Design in Context: Existing International Agreements and New Cooperation

Mark S. Copelovitch and Tonya L. Putnam

Abstract This research note highlights an important element missing from rational design theories of international agreements: "institutional context"—the presence or absence of existing and prior agreements between prospective partners in "new" cooperation. If, as rational design theorists argue, agreement design is deliberate, strategic, and directed toward enhancing contracting parties' ability to credibly commit to future cooperation, then prior design "successes" should influence the terms of additional cooperation. We test for this omitted variable problem in three agreement design outcomes: *ex ante* limitations on agreement duration, exit clauses, and dispute-settlement provisions. Through an augmentation and reanalysis of data from a key study in the rational design literature—Barbara Koremenos's "Contracting Around International Uncertainty"—we show institutional context is positively correlated with inclusion of *ex ante* time limitations in negotiated agreements and negatively correlated with the inclusion of exit clauses and third-party dispute-settlement provisions. Institutional context also mediates and conditions the effects of the explanatory variable at the heart of existing rational design theories—uncertainty about the future distribution of gains from cooperation. Our findings show that the collective appeal of particular design features varies not only with the nature of underlying strategic problems, but also with degrees of shared institutional context.

Rationalist explanations of international cooperation have long treated institutions as efforts to resolve collective action problems and achieve mutual gains. Early studies described the underlying challenges using basic game-theoretic structures such as the Prisoners' Dilemma.[1] More recent work further distills these structures into problems of credibility, distributional conflict, monitoring, and enforcement.[2] This convention has carried over to work on the "rational design" of international institutions, which is grounded in the intuitively appealing idea that states craft agreements to tackle

An earlier version of this article was presented at the 2010 annual conference of the American Political Science Association, Washington, DC. We thank Xinyuan Dai, Songying Fang, Yoshiko Herrera, Robert Keohane, Andrew Kydd, Lisa Martin, William Phelan, Mark Pollack, David Singer, Duncan Snidal, Johannes Urpelainen, and the anonymous reviewers for helpful comments and suggestions. We also thank the Niehaus Center for Globalization and Governance at Princeton University, and the Institute for Social and Economic Research and Policy at Columbia University for support of this project. The usual disclaimer applies.

1. See Stein 1982; Axelrod 1984; Keohane 1984; and Snidal 1985.

2. See Martin and Simmons 1998; Morrow 1994; Martin 1993; Fearon 1998; Simmons 2000; and Tomz 2007.

International Organization 68, Spring 2014, pp. 471–493

doi:10.1017/S0020818313000441

specific known barriers to cooperation.[3] The main typological framework of rational design theory, developed by Koremenos, Lipson, and Snidal (hereafter KLS) in 2001,[4] describes key dimensions along which international institutions vary—such as scope, centralization, membership, and flexibility.[5] The framework also identifies several variables that influence how states choose among design features. They include distributional conflicts, the number of parties involved in bargaining, monitoring and enforcement problems, and, importantly, uncertainties about preferences, the behavior of prospective partners, and the "state of the world."[6]

Subsequent empirical work has focused on testing the effects of these variables on agreement design choices. Several studies have found, for example, that states attempt to minimize uncertainty over the distribution of future benefits and costs from cooperation by building flexibility into agreements. Specific mechanisms include exit and derogation clauses and *ex ante* limitations on duration.[7] Other work has linked the incorporation of dispute settlement provisions to anticipated *ex post* compliance problems.[8] Although this empirical work has broadly confirmed the analytic utility of several rational design propositions, it has also exposed gaps in the underlying theory.

We highlight, and begin to correct for, one specific point of undertheorization in the rational design literature: the lack of attention to "institutional context"—the presence or absence of prior agreements between prospective partners in "new" cooperation.[9] The KLS framework contains no express consideration of whether and how institutional commitments that already bind prospective partners may influence interactions over new cooperation. However, if all institutional design is deliberate, strategic, and directed toward enhancing the credibility of states' commitments, then prior design "successes" (that is, efforts resulting in formal agreements) should influence later cooperation. This is especially so where agreements are in the same, or related, issue areas, and when they involve common parties.[10] Where these

3. An "agreement" is a negotiated arrangement between states formalized by a common contractual document or official exchange of letters. Institutions may be constituted by a single agreement or jointly by a number of related agreements. Thus, a single institution may embody more than one design outcome.

4. The KLS framework was originally published as a part of a 2001 special issue of *International Organization*. In 2004, the issue was published as a book by Cambridge University Press. Hereafter we cite the 2004 publication. See Koremenos, Lipson, and Snidal 2001 and 2004.

5. Koremenos, Lipson, and Snidal 2004, 3.

6. Ibid., 18–19.

7. See Rosendorff and Milner 2004; Koremenos 2005; Rosendorff 2005; Kucik and Reinhardt 2008; Johns and Rosendorff 2009; Hafner-Burton, Helfer, and Fariss 2011; and Thompson 2010.

8. See Guzman 2002; Koremenos 2007; and Busch 2007.

9. We define cooperation as voluntary collaboration or coordination between two or more entities for the purpose of achieving a defined objective. "New" cooperation may involve either collaboration or coordination that has not occurred between the parties previously, or the expansion of cooperative activities embodied in an earlier (expired) agreement. "Prior agreements" encompass cooperation terminated by action or by design. "Existing agreements" include formal treaties, or treaty-like commitments in force in a given year. Modifications to an agreement that do not require formal renegotiation and reratification fall under this category.

10. Duffield similarly observes that the KLS framework overlooks "potentially useful institutions" in the decision environment. Duffield 2003.

conditions apply, neglecting institutional context introduces a potentially severe omitted variable problem.

In order to test for this problem—and to demonstrate the importance of attention to institutional context to theories of rational design—we augment and reanalyze data from a foundational study in the literature: Koremenos's "Contracting Around International Uncertainty."[11] We find that institutional context is a significant determinant of key design features—including *ex ante* limitations on agreement duration, exit clauses, and third-party dispute resolution provisions—in the sample of international agreements analyzed in Koremenos's study. Moreover, we show that institutional context mediates and conditions the effects of the core explanatory variable—uncertainty about the future distribution of gains from cooperation—at the heart of Koremenos's article and the broader rational design approach. Our findings suggest a need to reconsider the scope and explanatory power of the rational design framework as formulated by KLS, and to examine how states' prior institutional and legal commitments influence the character and difficulty of the cooperation problems they confront when bargaining over the design of new international agreements.

Rational Design and Institutional Context

Imagine a new trade agreement between two states with an extensive web of prior economic treaty ties. Now, suppose these same two states have no previous history of cooperation but want to conclude a similar agreement. Would it be reasonable to expect both agreements to include the same design elements? In most cases it would not. But how and why these agreements might differ—in terms of expected duration, opt-out clauses, and the stringency of enforcement mechanisms—is not discernible from the fundamentals of rational design theory.

Institutions, and the formal agreements that underpin them, exist in large part to limit choice. They aim to increase predictability in behavior by raising or lowering the costs of different courses of action. Formal commitments have this effect, however, only to the extent they are credible.[12] Indeed, many of the uncertainty-based barriers to cooperation the rational design framework seeks to address can also be easily characterized as "credibility gaps." The reasons states' commitments lack credibility have been thoroughly explored in the rationalist international relations (IR) literature. Chief among them are time-inconsistency problems, opportunities for gains through "cheating," and collective action problems tied to *ex post* enforcement.[13] Less well explored, however, are sources of variation based in decision environments.[14]

11. Koremenos 2005.
12. See Simmons 2000; and Yackee 2008.
13. See Keohane 1984; Stein 1990; Lipson 1991; Morrow 1994; Fearon 1998; Cohen 2000; Rosendorff and Milner 2004; Koremenos 2007; and Kucik and Reinhardt 2008.
14. See Krasner 1985; Aggarwal 1998; Raustiala and Victor 2004; and Alter and Meunier 2009.

Empirical tests of rational design theory commonly describe decision environments in highly abstract terms borrowed from the basic game-theoretic models underpinning the approach.[15] When scholars import such conventions directly into empirical models of agreement design, the implicit assumption is that the game structure itself adequately captures all relevant influences on design outcomes. However, because payoffs determine game structures, whether or not abstract models such as the Prisoners' Dilemma achieve this also depends on how sources of variation in expected payoffs are theorized. Consequently, factoring in the influence of institutional context is not simply a matter of improving the operationalization of existing concepts in empirical models (although it may have this effect also). Rather, variation in institutional context should systematically influence the existence and severity of the forms of uncertainty that KLS identify as the central drivers of variation in agreement design: uncertainty over the preferences of other actors, uncertainty over their behavior, and uncertainty about the "state of the world."

Qualitative tests of rational design theory generally rely less overtly on abstract game-theoretic constructs than those using statistical analysis. In their place one typically finds case-specific accounts of unit-level and dyadic features of the states under examination or the problems they seek to resolve.[16] These adaptive moves, however, have been mainly ad hoc, with little effort to generalize the frequency or effects of unit-level and dyadic variables, or to link them to institutional features in the decision environment.[17] Why is this important? Unit-level variables such as regime type, resource endowments, and relative power do not vary greatly between each state of the world. This suggests that—although such factors may have a role in selecting parties for cooperation—they are not analytical substitutes for institutional context, which varies substantially over time and across cases, and which has an independent influence on strategic decisions regarding agreement design. Consequently, it is not enough to argue simply that governments will rationally choose to include more stringent enforcement mechanisms in agreements when they find themselves in a Prisoners' Dilemma situation. It is also necessary to consider the severity of the cooperation problem, together with other factors affecting levels of credibility and uncertainty—including the effect of existing and prior commitments. Omitting, or radically abstracting away, institutional context leads scholars to draw incomplete and erroneous conclusions about the severity of cooperation problems and the mechanisms needed to overcome them.

15. See Koremenos 2005 and 2007; and Pahre 2004.

16. See Mattli 2004; Mitchell and Keilbach 2004; Morrow 2004; Oatley 2004; Richards 2004; and Thompson 2010.

17. In a partial exception, Mitchell and Keilbach examine how "asymmetric externalities" may affect agreement design. However, their proposed solution—expanding agreement scope to encompass more opportunities for mutually improving linkages and tradeoffs—fails to consider that existing institutional obligations among the parties may make such attempts more, or less, difficult, depending on membership and content. Mitchell and Keilbach 2004.

Accounting for Design Variation in International Agreements

In "Contracting Around International Uncertainty," Koremenos seeks to explain variation in two important design features of international treaties: *ex ante* limits on agreement duration and "exit" clauses. Drawing from the KLS framework, she argues that, as uncertainty about the distribution of future gains from cooperation increases, states are more likely to incorporate these elements into their agreements. We single out Koremenos's work because it offers the most cogent and systematic empirical analysis of rational design conjectures to date and thus provides a "hard test" of our ideas.

Koremenos tests her argument using data collected on a random sample of 145 international agreements drawn from the United Nations Treaty Series (UNTS). These agreements span 1925 to 1986, and four issue areas: economics, security, human rights, and environment. She runs three sets of models, one for each dependent variable. On the explanatory side, Koremenos allows UNCERTAINTY to take either a "high" or "low" value. "High uncertainty" situations are those in which exogenous changes in the economic or political environment "cause the distribution of gains to vary substantially over time," even where cooperation is expected to yield aggregate mutual gains. Where changes in the distribution of gains are unlikely, Koremenos classifies these as "low uncertainty" issues. We note that in Koremenos's coding, UNCERTAINTY is fixed by issue area.[18] She classifies monetary, trade, and investment agreements exclusively as involving "high uncertainty," whereas human rights, finance, security, and environmental agreements are classified as "low uncertainty." Our approach, by contrast, allows prior institutional arrangements between negotiating parties to influence the issue-related uncertainties.

Koremenos's main finding is that higher levels of uncertainty are associated with a reduction in the *ex ante* specification of agreement duration, particularly when expected costs from periodic renegotiation are low relative to anticipated gains from cooperation, or as risk aversion increases.[19] Under these conditions, Koremenos concludes, *ex ante* limits on duration offer states "insurance" against unfavorable changes in the distribution of future gains from cooperation.[20] She also finds that uncertainty has no effect on the inclusion of escape clauses or withdrawal provisions, although higher renegotiation costs (as measured by the number of participants) increase the likelihood that states will include these design features.

18. Koremenos 2005, 555. We have several concerns about this coding, including whether a dichotomous classification sufficiently captures the complexities of uncertainty about the future distribution of gains from cooperation. For this analysis, however, we take Koremenos's classification at face value.

19. We employ Koremenos's operationalization of risk aversion. While we agree theoretically that a state's level of risk aversion may factor into design choices, we also note that in Koremenos's approach, risk aversion is a purely domestic parameter and, thus, is not directly affected by the contextual variables we discuss in this research note.

20. Koremenos 2005, 549.

We begin our empirical analysis with a replication of Koremenos's basic probit model,[21] in which the binary dependent variable is the inclusion of a treaty clause limiting the duration of the agreement *ex ante*. Model 1 in Table 1 below shows these results. Our coefficients differ slightly from those reported by Koremenos for three reasons. First, full replication data were unavailable at the time we conducted our initial research, which required us to reconstruct parts of the data set. In so doing, we identified several coding errors that we corrected.[22] Second, our protocol for coding participant totals is slightly more conservative than Koremenos's, which appears to rely on undated participant lists in UNTS data.[23] Third, Koremenos tests three different measures of risk aversion in her models. We utilize only Bueno de Mesquita's measure based on states' alliance portfolios, since it is the most consistently significant in Koremenos's analysis.[24]

Minor differences aside, our results in Model 1 substantively mirror those of Koremenos: the probability that states will choose a time-limited (or "finite") agreement increases with the level of uncertainty about the distribution of future gains. The probability that an agreement is time-limited also decreases as renegotiation costs increase but increases with risk aversion.[25] In Model 2, we test Koremenos's specification using only the bilateral agreements in her sample and find that the results hold also for this subset. The consistency between these results allows us to focus in further analysis on only the bilateral agreements in Koremenos's data (N = 101). This provides the cleanest test of our measure of institutional context. Within the bilateral sample, the treaties are divided into four issue areas: economic (N = 66), environmental (N = 15), security (N = 16), and human rights (N = 4).

In subsequent models we attempt to describe the effects of institutional context using four variables coded from the UNTS data. The first, PRIOR AGREEMENTS, is the count of all prior bilateral treaties signed and submitted by the state parties to the UNTS as of the year in which the agreement in question was created. The second variable, PRIOR AGREEMENTS–UNIQUE, is the count of all prior bilateral treaties with a unique UNTS number. This variable excludes agreements that amend or modify existing treaties. Third, PRIOR AGREEMENTS–SUBJECT, is the count of all prior treaties within the same issue area, based on the four-issue coding used by Koremenos. The fourth variable, PRIOR AGREEMENTS–SUBJECT UNIQUE, is the count of the number

21. Ibid., Table 2, 558.
22. Details available from the authors on request.
23. Often these lists include states that signed but never ratified the treaty, or acceded long after its adoption, and thus were likely not part of the design process. We code states as "participants" if they ratified within six months of the UNTS signature date. This coding rule is still not ideal, since it may exclude states that were involved in negotiations, but which did not ratify the final agreement, or did so after substantial delay. However, any differences are relevant only to our replications of Koremenos's data on the full sample, since this is not a factor in bilateral agreements.
24. Bueno de Mesquita 1985. For a detailed description of the BDM measure, see Koremenos 2005, 555. In the replication data set obtained from Koremenos, there is one missing observation for the BDM risk aversion measure. Thus, our data has 144 total observations rather than 145.
25. Koremenos also finds time-limited agreements are more likely in economic, environmental, and human rights issue areas than in security.

https://doi.org/10.1017/S0020818313000441 Published online by Cambridge University Press

TABLE 1. *Regression results, duration clause models*

Model	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
Variable	*Koremenos (replication)*	*Koremenos (bilateral)*	*Prior agreements (all, log)*	*Prior agreements (unique, log)*	*Prior agreements (issue area, log)*	*Prior agreements (issue area, unique, log)*	*Prior agreements (all, log)*	*Prior agreements (unique, log)*
UNCERTAINTY	1.1638***	1.3948***	1.5445***	1.5991***	1.4454***	1.5002***	0.7920	0.8322
	(0.2799)	(0.4062)	(0.4288)	(0.4351)	(0.4208)	(0.4296)	(0.7651)	(0.5946)
PRIOR AGREEMENTS			0.3671**	0.4359***	0.3497**	0.4554**	0.1409	0.0457
			(0.1444)	(0.1634)	(0.1611)	(0.1817)	(0.2354)	(0.2662)
UNCERTAINTY*PRIOR AGREEMENTS							0.3395	0.5409
							(0.2911)	(0.3860)
NUMBER OF PARTICIPANTS (*log*)	−0.4702***							
	(0.1430)							
RISK AVERSION (*BDM*)	0.6326**	0.6304**	0.7097**	0.7033**	0.6457**	0.6604**	0.7139**	0.6783**
	(0.2724)	(0.2879)	(0.2960)	(0.2973)	(0.2896)	(0.2927)	(0.2964)	(0.2945)
ENVIRONMENTAL ISSUE	0.9542**	1.4784**	1.7381**	1.7323**	1.3975**	1.3957**	1.8406***	1.3558**
	(0.4485)	(0.6544)	(0.7040)	(0.7076)	(0.6712)	(0.6777)	(0.7142)	(0.6667)
ECONOMIC ISSUE	1.0669***	0.7444*	1.1172**	1.1241**	0.5783	0.5692	1.1915**	0.5917
	(0.3767)	(0.4108)	(0.4615)	(0.4612)	(0.4315)	(0.4364)	(0.4789)	(0.4403)
HUMAN RIGHTS ISSUE	0.8293*							
	(0.5029)							
Constant	−0.6340	−0.9075*	−2.1316***	−2.2412***	−1.2621**	−1.3773**	−1.6610**	−0.8409
	(0.4211)	(0.5227)	(0.7413)	(0.7554)	(0.5700)	(0.5846)	(0.8349)	(0.6361)
Observations	144	101	101	101	101	101	101	101
Log-likelihood	−63.157	−41.064	−37.397	−37.003	−38.489	−37.575	−36.727	−37.482

Notes: Standard errors are in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

of unique treaties within each issue area. Each of these variables enters the regressions as a natural log to control for the severe skew in the data.[26] This is a conservative cut, in that it almost certainly undercounts the influence of context by not focusing on minor reaffirmations of an agreement's provisions (including its design features).[27] Table 2 presents summary statistics for these four variables, along with statistics for all other variables used in the analysis. The appendix provides a more extensive discussion of the precise coding rules used to create these variables.

Table 2 shows substantial variation in the degree of institutional context among the country pairs within Koremenos's data set. PRIOR AGREEMENTS ranges from 0 to 288, whereas PRIOR AGREEMENTS–UNIQUE ranges from 0 to 180. Similarly, PRIOR AGREEMENTS–SUBJECT ranges from 0 to 77, whereas PRIOR AGREEMENTS–SUBJECT UNIQUE ranges from 0 to 35. Whether a treaty is unique or not appears to have little effect on the data: PRIOR AGREEMENTS and PRIOR AGREEMENTS–UNIQUE are correlated at 0.98, whereas PRIOR AGREEMENTS–SUBJECT and PRIOR AGREEMENTS–SUBJECT UNIQUE are correlated at 0.92. However, the correlation between PRIOR AGREEMENTS and PRIOR AGREEMENTS–SUBJECT is only 0.49, and the correlation between PRIOR AGREEMENTS–UNIQUE and PRIOR AGREEMENTS–SUBJECT UNIQUE is only 0.56.

TABLE 2. *Summary statistics*

Variable	*Mean*	*Standard deviation*	*Minimum*	*Maximum*
DURATION CLAUSE	0.80	0.40	0	1
EXIT CLAUSE	0.47	0.50	0	1
DISPUTE SETTLEMENT CLAUSE	0.27	0.44	0	1
UNCERTAINTY	0.77	0.42	0	1
PRIOR AGREEMENTS	25.86	42.66	0	288
PRIOR AGREEMENTS–UNIQUE	17.12	25.20	0	180
PRIOR AGREEMENT–SUBJECT	6.98	11.93	0	77
PRIOR AGREEMENT–SUBJECT UNIQUE	4.94	6.19	0	35
RISK AVERSION (*BDM*)	0.26	0.57	–0.99	0.99
ENVIROMENTAL ISSUE	0.15	0.36	0	1
ECONOMIC ISSUE	0.65	0.48	0	1
SECURITY ISSUE	0.16	0.37	0	1
HUMAN RIGHTS ISSUE	0.04	0.20	0	1

Note: N = 101.

26. We add a constant of one to each raw count to account for the zero observations when taking the natural log. Thus, the minimum value of each variable in the regression models is zero.

27. The UNTS tracks treaty actions not requiring reratification by relisting the agreement under the same number. To treat each nonunique listing of a treaty under the same UNTS number as a separate agreement could, in some cases (for example, those involving large multilateral treaties), vastly overcount by catching individual state decisions to join (or exit) a treaty when no other changes occur. By contrast, the risk that a fully renegotiated agreement might be listed under the same UNTS number is very small, as, for example with the multiple iterations of the International Sugar Agreement, each of which has a unique UNTS number.

Ex Ante Limitations on Agreement Duration

In Models 3 to 6 of Table 1, we test each of the four measures of institutional context. The results are clear across all four models: the number of prior agreements between two states is significantly correlated with agreement duration, and a larger number of prior agreements increases the probability that the current agreement will include an *ex ante* time limitation. Table 3 illustrates the substantive importance of this result, by showing first differences for the significant variables in Model 3. All else equal, a one standard deviation increase in PRIOR AGREEMENTS (a shift from twelve to forty-five agreements) increases the probability that a treaty will contain a duration limitation by 7 percent.

TABLE 3. *First differences, duration clause model (Table 1, Model 3)*

Variable	*% change in Pr(duration clause)*	*Interpretation*
UNCERTAINTY	44.4	0 to 1
PRIOR AGREEMENTS	7.0	12 to 45 agreements
RISK AVERSION	28.7	0.29 to 0.78
ENVIRONMENTAL ISSUE	17.5	0 to 1
ECONOMIC ISSUE	27.5	0 to 1

Note: Predicted Pr(duration clause), all variables at means: 87.0 percent.

The finding that a richer institutional context within state dyads actually reduces the negotiated duration of new bilateral agreements is puzzling in light of Koremenos's claim that time-limitation clauses are purely a hedging device against uncertainty. One possibility is that more context somehow increases levels of uncertainty as Koremenos defines it. However, the functionalist logic on which rational design theory is premised suggests this is unlikely.[28] Another possibility is that prior agreements with another state convey information about prospects for periodic renewal and renegotiation of agreements and about counterparts' credibility. Under these conditions, states may worry less about finding ways to secure long-term mutual gains within a single agreement or about devising mechanisms to "lock in" commitments. In other words, "context-rich" dyads may view the ability to easily make short-term commitments as an opportunity for increased mutual gains, rather than a hedge against individual losses.[29] Where this logic applies, time-limitation clauses may actually signal a longer shadow of the future, a low level of uncertainty

28. But see Drezner 2009, for a discussion of the "spaghetti bowl" metaphor for institutional complexity and overlap in the realm of international trade agreements. See also Bhagwati 1995.

29. This may be the case where states want to rapidly, but incrementally, deepen cooperation in a given issue area, but initially lack sufficient information about important parameters of the cooperative endeavor. Abbott and Snidal 2000.

about partner preferences, and less concern about how partners are likely to respond to uncertainties about the state of the world.

In Models 7 and 8 of Table 1, we explore the possibility that the relationship between UNCERTAINTY and PRIOR AGREEMENTS might be conditional and interactive. These specifications replicate Models 3 and 4, with the addition of a multiplicative interaction term. Because the coefficients on interactive terms and their components cannot be readily interpreted from the regression results,[30] we test the significance of the interaction graphically. Figure 1 plots the conditional marginal effect of uncertainty at different levels of PRIOR AGREEMENTS, using the results from Table 1, Model 7.[31]

The graph indicates that uncertainty increases the probability of a finite agreement only in cases when states have signed one or more prior agreements (that is, when the natural log of PRIOR AGREEMENTS exceeds approximately 0.7). In contrast, when dyads have not previously signed an agreement, uncertainty has no significant effect on the likelihood that a new agreement will contain a duration clause.

If time-limitation clauses are purely a hedge against future uncertainty over the distribution of gains from cooperation, such concerns should be greatest between states that have never previously cooperated. Instead, the positive coefficients on uncertainty are largest where PRIOR AGREEMENT is high. This suggests a need to look more closely at the substance and depth of cooperation in individual agreements. It might be, for example, that state dyads that share more extensive institutional context can rely on prior agreements—and their institutional structures—when bargaining over the design of later agreements. For example, states may prefer shorter agreements to longer ones where there is high uncertainty over the state of the world, but not over others' preferences, and where there are reasonable expectations that this uncertainty will be mitigated through additional information.[32]

Regardless of the precise mechanism at work, our empirical findings on this point stand in stark contrast to Koremenos's analysis, where limited duration agreements are invariably responses to "bad" signals from the decision environment. In contrast, our findings indicate that among frequent cooperators, *ex ante* limitations on duration may actually be a rational response to "good" prior interactions rather than distrust or concern about the distribution of gains—for example, where prior cooperation prompts states to engage in more ambitious cooperation in later periods.[33]

30. See Braumoeller 2004; and Brambor, Clark, and Golder 2006.

31. Interaction charts are calculated using the STATA modules developed by Bear Braumoeller and Brambor, Clark, and Golder (available at <http://files.nyu.edu/mrg217/public/interaction.html>, accessed 7 November 2013).

32. Abbott and Snidal illustrate this point about "hard" versus "soft" law with regard to early cooperation around global warming, where lack of substantive knowledge about the causes and consequences of climate change prompted states to be cautious about committing to long-term mitigation strategies. Similar dynamics might occur with respect to finance in emerging markets or the regulation of new military technologies. See Abbott and Snidal 2000; and Urpelainen 2012.

33. See Abbott and Snidal 2000; and Urpelainen 2012.

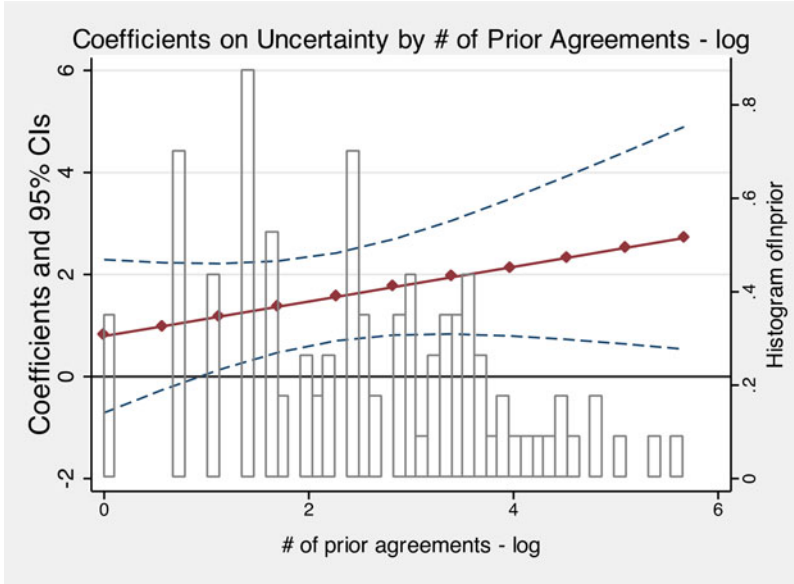

FIGURE 1. *Conditional effect of uncertainty by institutional context, duration clause models (Table 1, Model 3)*

Exit and Dispute Settlement Clauses

We now test two further clusters of models to explore whether institutional context operates similarly with respect to two other design elements: withdrawal provisions (or "exit clauses") and dispute settlement clauses.[34] Although Koremenos did not test for dispute settlement clauses in "Contracting Around International Uncertainty," we do because this feature has received so much recent attention in the literature.[35] Tables 4 and 5 replicate the eight probit model specifications in Table 1, using these additional dependent variables.

Table 4 presents the results for the withdrawal provision models. The first important finding here is that uncertainty has no significant effect in any of the models, a result that mirrors Koremenos's 2005 analysis.[36] The second interesting result is that, in Models 3 to 6, all four measures of institutional context are negative and

34. Koremenos also tests for the presence of escape clauses. We did so in our analysis as well, but do not report the results here, since only four of the 101 bilateral treaties in the data set contain such clauses, and high UNCERTAINTY (a value of 1 for the dummy variable) perfectly predicts the absence of an escape clause. Koremenos 2005.

35. See, for example, Gilligan, Johns, and Rosendorff 2010; Busch 2007; Rosendorff 2005; Mattli 2004; and Smith 2000. Koremenos 2007 also focuses on dispute settlement provisions using a subsample (N = 88) of her 2005 data. See fn. 39 for a direct comparison of Koremenos's approach in these two articles.

36. Koremenos 2005, Table 6, 561.

https://doi.org/10.1017/S0020818313000441 Published online by Cambridge University Press

TABLE 4. *Regression results, exit clause models*

Model	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
Variable	*Koremenos (replication)*	*Koremenos (bilateral)*	*Prior agreements (all, log)*	*Prior agreements (unique, log)*	*Prior agreements (issue area, log)*	*Prior agreements (issue area, unique, log)*	*Prior agreements (all, log)*	*Prior agreements (unique, log)*
UNCERTAINTY	0.1565	0.2333	0.2476	0.2307	0.2696	0.2517	−0.2726	−0.3002
	(0.2725)	(0.3496)	(0.3508)	(0.3506)	(0.3524)	(0.3530)	(0.7227)	(0.7330)
PRIOR AGREEMENTS			−0.1801*	−0.2015*	−0.3631***	−0.4005***	−0.3471	−0.3781
			(0.1077)	(0.1217)	(0.1227)	(0.1379)	(0.2304)	(0.2474)
UNCERTAINTY*PRIOR AGREEMENTS							0.2100	0.2284
							(0.2542)	(0.2762)
NUMBER OF PARTICIPANTS (*log*)	0.3205**							
	(0.1326)							
RISK AVERSION (*BDM*)	−0.1383	−0.1548	−0.2082	−0.2047	−0.2022	−0.2098	−0.2166	−0.2136
	(0.2256)	(0.2375)	(0.2443)	(0.2437)	(0.2463)	(0.2463)	(0.2465)	(0.2460)
ENVIRONMENTAL ISSUE	1.0799***	1.4272***	1.4070***	1.4385***	1.5613***	1.5751***	1.4829***	1.5113***
	(0.4115)	(0.5375)	(0.5347)	(0.5359)	(0.5469)	(0.5478)	(0.5532)	(0.5540)
ECONOMIC ISSUE	0.1590	0.5664	0.3942	0.4103	0.7249*	0.7090*	0.4128	0.4276
	(0.3176)	(0.3800)	(0.3929)	(0.3913)	(0.3950)	(0.3936)	(0.3955)	(0.3937)
HUMAN RIGHTS ISSUE	0.6784*	0.7421	0.5602	0.5884	0.5054	0.4881	0.6033	0.6280
	(0.4119)	(0.7256)	(0.7336)	(0.7297)	(0.7523)	(0.7518)	(0.7366)	(0.7329)
Constant	−0.6519	−0.8409*	−0.2645	−0.2583	−0.4613	−0.4258	0.1332	0.1420
	(0.4168)	(0.4783)	(0.5895)	(0.5941)	(0.4995)	(0.5026)	(0.7692)	(0.7743)
Observations	144	101	101	101	101	101	101	101
Log-likelihood	−86.874	65.556	−64.143	−64.172	−60.993	−61.179	−63.798	−63.826

Notes: Standard errors are in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

https://doi.org/10.1017/S0020818313000441 Published online by Cambridge University Press

TABLE 5. *Regression results, dispute settlement clause models*

Model	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
Variable	*Koremenos (replication)*	*Koremenos (bilateral)*	*Prior agreements (all, log)*	*Prior agreements (unique, log)*	*Prior agreements (issue area, log)*	*Prior agreements (issue area, unique, log)*	*Prior agreements (all, log)*	*Prior agreements (unique, log)*
UNCERTAINTY	0.1575	1.0188**	1.1123**	1.1054**	1.0936**	1.0836**	3.0718***	2.8413***
	(0.2785)	(0.4495)	(0.4620)	(0.4654)	(0.4638)	(0.4653)	(1.0604)	(1.0345)
INSTITUTIONAL CONTEXT			−0.3508***	−0.3947***	−0.4642***	−0.4932***	0.2467	0.1820
			(0.1218)	(0.1373)	(0.1464)	(0.1603)	(0.2825)	(0.3024)
UNCERTAINTY*CONTEXT							−0.7424**	−0.7201**
							(0.3157)	(0.3398)
NUMBER OF PARTICIPANTS (*log*)	0.6447***							
	(0.1420)							
RISK AVERSION (*BDM*)	−0.1065	−0.2830	−0.3899	−0.3786	−0.3531	−0.3539	−0.4030	−0.3898
	(0.2396)	(0.2560)	(0.2675)	(0.2664)	(0.2669)	(0.2658)	(0.2822)	(0.2778)
ENVIRONMENTAL ISSUE	0.7683*	1.1783**	1.2488**	1.2963**	1.3432**	1.3648**	1.2855**	1.3253**
	(0.4448)	(0.5805)	(0.5913)	(0.5931)	(0.6031)	(0.6051)	(0.6068)	(0.6047)
ECONOMIC ISSUE	0.8846**	0.8319**	0.6174	0.6320	1.0722**	1.0655**	0.5608	0.5864
	(0.4173)	(0.4232)	(0.4389)	(0.4371)	(0.4450)	(0.4462)	(0.4458)	(0.4422)
HUMAN RIGHTS ISSUE	0.4509							
	(0.4466)							
Constant	−1.9494***	−2.1346***	−1.2163*	−1.2074*	−1.7676***	−1.7654***	−2.8045***	−2.6101**
	(0.4889)	(0.5746)	(0.6556)	(0.6582)	(0.5925)	(0.5942)	(1.0502)	(1.0234)
Observations	144	101	101	101	101	101	101	101
Log-likelihood	−79.269	−53.332	−48.873	−48.920	−47.627	−48.122	−45.981	−47.655

Notes: Standard errors are in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

significant, indicating that states with more extensive records of cooperation are less likely to include these features in new agreements. Once again, the logic is straightforward: context reduces concerns about cheating, enforcement, and credibility, thereby reducing the need for withdrawal provisions.[37] Finally, as Models 7 and 8 illustrate, the interactive relationships evident in the time-limitation clause models are not significant in the exit clause specifications. Thus, institutional context has independent effects on this design feature.

Table 5 presents results for the dispute settlement clause models.[38] Again, our results strongly support the argument that institutional context influences agreement design.[39] All four codings of context are negative and significant, suggesting that states with more extensive records of past cooperation are less likely to include dispute settlement clauses in new treaties. The logic here is also straightforward: concerns about monitoring, enforcement, and credibility are likely less severe among states that have previously signed agreements with one another. This effect is substantively large: a one standard deviation increase in PRIOR AGREEMENTS (from twelve to forty-five agreements) decreases the probability that a treaty will contain a dispute settlement clause by 10.9 percent.

The noninteractive dispute settlement clause models in Table 5 also support Koremenos's original logic. Model 1 in this table shows that uncertainty has no significant effect on the inclusion of dispute resolution clauses in Koremenos's full sample of bilateral and multilateral treaties. Models 2 to 6 illustrate, however, that uncertainty is positive and significant within the subset of bilateral treaties in each of the specifications. This effect is also substantively large: a shift from "0" to "1" in uncertainty in Model 3 increases the probability of a dispute clause by 24.5 percent. These models suggest that high uncertainty is indeed associated with an increased propensity to include dispute settlement clauses in treaties. However, institutional context may have something to do with this choice. For example, more extensive present and past cooperation may ameliorate (or exacerbate) states' concerns about cheating; alternatively, context may shape states' views of the likelihood that changes in the future distribution of gains can be addressed without formal dispute resolution mechanisms.

In Models 7 and 8, we again include interaction terms to test for a conditional relationship between uncertainty and PRIOR AGREEMENTS (Figure 2). The results

37. This result is consistent with findings in Rosendorff and Milner 2004; and Rosendorff 2005.

38. This is a binary variable coded 0 if the agreement makes no mention of dispute settlement, or simply directs parties to resolve disputes amicably, and 1 if the agreement specifies any formal ("third party") mechanism, beginning with binding arbitration (either *ad hoc* or in a standing body), and extending to litigation in the International Court of Justice.

39. Koremenos 2007 hypothesizes states are more likely to choose formal dispute settlement clauses when trying to resolve "complex cooperation problems." We tested the correlation between UNCERTAINTY and COMPLEX COOPERATION among the bilateral agreements in her 2005 and 2007 data, and found it to be nearly perfect (0.91). We also reran the models in Table 5 substituting COMPLEX COOPERATION for UNCERTAINTY. The results are substantively identical. To facilitate comparison, we thus report our results using UNCERTAINTY.

show that such a relationship exists—albeit in the opposite direction from that indicated in the duration clause models. UNCERTAINTY has a positive and significant effect in Figure 2, but only at low levels of PRIOR AGREEMENTS (that is, when the number of prior agreements is approximately 12, or ln (2.5)). This suggests states' concerns about the distribution of future gains are heavily mitigated—and eventually rendered insignificant—in cases where institutional context is more extensive.

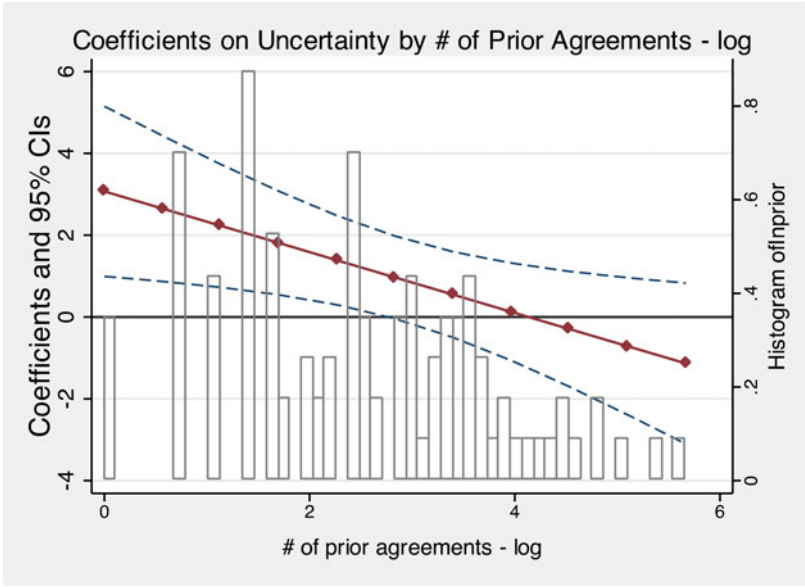

FIGURE 2. *Conditional effect of uncertainty by institutional context, dispute settlement clause models (Table 5, Model 3)*

The contrast between this interactive result and the result for the duration clause models offers direct evidence that Koremenos draws overly broad inferences from her analysis.[40] Indeed, if higher levels of uncertainty matter only at high levels of institutional context (as the interactive duration clause result suggests), this variable must be picking up more than concerns about the future distributional gains from cooperation. One way forward thus involves examining the substance and depth of cooperation in new and past agreements more closely to further clarify the "stakes" in particular cases of cooperation.

The analysis strongly supports our intuition that institutional context—the presence (or absence) of prior agreements between states—affects the choice of design features in international treaties. All else equal, a larger number of prior agreements increases the probability that new agreements will be of finite duration, reduces the

40. Koremenos 2005.

probability that new agreements will contain exit clauses, and reduces the probability that they will contain dispute settlement clauses. In addition, institutional context mediates the effects of the primary determinant of variation in agreement design in the foundational accounts of rational design—uncertainty about the future distribution of gains from cooperation.

Discussion

The results show that omitting institutional context from rational design analysis is a potentially serious problem. This is particularly true for statistical analyses that seek to develop general explanations for the incidence of specific design features based on models that assume states have no prior interactions with, or obligations toward, one another. For qualitative tests of rational design conjectures, our findings likewise point to the utility of exploring—and attempting to generate and test hypotheses from—causally important features of highly specific institutional and historical accounts.[41]

Institutional Context and Reputation

One possible response to our emphasis on the importance of institutional context is that some of the ground we seek to claim has already been occupied by theories of reputation. Reputation is an increasingly common mechanism by which IR scholars seek to incorporate the influence of past behavior on strategic decision making.[42] Applied to the rational design of international agreements, reputation-based approaches indicate that prior interactions influence levels of cooperation, and the design of agreements that formalize bargaining outcomes. In this view, past experience provides the basis for assessing others' "type," which, in turn, feeds expectations regarding future "trustworthiness," or "propensity to keep commitments."[43] Thus, for example, negotiating dyads revealed to contain "trustworthy" types will require fewer design safeguards, whereas combinations of states with "mixed" or "unreliable" types may require more elaborate designs.[44]

For such reputational effects to accrue, actors must face choices. Behavior that is compelled, or strongly incentivized by known instrumental considerations, has no clear effect on reputation.[45] Because institutional and legal commitments limit

41. For example, as Mitchell and Keilbach observe regarding asymmetric externalities, the "situation structures" that motivate bargaining between states may vary in ways that are amenable to broader generalization. Mitchell and Keilbach 2004. We take this insight one step further by suggesting that situation structures themselves may have unacknowledged institutional determinants.
42. See Fearon 1994; Tomz 2007; and Guzman 2008.
43. See Watson 1999 and 2002; Downs and Jones 2002; Kydd 2004 and 2005; Tomz 2007; and Guzman 2008.
44. Kydd 2004.
45. Downs and Jones 2002.

choice, it follows that if states generally select into agreements from which they expect to benefit,[46] and if agreements have the purpose and effect of limiting choice, then the strategic environments emerging from a plurality of rationally designed institutions should yield behavioral predictability that minimizes the influence of reputational mechanisms.[47]

Furthermore, it may be that a sufficiently "dense" institutional context effectively substitutes for actor type. Where behavioral expectations commonly attributed to "reputation" have identifiable institutional underpinnings, this raises questions about whether "good behavior" is a function of actor type, or whether it might be more readily attributed to the incentives forged in prior rounds of institutional design. Although reputation theory appears to offer a fruitful extension of rational design analysis, as with rational design theory itself, the behavioral expectations it gives rise to may be most directly relevant in situations in which uncertainty is attributable primarily to a lack of institutional context.

Sources and Severity of Uncertainty

Koremenos's argument places considerable weight on whether states find themselves in "high" or "low" uncertainty interactions. Further, the severity of the uncertainty problems states face in the KLS framework is largely a function of expectations regarding the magnitude and effects of possible "external shocks."[48] Under what conditions, and how, those expectations vary empirically is far from clear. We take a different approach to describing and modeling how uncertainty operates in interactions around agreement design.[49] We posit that the sources of uncertainty—including those types described in the KLS framework—lie largely in the structures produced by prior agreements and institutions. By providing additional sites for observing the actions of prospective partners, institutional context can mitigate uncertainty over behavior. It also may provide information about the likely sources and frequency of so-called external shocks, thereby influencing uncertainty over the state of the world.[50]

46. See von Stein 2005; Simmons and Hopkins 2005; and Kucik and Reinhardt 2008.

47. For reputation to operate, strategic actors must also be able to differentiate "cooperative" from "uncooperative" behavior. Making this assessment likewise requires attention to the broader strategic environment, although not necessarily an exclusive focus on institutional context.

48. State-specific measures of risk aversion also play a role in Koremenos's model, although where levels of risk aversion come from is unspecified.

49. We define "uncertainty" as a state of lacking perfect knowledge about something that has happened, or may yet happen. This definition is formally agnostic regarding whether and how uncertainty can be reduced to assessments of "risk" (making probabilistic assumptions regarding the likelihood of "known unknowns" occurring) for modeling purposes. See Wendt 2004, 270–71 for a cogent discussion of this issue.

50. Nothing in this formulation requires institutional context to have a moderating effect on uncertainty. Indeed, under some conditions, for example very high levels of organizational complexity, context may itself be a source of additional uncertainty. See Drezner 2009; Bhagwati 1995; and Sagan 1993.

The contrast between our analysis concerning *ex ante* time limitations on international treaties and those of Koremenos is especially illustrative on this point.[51] Koremenos argues that duration clauses are exclusively a hedge against uncertainty. On the contrary, these clauses may have functions that vary with institutional context. Ascertaining to what degree institutional context can influence uncertainty in specific issue areas, such as trade, finance, or the environment, requires more extensive empirical analysis than this note allows. Even if this influence remains low, however, similarly endowed states might have different attitudes toward the amount of uncertainty they (or their prospective partners) face, depending on their embeddedness in relevant international institutions and the design elements those institutions embody. In other words, institutional context may help determine the extent to which states are actively concerned with distributional issues/relative gains and not simply absolute gains and losses.

Conclusion

These findings suggest the need for IR scholars to reconsider the scope and explanatory power of existing rational design theories. They also highlight the need to pay closer attention to the importance of prior institutional and legal commitments in shaping states' choices about the design features of new agreements. As Wendt observes, rationalist approaches often give short shrift to "underlying structures that make certain choices rational in the first place."[52] Our analysis—rationalist, though it is—takes an important step toward addressing this fundamental critique by seeking to incorporate the influence of existing agreements on states' decisions about whether, and on what terms, to engage in additional cooperation.

Our findings, however, are but the tip of the iceberg with respect to possible questions about how institutional context affects agreement design. Future research will need to move forward in three key directions. First, more nuanced classifications of institutional context are needed. Although the raw counts of shared bilateral treaties we employ here are a useful first cut, the next steps will require describing the existence, overlap, and sequencing of various combinations of design features in prior agreements. This will allow scholars to elaborate and test hypotheses about the possible endogeneity of agreement design. Indeed, if our conjecture that earlier design choices shape later choices in systematic ways is correct, the design features of prior agreements may in many instances turn out to be at least as important as their number. It is also possible, however, that, beyond certain thresholds of complexity, shared institutional context may increase uncertainty—for example, if the context includes mutually incompatible obligations or contains multiple forums for managing treaty-governed conflict.[53]

51. Koremenos 2005.
52. Wendt 2004, 261.
53. See Drezner 2009; and Busch 2007.

Second, the evidence we present in this study suggests a need for more dynamic models of rational design. Progress toward a dynamic model of agreement design will require theorizing and testing for the specific causal mechanisms by which design features embedded in prior agreements influence later choices. For example, experiential learning, diffusion, and issue linkage may each have a role, but may operate differently (or in varying proportions) under different configurations of institutional context. Finally, existing legal and institutional commitments may also increase, or decrease, the substitutability of design features in later agreements by influencing the character of the collective action problem to be resolved.

Third, future research on the links between institutional context and agreement design needs to address the potential interdependence of design features. To keep the focus on the importance of prior institutional context as an explanatory variable—and to ground our analysis in a close replication and extension of Koremenos's work—we have treated duration, dispute settlement clauses, and exit clauses as distinct and separate features of international agreements. As more recent literature demonstrates, however, choices over these design features may not be independent.[54] Consequently, future work will benefit from more elaborate hypotheses and empirical tests of the conditions under which states adopt different "packages" of design features, as well as tests of the degree to which particular design features are complements or substitutes.

Taken together, these research directions promise to bring about a more sophisticated understanding of how the structure and elements of existing international agreements influence the design of subsequent commitments. In turn, this agenda can lay the groundwork for studies of international cooperation that combine insights from deductive theories of strategic behavior with more theoretically and empirical grounded models of the decision environments in which such behavior occurs.

Appendix: Measuring Institutional Context

Defining Institutional Context

- Coding only the bilateral treaties from Koremenos's data set
- Including as context only bilateral treaties between the states
- Including all prior treaties listed in the UNTS data
- Coding total counts as well as same-subject specific counts
- Coding total counts as well as only unique treaties (originals only) counts

Coding Protocol

- Lists of all bilateral treaties between two states were downloaded from the UNTS database and sorted by the registration date.

54. See, for example, Baccini et al. 2011; and Johns and Rosendorff 2009.

- Treaties were identified as unique or not unique.
  - UNTS numbers preceded by I-, II-, or LoN- are used to represent the first/unique conclusion of a treaty.
  - UNTS numbers preceded by A-, B-, or C- are used to represent amendments/modifications to prior treaties (with a number following the prefix that is the same as another treaty with the unique identifying prefixes) and are coded as not unique.
- The treaty in the original data was identified and highlighted in these lists.
- A determination was made of which treaties came prior by comparing the dates signed in the UNTS system.
  - Registration dates usually lag by a year or two from treaty signature date. The order of registration tracks fairly closely but not perfectly onto the order of conclusion/signature, so sometimes there are prior treaties with later registration dates, or nonprior treaties with earlier ones.
  - Any treaty with a registration date before the signature date of the treaty in the data must have come prior, and was coded as such.
  - All treaties with registration dates around or shortly after the signature date of the treaty in question were checked by opening them in the UNTS system and getting their signature date, and coding prior or not based on that date.
  - Once several (at least three) treaties in a row had been found to be not-prior, and/or a large date jump had occurred, treaties with much later registration dates were assumed to not be prior to the treaty in question.
  - Treaties with identical signature dates to the one in the data were not coded as prior. Treaties with earlier signature dates (even just by a few days) were coded as prior.
- A subject coding of prior treaties was added based on the treaty titles, using Koremenos's four categories from the 2005 article: economic (EC), security (SEC), environment (ENV), or human rights (HR).

References

Abbott, Kenneth W., and Duncan Snidal. 2000. Hard and Soft Law in International Governance. *International Organization* 54 (3):421–56.

Aggarwal, Vinod K. 1998. *Institutional Designs for a Complex World: Bargaining, Linkages, and Nesting*. Ithaca, NY: Cornell University Press.

Axelrod, Robert. 1984. *The Evolution of Cooperation*. New York: Basic Books.

Alter, Karen J., and Sophie Meunier. 2009. The Politics of International Regime Complexity. *Perspectives on Politics* 7 (1): 13–24.

Baccini, Leonardo, Andreas Duer, Manfred Elsig, and Karolina Milewicz. 2011. The Politics of Trade Agreement Design: Depth, Scope, and Flexibility. Paper presented at the 2011 International Political Economy Society Meeting, 11–12 November, University of Wisconsin, Madison.

Bhagwati, Jagdish. 1995. US Trade Policy: The Infatuation with Free Trade Areas. In *The Dangerous Drift to Preferential Trade Agreements*, edited by Jagdish Bhagwati and Anne O. Krueger, 1–18.Washington, DC: AEI Press.

Brambor, Thomas, William Roberts Clark, and Matt Golder. 2006. Understanding Interaction Models: Improving Empirical Analyses. *Political Analysis* 14 (1):63–82.

Braumoeller, Bear F. 2004. Hypothesis Testing and Multiplicative Interaction Terms. *International Organization* 58 (4):807–20.

Bueno de Mesquita, Bruce. 1985. The War Trap Revisited: A Revised Expected Utility Model. *American Political Science Review* 79 (1):156–77.

Busch, Mark L. 2007. Overlapping Institutions, Forum Shopping, and Dispute Settlement in International Trade. *International Organization* 61 (4):735–61.

Cohen, Benjamin. 2000. The Triad and the Unholy Trinity: Problems of International Monetary Cooperation. In *International Political Economy: Perspectives on Power and Wealth*, 4th ed., edited by Jeffrey Frieden and David A. Lake, 245–56. New York: Routledge.

Downs, George W., and Michael A. Jones. 2002. Reputation, Compliance, and International Law. *Journal of Legal Studies* 31 (1):S95–S114.

Drezner, Daniel W. 2009. The Power and Peril of International Regime Complexity. *Perspectives on Politics* 7 (1):65–70.

Duffield, John S. 2003. The Limits of "Rational Design." *International Organization* 57 (2):411–30.

Fearon, James D. 1994. Domestic Political Audiences and the Escalation of International Disputes. *American Political Science Review* 88 (3):577–92.

———. 1998. Bargaining, Enforcement, and International Cooperation. *International Organization* 52 (2): 269–305.

Gilligan, Michael, Leslie Johns, and B. Peter Rosendorff. 2010. Strengthening International Courts and the Early Settlement of Disputes. *Journal of Conflict Resolution* 54 (1):5–38.

Guzman, Andrew T. 2002. The Cost of Credibility: Explaining Resistance to Interstate Dispute Resolution Mechanisms. *Journal of Legal Studies* 31 (June):303–26.

———. 2008. *How International Law Works: A Rational Choice Theory*. New York: Oxford University Press.

Hafner-Burton, Emilie M., Laurence R. Helfer, and Christopher J. Fariss. 2011. Emergency and Escape: Explaining Derogations from Human Rights Treaties. *International Organization* 65 (4):673–707.

Johns, Leslie, and B. Peter Rosendorff. 2009. Dispute Settlement, Compliance, and Domestic Politics. In *Trade Disputes and the Dispute Settlement Understanding of the WTO: An Interdisciplinary Assessment*, Frontiers of Economics and Globalization, Vol. 6, edited by James C. Hartigan, 139–64. Bingley, UK: Emerald Group.

Keohane, Robert O. 1984. *After Hegemony: Cooperation and Discord in the World Political Economy*. Princeton, NJ: Princeton University Press

Koremenos, Barbara. 2005. Contracting Around International Uncertainty. *American Political Science Review* 99 (4):549–65.

———. 2007. If Only Half of International Agreements Have Dispute Resolution Clauses, Which Half Needs Explaining? *Journal of Legal Studies* 36 (1):189–212.

Koremenos, Barbara, Charles Lipson, and Duncan Snidal, eds. 2001. Rational Design: Looking Back to Move Forward. *International Organization* 55 (4):1051–82.

Koremenos, Barbara, Charles Lipson, and Duncan Snidal 2004. The Rational Design of International Institutions. In *The Rational Design of International Institutions*, 1–40. New York: Cambridge University Press.

Krasner, Stephen D. 1985. *Structural Conflict: The Third World Against Global Liberalism*. Berkeley: University of California Press.

Kucik, Jeffrey, and Eric Reinhardt. 2008. Does Flexibility Promote Cooperation? An Application to the Global Trade Regime. *International Organization* 62 (3):477–505.

Kydd, Andrew H. 2004. Trust Building, Trust Breaking: The Dilemma of NATO Enlargement. In *The Rational Design of International Institutions*, edited by Barbara Koremenos, Charles Lipson, and Duncan Snidal, 41–68. New York: Cambridge University Press.

———. 2005. *Trust and Mistrust in International Relations*. Princeton, NJ: Princeton University Press.

Lipson, Charles. 1991. Why Are Some International Agreements Informal? *International Organization* 45 (4):495–538.

Martin, Lisa L. 1993. Credibility, Costs, and Institutions: Cooperation on Economic Sanctions. *World Politics* 45 (3):406–32.

Martin, Lisa L., and Beth A. Simmons. 1998. Theories and Empirical Studies of International Institutions. *International Organization* 52 (4):729–57.

Mattli, Walter. 2004. Private Justice in a Global Economy: From Litigation to Arbitration. In *The Rational Design of International Institutions*, edited by Barbara Koremenos, Charles Lipson, and Duncan Snidal, 159–88. New York: Cambridge University Press.

Mitchell, Ronald B., and Patricia M. Keilbach. 2004. Situation Structure and Institutional Design: Reciprocity, Coercion, and Exchange. In *The Rational Design of International Institutions*, edited by Barbara Koremenos, Charles Lipson, and Duncan Snidal, 131–58. New York: Cambridge University Press.

Morrow, James D. 1994. Modeling the Forms of International Cooperation: Distribution Versus Information. *International Organization* 48 (3):387–423.

———. 2004. The Institutional Features of the Prisoners of War Treaties. In *The Rational Design of International Institutions*, edited by Barbara Koremenos, Charles Lipson, and Duncan Snidal, 211–32. New York: Cambridge University Press.

Oatley, Thomas H. 2004. Multilateralizing Trade and Payments in Postwar Europe. In *The Rational Design of International Institutions*, edited by Barbara Koremenos, Charles Lipson, and Duncan Snidal, 189–210. New York: Cambridge University Press.

Pahre, Robert. 2004. Most-Favored Nation Clauses and Clustered Negotiations. In *The Rational Design of International Institutions*, edited by Barbara Koremenos, Charles Lipson, and Duncan Snidal, 99–130. New York: Cambridge University Press.

Raustiala, Kal, and David G. Victor. 2004. The Regime Complex for Plant Genetic Resources. *International Organization* 58 (2):277–309.

Richards, John E. 2004. Institutions for Flying: How States Built a Market in International Aviation Services. In *The Rational Design of International Institutions*, edited Barbara Koremenos, Charles Lipson, and Duncan Snidal, 233–58. New York: Cambridge University Press.

Rosendorff, B. Peter. 2005. Stability and Rigidity: Politics and Design of the WTO's Dispute Settlement Procedure. *American Political Science Review* 99 (3):389–400.

Rosendorff, B. Peter, and Helen V. Milner. 2004. The Optimal Design of International Trade Institutions: Uncertainty and Escape. In *The Rational Design of International Institutions*, edited by Barbara Koremenos, Charles Lipson, and Duncan Snidal, 69–98. New York: Cambridge University Press.

Sagan, Scott D. 1993. *The Limits of Safety: Organizations, Accidents, and Nuclear Weapons*. Princeton, NJ: Princeton University Press.

Simmons, Beth A. 2000. International Law and State Behavior: Commitment and Compliance in International Monetary Affairs. *American Political Science Review* 94 (4):819–35.

Simmons, Beth A., and Daniel J. Hopkins. 2005. The Constraining Power of International Treaties: Theory and Methods. *American Political Science Review* 99 (4):623–31.

Smith, James McCall. 2000. The Politics of Dispute Settlement Design: Explaining Legalism in Regional Trade Pacts. *International Organization* 54 (1):137–80.

Snidal, Duncan. 1985. Coordination Versus Prisoners' Dilemma: Implications for International Cooperation and Regimes. *American Political Science Review* 79 (4):923–42.

Stein, Arthur A. 1982. Coordination and Collaboration: Regimes in an Anarchic World. *International Organization* 36 (2):299–324.

———. 1990. *Why Nations Cooperate: Circumstance and Choice in International Relations*. Ithaca, NY: Cornell University Press.

Thompson, Alexander. 2010. Rational Design in Motion: Uncertainty and Flexibility in the Global Climate Change Regime. *European Journal of International Relations* 16 (2):269–96.

Tomz, Michael. 2007. *Reputation and International Cooperation: Sovereign Debt Across Three Centuries*. Princeton, NJ: Princeton University Press.

Urpelainen, Johannes. 2012. How Uncertainty About Outside Options Impedes International Cooperation. *International Theory* 4 (1):133–63.

von Stein, Jana. 2005. Do Treaties Screen on Constrain? Selection Bias and Treaty Compliance. *American Political Science Review* 99 (4):611–22.

Watson, Joel. 1999. Starting Small and Renegotiation. *Journal of Economic Theory* 85 (1):52–90.

———. 2002. Starting Small and Commitment. *Games and Economic Behavior* 38 (1):176–99.

Wendt, Alexander. 2004. Driving With the Rear View Mirror: On the Rational Science of Institutional Design. In *The Rational Design of International Institutions*, edited by Barbara Koremenos, Charles Lipson, and Duncan Snidal, 259–90. New York: Cambridge University Press.

Yackee, Jason W. 2008. Bilateral Investment Treaties, Credible Commitment, and the Rule of (International) Law: Do BITs Promote Foreign Direct Investment? *Law and Society Review* 42 (4): 805–32.