent to more enactments in the series, although I note that I do not present any test of the statistical significance thereof. Forty-three liberal democracies have joined all four enactments, while only 35 such nations are scattered among the four lesser degrees of participation. The greatest possible degree of participation is thus both the most frequent (modal) and the central (median) level of participation by liberal democracies. “Partly free” nations distribute themselves almost evenly across the two-enactment, three-enactment, and four-enactment participants (15, 17, and 19, respectively), with three-enactment participation both the mode and the median for this group of intermediately liberal nations. “Not free” nations are more likely to participate in two enactments than any other degree of participation. Advocates of the Liberal hypothesis might have hoped that non-participation (or participation in only one enactment) would be the most common choice for illiberal autocracies, but participation by this group is still more limited than the typical degree of participation by more liberal nations. Additionally, as a practical matter, only three nations have joined the Convention without also joining the original Protocol. Two of these nations, Belize (free) and Tajikistan (not free), have filed accessions effective in 1998 to the original Protocol, the London Revisions, and the Copenhagen Revisions.¹³ At that point, the illiberal autocracy of Equatorial Guinea will constitute 100% of nations participating in the ozone treaty set to the smallest possible non-zero degree.

The differences are perhaps a bit more striking if one examines the composition by governmental structure of each level of participation. Of the nations bound by *none* of the four major enactments in the ozone treaty set, just under 50% are in the “not free” category, while only 14% of those bound by *all* of the four major enactments are “not free” nations. The “free” nations are conversely—though not inevitably, owing to the presence of the third, “partly free” group—the smallest percentage of the no-participation group (23%) and the largest percentage of the maximal-participation group (60%). The two-enactment participators are divided almost equally among free, partly free, and not free (32.5%, 32.5%, and 35%, respectively), while the three-enactment participators are a plurality of partly free nations. Indeed, the only number inconsistent with a qualitatively perfect relationship between degree of liberalism and degree of participation is the very slight dip, in both absolute number and percentage, in the number of participating free nations as one moves from the one-enactment level through the three-enactment level.

¹³ *The Ozone Secretariat* (last modified Feb. 19, 1998) < <http://www.unep.ch/ozone/treaties.htm> >.

I hasten to add that a variety of alternative explanations are of course possible for the apparently positive correlation between a nation's degree of political liberalism and the extent of its participation in the ozone treaty set. Perhaps wealth is the true determinant of participation in the ozone treaties, and a correlation between liberalism and wealth results in the correlation between liberalism and participation even though liberalism is not truly the cause of the correlation. More elaborately, a relationship between liberalism and wealth, and between wealth and a "taste for environmentalism" might be the true cause of the correlation between liberalism and participation in an international environmental regime. Political liberalism might even be correlated with a nation's distance from the equator¹⁴; liberal nations would then, in the particular treaties at issue here, have a greater incentive to minimize ozone depletion, owing to the generally greater vulnerability of non-equatorial populations to the effects of ozone depletion owing to various factors of atmospheric chemistry and human biology. One might explore these alternatives with the aid of various data on national characteristics, but I do not explore such alternatives here. I aim simply to show that, if one takes the Liberal hypothesis seriously, then the coverage data of the ozone treaties at least appear to be consistent with that hypothesis taken on its own terms.

C. Coverage and a Realist Theory of International Legal Cooperation

This section of Part III examines a hypothesis drawn from the theoretical perspective of IR Realists rather than IR Liberals. The Realists are never at a loss for words in describing the implications of their theory for international law, and they almost invariably use the same words in describing those implications: international law is irrelevant. Typically, this assertion is buttressed by examples of how nations have in fact violated their international legal obligations. (The inter-war Kellogg-Briand Pact of 1928, renouncing war as an instrument of international policy, is a favored example of those who also frequently criticize their opponents as incapable of moving beyond the Wilsonian era.) Faced with some scattered evidence that nations actually obey their international legal obligations, however, one trio of Realists recently decided to elaborate upon the effective meaning of "irrelevant": in their view, it is now possible that a nation

¹⁴ [correlation between liberalism and distance from equator]

will comply with its international legal obligations, but only because those obligations will be perfectly consistent with behavior it would have undertaken in any event.¹⁵

In one sense, this elaborated theory is impervious to empirical disproof. The world as it exists includes international law, and it is not possible to formulate an experiment in which the world is otherwise the same but entirely lacks international law. It is thus impossible to present the proponents of the elaborated Realist view with a pair of situations disproving their assertion by showing that, in one version of world history, a nation takes a set of actions *X* that is consistent with international law while, in another version of world history, that nation takes a set of different actions *Y* in the absence of international law. One might try something similar: one might take a pair of nations similarly situated, except that only one of them has formally bound itself to an international legal rule, and then see if their behavior differs. I leave the construction of such pairs to others. (No one who has been anywhere near the Fourteenth Amendment can be sanguine about satisfying the requirement that two entities be “similarly situated”—except for the additional requirement of possessing different international legal obligations—when one has fewer than 200 entities, i.e. nation-states, from which to choose, especially in light of the Realists’ tenacity in defending their theories against assertions of inconsistency with empirical evidence.) Instead, I recast the elaborated Realist hypothesis into one of two falsifiable variations, and then examine the consistency of the coverage data on the ozone treaties with those two variant hypotheses.

One variant of the elaborated Realist hypothesis asserting the irrelevance of international law would hold that there should be no correlation between the strictness of international legal obligations and the propensity of nations to consent formally to such obligations.¹⁶ If international law is irrelevant, in other words, one assumes that the rational, unitary nation-state (an assumption about the nation-state commonly made by both Realists and neoliberal Institutionalists) undertakes international legal obligations for some reason besides any intention or duty to perform them. If international legal obligations are irrelevant, in other words, then one should observe an essentially random distribution of consents across the strictness of those obligations. (As ever, domestic political structures remain irrelevant to Realists, so I do not examine such structures in this section of Part Three, even though the form of domestic political governance was the crucial determinant of formal and substantive adherence to international legal obligations in the Liberal hypothesis evaluated in the previous section of Part Three.)

¹⁵ George W. Downs, David M. Rocke, and Peter N. Barsoom, *Is the Good News about Compliance Good News about Cooperation?*, 50 INT’L ORG. 379 (1996).

¹⁶ Downs et al., *supra* note __, at 387.

The coverage data from the venerable Table Fourteen, previously reproduced in connection with section A of this Part, do not seem particularly consistent with this random-distribution hypothesis—although, as before, I perform no tests of statistical significance. Only 26 nations have elected not to participate, while 164 chose to undertake some obligations from among those offered by the ozone treaties. One would need to move 69 nations (more than a third of the total) from the participating to the non-participating category to reflect a 50-50 split.

Perhaps this is the improper dimension along which to expect randomness, however. Because the elaborated Realist hypothesis focuses on nations that do formally consent to international legal obligations¹⁷, one might wish to examine only those nations participating in the ozone treaty set. Unfortunately for the viability of this variant of the hypothesis, however, the distribution within those undertaking at least some obligations also appears to be far from random. Three nations occupy one category; 46 occupy the second category; 43 the third; and 72 nations occupy the fourth category. An even division of the 164 participating nations among the four categories would have produced a number ($164/4 = 41$) quite similar to that actually observed with respect to two of the categories, but the “3” and “72” data points are rather distant from the value of “41” that would be observed in all categories under the perfectly even division among degrees of participation implied by the random-distribution version of the elaborated Realist hypothesis.

A second variant of the elaborated Realist hypothesis would be to assume that nations are in fact going to behave as they would in the absence of international legal obligations, but that nations assume that not every actor in the system shares this belief. One might compare this to a “gullible-public hypothesis” about international law: political leaders governing a gullible populace will find it in their interest to join substantively meaningless international legal agreements because their populace gives them some credit for doing so. This particular hypothesis is *verboten* for the Realist, however, so long as he or she maintains that domestic politics is irrelevant to international relations: it would, after all, be only a short step from such a hypothesis to the assertion that public opinion matters, even in the face objective factors. But one could maintain this hypothesis, while preserving the Realists’ focus on objective factors, by assuming that the gullible actors in question are other nation-states rather than the domestic *polis*. (There are then some problems with the systemic consistency of every nation’s thinking that other nations are gullible, but I ignore these difficulties.)

¹⁷ Downs et al., *supra* note ___, at 387-99.

This variant of the elaborated Realist hypothesis appears much more consistent with the ozone treaty coverage data than does the random-distribution variant. The coverage data appears to show a bias toward higher levels of participation. There are, as mentioned just above in connection with the random-distribution variant, 26 nations abstaining entirely from participation in the ozone treaty regime in contrast to 164 participating in some form; the ratio of participants to non-participants thus exceeds 6:1. Among participating nations, the number of participating nations in the levels from least to most participatory reads: 3, 46, 43, and 72. A bias towards taking on more extensive obligations thus appears to exist whether one examines the difference between non-participation and participation, or the difference among degrees of obligation.

One might note three broader points before concluding this discussion of Realist hypotheses.

The first two of these points flow from the *actual* hypothesis of elaborated Realism, which is that variations in degrees of participation exactly reflect how nations intended to behave in the absence of international legal obligation.¹⁸ Applied to the ozone treaties, the actual hypothesis of elaborated Realism is thus that, for reasons independent of the enshrinement or not of any behavior in the text of the ozone treaties, 26 nations intend to behave inconsistently with the ozone treaties (and thus do not join), 3 nations intend to undertake some vague cooperation regarding scientific research, 46 nations intend to produce levels of ozone-depleting substances consistent with the original Protocol, 43 nations intend to produce fewer ozone-depleting substances as set forth in the London Revisions, and 72 nations intend to produce the still-smaller quantities of ozone-depleting substances consistent with the Copenhagen Revisions.

First, to reiterate in a specific context a point made earlier in a general sense, there is no possible configuration of observed participations that would lead the proponents of elaborated Realism to change any of their conclusions one whit. Their impressively versatile answer would still be that the (new) configuration reflects exactly what nations would have done in the absence of the enshrinement of those obligations in an international legal format.

Second, there is actually a sense in which the elaborated Realist view implies an extremely important role for international law. If nations undertake exactly those legal obligations consistent with the behavior that they intend to undertake regardless of

¹⁸ Downs et al., *supra* note ___, at 380.

whether the obligations are enshrined in international law, and nations do actually sometimes undertake obligations, then one may use international law as an absolutely reliable predictor of international behavior. Every nation undertaking an international legal obligation will reliably comply with the obligations stated therein—not out of a sense of obligation, in the Realist view, but because the nation would not have consented in the first place to the obligation unless it knew that it could easily comply. The existence of a variety of degrees of legal obligation, as set forth in the different enactments of the ozone treaties, improves the utility of this basis for prediction: one may know that both France and Italy will behave in a way consistent with the relative rigors of the Copenhagen Revisions, while a modestly defiant Monaco can be counted on to behave in accordance only with the less restrictive London Revisions. (And one must ponder whether San Marino, which has joined none of the ozone treaties, harbors plans to destroy the ozone layer single-handedly.)

Finally, one might infer from the fact that one may reasonably derive two rather different hypotheses from the elaborated Realist position—that the distribution of nations across levels of obligation will be random, or that it will be positively correlated with degree of obligation owing to the gullibility of some actors—that the underlying theory is not very well defined. It may be unfair to require a new theory also to produce unique implications, however.