Peaceful Neighborhoods and Democratic Differences

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Democracies are thought to behave differently from other states, particularly when cooperating in international institutions, such as alliances. We argue that these democratic differences depend on geopolitical environments that make cooperation possible. Although studies have demonstrated endogeneity between democracy and peace, few analyze the effects of this joint relationship on democratic differences. We explore this argument using the alliance literature and argue that the empirical finding that democracies are more reliable is driven by the tendency of democracies to cluster in peaceful environments. Alliances are more likely to be "scraps of paper" when found in more dangerous environments. By jointly modeling regime type and political environment using data on alliance termination from 1920 to 2001, we show that alliance reliability is a function of a threat environment. Our argument has important ramifications for a host of literatures focused on regime type, as well as current debates over the effectiveness of democratic deterrence.

Since the establishment of the empirical finding that democracies rarely fight one another, many studies have sought confirmation of democratic differences in other types of relationships. Democracies are thought to trade more with other democracies, are more likely to form and cooperate in intergovernmental organizations, and are more likely to ally with each other and be reliable partners. These are just a few examples of the larger democratic peace research program.

The explanations, however, often fail to model that democracies themselves tend to cluster in mostly peaceful geographical regions. As democratization is more likely in peaceful environments, analyses examining any type of democratic differences must be careful to separate the independent causal effect of democracy on political outcomes from that of the political environment. Since democracy is itself at least partially determined by the political environment, a failure to model both the direct and indirect effect of the political environment on policy outcomes may incorrectly attribute the effect of the political environment to democratic institutions. This, in turn, makes it easier to find statistically significant differences in foreign policy behaviors across regime types. We argue that once the political environment is accounted for—and this source of bias properly modeled—differences in foreign policy behavior between regime types are no longer evident.

We focus our analysis on democratic differences in alliance behavior and build on a recent study finding democracies to be more reliable partners.[1] An often overlooked aspect of the alliance reliability argument is that alliances exist within specific geopolitical circumstances, and their commitments necessarily vary in salience across these conditions. The degree to which an alliance faces salient security threats, we contend, directly correlates with the degree that it is honored or maintained. Alliances that exist in high-threat environments

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1. As we demonstrate below in the section "Beyond Alliances," our argument equally holds for other examples of democratic differences, such as international trade.

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are also the most at risk of having their terms violated.[2] As democracies make up a disproportionate number of alliances that are unlikely to face security challenges—due to democracies arising and perpetuating in more peaceful conditions—a failure to appropriately model the threat environment results in a conflation of the effect of the regime type with that of the geopolitical environment.

We model these relationships by using a split-population logit with an instrumental variable to estimate the likelihood of conflict during the duration of an alliance, and we introduce this likelihood into the study of democratic reliability. The split-population model allows us to statistically account for the risk of alliance termination that is due to the political environment. We build an instrumental variable and include it in the first equation to identify a state's threat level, while also accounting for possible endogeneity between alliance reliability and threat environment. We find that the association between democracy and alliance reliability is not evident once political environment is modeled. Further, our analysis suggests that the combined threat-and-reliability model outperforms the reliability model alone.

Our argument also applies to other ancillary findings suggesting democratic differences, and we demonstrate this with a brief application to democratic trading partners. Any time peace affects cooperation—whether it is trade, institutions, or similar types of cooperation—the endogeneity we document will pose problems for confirming that democracies behave differently. We begin our argument in the next section with a brief review of the democracy and alliance literature.

ALLIANCE BEHAVIOR

Traditional alliance theory is replete with arguments that threats to the state cause alliance-making in order to deter aggressors. Morgenthau (1960) calls it external balancing: faced with threat and unable to respond quickly enough with an increase in internal capability, leaders seek partners in other states to help them avoid, or survive, external threats to their sovereignty. Alliance-making in this manner forms a key component of traditional realist theory (see also Walt 1985; Waltz 1979), and most empirical studies find that threats do matter in determining whether alliances form (Johnson 2017; Lai and Reiter 2000; Siverson and Emmons 1991). The implication of these arguments and findings is that alliances covary with threat, and, when threat diminishes, the need for the alliance does as well. Alliances are, as the famous phrase puts it, "scraps of paper" to be torn as situations change.

Forming and maintaining an effective alliance to counter a threat is costly and diverts resources from other goals. A well-functioning alliance, in particular, requires commitment of budget and personnel, information sharing, joint military exercises, and so on (Fearon 1997; Morrow 1994). Alliances may also restrict the foreign policy actions of their members, as they often include precise conditions and actions required of each state (Leeds, Long, and Mitchell 2000; Leeds et al. 2002).

Alliances do not, however, function only as responses to threat. Instead, alliances may be used to facilitate a number of different tasks (Altfeld 1984; Schroeder 1976). These tasks range from resolving contentious issues (Mattes and Vonnahme 2010; Weitsman 2004) to facilitating diplomatic functions and policy alignment (Lake 2009; McManus and Nieman 2019). Gibler (1996, 1997), for example, identifies a number of alliances that, rather than aggregate power, serve instead to resolve outstanding territorial disputes. Powers (2004, 2006) demonstrates that alliances sometimes serve economic purposes. Alliances may also be used as a method of gaining influence over smaller states (Johnson 2015; Lake 1996; Morrow 1991). Finally, alliances may be used to signal policy alignment, specifically when bandwagoning with hegemonic powers (McDonald 2015; Mousseau 2019; Nieman 2016).

Some have tried classifying alliances into types, such as whether they include territorial settlement or economic clauses (Gibler 1997; Powers 2004) or the symmetry of members' capabilities (Morrow 1991), but classifying alliances this way often ignores that alliances can serve multiple purposes. The former requires that alliances that resolve issues, such as the 1887 pact between Prussia and Russia or the 1960 USSR and China alliance, are not also, at least in part, power aggregating.[3] The latter forces an assumption that some trade-off between capabilities and autonomy is the primary reason for why major powers would partner with minor powers that offer little in the way of additional military capabilities. While asymmetric alliances may be an effort to "buy influence" from the perspective of major powers, they can also provide access and basing rights necessary to confront distant adversaries (Nieman et al. 2021). From the perspective of minor powers, these arrangements do supplement their security (McManus 2018) and increase the minor power's bargaining position vis-à-vis rivals in disputes (Langlois

2. We define alliance violation as any action that results in the termination of an alliance before its scheduled expiration, other than renegotiation or extension. Note that this definition permits a violation to occur without an invocation; i.e., a state may preemptively end a commitment. We use the terms *alliance violation*, *termination*, and *abrogation* interchangeably.

3. The Prussia-Russia alliance addressed disputes in the Balkans and the Dardanelles, while the USSR-China alliance resolved a border dispute between the two parties (Gibler 1997).

2012). We build on this literature and argue that the functions of alliances are often varied, even within the same treaty, and are conditioned by the current political threat within their environment.

DEMOCRACIES IN ALLIANCE

Related to the research noting variation in the emphasis on security versus nonsecurity concerns has been the growth of studies associating democracies with alliance behavior that is quite different from traditional alliance theory expectations. Democracies may engage in deterrent alliances, for example, but their commitments are seemingly not scraps of paper. Their commitments are more likely to deter other states and, when threatened, to be honored by the democracies involved.

The theoretical argument for this has focused on the idea that cooperation is more likely among similar types of states. Leeds (1999), for example, develops a model in which cooperation is essentially a method of policy coordination, and leaders consider the likelihood of agreement fulfillment—foreign policy changes—when forming or proposing cooperation. Without the likelihood of fulfillment by the other actor, there is little incentive to alter state policies when it will not be reciprocated. These audience costs seemingly make it more likely that democracies form better alliances and have longer-lasting cooperation.

A number of studies have empirically analyzed whether pairs of democracies tended to "flock together." Siverson and Emmons (1991) found some evidence that democracies were more likely to form alliances with other democracies, but there were strong period effects. The finding was consistent in the post–World War II era data but not prior (see also Kimball 2006). Lai and Reiter (2000) revisited this empirical claim and found a strong relationship for joint threats to the dyad. Jointly democratic dyads were more likely to be involved in defense pacts than mixed or nondemocratic dyads, and regime similarity systematically predicted both defense pacts and other types of commitments in the dyad.[4]

Alliances composed of jointly democratic states also appear to last longer than those composed of other types of states. Gaubatz (1996) found that jointly democratic alliance dyads lasted twice as long as other alliance dyads. There was no empirical difference, however, between mixed-regime and nondemocratic dyads. This led Gaubatz (1996, 135) to conclude, "democracy by itself does not appear to either increase or decrease the ability of a state to make commitments to nondemocracies." Bennett (1997), using the same data, took the average number of liberal regimes in an alliance and found a positive, statistically significant effect on alliance duration. The substantive effects were especially strong, since all-liberal alliances increase the duration of an average alliance by almost 15 years.[5]

Finally, democratic states have also been found to be more reliable alliance partners than nondemocracies. When confronted with threats to the alliance, democracies are more likely to honor the provisions of their alliances because their leaders risk sanction by their publics when reneging. Thus, among all the states in alliances, democracies are expected to be better partners—more reliable, less likely to terminate their alliances, and less likely to violate the terms of the agreement (Leeds 2003; Leeds, Mattes, and Vogel 2009; Leeds and Savun 2007).

DO POLITICAL INSTITUTIONS EXPLAIN THESE DIFFERENCES?

Some evidence suggests that democratic differences in alliance behavior may be less well understood than it appears. For example, regarding alliance formation, Gibler and Wolford (2006) questioned the research design used by both Lai and Reiter (2000) and Siverson and Emmons (1991). Gibler and Wolford argued that these studies were not technically examining alliance formation but were instead identifying whether dyads were allied. By switching the analysis from whether a dyad was allied in a given year to focusing on a dyad at the time of alliance formation, Gibler and Wolford demonstrated that democracies were not more likely to form alliances; instead, states were becoming democratic after having formed an alliance.

Gibler and Wolford's (2006) analysis also showed that the peace provided from the deterring effect of large, regional defense pacts promoted the development of democracy. In fact, over 90% of jointly democratic alliance dyads exist within three broad, regional defense pacts: the North Atlantic Treaty Organization (55%), Organization of American States (29%), and Western European Union (7%). The regional clustering associated with these regional defense pacts confirmed a more complicated relationship between democracies and alliance-making. It also hints that the distribution of democracies in alliance is at least partially determined by something within their political environment.

This finding raises questions about the reliability of other alliance outcomes associated with democracy. For example, given the logic of cooperation among similar regime types

4. McManus and Yarhi-Milo (2017) suggest that while democracies are more likely to engage in public acts of support, their cooperation with autocracies is often less public in order to avoid domestic backlash.

5. It is worth noting that only a handful of alliances (less than 1% of the data) were composed solely of democratic states at the time of alliance formation.

outlined by Lai and Reiter (2000) and Leeds (1999), it is clear why democracies may be more reliable allies with other democracies, but it is less clear why democracies would unilaterally restrict their options when interacting with nondemocracies given the latter's expected higher degree of defection. While democratic states may simply be less willing than nondemocracies to break their international agreements, this commitment is not evident in other policy areas. Democracies do not, for example, honor their monetary commitments (Simmons 2000) or their territorial treaties (Chyzh 2014) more than other regime types. Moreover, Gartzke and Gleditsch (2004) looked at whether alliance partners intervene in response to their obligations and found that democracies were actually less reliable than other states. Taken together, these additional results suggest that differences in alliance behavior often attributed to domestic institutions may instead be driven by some omitted factor.

PEACEFUL ENVIRONMENTS AND DEMOCRACY

A possible omitted factor is the political environment around a state: specifically, how threatening a political environment is may shape a state's foreign policy behavior (Vasquez 2009). For example, alliance formation is often motivated by the goal of counteracting a threat (Johnson 2017; Kimball 2006). Yet, peace—or the lack of threat—encourages or even causes democracy (Gibler 2012; Gleditsch and Ward 2006). This creates a puzzle in terms of alliance behavior because, without a threat, democratic states should have no need for alliances. Nevertheless, democracies do make and maintain alliances.

Peace causing democracy is not a new argument, of course, and has developed over time and been integrated into the larger democratic peace project. Russett and Oneal (2001, 37), for example, contend in their foundational work that "democracy is easier to sustain in a peaceful environment," and "external threats become reasons or justifications for suspending normal civil liberties, elections, and constitutional government." Their model of a Kantian peace recognizes the endogenous "feedback loops" from peace to democracy, trade, and international organization, so there is an explicit recognition that peace at least partially causes democracy even among some of the staunchest democratic peace advocates.

The problem for those who study democratic differences is that, if unmodeled, any degree of endogeneity between the political environment and democracy will introduce bias into statistical estimates. Even a weakly endogenous relationship, such as that suggested by Russett and Oneal (2001), will bias estimates of the coefficients, misattributing the effect of the political environment to that of democracy. Depending on the degree of the correlation, it may also lead to inflation/deflation of standard errors and, subsequently, altogether incorrect inferences. Given the large amount of effort that has been used to determine that democracies are different from other states in their relations, this implies far-reaching concerns for studies examining the ancillary properties of the democratic peace.

If peace causes democracy (see, e.g., arguments by Gibler [2012] or Thompson [1996]), then democratic differences in a particular variable may simply underscore a more pervasive sample-selection process that made these cases observable. Alliances among democracies would, almost by definition, be more likely to be those formed or continuing after a threat has subsided. Thus, if peace is causally related to both democracy and cooperation, studies that fail to explicitly model this when looking at the effect of democracy on cooperation will suffer from a specific form of omitted variable bias: functional form misspecification. The omitted variables represent nonlinearities—such as those introduced by selection processes—between the dependent and independent variables (Heckman 1979; Signorino and Yilmaz 2003).

This is a problem facing many studies of the associated effects of democracy, such as the finding that democracies are more reliable alliance partners. Democracies exist within more peaceful political environments than other states (Gibler 2012; Gleditsch and Ward 2000; Ward and Gleditsch 2002). Without a clear, immediate threat, alliances that democratic states participate in have no need to deter potential enemies, and their security clauses are rarely invoked. This implies that countering threats is a less important goal for these alliances.

Contemporaneous security challenges are likely to affect whether an alliance is at risk of abrogation. States in dangerous or threatening environments are more likely to face threats, and these alliances face a greater expectation that their security clauses will be invoked. As the risk of invocation increases, current leadership in a member-state may reevaluate the costs and benefits of maintaining the commitment versus terminating the alliance. France, for example, failed to support Czechoslovakia, instead reaching a deal with Germany for its annexation in 1938. Nearby territorial threats may also prompt termination, as leadership may want to focus on more pressing matters rather than maintain a relationship that is less relevant for immediate security. Egypt, for example, ended its alliance with Yemen in 1967 as a result of the Six-Day War and its aftermath.

A member-state may choose to terminate an alliance even without the alliance being formally invoked, as a previous commitment may risk entanglement, exacerbate an existing security threat, or antagonize a more pertinent ally. Afghanistan terminated its alliance with Turkey in 1950, as each turned toward different poles in the Cold War. Poland, Bulgaria, and other Warsaw Pact members ended relations with Yugoslavia, following that latter's expulsion from the

Cominform. In some cases an ally may even be the source of danger, as in 1915 when Italy invaded its ally Austria-Hungary, in order to resolve long-standing territorial disputes while Austria-Hungary was occupied with other conflicts. In 1977, Somalia terminated its alliance with the USSR because the latter was supplying arms to Ethiopia.

Conversely, alliances in more peaceful environments are at a lower risk of termination, as their members do not face immediate security concerns. That democratic states are also likely to exist in peaceful political environments has profound implications for evaluating whether regime type affects alliance reliability. By implication, alliances among democratic states are less likely to be abrogated, more likely to last longer, and more likely to be institutionalized over time. Since states democratize in these same peaceful environments, ignoring the role of the peaceful political environment leads to the misattribution of the role of democratic institutions in alliance reliability. When we observe democracy correlated with reliable, durable, and institutionalized alliance partnerships, we are really observing the effects of peaceful environments on both democracies and alliance behavior.[6] This argument leads to two hypotheses:

H1 (Political Environment). States in peaceful political environments are less likely to abrogate their alliance commitments.

H2 (Democratic Institutions). Once the political environment is accounted for, democratic states are no more reliable alliance partners than other states.

RESEARCH DESIGN

We test the effect of a state's conflict environment and regime type on its propensity to violate alliance agreements using data from the Alliance Treaty Obligations and Provisions data set (Leeds and Mattes 2007; Leeds et al. 2002). As we are interested in assessing characteristics of states that terminate or violate the terms of an alliance, our unit of analysis is the directed alliance member-year. To better compare to existing studies of alliance reliability, we use the same data and follow the same coding decisions as Leeds et al. (2009). Leeds et al.'s (2009) sample includes all bilateral alliances formed between 1919 and 1989 and traces these for violations between 1919 and 2001, yielding a total of 234 bilateral alliances.[7] We use a split-population logit estimator to probabilistically identify and separate alliances that exist in peaceful political environments (i.e., those at low risk of violation) from those alliances in threatening political environments.[8] We adopt an instrumental variable approach to account for any endogeneity between alliance reliability and militarized conflict.

METHODOLOGY

We expect alliances to face varying risks of invocation or termination on the basis of each state's external threat environment. States in more threatening environments are at a greater risk of having their alliances invoked, which provides more opportunities to violate the alliance's terms, while states in safer environments have fewer opportunities to commit violations. Even without formal invocation, states in threatening environments are more likely to reevaluate the costs and benefits of their alliances, as they may face other more pressing security concerns. If our argument is correct, then estimates of the predictors of alliance violation, which ignore these different types of environments, will recover biased estimates.

Ignoring the conditioning effect of threat environments, and treating all alliance observations as equally at risk of entering the sample that may violate their alliance commitments—which is true for traditional binary-choice estimators, such as logit or probit—is a type of model misspecification (Heckman 1979; Signorino and Yilmaz 2003). Unfortunately, we cannot definitively know ex ante which alliances face high risks of invocation or termination; leaders do not often reveal information on whether they considered violating their alliance obligations. Instead, we have data on whether an alliance was violated but not direct data on the degree that the alliance is at risk.

To address these data limitations, we use a split-population logistic regression (Xiang 2010; see also Beger et al. 2011). A split-population logit is a type of mixture model in which an outcome variable is a function of two processes.[9] The logic of

6. In quantitative studies, this means that, unless explicitly modeled, democracies are attributed the indirect effect of peaceful environments, even if they include a measure controlling for peaceful environment.

7. Leeds et al.'s (2009) sample excludes alliances that were formed after 1989, as there may not have been enough time to test their reliability.

8. By limiting our sample to alliances, rather than modeling alliance formation, we treat alliances as weakly exogenous—leaders often have short tenures and short time horizons, thus treating alliances as a sunk cost. Any correlation between alliance formation and alliance violations should be negative, as states that intend to break their alliances are less likely to find states willing to form an alliance with them and, thus, opt out of the sample of observed alliances. We also perform a series of robustness checks that show no evidence of selection effects due to alliance formation in tables A.9 and A.10.

9. All selection and zero-inflated models are types of mixture models, with the familiar censored probit types of selection models (e.g., Heckman 1979; Sartori 2003) including data on the outcome of the first stage and more recent extensions modeling selection when there are not data available on the outcome for the first stage (Bagozzi 2016; Bagozzi and

the estimator is that there are two populations in the data, and entry into each population can be estimated probabilistically. Although the structure of the alliance data does not let us directly observe which cases are actually in the at-risk pool, the subsample can be estimated. The estimator does this by using two equations: one equation that functions as the selector, identifying relevant observations to include in the at-risk sample, and a second equation that estimates the outcome of interest on these relevant observations. The *relevance* equation affects the *outcome* equation probabilistically: some cases are treated as more at risk than others, and this probability conditions the estimates of the outcome equation.[10]

More formally, the estimator treats the outcome variable as a function of two processes:

$$Y_i = 0 \text{ with probability } (1 - R_i) + (R_i)(1 - V_i) \quad (1)$$

$$Y_i = 1 \text{ with probability } R_i V_i, \quad (2)$$

where R and V are cumulative distribution functions of a binary choice model (see Xiang 2010, 487–88). Function R_i represents the probability that a case is relevant to the sample—that the observation should be in the outcome equation (i.e., an at-risk state)[11]—and conditions V_i, which represents the probability of violating an alliance. These probabilities can be specified as

$$\Pr(Y_i = 0) = [1 - \Lambda(Z_i\gamma)] + [(\Lambda(Z_i\gamma))(1 - \Lambda(X_i\beta))] \quad (3)$$

$$\Pr(Y_i = 1) = (\Lambda(Z_i\gamma))(\Lambda(X_i\beta), \quad (4)$$

where Z_i and X_i are vectors of covariates associated with the relevancy and outcome equations, respectively; γ and β, the accompanying parameter estimates; and Λ is the logistic link function. Equation (3) can, of course, be simplified as $\Pr(Y_i = 0) = [1 - (\Lambda(Z_i\gamma))(\Lambda(X_i\beta))]$. The likelihood function of the split-population logit is written as

$$\mathcal{L} = \prod_{i=1}^{n} [(\Lambda(Z_i\gamma))(\Lambda(X_i\beta))]^{yi}[1 - (\Lambda(Z_i\gamma))(\Lambda(X_i\beta))]^{1-yi}, \quad (5)$$

and estimates of β and γ are recovered via maximum likelihood estimation.[12]

The estimator treats cases in which $Y = 0$ in the data as being the outcome of either (1) not at risk or (2) being at risk but not terminated or abrogated, whereas $Y = 1$ is the outcome of being both at risk and terminated/abrogated. This modeling approach allows us to statistically separate alliances that exist in nonthreatening environments, whose terms are unlikely to become salient, from alliances for which threats to member-states increase the possibility of invocation or termination. As an example, suppose an alliance is formed during a relatively high-threat time period in which the likelihood of conflict in that dyad-year is 35%. The split-population logit would then assign 35% of the estimation to the relevance equation since it is part of the at-risk population of alliances. The remaining percentage of the estimation would be considered not at risk and would be grouped with the alliances formed during more peaceful periods. The result of this weighting is analogous, in a sense, to including an interaction term, since the model corrects for the conditional effect of the sample-selection process. However, rather than interacting two variables, the interaction is between the full set of variables from the outcome and relevance equations.

Although this process does weigh each observation by its political threat environment, the test remains quite conservative. The likelihood of threat in any given dyad-year is often much smaller than the 35% figure used in our example, so for each alliance we are only assigning a small portion of its effect on the overall model to the relevance equation. Conversely, the current standard approach within this research tradition is to conflate such cases as peace settlements or trade pacts that have alliance clauses with the offensive and defensive pacts formed in the years before major wars. As we demonstrate below, this standard assumption significantly affects whether several key variables predict alliance reliability or failure.

DATA

Our dependent variable is Alliance Violation, which captures whether a state abrogates its alliance commitments. We follow Leeds et al. (2009, 469–70) and code Alliance Violation as 1 if state A violated the terms of an alliance. They code an alliance as abrogated if (1) a major provision is violated and governments do not agree to continue with the alliance or (2) one government unilaterally ends the alliance before its

Mukherjee 2012; Nieman 2015, 2018; Xiang 2010). The relationship between selection and zero-inflated models is such that the probit variant of the split-population model is mathematically equivalent to Poirier's (1980) bivariate probit with partial observability (Xiang 2010, 488).

10. Partial observability models have been shown to correctly recover the sign and significance for parameters, even if variables are specified in the wrong equation, permitting accurate hypothesis testing (Nieman 2015, 438–39), although there are some criticisms of their overall reliability (Rainey and Jackson 2017). We address model reliability in n. 18 below.

11. This implies, of course, that the inverse, $1 - R$, is the probability of an observation selecting out of the at-risk subsample—i.e., being identified as not at risk.

12. As the estimator is not included as an "off-the-shelf" option with most statistical software, we include sample Stata code in app. sec. 4 for interested readers.

terms.[13] There are 74 instances of Alliance Violation among the 234 alliances in the data set, roughly 32% of all alliances.[14]

Next, we specify the relevancy and outcome equations of the split-population logit (Xiang 2010). Following our theory, we specify the relevance equation with predictors related to a state's geopolitical threat environment. We expect that the absence of a threatening environment is associated with fewer reasons for a state to terminate its alliances, as the risk of invocation is lower. Alliances formed and maintained in more threatening environments, however, are more likely to be invoked or terminated. We specify the outcome equation, with predictors that previously have been identified to affect alliance reliability. We follow Leeds et al. (2009) and include variables such as regime type and whether a state has had a change in its leader's societal coalitions, as well as dyadic- and alliance-specific features.

RELEVANCE EQUATION

Our primary measure of a state's threat environment is Territorial Threat. We conceptualize Territorial Threat as a threat to occupy and hold territory, as opposed to any militarized threat. We expect territorial threat to be the most important determinant of whether a state is at risk of an alliance violation due to the targeted nature of this type of threat, as opposed to more diffuse system-wide threats, such as the Cold War. We operationalize Territorial Threat as the maximum predicted probability of a fatal militarized interstate dispute for state A for all contiguous neighbors. This value provides a continuous, latent measure of Territorial Threat. We construct a time-varying measure of Territorial Threat for each observation in the data set.

The predicted probability of a fatal militarized interstate dispute is estimated using a model from Gibler and Tir (2014, table 1). Gibler and Tir emphasize territorial predictors of conflict among contiguous neighbors, such as previous peaceful and violent transfers of territory within a dyad, the highest level of militarization of a state's neighbors, previous territorial militarized interstate disputes within a dyad, and the age of the dyad's border. They include controls for whether there is a shared colonizer, a civil war in either state within a dyad, or defense pacts with neighbors. The results for the logit model used to construct Territorial Threat are presented in table A.1.

We use this measure for two reasons: first, it best captures the theoretical concept of a dangerous neighborhood. While we include other possible sources of a dangerous political environment, we expect Territorial Threat to be the best identifier of at-risk alliance observations. There is strong evidence that territorial disputes are the single best predictor of militarized conflict (Bremer 1992; Reed and Chiba 2010; Vasquez 2009). Yet, it is the threat of conflict—rather than just its realization—that creates dangerous political environments. Neighbors with territorial disputes are likely to appear as more salient threats than more distant adversaries, as neighboring states are usually able to quickly project power to their borders. Thus, we expect territorial threats to be the primary driver of whether alliances are at risk.

Second, using an instrumental variable—the predicted probability of conflict, Territorial Threat—rather than looking at observed militarized conflict is advantageous methodologically, as it helps avoid issues related to endogeneity between alliance reliability and militarized conflict.[15] We account for uncertainty in our estimate of the instrumental variable by taking 10 draws from the estimated distribution of the maximum predicted territorial threat and use these to calculate point estimates and standard errors, following Rubin's (1987) formula for multiple imputation (see Boehmke, Chyzh, and Thies [2016] for a similar resampling approach).[16]

As initial evidence of a relationship, we find that 57 of the 74 alliance violations (≈77%) have a Territorial Threat above the median territorial threat for all allied states. Figure 1 displays the kernel density of Territorial Threat for the observations within the sample. It also reports the frequency of alliance violations at differing threat levels. The figure shows that at low threat levels, alliances are terminated less than expected by chance, while at high threat levels there are more terminations than would be expected.

13. This definition implies that alliances can be terminated without necessarily being invoked to assist against an aggressor. For example, a state may preemptively terminate an agreement as the threat of war to either party increases, before invocation, in order not to be dragged into a conflict, or a leader may decide to discontinue an agreement signed by a predecessor during peacetime.

14. There are 70 violations in the exact replication of Leeds et al. (2009) reported in table 1, model 1, and 68 violations in the samples reported in models 2 and 3. See table A.12 for the complete list of abrogated alliances.

15. An instrument of territorial threat allows us to attribute any correlation between territorial threat and violations solely to the effect of territorial threat, while ruling out any correlation/endogeneity between threat and alliance formation. Our instrument appears to be strong; the difference in the *F*-statistic between nested logits is >26, well above the threshold of 10 used to indicate that it does not suffer from weak instrument bias (Stock and Watson 2011). For the *F*-test, we estimate a logit with Alliance Violation treated as a function of the independent variables from the relevance equation.

16. The point estimate for each parameter is the mean of the 10 draws, or $(1/10)\sum_k^{10} \beta k$, while the standard error is the average of the estimated variances within the data sets plus the variance in the point estimates across data sets, or $\{(1/10)\sum_k^{10} s_k^2 + [1 + (1/10)]\sigma_\beta^2\}^{1/2}$, where s_k^2 is the standard error for data set k and σ_k^2 is the variance in β between data sets. See Rubin (1987). As few as five draws from the estimated distribution is sufficient to incorporate uncertainty (Mislevy 1991).

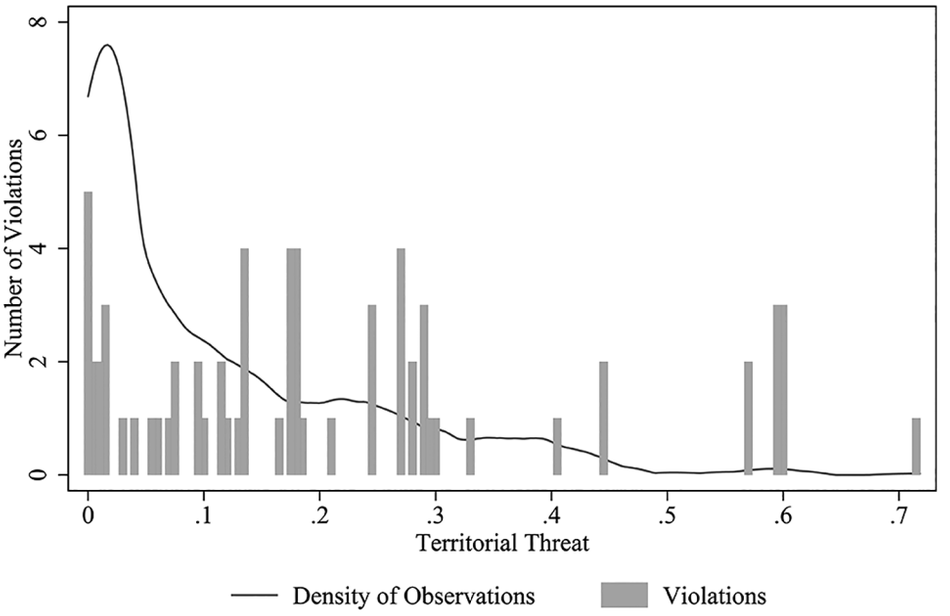

Figure 1. Frequency of violations overlaid with the kernel density of Territorial Threat within the sample from table 1 model 3

We also control other factors that may influence the hostility of state A's political environment. We include the Number of Borders and Proportion of Democratic Borders. States with more boarders have more opportunities for conflict (Vasquez 2009), although this is mitigated as a greater proportion of a state's neighborhood is democratic (Kadera, Crescenzi, and Shannon 2003). These variables are based on Marshall and Jaggers (2014) and Stinnett et al. (2002). We control for whether state A is involved in a Rivalry with any other state, as this indicates already heightened tensions (Diehl and Goertz 2000; Rasler and Thompson 2006), as well as whether it is a Major Power, as these are generally more active and attractive alliance partners (Chiba, Martinez Machain, and Reed 2014). Data on rivalries and major powers are obtained from Klein, Goertz, and Diehl (2006) and the Correlates of War Project (2016). We include an indicator variable for the Cold War to account for any systemic effects of a bipolar system. Economically developed states, often clustered geographically, may have complex economies that create norms that constrain conflictual behavior (Mousseau 2003). We operationalize Economic Development as the log of energy consumption per capita (Singer, Bremer, and Stuckey 1972). Finally, we include a binary control for whether a state is an Oil Producer, extending data from Gibler and Miller (2014), as such states are more conflict prone (Colgan 2013).

OUTCOME EQUATION

We rely on Leeds et al. (2009, table 1, model 1) to specify our outcome equation. Leeds et al. (2009) find that change in a leader's core constituency and (the absence of) democratic institutions are highly correlated with alliance violations. Their conclusion affirms previous studies that find democratic governments to be seemingly more reliable alliance partners. Democracy is coded 1 if state A has a score ≥ 6 on the -10 to 10 Polity IV index (Marshall and Jaggers 2014), and Change in Leader's Societal Coalition is measured as a binary variable that is 1 if there is a change in the core domestic supporting coalition of state A in a year.

Leeds et al. (2009) include several dyadic measures expected to decrease the reliability of international commitments. Change in International Power is a binary variable coded 1 if there is a change of >20% in either state since the alliance was formed. Change in Political Institutions is a dichotomous variable coded 1 if either state experiences a change in political institutions since the alliance was formed. Change in External Threat is a binary variable coded 1 if the level of external threat between the current year and the start year of the alliance changed by 30%.[17] Formation of New Outside Alliance is a binary measure coded 1 if state A formed a new alliance.

Leeds et al. (2009) also include four alliance-specific variables in their analysis. Each of these is expected to reduce the risk that an alliance is abrogated. Asymmetry is a dichotomous variable equal to 1 if an alliance includes a major and

17. This measure differs substantially from our measure of Territorial Threat in terms of both composition and its focus on change. The measure used by Leeds et al. is based on a variable from Leeds and Savun (2007, 1127), which represents the sum of the capabilities (Correlates of War CINC scores) for politically relevant states (neighbors and major powers) that do not share an alliance and have a foreign policy affinity score (alliance portfolio *S*-score) below the median value in their sample.

minor power. Nonmilitary Cooperation is a binary variable coded 1 if an alliance has provisions linking nonmilitary issues to the alliance. Ratification is a dichotomous variable coded 1 if an alliance was formally ratified. Military Cooperation is a binary variable coded 1 if an alliance includes provisions related to peacetime military cooperation. Finally, cubic polynomials are included to account for temporal dependence (Carter and Signorino 2010).

EMPIRICAL ANALYSIS

We estimate three models: the first two are the reliability models and are estimated with a traditional logit, while the third is the joint threat-and-reliability model, estimated with a split-population logit. Model 1 provides an exact replication of Leeds et al. (2009) for estimating alliance reliability. Model 2 reestimates Leeds et al. but restricts the sample to only those observations that are also in the split-sample logit, to make the models comparable. Finally, model 3 reports the estimates of the threat-and-reliability model using the split-population logit, which includes both relevance and outcome equations.[18]

Table 1 presents the results comparing reliability and threat-and-reliability models. The top of the table reports the outcome (violation) equation, and the bottom of the table reports the relevance (the degree an observation is at risk) equation. The results are interpreted in a relatively straightforward way: positive coefficients indicate that increases in a variable make the outcome for that equation more likely. Hence, positive coefficients for variables in the relevance equation indicate an increase in the probability of being in the at-risk subsample of violating an alliance, while negative coefficients indicate a decreased likelihood of being in the at-risk subsample.[19] Similarly, positive coefficients for variables in the outcome equation indicate an increased likelihood of alliance termination.

Again, the first model is an exact replication of Leeds et al. (2009, table 1, model 1): all coefficients and standard errors are the same as in the original study. Model 2 restricts the Leeds et al. (2009) sample of cases to only those observations included in both the exact replication and the full split-population model. All of the parameter estimates are approximately the same, and all relationships are in the same direction and have the same level of significance as the original analysis. Model 2 thus provides a baseline from which to compare the threat-and-reliability model.

Model 3 estimates a split-population model in which territorial threat and other factors related to the political environment are treated as part of the relevance equation, which identifies and assigns probabilistic weights that observations select into the pool of cases at risk of terminating their alliances, estimated in the outcome equation. As expected, the coefficient on Territorial Threat is positive and statistically significant in the relevance equation. This result, consistent with hypothesis 1, indicates that states are more likely to enter the at-risk population for alliance abrogation when they face greater territorial threats.

Turning to the outcome equation, we see that, after accounting for the underlying sample selection process, the sign on Democracy is now positive, although statistically insignificant. This suggests the negative and statistically significant effect associated with Democracy in the reliability models (models 1 and 2) may, in fact, have arisen due to omitting the key role of the political environment. As democratic alliance members tend to experience lower threat levels than nondemocracies, their alliances are less likely to have military provisions invoked, or those provisions are less likely to become salient.[20] Similarly, Change in Leader's Societal Coalition also fails to reach any traditional level of statistical significance.

To more formally assess whether Democracy exerts a null effect once the political environment is accounted for, we use a technique introduced to political science by Rainey (2014). The idea is to identify the smallest "meaningful effect" and then determine whether the estimated quantity of interest meets this threshold. If the estimate (and its 95% confidence interval) fails to meet the threshold identified as the smallest meaningful effect, then the effect is negligible, and there is statistical evidence that the variable has little or no effect on the outcome of interest. If the estimate (and its 95% confidence interval) is equal to or surpasses the threshold, then the effect is nonnegligible.

Given that estimated parameters in logit-based models are difficult to interpret directly, we follow Rainey's advice and focus on assessing whether the independent variable affects the predicted probability of the outcome of interest. In our case, we evaluate whether Democracy exerts a meaningful effect by seeing whether it reduces the likelihood of alliance violations

18. To ensure model robustness to likelihood optimizer choice and starting values, we verify the stability of parameter estimates using several different optimization algorithms and follow Veall's (1990) procedure by reevaluating the log-likelihood function with a large number of randomly selected starting values.

19. We focus on opting into, rather than opting out of, the at-risk sample. Our focus on observations being treated as at risk or opting in to the outcome equation, of course, is the mathematical inverse of identifying the zero-inflated observations that opt out. Reporting our results this way is consistent with previous studies using this estimation technique (e.g., Bagozzi 2016; Nieman 2015, 2018; Xiang 2010, 2017).

20. The mean Territorial Threat for democracies is 0.059 with a standard deviation of 0.086 and $N = 1{,}841$, while the mean for nondemocracies is 0.129 with a standard deviation of 0.135 and $N = 4{,}554$. A difference of means between the two samples is statistically significant with $p < .001$.

Table 1. Political Environment, Democracy, and Alliance Violations

	Reliability		
	Replication (1)	Reduced (2)	Threat and Reliability (3)
Outcome equation:			
Democracy	−1.322*	−1.341*	1.358
	(.393)	(.401)	(1.924)
Change in Leader's Societal Coalition	.889*	.910*	5.504
	(.436)	(.444)	(5.507)
Change in International Power	.803*	.877*	2.996
	(.330)	(.340)	(2.251)
Change in Political Institutions	.131	.195	1.699
	(.308)	(.308)	(1.276)
Change in External Threat	.421	.425	.763
	(.270)	(.278)	(1.255)
Formation of New Outside Alliance	1.070*	1.064*	2.447
	(.253)	(.261)	(1.626)
Asymmetry	−.408	−.503	−1.620
	(.259)	(.265)	(.908)
Nonmilitary Cooperation	−.746*	−.746*	−2.652*
	(.257)	(.261)	(1.198)
Ratification	−.083	−.134	1.525
	(.354)	(.355)	(2.387)
Military Cooperation	.557*	.575*	4.949*
	(.180)	(.186)	(2.434)
Time	−.086	−.069	−.123
	(.077)	(.076)	(.273)
$Time^2$	.001	−.001	−.003
	(.004)	(.004)	(.010)
$Time^3$	.001	.001	.001
	(.001)	(.001)	(.001)
Constant	−4.448*	−4.464*	−3.226*
	(.440)	(.455)	(1.520)
Relevance (at-risk) equation:			
Territorial Threat			4.062*
			(1.025)
Proportion of Democratic Borders			−.292*
			(.123)
Number of Borders			.122
			(.063)
Major Power			.417
			(.516)
Rivalry			.007
			(.398)
Cold War			.446
			(.312)
Economic Development			−.153
			(.083)
Oil Producer			.670
			(.512)
Constant			−4.979*
			(.558)

Table 1 (*Continued*)

	Reliability		
	Replication (1)	Reduced (2)	Threat and Reliability (3)
Log likelihood	−352.394	−339.998	−306.909
Observations	6,612	6,395	6,395
Alliances	223	223	223

Note. Standard errors in parentheses. Point estimates and standard errors in model 3 were calculated from 10 draws using Rubin's (1987) formula for multiple imputation to account for uncertainty in the Territorial Threat instrumental variable.
* $p < .05$, two-tailed.

by at least 0.5% (i.e., the effect size should be less than −0.005). To do this, we take the first difference of the parameter of interest, holding all other parameters at their mean or modal values. The 95% confidence interval for Democracy [−0.001, 0.010] is greater than −0.005, indicating that the effect of Democracy on reducing alliance termination is negligible. This result is consistent with hypothesis 2 and indicates that the influence of political institutions may actually be attributable to the previously omitted political environment rather than the institutions themselves.

Applying the same test to Change in Leader's Societal Coalition, we expect a meaningful effect to increase the likelihood of alliance violations by at least 0.5% when there is a change in a leader's societal coalition. In this case, the 95% confidence interval [−0.001, 0.024] includes 0.005, indicating that, although it is not statistically significant, we cannot rule out a meaningful effect for Change in Leader's Societal Coalition.

We formally compare and evaluate model fit statistics for the reduced and split-population models using the Clarke (2003, 2007) distribution-free test, in table A.2. The test indicates a strong preference for the threat-and-reliability model over the reliability model, even after penalizing the former for estimating additional parameters. We also assess the robustness of our results across a variety of model specifications (tables A.5–A.7), after accounting for selection effects (tables A.9–A.11), and using intervention and mediation analyses to model possible indirect democratic effects operating through territorial threat (fig. A.2 and table A.11), in the appendix. Our main results, and the inferences drawn, are consistent across models.

Overall, the results are consistent with our theoretical expectations. Threatening environments affect the underlying propensity of states to enter the sample at risk of violating/terminating their alliance terms. Moreover, once the political environment is accounted for, democratic institutions do not appear to exert a significant impact on whether alliance termination occurs.

SUBSTANTIVE EFFECTS

To illustrate the substantive effect of territorial threat and political institutions on alliance abrogation, we report predicted probabilities of alliance violations in figure 2. In figure 2*A*, we report predicted probabilities for two conditions: for democracies (*thick lines*) and for nondemocracies (*thin lines*), after accounting for the level of territorial threat affecting the state (*solid lines*). As a point of reference, we also compare these predicted probabilities to those from the reduced model (*dashed lines*), which does not account for the effect of territorial threat on an observation's probability of being part of the at-risk subsample. In figure 2*B*, we repeat this procedure, reporting a change in the leader's societal coalition (*thick lines*) and when there is no change in the leader's societal coalition (*thin lines*), after accounting for territorial threat (*solid lines*). The reduced model is again provided as a reference (*dashed lines*). To make the substantive results more realistic, and to ensure that outliers are not skewing our interpretation, we visualize predicted probabilities of alliance abrogation for the middle 95% of values of Territorial Threat from the estimated sample.

Figure 2*A* shows that, while democracy is associated with a lower likelihood of alliance termination in the reduced model (thick dashed line is below the thin dashed line), in the full model democracies are associated with an increased probability of an alliance violation (thick solid line above thin solid line). Moreover, increases in territorial threat raise the probability of an alliance violation regardless of whether regimes are democratic (both solid lines increase), suggesting that the threat environment is driving the change. It is worth noting that the difference between democracies and nondemocracies was statistically negligible, according to the test suggested by Rainey (2014).

Figure 2*B* looks at the impact of a change in the a leader's societal coalition. The figure demonstrates that a change is associated with increases in the probability of an alliance violation (thick lines are above corresponding thin lines) and

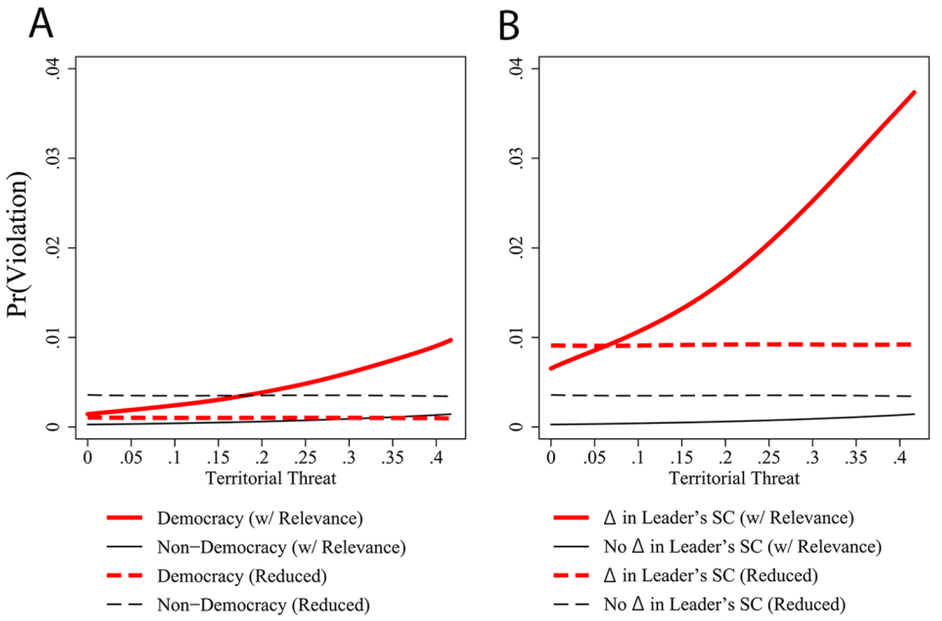

Figure 2. Predicted probabilities of Alliance Violation, Democracy, and Territorial Threat: *A*, Democracy; *B*, Change in Leader's Societal Coalition. Estimates from table 1, models 2 and 3. All variables held at mean or median. Predicted probabilities are for the middle 95% of values of Territorial Threat from the samples.

also that a change in the societal coalition increases the likelihood of termination as the degree of territorial threat rises (*solid thick line*). Territorial threat also increases the probability of alliance termination when there is no change in a leader's societal coalition (*solid thin line*), although this effect is much smaller.[21] The figure shows that threat environment significantly influences the effect of change in the leader's societal coalition on the probability of an alliance violation.

Notably, territorial threat matters at all points along the spectrum in each panel: in low threat environments, the presence of democracy exerts a small risk of alliance violation. Similarly, in the absence of an external threat, a change in a leader's societal coalition has little effect on alliance abrogation. Instead, abrogation becomes much more likely for democracies as the level of territorial threat increases. The same holds for a change in the leader's societal coalition: alliance violation is more likely as territorial threat increases. An implication is that ignoring the threat environment significantly overestimates the effect of both democracy and change in a leader's societal coalition at low levels of threat and significantly underestimates these effects at high levels of threat. Accounting for territorial threat, and the political environment more broadly, improves our understanding of the roles of political institutions and leadership changes in substantively meaningful ways.

BEYOND ALLIANCES

Our core argument—that the empirical results of the virtues of democratic cooperation may be, in part, driven by the unmodeled causal relationship between peace and democracy—holds beyond the application to international alliances. To illustrate, we perform a secondary set of analyses, in which we specify and test the theory's application to the relationship between peace, democracy, and international trade.[22] Parallel to the theoretical discussion above, international trade and democracy both tend to grow and prosper in peaceful environments. In addition to stifling democratization, threatening political environments dampen trade by disrupting trade routes, creating uncertainty and raising transaction costs, and even leading to the imposition of sanctions, trade barriers, and termination of trade agreements. As a result, the effect of democracy on trade may be conditional on the level of threat within the political environment.

To illustrate, we estimate a model of bilateral trade for 178 countries from 1948 to 1999, building on Rose's (2004) canonical study. Rose (2004) estimates a gravity model with fixed year effects to predict logged bilateral trade; see appendix section 6 for a description of the research design and the complete set of tables, figures, and discussion. The results from this additional analysis support our argument. Figure 3

21. The predicted probability of alliance violation in a democratic state, which experiences a change in its leader's societal coalition, is almost identical to the probability of a violation when a nondemocracy experiences a change in the leader's societal coalition, at every territorial threat level. This suggests that the interaction of the two variables exerts little substantive impact, once territorial threat is accounted for.

22. For a more complete discussion of this application, see app. sec. 6.

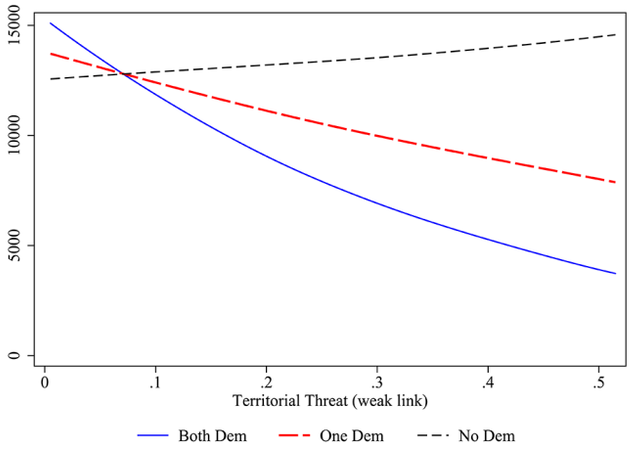

Figure 3. Predicted level of trade by regime type at varying levels of Territorial Threat.

displays the predicted values of (unlogged) bilateral trade for dyads consisting of two democracies, one democracy, and no democracies, holding all control variables at their median values. The predicted values highlight the degree to which trade among democratic states is conditioned by their political environment. Democratic pairs are expected to see a loss of approximately 40% of bilateral trade by increasing the threat level from around 0 (no threat) to .2 (high threat). Dyads with one democratic member experience much less dramatic decreases but still observe a loss of approximately 20% over the same range.

CONCLUSION

We began this article by pointing out that endogeneity between peace and democracy may bias statistical estimates of the effects of many other democracy-related arguments, and we found evidence consistent with this in regard to international alliances and international trade. Democracies in alliances have been thought to be more reliable, but we demonstrate that this result is likely to be spurious. Democracy is more likely to take hold in peaceful international environments—environments that seldom produce security challenges that trigger alliance termination. Thus, democratic alliances are different from other types of alliances, but this has little to do with regime type.

Our argument and results have implications beyond the alliance literature, raising concerns regarding a number of second-order findings associated with the democratic peace research program more broadly. Current scholarship suggests that democratic states trade more often with other democracies, and democracies may also be more active in international governance. Each of these literatures, however, tends to pool samples without regard to threat environment, potentially biasing estimates by attributing sole explanatory power to political institutions rather than the underlying causal processes produced by peaceful political environments. This criticism extends to almost all studies that find some type of democratic difference in state behavior.

Also noteworthy is our finding that, under some conditions, traditional alliance theories may be correct. Quantitative analyses of alliances and conflict generally pool the sample of all cases to assess conflict proneness and reliability. Our findings imply, however, that the nature of alliances may vary both across cases and over time, as alliances continue even after threats subside. Future research may focus on developing more accurate measures of the context-specific purposes of alliances, both within and outside of threatening environments. Accounting for the threat environment may also help explain why alliances are correlated with peace in some periods and with conflict, or even the diffusion of conflict, in others (e.g., Kadera 1998; Levy 1981; Senese and Vasquez 2008).

Ultimately, democratic institutions may still affect state behavior once peaceful environments take hold, but more evidence is needed. Instead, our findings present an important set of questions for these long-accepted relationships: without accounting for the effect of dangerous environments, current estimates of the effect of democracy on behavior are biased and may be spurious.

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