

INDUCING AND SUPPRESSING CONFLICT IN INTERACTIVE INTERNATIONAL DYADS

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Most research to explain the occurrence of militarized international conflict has employed monotonic and linear additive models to assess the impact of various influences. But alternative models are available, and arguably provide a closer specification to appropriate theory. We apply two such models here. In doing so we illuminate a variety of related issues: the theoretical and methodological implications of differentiating politically-relevant dyads from others; the ideas of opportunity and willingness to initiate disputes; contingent causation in international relations; questions of selection bias; the influences on escalation from low-level merely diplomatic disputes to those that become militarized; and the role of low-level acts in signaling commitment and their causal significance to the democratic peace. Using a medical analogy, we explore these matters by distinguishing between inducements to conflict and suppressors of conflict. That is, we look at the characteristics of dyads that experience diplomatic conflicts, and then at those whose diplomatic conflicts escalate to the threat or use of military force. We close with a brief observation about the policy implications of our analysis.

Conflict Inducement and Suppression

In the past decade the systematic analysis of international conflict has focused increasingly on characteristics of the relations between pairs of nation-states, rather than those of either the system as a whole or individual nation-states. This makes good sense, on the grounds that most states are neither especially peaceful nor especially war-prone in general, but show markedly different relationships of peace or conflict with respect to particular other states. It is also true that the relations between very many pairs of states (dyads) are extremely “thin,” with little

trade, interactions in only a few international organizations, and little ability or incentive to engage in violent conflict. Such dyads, rather than simply labeled peaceful, can better be characterized as pairs of states that are nearly irrelevant to each other. “Peace” between them thus is more nearly explained by their lack of interaction than by the kinds of positive interactions deriving from trade, similar political systems, alliances, or other influences commonly identified as contributors to peace.

Consequently, many analysts (Bremer 1992, 1993; Maoz and Russett 1993; Maoz 1998; Russett and Oneal 2001) have concentrated on the so-called politically relevant dyads (PRDs), defined as pairs of states that are contiguous by land or very close across bodies of water, or contain a major power with geographically expansive interests and able to exert power over a large segment of the globe. This theoretically-derived limitation incorporates the widely-confirmed finding that geographical proximity and contiguity together form the single best predictor of international violence, and that great powers engage in far more violent conflict than do weaker states. It thus focuses attention on the 20 percent or so of all dyads that account for nearly 90 percent of all militarized disputes, and avoids trying to explain the absence of conflict between all the pairs of states that have neither the capability nor incentive to fight each other.²

Analyses limited to the politically-relevant dyads often reach similar conclusions as those addressed to all dyads in the international system, and of course the relationships are typically much stronger in the former set (Lemke and Read 2001). But they are not always the same. For example, some analyses have found common membership in international organizations to have a modest but significant effect in reducing conflict among the PRDs, but not for all dyads (Oneal and Russett 1999a). High levels of dyadic trade show a strong and significant conflict-reducing

effect among PRDs, even in all-dyad analyses (Oneal and Russett 1999b, Bennett and Stam 2000), but among non-PRDs alone trade may be positively related to conflict if there is no adequate control for distance. The latter of course does not mean that the absence of trade causes peace. It simply means that the cost and time of shipping goods great distances discourages trade just as it decreases the incentives and capabilities to ship fighting forces. Trade and conflict are correlated because both drop with distance, not because trade causes conflict.

Thus variables affecting the frequency of conflict in dyads do not necessarily produce coefficient estimates of similar size, or even of the same sign, for PRDs as for “non-relevant” dyads. So, despite the analytical and theoretical advantages of concentrating most analysis on the PRDs, something is lost by doing so. After all, there *are* some militarized disputes between non-PRDs, and we need to explain them too. For example, Iraq and Israel have violent conflicts though neither is a major power and they do not share a border. Theoretically-informed efforts by Lemke (1995) and Maoz (1996) help to expand the definition of politically relevant dyads, but some militarized disputes and even a few wars between non-PRDs remain.

How might we conceptualize political relevance and the risk of conflict without having to rely on assumptions regarding proximity or global reach, however well informed? One clue to a theoretically more integrated and satisfactory explanation of militarized disputes lies in a recent book, *How Scientists Explain Disease* (Thagard 1999). The author distinguishes between environmental inducements of genetic mutation on the one hand, and bodily suppressors of harmful mutations on the other. It is the combination of these two kinds of influences that accounts for the progression from simple exposure to the development of many diseases in acute form. This insight offers promise for understanding international relations as well, if we divide a familiar list of influences on the occurrence of military conflict into two such groups as they

apply to pairs of states.

Among the well-known inducements to conflict are those mentioned above, including proximity, contiguity, and major power status. To these can be added a near-equal power ratio. Pursuing the analogy, the presence of one or more of these conditions in any pair of states can be considered a near-necessary condition for a “mutation” or event: a serious diplomatic dispute. Without them, most states have little opportunity, let alone willingness (Most and Starr 1989; Siverson and Starr 1991), to come into conflict. But with them, there is the potential to develop political and diplomatic conflicts of interest that may under certain conditions escalate into a militarized international dispute (MID) involving the threat or use of military force.

The other variables are more usefully considered as potential suppressors, the weakness of one or more of which allows the process of diplomatic dispute “mutation” to advance and become a harmful disease (MID). They include joint democracy, high mutual trade relative to GDP, economies generally open to trade with many nations, and many shared IGO memberships which include but are not limited to military alliances.³ Thus “peaceful” dyads may avoid MIDs for different reasons: because they are distant and lack other inducements to conflict, or because they experience enough suppressors to prevent any conflicts from escalating to violence. MID-prone dyads, by contrast, are similar in sharing both many inducements and few suppressors.

This perspective fits well with the opportunity and willingness perspective on situational, context-oriented “nice” laws that work best for a specific subset of cases (see also Goertz 1994).⁴ In effect, the inducements are especially important in setting the context – the subset of cases where there exists an opportunity to fight – and the absence of suppressors provides a powerful explanation for the emergence of violent conflict from within this subset. Siverson and Starr

(1991: 24) develop the concept of opportunity “to mean the possibilities that are available to any entity within the environment.” They would put equal power ratio among the inducements along with proximity, contiguity, and major power status. Their concept of willingness clearly would include all the “Kantian” suppressors: democracy, interdependence, open economies, and international organizations. It also includes the decision to conclude an alliance, which “itself reflects a willingness to accept the potential costs of alliance as balanced against potential gains.” Like form of government, and even more so trade restrictions (or their absence) and decisions to join international organizations, alliances result from “conscious choices of decision makers that indicate positions of policy preference” (Siverson and Starr 1991: 26). Similarly, in Bueno de Mesquita’s (1981) expected-utility approach, power discounted by distance indicates the expectation of victory and hence opportunity, and alliances (and, by a reasonable extension from his specification, political regime type, trade, and IGO memberships) indicate the utility of winning and thus the willingness to fight.⁵

Signaling and Selection

The theoretical literature on interstate conflict increasingly has taken into account the notion that interstate conflict unfolds in stages. This is a natural outgrowth of the use of sequential strategic choice models to formalize the logic of dispute interaction and to frame quantitative empirical testing. A key premise for recent work has been that fully informed states will generally prefer to settle their disputes before resorting to force because of the high costs that war entails. Since military conflict often results from the lack of information – or the misrepresentation of information – by one or both sides in a dispute, behavior at early stages of a dispute signals intention or resolve. Such signals, when they are credible, can short-circuit escalation to violent

conflict by addressing the information asymmetries that might otherwise prevent states from arriving at peaceful settlements.

This insight has led to further clarification of the causal mechanisms behind the “democratic peace.” For example, states may frequently use diplomatic protests and sanctions to signal their resolve to other states – signals which imply that they will at some point be prepared to use military force to protect their interests but do not make any explicit or discernible threat to use force. Such signals may be more believable when sent by democratic states because elected governments pay steeper domestic “audience costs” when their bluffs are called by foreign opponents (Fearon 1994a, Smith 1998a). Democracies are thus likely to make fewer idle threats, so the conflictual diplomatic behavior they do engage in contains credible information about their resolve. A domestic political opposition can enhance the credibility of such signals when opposition parties echo the foreign policy commitments of the party in power. Even a silent (but not suppressed) domestic opposition is conducive to effective signaling, since democratic governance is transparent and potential foreign opponents assume that any disunity of purpose will be reflected in a democracy’s domestic political discourse (Schultz 1998, 1999).

Although the ability of democratic states to signal resolve should reduce the likelihood that they will become involved in militarized disputes, especially with other democracies, the implications for their involvement in less severe forms of conflict are not so clear. The signaling logic suggests that audience costs should dissuade democratic states from engaging in behavior that misrepresents privately held information, and also that the transparency of democratic institutions should allow foreign opponents to perceive their resolve correctly. Other things being equal, that implies a lower likelihood of involvement in all forms of conflictual behavior,

for which there is some evidence (e.g., Leeds and Davis 1999). However, if democratic states treat the inherent credibility of their signals as an asset to be exploited in their international dealings, they may actually be more inclined to undertake actions at the lower end of the conflict spectrum (Morrow 2000). And because democratic dyads often are economically interdependent, their more numerous commercial linkages may also provide more opportunities to signal resolve below the threshold of the threat or use of military force (Gartzke and Jo 2000; Gartzke, Li, and Boehmer 2001).

Divergent predictions regarding the marginal impact of democratic institutions on behavior at the lower end of the conflict spectrum derive partly from a difference in emphasis. The credibility of signals associated with democratic states could provide them with added *incentive* to engage in lesser forms of conflict behavior, even while audience costs discourage bluffing and have the *consequence* of discouraging further escalation of conflict that might otherwise arise from misrepresentation or misperception. This leads to two empirical questions: what is the net effect of these divergent tendencies, and are they manifest to varying degrees at different points along the conflict continuum (which often correspond to different stages in a sequential conflict process)?

Since many of the insights on signaling come from the literature on crisis interaction (e.g., Morrow 1989; Bueno de Mesquita, Morrow, and Zorick 1997), it may not be surprising that our expectations are clearer at the more violent end of the spectrum. Thus, when at least one state in an interacting dyad is democratic, the credibility of signals should help to diffuse the conflict process before it reaches the level of use of force, and very possibly before the display or even the threat of force. The latter is the threshold for “mutation” to a militarized dispute, so the signaling logic comports well with the robust empirical finding that jointly democratic dyads

experience fewer MID initiations, and the common if somewhat less robust finding that democratic states experience fewer violent disputes with nondemocratic states as well (Benoit 1996; Rummel 1995; Russett and Oneal 2001, ch. 3). It is at lower levels of conflict that predictions become murkier, mainly because of the countervailing tendencies just discussed and the fact that there is little in the signaling literature from which to derive hypotheses about diplomatic, economic, and other forms of nonmilitarized conflict behavior.

Another way to think about some of the remaining empirical questions is to consider the “selection” effects that potentially undermine inferences about war and peace (Smith 1998b; also Signorino 1999), especially when it comes to the relevance of regime type. If the functioning of democratic institutions increases the probability that democratic dyads will be selected out of the sample of dyads at risk of military confrontation, then those that remain are not representative of the population of democratic dyads, making it difficult to arrive at accurate estimates of the net impact of democracy at that level of conflict. The same holds for economically interdependent dyads, which may also tend to be selected out of the sample of MID participants.

The potential for selection bias is not limited to large-N analyses of interstate conflict. Some of the case-study literature has focused on low-level militarized disputes, treating the very emergence of such a dispute between democracies as an exception to the democratic peace, and then concentrating on whether and why further escalation to all-out war may or may not occur (e.g., Layne 1995; Rock 1997). But if one regards at least low-level militarized disputes as possible though relatively rare phenomena between democracies, then two questions are relevant. One is why the militarized disputes that do arise do not escalate to war, but the other is why so few of the many diplomatic disputes between democracies ever escalate to any form of

militarized dispute (Russett 1995). Studying “near misses” in greater detail merely focuses attention on a rather unrepresentative sample of democratic dyads, and is thereby subject to the same sort of selection bias that poses a challenge for large-N studies.

By shifting our attention to lower levels of conflict we can begin to take into account the “dogs that didn’t bark,” at least some of them. It is perhaps reasonable to hypothesize that the same set of inducements and suppressors that affect the likelihood of a pair of states becoming involved in MIDs also affect lower levels of conflict between them. Still, there is reason to expect that the relative importance of inducements will be felt earlier in the conflict process, while suppressors are more likely to factor in later. However, it is also possible that by selecting *out of* more violent conflict certain dyads disproportionately select *into* less serious diplomatic and economic forms of confrontation. If so, we may have a different interpretation of the liberal peace than the common arguments about the normative aversion to the use of force or the constraining effects of democratic institutions or economic linkages. In short, we need to take seriously the possibility that the relationship between suppressors like democracy and interdependence and the range of international conflict is not monotonic.

Some New Analyses

Reed (2000) addresses analogous selection issues by distinguishing between the causes of militarized dispute initiation and the causes of dispute escalation up a scale ranging from threat or use of force all the way to full-scale war. In doing so, he confirms Kugler and Lemke’s (1996) finding that whereas relative power parity between two states contributes to the onset of militarized disputes, once the states are involved in a dispute the effect of power parity switches, with the uncertainty about the outcome of a war diminishing incentives to escalate. Similarly,

Reed finds that though joint democracy may help prevent the onset of a militarized dispute, it has no significant effect on whether a dispute will escalate simply because most democratic dyads have been selected out of the sample of MID participants. We have some reservations about the five-point MID classification as a true scale of escalation – especially the steps between “something” (threat of force) and “everything” (war); that is, from threat to demonstration of force to use of force at a level short of war.⁶ Nevertheless, Reed is on to a good idea, which we want to pursue further by considering earlier stages of the conflict process (see also Huth 1996, 2002).

Consider an underlying relationship between serious, potentially violent dyadic conflict, y^* , and a vector of conflict inducements, X_{1k} , and suppressors, X_{2l} ,

$$y^* = X_{1k} \mathbf{b}_1 + X_{2l} \mathbf{b}_2 + u_1 .$$

We observe the onset of a militarized dispute, y^m , as a binary outcome,

$$y^m = (y^* > 0) ,$$

but this outcome is only possible if some conflict of interest between the two states comes out into the open as a diplomatic dispute, y^s , also related to the set of conflict inducements and suppressors. That is, underlying dyadic hostility can only “mutate” into a MID if

$$y^s = (X_{1k} \mathbf{g}_1 + X_{2l} \mathbf{g}_2 + u_2 > 0) .$$

Of course, we expect the estimated coefficients in \mathbf{b}_1 to have positive signs, indicating the impact of conflict inducements, and the estimates in \mathbf{b}_2 to have negative signs, indicating

conflict suppression. We might hypothesize the same for g_1 and g_2 , respectively, but if the selection effect is such that certain types of states “substitute” diplomatic or economic hostility for militarized hostility because low-level conflict is seen an effective way to signal resolve (Gartzke and Jo 2000), then presumed suppressors like joint democracy and economic interdependence may actually yield coefficients with positive signs.

The potential for selection bias comes from a correlation between the error terms u_1 and u_2 . If an unobserved variable like commitment or resolve affects the likelihood that a dyad will experience some level of conflict, but also the likelihood that the disputants will be impelled to find a settlement prior to the militarization of the dispute, then that correlation, D , will be negative. The literature on costly signals highlights this selection effect and warns of the possibility of erroneous inferences. Fortunately, off-the-shelf procedures are available for overcoming these problems (Dubin and Rivers 1990). One solution, drawing on Heckman (1979), is to model the selection process using probit (or logit) and then compute the hazard rate for nonselection. With this hazard rate included as a regressor in a separate probit (or logit) model of the outcome, it is possible to derive consistent estimates. As an alternative to this two-stage estimator, it is increasingly common to model the selection process and the outcome jointly using maximum likelihood estimation (with the two-stage estimates serving as starting values). Both approaches are represented in the recent international relations literature (e.g., Reed 2000; Blanton 2000; Meernik 2000; Huth 1996). The results we report below were generated using maximum likelihood.

Events data provide a useful indication of the emergence of low-level conflict within a dyad. To model this selection process, we consult three events databases: the Conflict and Peace

Data Bank (COPDAB; see Azar 1993), the World Event/Interaction Survey (WEIS; see Tomlinson 1992), and the Protocol for the Assessment of Nonviolent Direct Action (PANDA; see Bond and Bond 1998). Each of these databases reports conflictual behavior undertaken by all states in the international system, ranging from mild verbal expressions of discord to full-scale war. Their temporal coverage differs but they overlap and between them we are able to construct a binary variable, measured annually from 1950 to 1992, indicating the onset of any dyadic dispute clearing a minimum threshold of conflict, which we operationalize as strong verbal hostility.⁷

Findings

Before turning to the results of the probit analysis with selection, we present results from the more commonly employed standard probit regression used to model the onset of a militarized dispute. The data set consists of a pooled time-series of all dyads during the years 1951 to 1992. We use the variables identified above as defined and measured in Oneal and Russett (1999b), and the data from that project.⁸ The inducements for conflict are: proximity defined as the (logged) distance in miles between states, subtracted from zero; a dummy variable coded 1 if they are contiguous by land or within 150 miles by water (including contiguity between colonies); whether the dyad includes a major power; and the ratio of the power of the stronger state to that of the weaker one, subtracted from zero. The suppressors are: joint democracy measured as the level of democracy reached by the less democratic state in the dyad; the dyadic trade dependence of the state with the lower ratio of dyadic trade to GDP; the economic openness of the state with the lower ratio of total trade to GDP; the number of intergovernmental

organizations in which the two states share membership (IGOs); and whether the two states are allied.

The first two columns of Table 1 show the standard probit estimates for MID onset, the most common dependent variable in this literature.⁹ The model includes all the proposed independent variables: inducements and suppressors. The first entry for each variable is the estimated coefficient from a standard probit regression, and next to that is its standard error. First, note that the impact of every variable except economic openness is statistically significant using a one-tailed test. The results correspond closely with other findings reported in the literature. Democracy, interdependence, and alliances are strongly associated with a decline in the probability of a militarized dispute; an equal power ratio, contiguity, proximity, and a major power in the dyad all are associated with an increased probability of a MID. An economy open to trade has the expected negative sign, but is not statistically significant ($p = 0.25$).

[Table 1 about here]

The only counter-intuitive result is that sharing a large number of IGO memberships is associated strongly and positively with dispute initiation, rather than negatively as hypothesized. This suggests that joint membership in IGOs does not suppress militarized disputes, but rather encourages or at least is associated with them. In part it results from the methodological choice to use the Beck, Katz, and Tucker (1998) spline correction for time dependence rather than the General Estimating Equation (GEE). Oneal and Russett (1999a) found their expected dispute-reducing effect emerged only with GEE, for reasons not yet fully clear. Another possible explanation may lie in limitations of the data. Russett and Oneal (2001, ch. 5) discuss the measurement problems resulting from their simple count of all IGOs without weighting them for importance, function, institutionalization, or power. Boehmer, Gartzke, and Nordstrom (2000)

identify similar problems, and begin to solve them with a theory about institutionalization and mediating potential of different IGOs. When they recode IGOs using their new criteria, they find that institutionalized and structured IGOs do, as expected, appear to reduce the likelihood of military disputes. Further consideration requires a clarification of theory, to which we will give some attention below.

Of the 209,402 dyad years for which we have complete data, 11,925 constitute the selected sample of minimally conflictual dyad years – i.e., the environment or context for the emergence of more serious militarized disputes (there were 745 new MIDs). Although it is the case that discrete conflict events often comprise a single dispute – diplomatic, economic, or military – the events databases do not link them together as such, and we make no effort to distinguish between dispute initiation and continuation when modeling the selection process. Prolonged conflict represents a continuing context for the onset of new militarized disputes and the selection process should be modeled accordingly. In contrast, our theoretical perspective on MIDs concerns the initiation of “disease,” not its prolongation.

We should also emphasize that when a dyad year is coded 1 for selection into lower-level conflict it does not necessarily mean that an events database records strong verbal hostility, but that it records *at least* strong verbal hostility. Nevertheless, we believe interstate conflict unfolds in stages; the vast majority of MIDs are in fact preceded or accompanied by manifestations of diplomatic conflict. For those MIDs that do not evidence lower-level diplomatic disputes in the same year the problem is largely one of biased and otherwise incomplete coverage by the media, which are more likely to report on the bigger and more conflictual – and thus newsworthy – events constituting what is often an evolving interstate dispute. Such bias is reflected in events

databases because they rely on media reporting as their source of information.¹⁰

The remaining columns of Table 1 show estimates from the probit model with selection. Columns 3 and 4 are estimates of the impact of our hypothesized inducements and suppressors on the emergence of any conflict within a dyad, including diplomatic disputes. All the estimates are statistically significant, which is not surprising given the very large number of observations. The coefficients for inducements (proximity, contiguity, equality of power, and major power status) all have the expected signs. Three of the five factors we take to be suppressors of militarized conflict (joint democracy, interdependence, and economic openness) have that effect on dyadic hostility generally. But two unexpected results emerge for the other suppressors: IGOs and alliance have the wrong sign for the hypothesis. While some contributions to the signaling literature would have prepared us for finding positive coefficient estimates for democracy or interdependence, there is nothing in their arguments to suggest that the logic might apply instead to these other presumed suppressors.

A possible explanation for both counter-hypothesized results is suggested by Siverson and Starr (1991: 93), who, despite placing alliances among the (un)willingness variables, note that, along with borders, “alliances create the salience and/or the ease of interaction (as predicted by the interaction opportunity model) that significantly increases the probability that states will join ongoing wars.” The attention here is to the likelihood of joining an ongoing war on the side of one’s ally, and it itself is no help.¹¹ But the statement that formal alliances make alliance partners more salient for each other is helpful. Alliances produce not just bonds of security, but grounds for diplomatic disagreement about institutions, decision-making procedures, burden-sharing, strategy, and related matters. In this light it is less surprising that alliances emerge in the selection process as inducers of low-level conflict. Similarly, many international organizations

(and our IGO measure includes alliances) create new salience of their members for each other, and raise the possibility of diplomatic and political disputes that will catch the headlines. Moreover, many IGOs are regional, and reflect the salience that neighbors already have for each other. Since IGOs share some variance with the geographical measures (proximity and contiguity), they may not necessarily induce disputes, but may still be correlated non-causally with them.¹² These matters deserve more serious investigation than we can give them here.

This part of the analysis also raises doubt about some strategic choice signaling explanations of conflict. One such hypothesis, discussed above, holds that democratic institutions or economic interdependence provide means whereby states can convey their resolve by their actions in diplomatic disputes, and that these signals of resolve therefore make it less necessary to escalate the merely diplomatic disputes to militarized ones. This implies that, whereas democracy and interdependence will have a negative impact on the probability of MIDs, they not only will have less impact on lower-level purely diplomatic or economic disputes, but may even contribute to the frequency of such disputes. Our results, however, do not conform with the latter expectation. Democracy and interdependence do not encourage lower-level conflict as an instrument of signaling, but rather help prevent those disputes as well. Something other than signaling in this sense may be operating, as in theories emphasizing a wider communication of information to facilitate bargaining, other roles of democratic and economic institutions in promoting compromise, or the strengthening of common identities (Russett and Oneal 2001, ch. 2).

Now turn to the last two columns of Table 1, which focus on the sample of conflictual dyad years and the onset of militarized disputes. Two of the inducements make no difference

here. The effect of the power ratio is not significant at all, confirming Reed's (2000) argument about the nonmonotonic effects of power parity at different levels of conflict, but calling into question his particular finding that parity is associated with MID onset. Whereas a more equal power ratio provides a powerful inducement to lower-level conflict, it would be wrong to conclude that making the ratio more unequal will help in suppressing the escalation to a militarized dispute. Major power status also exerts no significant impact on MID onset once we account for selection. Most of the other variables – democracy, dependence, alliance, proximity, and contiguity – have significant effects of the type we predict. The impact of being allied, while associated with salience and the potential for lesser forms of conflict, clearly suppresses the emergence of militarized disputes. The effect of an open economy is also in the direction predicted, but is only weakly significant ($p = 0.10$). The unanticipated positive effect of IGOs in the selection process no longer holds when it comes to MID onset; the coefficient is still positive, but its standard error is relatively large.

This analysis does reveal a selection effect, as indicated by the estimate of D , but it is modest (-0.18) though statistically significant ($P^2 = 5.9$, $p = 0.015$). Factors that are not explicitly included in our model have one effect on dyadic involvement in lower-level conflict but a somewhat opposite effect on the onset of militarized disputes. Commitment or resolve is an example of such a factor, difficult to measure and therefore consigned to the error term. As Fearon (1994b) and others have pointed out, states may be more likely to become involved in disputes when they are resolved to secure their interests by force if necessary and confident about ultimately prevailing. Knowing this, their opponents are more inclined to back down before the dispute escalates to violence. We believe that democratic institutions and practices of governance facilitate the sending of credible signals, but the modest selection effect revealed

here does not constitute evidence that they are more likely to become involved in lower-level conflict for this reason. Joint democracy and interdependence are explicitly represented in the model and evidence suppressing effects on militarized *and* nonmilitarized disputes. Some states may substitute diplomatic or economic conflict for militarized conflict, but neither democratic nor interdependent states show a particular tendency to do it when interacting with each other.

To compare the effects of different inducers and suppressors, and to compare their impact at different stages of the conflict process, we should focus not on the coefficients or significance levels, but on the percentage change in the probability of conflict. Table 2 shows these. We compute the baseline probability of conflict, and the probability of MID onset conditional on conflict, for contiguous dyads in which the inducements and suppressors are at their mean or median levels.¹³ The change in probability reported for each variable is the percentage difference between this baseline and the probability of conflict when that variable alone is increased to the value corresponding to the 90th percentile in our sample. Thus, for the dichotomous measures of alliance and major power, the simulated effect is for a dyad that is allied and a dyad in which one or both states is a major power.

[Table 2 about here]

The results are very informative. As conflict suppressors, joint democracy, interdependence, and economic openness all are more important in reducing the risk of militarized disputes than they are in reducing the risk of conflict generally (though they do that too). And when it comes to serious conflict, the magnitude of the risk reduction coming from being allied is greater than the increased risk of low-level conflict due to salience. While these conflict suppressors become more important in reducing the risk of more violent conflict, the

reverse holds for inducements. This is not surprising in the case of dyads that are geographically proximate and dyads involving at least one major power, since these are strongly associated with increased interaction – opportunity – and therefore experience a greater likelihood that disagreements, large and small, will arise over a host of issues. Once we account for dyadic interaction turning conflictual, even at a low level, the additional inducement for more serious conflict provided by proximity and major-power status becomes less pronounced.

These patterns strongly support our conceptualization of conflict inducement and suppression, especially as related to the notions of opportunity and willingness. If conflict is understood as usually unfolding in stages, then the opportunities to engage in hostile behavior should be apparent relatively early in the conflict process (though not necessarily absent later). Except for near-equal power, the inducements are straightforward measures of opportunity. Even a near-equal power ratio, which is accompanied by none of the certainties of power imbalance, opens up opportunities to probe for the possibility of gaining relative to an opponent, other things being equal. Power transition theory says that parity is an inducement to war, but our results suggest that parity is first and foremost an inducement to emerging conflicts of interest. Militarized conflict may follow, but by then the effects of near-equal power have already come to light.

The presence of conflict suppressors, on the other hand, does not imply a harmony of interests, at least according to most contemporary liberal theories about war and peace. Instead these arguments point to an unwillingness among democratic and interdependent states to engage each other in more serious forms of conflict, in part due to domestic political and economic costs involved. Conflict happens, as these are often highly interactive dyads. The suppressors we have examined should help to restrain conflict at all levels, but the unwillingness to engage in

militarized hostility will be more apparent later in the conflict process. This is what our conceptualization implies and what the evidence supports.

A Robustness Check

Instead of considering each of the influences individually as additive terms, it may be even more instructive to return to the disease analogy and consider an alternative specification. As before, there are two types of influences – inducements, X_{1k} , and suppressors, X_{2l} – each being an additive vector of important factors. However, in contrast to the model we estimate above, the disease, a militarized dispute, y , results from the *interaction* of these two vectors such that

$$\Pr(y|\mathbf{b}, X) = \Phi(X_{1k}\mathbf{b}_1) \times \Phi(X_{2l}\mathbf{b}_2),$$

where Φ denotes the standard normal cumulative distribution function. This formulation allows us to consider the onset of conflict as a case of conjunctural causation (Braumoeller 2000). That is, MIDs arise from two conditions that are jointly necessary: an inducement and the lack of suppressors. Within each vector, the strength of one or more inducements could be a strong and even necessary condition for the emergence of a MID, but not sufficient without the weakness or absence of at least one element in the suppressor vector. A similar conceptualization might be applied to conflict more generally, including lower-level diplomatic and economic disputes. Because our model of the conflict process includes several inducements and suppressors, the implication is that there are multiple paths to conflict represented by different combinations of these factors.

At this stage of our theoretical understanding of international conflict we have no

overwhelming reasons to prefer this specification over a purely additive one, but we find it compelling enough, given our conceptualization of the conflict process, to consider it as at least a robustness check on the results we report above.¹⁴ Following Braumoeller (1999), we estimate a “multiple-path probit” for militarized disputes as well as dyadic conflict generally. We estimate the models separately on the entire sample because the multiple-path probit technique does not currently allow us to incorporate the selection process and the outcome as a single model. Nevertheless, as we report above, the selection effect appears to be rather modest, so we suspect the results are not too far off base.¹⁵

[Table 3 about here]

Table 3 shows the parameter estimates as well as simulated changes in risk probabilities for each of variable in the two vectors. First, note that all the estimates are statistically significant. Beyond that, it is striking how similar these results are to those we report above. The quantities differ, but each estimates has the same signs as before, and for both models the rank order of importance among the variables in each vector, as indicated by percent changes in risk, is nearly identical to those shown in Table 2. Furthermore, the pattern evident in Table 2 – inducements are more important in earlier stages of the conflict process than at the point of dispute militarization, while the reverse holds for suppressors – is almost perfectly replicated by the multiple-path probit analysis. In short, our inferences are not sensitive to the functional form we choose for the model.

Conclusion

Using a two-stage conceptualization of inducements and suppressors of disease, and analytical models appropriate to applying that conceptualization to the problem of international conflict, we

find that familiar explanatory variables have different relative impacts at each stage. We contrasted the results of standard probit analysis with those from a probit analysis that accounts for selection, and, as a robustness check, those from multiple-path probit analysis. Our findings include:

- Joint IGO memberships and alliances may reflect and even promote the interactions and conflicts of interest which could give rise to diplomatic disputes, but IGOs do not contribute to the escalation of those diplomatic conflicts to militarized disputes, and alliances significantly reduce the escalation of disputes between their members.
- While power parity and major power status also may promote the emergence of diplomatic disputes, they too do not increase the probability that diplomatic conflicts will escalate to MIDs, once we account for selection effects.
- Strategic choice models that suggest democracy and interdependence encourage diplomatic conflicts as signals of resolve are not supported. Joint democracy and interdependence do strongly reduce the risk that lower-level conflicts will escalate to MIDs, and they also help prevent diplomatic disputes from emerging in the first place.
- Variables traditionally associated with realism – proximity, major power status, power parity, and alliances – strongly affect the chances that pairs of states will come into diplomatic conflict, but have substantially weaker effects (reversed, in the case of alliances) on the probability that those disputes will subsequently become militarized. By contrast, variables identified by liberal theories – notably democracy, dyadic economic interdependence, and general economic openness – exert their greatest impact in preventing escalation to MIDs.

Save for alliances, each of these results corresponds with our theoretical distinction between inducements and suppressors. The distinction can be productively applied to theories and their policy implications for contemporary international relations. In an anarchic international system, regional rivals and major powers – as in the Middle East, or in Chinese-American relations – will have many potential inducements (opportunity) for conflicts of interest and resultant diplomatic disputes, a potential likely to be aggravated by relative equality of power. It is all the more important, then, for potential suppressors of escalation (willingness) to be strong and numerous, and for theorists and policy makers to identify what suppressors may be available and effective. Of the liberal suppressor influences, dyadic economic ties and general openness to the global economy may not have such strong effects as joint democracy, but they are much more subject to policy initiative and choice.

NOTES

1. We thank the Ford Foundation and the Weatherhead Initiative on Military Conflict as a Public Health Problem for financial support, and Bear Braumoeller, Paul Huth, Alastair Smith, Harvey Starr, and James Vreeland for comments and suggestions. Our data are available at: <http://www.yale.edu/unsy/democ/democ1.htm>.
2. In the context of the early 1990s, when dyadic analysis came to the fore, limiting the analysis also reduced computational demands on the technology then available. This benefit, however, quickly became irrelevant as the hardware and software developed.
3. Possibly a very unequal power ratio between the two states could be considered a suppressor of violent conflict, on the grounds that the weaker state will be deterred from any act that might provoke the stronger one to violent action. Yet this reasoning can be pushed back to the inducement stage, in that relatively equal power relations in a realist world of balanced power induces states to raise diplomatic issues precisely because of the uncertainty about the outcome. (See Wagner 2000 for a rationalist explanation of why war is more probable in closely balanced dyads than in unbalanced ones, contra Waltz 1979.) Moreover, the power ratio shares with the other inducements the characteristic of being relatively stable and fixed, only slowly if at all subject to change by deliberate policy choice. The suppressor variables, by contrast, all are more clearly subject to political decision and change. For a historian's use of the disease inducement and suppressor analogy see Schroeder (2000: 208).

4. Goertz (1994) usefully distinguishes between context as “cause” and context as “barrier.” Thus, the presence of what we refer to as inducements to conflict are causes in this sense, while their absence can be seen as barriers to conflict. Compared to these contextual factors, what we refer to as suppressors of conflict are more “active” in dampening the likelihood of conflict.
5. Of course, Bueno de Mesquita also includes a state’s allies, and the probability they will assist it, in his power calculations. We briefly discuss the matter of joiners below.
6. Our reservations are strengthened because about 70 percent of all events short of war fall into the single category of use of force short of war, with few at the lower levels of threat and demonstration.
7. This variable is coded 1 for any dyad-year in which at least one of the databases reports a qualifying event. COPDAB conflict categories are arranged on an ordinal scale. Our minimum threshold is the category “strong verbal expressions displaying hostility” (e.g., condemnation of actions or policies, denunciation of leaders, system, or ideology, cancellation of state visits or summits), which is considered more conflictual than “mild verbal expressions displaying discord” (e.g., low key objections to policy or behavior, expressed discontent through a third party) and less conflictual than “hostile diplomatic-economic hostile actions” (e.g., recall or expulsion of ambassadors, economic sanctions, troop mobilizations). WEIS and PANDA categories are nominal, but Goldstein (1992) developed an interval scaling system that is now widely used. We count any conflictual event rising to at least the severity level of 2.2 on that scale, which includes the categories “charge, criticize, blame” and “cancel or postpone planned events.” These types of interaction are considered more conflictual than, for example, the

category “informal complaint” and less conflictual than “formal complaint or protest.”

8. All independent variables are lagged one year behind the dependent variable. The analysis incorporates statistical corrections now common in pooled time-series analysis: robust standard errors adjusted for clustering on dyads, and the Beck, Katz, and Tucker (1998) spline correction for time-dependence among observations. In principle we do not necessarily prefer the spline method to the General Estimating Equation (GEE) as used in Russett and Oneal (2001) and elsewhere, but the spline method is somewhat more commonly employed. Likelihood ratio tests indicate that the spline variables (a count of the years since the last conflict, plus three natural cubic splines) do belong in the models we report, suggesting that duration dependence is indeed present in these data. To reduce clutter, we do not show the spline estimates in the tables.

9. The MID data are the most recent dyadic compilation and refinement by Zeev Maoz (version 1.1), available at <<ftp://spirit.tau.ac.il/zeevmaoz/dyadmid60.xls>>.

10. We also had to confront a measurement-error issue here. Of the 745 dyad years with MIDs, 120 observations (16 percent) had no conflictual event whatever recorded in any of the three events databases. In these cases, we have more faith in the accuracy of the MID data, which have been closely scrutinized by a sizeable community of scholars, and therefore consider them to represent measurement errors in the events data. We recode to 1 all such dyad years.

11. A further word about MID joiners is in order. In the 23 post-World War II warring dyads that were not politically relevant by Lemke and Reed’s (2000) criteria, all but one involve states that joined an ongoing war they did not originate. Of the 22 “irrelevant” joiner wars, 19 are from

widely expanded multi-actor wars: the Korean War, the Vietnam War, and the Gulf War against Iraq. Overwhelmingly, then, joiners are small states operating under the umbrella of major powers who bring them in and frequently provide much of the logistics, equipment, and command and control to make the war-fighting coalition succeed. We tried omitting joiners, but not surprisingly – there were so few – the results were essentially unchanged.

12. In our sample, the correlation between shared IGO membership and proximity together with the binary indicator of contiguity is 0.42.

13. The median is used dependence, which is continuous but highly skewed. Dyads are taken to be nonallied and as not including a major power (i.e., the medians of those binary variables). We compute baseline probabilities for contiguous dyads, even though most are not contiguous, because the likelihood that noncontiguous dyad-years will experience a MID onset is so very low: 0.1 percent in our sample. Even for noncontiguous dyads experiencing conflict in a given year, only 2.5 percent experience a MID. Therefore, the impact of inducements and suppressors on militarized disputes is more relevant for contiguous dyads, though the model is estimated from data for both types. The percentage of contiguous dyad years in our sample with a MID onset is 7.0; for dyad-years in conflict, 23.0.

14. Kinsella (1998) treats regional conflict in the Third World as the outcome of conjunctural causation, in this case the interaction between arms imports and the state's dependence on one or a few arms suppliers. Applying our analogy, arms imports are seen as an inducement of conflict while arms-supply dependence is a suppressor. As a means of statistical estimation, that analysis employs a Cobb-Douglas production function, which is not flexible enough for our purpose here.

15. The technique also does not allow us to estimate robust standard errors. In preliminary analyses, using both standard probit and probit with selection, the robust estimates differ very little from the “non-robust” estimates, and when they do the former are often smaller. Therefore, here too we do not expect that our inferences are compromised. We do include a spline correction for duration dependence; in this model the spline variables are included in both the inducement and suppressor vectors.

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Table 1: Probit Estimates of the Impact of Conflict Inducements and Suppressors, 1951-1992

	Probit		Probit with Selection			
	<i>Militarized Disputes</i>		<i>Any Conflict</i>		<i>Militarized Disputes</i>	
	estimate	std. error	estimate	std. error	estimate	std. error
Lower Democracy	-0.023	0.005**	-0.006	0.002**	-0.014	0.004**
Lower Dependence	-36.667	10.956**	-9.998	2.892**	-22.045	8.288**
Lower Economic Openness	-0.185	0.161	-0.087	0.046**	-0.238	0.184*
International Organizations	0.010	0.003**	0.010	0.001**	0.003	0.002
Alliance	-0.207	0.075**	0.055	0.026**	-0.163	0.063**
Equal Power Ratio	0.048	0.015**	0.055	0.006**	0.008	0.022
Contiguity	1.086	0.087**	0.399	0.044**	0.762	0.094**
Proximity	0.199	0.035**	0.144	0.016**	0.077	0.037**
Major Power	0.849	0.075**	0.955	0.030**	0.018	0.106
Constant	-0.896	0.308**	0.057	0.140	-0.267	0.312
Wald P^2		1291**				568**
N		209,402		209,402		11,925

Note: Estimated $D = -0.176$; Wald $P^2 = 5.88$ ($p = 0.015$) for $D = 0$. To correct for duration dependence, models include a variable representing the number of years since the last conflict event plus three natural cubic spline variables. For the probit with selection, this correction is incorporated into both the selection and outcome equations. Standard errors are Huber/White ("robust") estimates and also allow for within-dyad dependence.

** significant at the 0.05 level (one-tailed)
* significant at the 0.10 level (one-tailed)

Table 2: Estimated Change in Risk Probabilities for Conflict Inducements and Suppressors, 1951-1992

	<hr/> %) Pr(conflict=1) <hr/>	<hr/> %) Pr(MID=1 conflict=1) <hr/>
Lower Democracy	-12.5	-31.7
Lower Dependence	-1.5	-3.8
Lower Economic Openness	-4.0	-12.1
International Organizations	+27.5	[+12.1]
Alliance	+10.1	-26.1
Equal Power Ratio	+17.2	[+5.3]
Proximity	+30.9	+22.1
Major Power	+271.7	[+31.5]
Baseline	0.100	0.079
<i>Note:</i> Baseline probability levels are computed for contiguous, nonallied, nonmajor-power dyads, with lower democracy and lower dependence set at their sample medians and all other variables set at their means. Figures are for a change in a single independent variable from its mean/median level to the 90th percentile. Brackets indicate that the coefficient estimate for that variable was not statistically significant (see Table 1).		

Table 3: Multiple-Path Probit Estimates of the Impact of Conflict Inducements and Suppressors, 1951-1992

	<i>Any Conflict</i>			<i>Militarized Disputes</i>		
	estimate	std. error	%) Pr	estimate	std. error	%) Pr
Lower Democracy	-0.004	0.001**	-7.3	-0.023	0.004**	-51.2
Lower Dependence	-5.074	1.554**	-0.6	-14.295	5.841**	-2.7
Lower Economic Openness	-0.212	0.041**	-7.8	-0.334	0.135**	-18.4
International Organizations	0.010	0.001**	+23.4	0.007	0.002**	+24.3
Alliance	0.042	0.018**	+6.0	-0.266	0.047**	-46.4
Constant [suppressors]	-0.127	0.034**		-0.650	0.091**	
Equal Power Ratio	0.103	0.009**	+13.8	0.125	0.025**	+8.3
Contiguity	0.789	0.068**		2.592	0.252**	
Proximity	0.443	0.026**	+37.8	0.543	0.052**	+19.8
Major Power	2.424	0.116**	+98.7	1.841	0.105**	+32.3
Constant [inducements]	3.105	0.167**		2.258	0.419**	
p ²		226,624**			284,564**	
N		209,402			209,402	

Note: To correct for duration dependence, both the suppressor and inducement vectors include a variable representing the number of years since the last conflict event plus three natural cubic spline variables. For percent change in risk probability, baseline levels are computed for contiguous, nonallied, nonmajor-power dyads, with lower democracy and lower dependence set at their sample medians and all other variables set at their means. Computed baseline probabilities: any conflict = 0.099, MID = 0.025. Figures are for a change in a single independent variable from its mean/median level to the 90th percentile.

** significant at the 0.05 level (one-tailed)

* significant at the 0.10 level (one-tailed)