

## Preferences and the Democratic Peace

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A debate exists over whether (and to what degree) the democratic peace is explained by joint democracy or by a lack of motives for conflict between states that happen to be democratic. Gartzke (1998) applies expected utility theory to the democratic peace and shows that an index of states' preference similarity based on United Nations General Assembly roll-call votes (AFFINITY) accounts for much of the lack of militarized interstate disputes (MIDs) between democracies. Oneal and Russett (1997b, 1998, 1999) respond by arguing that UN voting is itself a function of regime type—that democracy “causes” AFFINITY. Oneal and Russett seek to demonstrate their thesis by regressing AFFINITY on democracy and other variables from a standard model of the democratic peace. I replicate results reported by Oneal and Russett and then extend the analysis in several ways. I find that the residuals from Oneal and Russett's regression of AFFINITY remain highly significant as a predictor of the absence of MIDs. Further, significance for democracy is shown to be fragile and subject to variable construction, model specification, and the choice of estimation procedure.

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A fundamental positive goal of international relations is the explication of costly contests—students of world politics seek to understand why states fight. A fundamental normative goal of international relations is of course the alleviation of such contests. The democratic peace—the observation that liberal dyads seldom engage in militarized disputes—is exciting precisely because it offers important opportunities for addressing both of these goals. Still, unification of the two goals remains contingent on the character of the explanation. Any account that fits the facts is potentially useful in positive terms, but to fulfill the normative objective, accounts must offer causal variables either that are socially manipulable or that trend in a desirable direction. If the causes of the democratic peace lie in liberal politics or economics, then the foreign policies of leading powers or the inexorable march of time may yield an expanding sphere of pacific relations. If instead the democratic peace is substantially explained by variables that are unresponsive to autonomous policy efforts or that are more likely to wander than to trend, then the prospects for long-term peace remain in greater doubt.

Here, I revisit a claim that the democratic peace can be explained largely as the product of similar interests. Quantitative studies of the democratic peace have been careful to control for the effect of realist variables (relative power, distance, etc.), but they have largely ignored the impact of interest on international political behavior. If one believes that states are guided, not just by what

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they *can* do, but also by what they *want* done, then omitting an assessment of states' preferences biases existing studies of the democratic peace.

Enthusiasm for the democratic peace thesis—which attributes the dearth of militarized disputes between democracies to the pacific predilections of liberal polities—builds apace with the expanding list of studies finding support for the proposition. Critics of the democratic peace initially focused their efforts on faulting the empirical or statistical significance of the observation. Newer criticisms are arguably more plausible precisely because they accept the statistical association between joint democracy and peace but attempt to account for the observation through other causes. John Oneal and Bruce Russett—together and with other co-authors—provide what is widely regarded as the leading quantitative research program in support of the democratic peace thesis. In a series of studies, Oneal and Russett (1997b, 1998, 1999) address two alternate arguments: that the democratic peace is an artifact of the Cold War and that the democratic peace can be explained by the similarity of states' preferences or world views. The two alternative arguments are related (the first explanation is said to arise from a bifurcation of preferences induced by a hostile bipolar world). Here, I focus on the second more general argument, that the democratic peace results from a lack of motives for conflict, rather than from constraints imposed by democratic institutions or normative strictures.

Oneal and Russett (1997b, 1998, 1999) suggest that findings presented in Gartzke, 1998, are flawed. Gartzke (1998) shows that an index of states' dyadic preference similarity based on correlations between roll-call voting in the United Nations General Assembly accounts for much of the variance in dispute propensity attributed to democracies by the democratic peace thesis. Oneal and Russett (1997b) argue that the measure used by Gartzke to assess preference similarity between states is really a function of regime type. Oneal and Russett (1998) show that about 40% ( $R^2 = .42$ ) of the variance in the Gartzke measure (AFFINITY) can be accounted for by democracy, interdependence, and other independent variables in Oneal and Russett's standard regression of the democratic peace. Oneal and Russett (1999) refine estimation procedures of the previous study (they use General Equilibrium Estimation [GEE] in place of logit) and clarify the hypothesis that democracy exhibits both direct and indirect effects on peace (democracy is said to impel states to have similar preferences). While the argument is intriguing and worthy of attention, the analysis provided by Oneal and Russett does not assess the hypothesis. Demonstrating covariance between measures of democracy and preferences is not the same thing as showing that the effect of preferences on disputes (the dependent variable) is really attributable to democracy. Further, investigating endogeneity in one variable invites wider application. Democracy, for example, is often treated by political scientists as a dependent variable.

This study reassesses Oneal and Russett's claims that a measure of preference similarity "is instrumentally useful; but it does not provide a realistic explanation for international conflict" (1998:12) and that "democracy . . . reduce[s] the likelihood of conflict both directly and indirectly through preferences" (1999:216). I replicate and extend Oneal and Russett's findings. Residuals from the AFFINITY regression remain highly significant in Oneal and Russett's model of the democratic peace. I also show that a model similar to the one Oneal and Russett use to predict AFFINITY is equally effective at predicting democracy. Next, I use both sets of residuals in Oneal and Russett's model of the democratic peace. AFFINITY remains highly significant, but significance for democracy depends on model specification. Finally, I evaluate the claim that democracy has direct and indirect effects on peace through states' preferences. Neither claim is supported in this analysis. I conclude that preferences matter and that their effect on the democratic peace is not largely a by-product of regime type. Indeed, the impact of

preference similarity on conflict—independent of democracy and other variables—typically surpasses and occasionally subsumes the effect of these variables.

### A. Discussion

The democratic peace thesis argues that the observation that democratic dyads engage in significantly fewer disputes than other pairings of states can be accounted for by constraints (normative or institutional) on executive action distinctive of republican government. Most quantitative studies find that democracies are not appreciably less likely to fight in general.<sup>1</sup> Instead, joint democracy inhibits most dyads from acting on the aggression endemic to international interaction. As ONeal and Russett themselves argue, “conflict is inherent in the anarchic international system, but the resort to military force is constrained . . . [by democracy, trade, etc.]” (1999:217). The democratic peace thesis is persuasive enough to have captured widespread adherence. However, it does presume something exists to be constrained. Democracies must have about as many latent motives for conflict as do other pairings of regimes. Such a presumption is peculiar in light of standard explanations for why states fight. It is much more likely that states vary in their motives for conflict. The realist notion that states fight (or not) due to a balance (or imbalance) of power has been subsumed by the idea that states themselves balance strengths and weaknesses in capabilities with the relative benefits of imposing their will. Terminology is diverse, but the ideas underlying this thinking run in parallel. Most and Starr (1989; see also Siverson and Starr, 1990, 1991) discuss opportunity and willingness. Bueno de Mesquita (1981) introduces expected utility theory and the terms “probability” and “utility” to international relations. Still others refer to capability and resolve to describe complementary elements necessary for war (Morrow, 1989).

Applying these arguments to the democratic peace, Gartzke (1998) suggests that democracies fight each other less often because they disagree less often or less intensely and thus have less about which to fight. Democracies do not need to be constrained in their behavior by institutions or norms if they lack the initial incentives for conflict. The explanations of preference similarity and democratic norms or institutions are compatible—democracies may have similar interests *and* be constrained from acting aggressively abroad. Distinguishing between the relative contributions of the two explanations is important, however, not just because a lack of incentives for conflict could potentially account for the democratic peace, but also because such a conclusion yields different predictions about the global consequences of democratization.<sup>2</sup> Norms and institutions explanations lead in a linear fashion to predictions about a Kantian world peace. If instead it is more preference similarity than democracy *per se* that accounts for the democratic peace, then a proliferation of democracy does not necessarily imply lasting reductions in interstate conflict. Indeed, the question of whether democracy leads to peace is then one of whether democracies instill similar preferences.

<sup>1</sup>Ray (1997) discusses the evidence favoring democratic pacifism—the claim that democracies are generally less violent.

<sup>2</sup>Kacowicz (1995), Lemke and Werner (1996), and Lemke and Reed (1996) suggest that democracies seldom fight each other because democracies are *status quo* powers with similar interests. The argument is derived from power transition theory. While plausible, a *status quo* point is unnecessary and overly restrictive. The underlying assumption remains that differences in states' ideal points lead to conflict. Limiting the claim to comparisons of the systemic or regional *status quo* precludes the possibility that minor powers will compete amongst themselves. Reference to the *status quo* also appears less appropriate empirically, since the unit of analysis in this study is the dyad year. Realism asserts that states have uniform incentives to compete. Power transition theory argues that interests are ordered by proximity to the *status quo*. Both arguments are subsumed by—and empirically assessed by—the general assertion that differences of interest matter.

Oneal and Russett engage this question in their most recent research (1997b, 1998, 1999). The authors acknowledge the results of Gartzke (1998). Indeed, Oneal and Russett (1998) strengthen Gartzke's findings using an updated specification of their own model (Oneal and Russett, 1997a) and incorporating AFFINITY—Gartzke's measure of preference similarity based on United Nations roll-call data—from 1950 to 1985. Adding AFFINITY leads most coefficients, including those of democracy, to become insignificant (Oneal and Russett, 1998:12). However, Oneal and Russett interpret the findings as mere correlation. They argue that “democracy, interdependence, and other factors determine UN voting” (Oneal and Russett, 1998:1). The authors then regress AFFINITY on the other independent variables from their standard statistical model of the democratic peace. Oneal and Russett (1998:13) show that 42% of the variance in AFFINITY is accounted for by these other variables and conclude that “Gartzke's (1998) measure of states' preferences is closely associated with the incidence of disputes, but [the AFFINITY measure] does not cause them.”

Oneal and Russett (1999) refine the argument and analysis reported in Oneal and Russett, 1998. The basic logic and research design remain identical, but the authors more clearly enunciate the assertion that joint democracy acts to mitigate conflict both directly and through kindred preferences that exist between democratic states. Oneal and Russett acknowledge the AFFINITY index as “theoretically and methodologically important,” but argue that “patterns of voting in the General Assembly can be substantially explained by the same theoretical variables included in our analyses of militarized disputes” (1999:229). Analytically, Oneal and Russett (1999) replace logit analysis with General Equilibrium Estimation [GEE] to control for temporal and spatial dependence. The most notable change attributed to the new technique is that the lower of two dyadic democracy scores is significant at the .05 level even when AFFINITY is included in the regression.<sup>3</sup> Oneal and Russett (1999) also use GEE to predict AFFINITY with democracy, growth, interdependence, etc.<sup>4</sup>

Oneal and Russett remind us of a fundamental *caveat* of quantitative analysis; correlation does not equal causation. If a variable meant to gauge preference similarity actually measures the effect of democracy and other variables, then significance for this variable could give rise to incorrect inferences. Yet, Oneal and Russett's application of the maxim invites additional questions and leads ultimately to a paradox challenging their interpretation. What can be inferred from their demonstration that democracy and other variables in part anticipate AFFINITY? To answer this question, we must first arrive at some consensus about what it is that they are predicting. One of three conditions is possible. First, the theory underlying preferences might be invalid. A rationalist framework such as expected utility or Most and Starr's opportunity and willingness might fundamentally misrepresent the nature of international interaction. Second, the theoretical concept might be valid but the specific operationalization of the concept through UN roll-call votes might be called into question. A third possibility is

<sup>3</sup> Oneal and Russett (1998, 1999) use an old version of the AFFINITY variable that does not include interpolated data for 1964 (when no votes are recorded for the General Assembly). They also fail to lag the AFFINITY variable as was done in Gartzke, 1998, and as suggested by Oneal and Russett's previous treatment of indicators of economic growth and interdependence. Including interpolated AFFINITY values for 1964 or lagging AFFINITY makes democracy insignificant.

<sup>4</sup> Oneal and Russett (1999) also run logit regressions using the Beck, Katz, and Tucker (1998) technique. The results are not reported in tabular form but are referred to in the text and in footnotes. The researchers report significance in most instances for the lower democracy score and in each case for AFFINITY. I was able to replicate these results, but only by omitting Huber/White corrections for robustness in standard errors and controls for panel effects (correlation of error terms) that Oneal and Russett advocate in the text (1999:15). Including these corrections produces insignificant coefficients for both democracy variables in all the models examined. Discrepancies may be partly due to differences in spline construction. Richard Tucker offers a Stata ado file: <http://www.vanderbilt.edu/~rtucker/programs/btscs/>.

that both the theory and the application are adequate. The paradox for Oneal and Russett is that the manner in which they challenge the AFFINITY variable necessitates that they embrace the validity of *both* the concept and the specific operationalization. I extend my comments below.

First, though the rationalist perspective is not immune to criticism, the arguments used are quite conventional. Oneal and Russett (1997b) themselves adopt the construct behind preference similarity in the form of expected utility theory.<sup>5</sup> Oneal and Russett (1998, 1999) acknowledge the theoretical relevance of preference relations as a potential contributor to international conflict (in general) and for the democratic peace (in particular). One might wonder why Oneal and Russett do not challenge the theoretical premise of the argument about preferences. In addition to intellectual integrity, challenging preferences would damage the validity of their demonstration that liberal variables anticipate AFFINITY. If preferences do not exist, then what is it that is being predicted? Rejecting the theoretical concept behind preferences calls into question Oneal and Russett's claim that democracy and other variables cause preference similarity.

If the theory is accepted, then only the specific application (AFFINITY) remains in question. Still, acknowledgment of the theory by itself invites concern about Oneal and Russett's conclusions. At the very least, if the premise of a theory is accepted but the application is flawed, surely the appropriate action is to develop a better indicator. A "bad" measure does not allow one to reject an argument. Oneal and Russett's verdict that "the importance of the liberal peace is sustained" is thus somewhat precipitous (1998:14).

Part of the difficulty lies in the conceptual treatment of preference relations as distinct from the behavior preferences are said to motivate. Oneal and Russett seek to identify "what causes UN voting, and ultimately the preferences for which these votes are an indicator" (1999:232). They conclude that regime type (or at least democracy) among other variables causes preferences. While the claim is reasonable, such an assertion poses problems for social science. In rationalist theory preferences represent a rank ordering over outcomes. Because we cannot "see" this rank ordering, we must make assumptions about its characteristics or seek some indirect indicator of its attributes (a shadow on the wall). In either case, speculation about the origins of preferences is akin to metaphysics. Any claim about preferences that conforms to observable behavior is plausible but also tautological. Social scientists have traditionally preferred to treat preferences as exogenous and fixed and to make causal claims about observable factors likely to influence decision making.

Oneal and Russett's argument that liberal variables produce similar preferences among democracies is thus plausible but difficult to prove (or, more precisely, disprove). Other factors—even factors anticipating democracy, interdependence, and so on—also make plausible antecedents to preferences. The problem again is that we cannot observe preferences; we must rely on assumptions or some indirect representation. In the case of the AFFINITY variable, the indirect representation is voting behavior in the UN General Assembly. One may well question why one should believe that voting behavior effectively represents states' preferences. It may not. Again, we cannot compare preferences and the indicator. Further, there are reasons to suspect that *any measure of preferences based on observable behavior is biased*. First, the relative cost of outcomes may distort an observer's perception of another actor's preference ordering. I may prefer Fer-

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<sup>5</sup> Technically, it is incorrect to describe indices like Bueno de Mesquita's TauB (Bueno de Mesquita, 1981) as "utility." Utilities represent the subjective value of outcomes for a given actor and are not relational (utilities cannot be compared meaningfully). Indicators like TauB and AFFINITY are really designed to provide a metric indicative of the "distance" between actors' ideal points—the subjective ideal disposition of the world for each actor. States with similar ideal points prefer worlds that are similar. Thus, it is more accurate to describe these measures as identifying preference similarity.

rari's to Ford's, but the differential cost of exercising such a preference ordering means that one is unlikely to accurately glean my preferences by observing which vehicle I own. *Ceteris paribus*, an index of preferences based on costly acts is probably not as accurate as an indicator based on inexpensive acts. Second, many decisions are strategic. Alliances, for example, may be as much an attempt to influence perceptions as they are a product of rankings over outcomes (Gartzke, 1999). The trick, then, is to construct an indicator that is likely to be minimally affected by sources of bias, but which possesses other desirable properties of an index (such as spatial and temporal coverage, etc.). We cannot measure preferences directly, but we can evaluate the degree to which actors coincide or diverge in their expressions of representative behavior (Bueno de Mesquita, 1981).

The second possibility posed above is thus that one might reject the specific indicator of preferences while accepting the theory. Regardless of the argument in favor of using UN roll-call voting, there are also reasons to suspect that it is an imperfect index of preference similarity. Yet, Oneal and Russett acknowledge the general applicability of AFFINITY as an indicator of states' preference similarity in studying international conflict.<sup>6</sup> Indeed, they consider AFFINITY superior to other operationalizations, including measures of the similarity of alliance portfolios (Bueno de Mesquita, 1981; Oneal and Russett, 1998:12, 1999:22–23). Again, the claim is intriguing in light of Oneal and Russett's challenge to the results in Gartzke, 1998. The alternative, however, imperils Oneal and Russett's own argument. Rejecting either the notion of preferences or their measurement through UN voting leaves unexplained the predictive power of AFFINITY in tests of the democratic peace. At the same time, rejecting AFFINITY theoretically or as an indicator makes it impossible to infer something meaningful from a regression of AFFINITY on liberal variables. Oneal and Russett must accept AFFINITY and its theoretical premise to assert that the cause of preferences—the deeper origin of the statistical relationship—really lies back at their feet in the form of democracy, interdependence, and so on.

To recap, a consensus exists that preferences matter (or at least that they may) and that AFFINITY is a useful indicator of preference similarity. Preference similarity (through AFFINITY) accounts for a significant portion of the variance in conflict behavior commonly attributed to joint democracy. Oneal and Russett show that democracy and other variables account for about 40% of the variance in the measure of preference similarity. They conclude that because preferences “cause” peace and democracy “causes” preferences, the effect of preferences on peace is indirectly attributable to democracy. “The very strong associations between DEM<sub>L</sub> and AFFINITY and between AFFINITY and DISPUTE confirm the total effect of democracy is important” (Oneal and Russett, 1999:233).

Yet, the link between the effect of democracy on AFFINITY and the effect of AFFINITY on MIDs is only asserted, not evinced. Nothing links the two links. Oneal and Russett do not show whether (or how much of) the portion of AFFINITY anticipated by the liberal variables accounts for dispute variation. Neither do they show that the portion unaccounted for by liberal variables fails to account for peace. First, the entire merits of Oneal and Russett's argument may be conceded without necessarily negating an independent impact of preferences on dispute propensity. At the very least, the variance in a variable that is unaccounted for by other variables

<sup>6</sup> Oneal and Russett's position on the AFFINITY variable is complex. At one point they argue that the index “does not provide a realistic explanation of international conflict” (1998:12). At another they say that the “similarity of UN voting is a good instrument for states' preferences and is useful for predicting conflict, but [AFFINITY] does not provide a theoretical explanation for militarized disputes” (1998:13). Of course, variables provide no theoretical explanation in themselves because they are not theories. Oneal and Russett adopt the concept of preferences or utility in their own work, so they must think that preferences exemplify some theoretical explanation for militarized conflict. Oneal and Russett also acknowledge AFFINITY as a “good instrument” for the concept of preferences. Thus, they seem to embrace the theory and the measure, but call for an exception in the special case of analyzing the democratic peace.

cannot be subject to the claim of an indirect causal link. If one acknowledges a concept as causal (or at least potentially causal) and one has a variable thought generally to better capture characteristics of the concept, *why not at least use the portion of the variable that cannot be attributed to other causes?* Second, Oneal and Russett's claim for an indirect effect of democracy on peace through preferences deserves an assessment. We must seek to ascertain whether the portion of preferences anticipated by democracy has a significant impact on disputes. Until examined, it is thus at least conceivable that the effect of preferences on peace remains substantially independent of the effect of democracy and other liberal variables on preferences.

Oneal and Russett accept both the theoretical premise of preferences and the specific construction of AFFINITY in order to argue for endogeneity. To make meaningful the claim that liberal variables (democracy, interdependence, etc.) cause similar dyadic preferences—which then lead to peace—they must acknowledge that preferences exist and that they are being measured in some way through UN roll-call voting. By seeking to establish the validity of their argument using AFFINITY, however, they also establish the validity of any challenge to their claims that can show that the purported linkages joining democracy and peace through AFFINITY do not exist. It follows from Oneal and Russett's treatment of AFFINITY that components of the variable that are exogenous—that cannot be explained by the liberal variables—are also valid theoretically and empirically. The unencumbered portion of the AFFINITY variable must be assessed before we can reject the claim of an independent contribution of preferences to peace. It also follows that portions of the AFFINITY variable that are claimed to be endogenous—that *are* anticipated by the liberal variables—must be shown to have an effect on disputes independent of the exogenous portion of the variable. Thus, even accepting the plausibility of Oneal and Russett's conception of direct and indirect effects of democracy, additional testing beyond that already provided is necessary. I conduct such an assessment in the next section.

Finally, concerns about endogeneity are infectious. If it is reasonable to suspect that AFFINITY may be caused by democracy, interdependence, and other variables, then it is probably also reasonable to question whether other variables in Oneal and Russett's specification really exist *sui generis*.<sup>7</sup> It might be informative to repeat the steps taken by Oneal and Russett in examining AFFINITY on another variable. I look at democracy. In doing so, I do not attempt to make any substantial causal claim. Rather, I simply seek to show that the critique that Oneal and Russett offer of AFFINITY—and the evidence provided in support of that critique—is at least as applicable to—and demonstrable of—the major independent variable favored in their analysis.<sup>8</sup>

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<sup>7</sup> Oneal and Russett's argument appears to lack a robust methodological justification. The estimator in a multivariate regression ignores covariance between the dependent variable and an independent variable that is also attributable to other independent variables. Covariance between AFFINITY and militarized disputes that is attributable to democracy or other independent variables in the standard model is thus not used to construct a coefficient for AFFINITY.

<sup>8</sup> It may be worth noting that the same technique used in Oneal and Russett, 1999, to challenge the contribution of preferences to the democratic peace (i.e., "predicting" AFFINITY with other independent variables in a standard statistical model) is used in Russett, Oneal, and Davis, 1998, with an apparently contradictory interpretation. Russett, Oneal, and Davis (1998) seek to assess the effect of membership in inter-governmental organizations (IGOs) on dispute behavior. The authors add a variable for the frequency of shared IGO memberships in a dyad to the standard democratic peace statistical model. They then attempt to predict IGO memberships in a dyad using many of the same variables used to predict disputes (and to predict AFFINITY). The model works even better than the one predicting AFFINITY, accounting for 63% of the variance in the number of inter-governmental organizations in dyads in the sample (1998:461, Table 2). Nevertheless, instead of deciding that IGOs are really just an "artifact" of other independent variables in the analysis, Russett, Oneal, and Davis conclude that IGOs "make a statistically significant, independent contribution to peaceful interstate relations" (1998:462). Since the techniques and results are the same and only the nature of the variables differ, it is not immediately clear why interpretations are so disparate between the two studies.

Democracy has long been treated as a function of variables commonly added to econometric models of the democratic peace (cf. Schumpeter, 1947; Lipset, 1959, 1960; Moore, 1966; Rustow, 1970). An entire sub-field of comparative politics is devoted to explaining democratic transitions. The democratization literature offers multiple contributing factors, but economic prosperity appears as a particularly prominent correlate (cf. Huntington, 1991; Przeworski, 1991; Rueschemeyer, Stephens, and Stephens, 1992; Diamond and Plattner, 1993; Haggard and Kaufman, 1995). Several large-sample quantitative studies show that causality is unidirectional; a certain level of development is associated with democracy, but democracy does not appear to lead to economic development (cf. Koli, 1986; Barro, 1991, 1996, 2000; Przeworski and Limongi, 1993, 1997; Burkhart and Lewis-Beck, 1994; Lipset, 1994; Londregan and Poole, 1996; Burkhart, 1997).<sup>9</sup> Nor do democracies appear to be randomly distributed internationally. Contiguity may contribute to the choice of regime type (Bueno de Mesquita et al., 1998, 1999). For example, contiguity appears to matter in Western and Central Europe after World War II. Alliances may also contribute to the nature of regimes in a similar manner. Mansfield (1994) and others have shown that alliances affect trade and that both alliances and trade affect politics. A number of other factors related to the study of the democratic peace *could* predict democracy. Yet, to keep things simple and to guard against overly biasing the analysis in favor of critical results, I adopt Oneal and Russett's specification for the model regressed on AFFINITY (with one exception). Such an approach again allows Oneal and Russett to set the terms by which analysis is conducted. Surely, if the model intended to explain AFFINITY better explains democracy, then this is an intriguing result.

Other research on the democratic peace questions the exogeneity of democracy (Thompson, 1996; Wolfson et al., 1998; James et al., 1999). I do not attempt to address the structural equation problem—whether peace “causes” democracy—in this study. However, democratization research, if not the fact of regime transition itself, appears to offer face validity for claiming that democracy may be a function of variables that commonly appear on the right-hand side of typical econometric models of the democratic peace. The inclusion of such variables in models of the democratic peace also suggests that these variables are plausible candidates as predictors of international conflict. It may not be democracy *per se* that reduces the occurrence of militarized disputes (Mousseau, 1998, 1999). If economic development and other variables serve to predict democracy, then perhaps too they predict dispute behavior through democracy (Midlarsky, 1995, 1998). This claim parallels Oneal and Russett's arguments and method of testing applied to AFFINITY. I also adopt Oneal and Russett's model specification. If the results reported are similar to those of Oneal and Russett, then inferences from the analysis should be equally valid (or invalid) in determining whether the effect of democracy on the democratic peace is actually attributable indirectly to other variables.

### **B. Data, Replication, and Extensions of the Analysis**

Oneal and Russett (1997b, 1998, 1999) conduct their analysis of a dataset that is extensively documented in earlier studies (Oneal et al., 1996; Oneal and Russett, 1997a). The authors modify this dataset by eliminating missing values so that the

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<sup>9</sup> The best recent quantitative work emphasizes that economic development is necessary for the survival of democratic regimes but that development does not necessarily “cause” democracy (cf. Przeworski and Limongi, 1997). Since the goal here is agnostic about explanation (I am simply attempting to predict democracy), this distinction is largely semantic.



resulting dataset includes 17,723 dyadic years from 1950 to 1985.<sup>10</sup> To the extent possible, I have attempted to construct variables identically to Oneal and Russett, 1998 and 1999, or to identify and justify changes I believe are necessary. Variables are discussed at length elsewhere, so that here I provide only a summary description (Oneal and Russett, 1997a, 1997b, 1998, 1999).

#### *Data*

**MILITARIZED DISPUTES (MID):** The dependent variable in most regressions, MID is a dummy variable, coded “1” for dyad years in which there is a militarized dispute (disputes are originally coded ordinally, 2 to 5: “threats of force,” “displays of force,” “uses of force,” and “wars”) and “0” otherwise (Gochman and Maoz, 1984).<sup>11</sup>

**DEMOCRACY:** Oneal and Russett measure democracy for each state by subtracting the autocracy scale from the democracy scale in the Polity III dataset (Jagers and Gurr, 1995). The two monadic measures are then classified as the lower of dyadic democracy score and the higher of dyadic democracy. Lower Democracy is a measure of the “democraticness” of the less democratic state and Higher Democracy measures the “democraticness” of the more democratic state. Both variables are included in the standard model equation.

**LOWER ECONOMIC GROWTH:** Assuming that states experiencing economic success are “beneficiaries of the *status quo*” (Oneal et al., 1996:17), Oneal and Russett expect countries with growing economies to be less likely to participate in disputes. Economic growth is measured as the average change in GDP/capita over the previous three years. The lower monadic economic growth rate is used, applying the “weak link” assumption.

**ALLIANCES:** Alliances are measured as a dummy variable, coded “1” for dyads that contain any type of military alliance (as identified by the Correlates of War project Military Alliance data), and “0” otherwise.

**CAPABILITY RATIO:** The ratio of capabilities of the stronger to the weaker state in a dyad. “Capabilities” are scored using the Composite Index of National Capabilities (CINC) and the COW National Capabilities data.

**CONTIGUITY:** Contiguity is a dummy variable, equal to “1” for contiguous dyads (common borders or separated by less than 150 miles of water) and “0” otherwise.

**LOWER TRADE-TO-GDP RATIO:** Oneal and Russett construct an index of economic dependence for each state in relation to its partner in the dyad using bilateral trade data from the International Monetary Fund Direction of Trade Statistics (IMF DOTS) and weighted by each state’s gross domestic product (GDP

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<sup>10</sup> The initial replication of the Oneal and Russett analysis reported below produces a sample of 17,910 dyad years. I later duplicated their sample sizes precisely (with minor qualitative discrepancies between my findings and those of Oneal and Russett, 1998). Discrepancies in sample size result from different treatment of the AFFINITY variable. As mentioned above (footnote #3), Oneal and Russett fail to lag AFFINITY by one period as in Gartzke, 1998, and as suggested by Oneal and Russett themselves. Voting behavior in the United Nations is likely to be affected by conflicts in a manner that parallels Oneal et al.’s (1996) discussion and operationalization of economic growth and dependence.

<sup>11</sup> Oneal and Russett appear to have coded dyadic dispute initiation based on the earliest monadic date recorded in the MIDs and termination as the latest monadic date. A more common alternative is to use the “it takes two to tango” assumption—relying on the latest monadic starting date and the earliest monadic termination date in the MIDs. The consequences of this choice are not trivial, as the former assumption yields 695 dyad years of dispute behavior and the latter assumption yields only 584 such dyad years (a difference of 111 or about 20%). The distinction, of course, *would* be immaterial if Oneal and Russett coded the dispute dummy variable for initial conflict dyad years (instead of including all dyad years in which a dispute begins or continues). This is the preferred method because subsequent dyad years of dispute behavior are unlikely to occur independently of initial dispute behavior (Beck, Katz, and Tucker, 1998). Again, applying either the more conservative definition of dispute dyads to Oneal and Russett’s (1999) Table 2, Model II or coding only initial years of disputes leads the democracy variables to be insignificant (see footnotes #3–4).

data are from the Penn World Tables). The variable used is the lower of the two monadic trade-to-GDP ratios.

**AFFINITY:** This is a proxy for the similarity of preferences or “utility” of one state’s preferred policies to its partner in the dyad. **AFFINITY** is based on Spearman rank-order correlations of roll-call voting patterns in the United Nations General Assembly. The index is discussed more extensively in Gartzke, 1998.

#### *Replication of Oneal and Russett, 1998*

The first step is to replicate the findings from Oneal and Russett, 1998 using basic logit regression (Demaris, 1992). The results appear in Table 1. Notice in particular that in Model I only the lower of dyadic democracy scores is significant while in Model II—with the addition of the **AFFINITY** measure—neither democracy score is significant. The results in Table 1 substantively match those of Oneal and Russett, 1998, Table 2, but they are not identical. The difference lies in the sample size reported by each analysis (Oneal and Russett [1998] report 17,723 cases and I report 17,910).<sup>12</sup> Oneal and Russett (1998) obtain a smaller number of cases by failing to lag the **AFFINITY** variable and because they use an older version of the index that does not include interpolated data for 1964. I also replicate their analysis, matching the reported sample size. The results are substantively the same. I omit reporting both sets of results to save space.

The second step is to assess whether the portion of **AFFINITY** unattributable to other “causes” is still a significant predictor of international conflict. First, Model III, Table 1 replicates Oneal and Russett, 1998, Table 2, Model III (with the same *caveats* as in the previous paragraph about sample size, etc.). After running Model III in Table 1, I capture the residuals and use them as I would the regular **AFFINITY** variable.<sup>13</sup> Model IV in Table 2 is similar to Model II (Table 1), but it incorporates the **AFFINITY** residuals instead of using the regular **AFFINITY** measure.<sup>14</sup> The residuals remain as highly significant as in Model II. In words, even if a portion of shared preferences is caused by regime type, interdependence, and so on, the portion of preference similarity unexplained by these variables remains a powerful predictor of militarized disputes.

#### *Extensions of the Analysis*

The next step is to demonstrate that the technique used for **AFFINITY** can be applied to other independent variables in Oneal and Russett’s regressions. As discussed previously, a pitfall of Oneal and Russett’s analysis is that it is applied arbitrarily. Oneal and Russett themselves use the technique in an apparently contradictory manner. Russett, Oneal, and Davis (1998) assess the pacific impact of membership in inter-governmental organizations (IGOs) on dispute behavior. The authors construct a variable (IGO) measuring the frequency of IGO membership in a dyad. After demonstrating that the variable significantly reduces dispute propensity, the study uses variables from the standard model of the

<sup>12</sup> See footnote #3 for a discussion of the reasons for the sample discrepancy between the two studies. I also replicated the analysis exactly matching Oneal and Russett’s reported sample size. The results are substantively equivalent.

<sup>13</sup> A reviewer notes that Oneal and Russett’s argument may be equally applicable to autocracies, that one should measure the similarity of regime type in attempting to predict **AFFINITY**. An examination of the argument shows no notable difference in results. The argument makes intuitive sense, but as Oneal and Russett themselves note, there is a great deal of heterogeneity among autocracies, at least as they are organized in the current Polity data (1999:232).

<sup>14</sup> The residuals from the **AFFINITY** regression are lagged one year (as are the regular values of **AFFINITY** in Model II). I also examined regressions in which the residuals of **AFFINITY** are not lagged. I noticed no substantive differences.

TABLE 1. Replication of ONeal and Russett, 1998, Table 2

<i>Dependent Variable</i>	<i>I. MID (dummy)</i>			<i>II. MID (dummy)</i>			<i>III. AFFINITY</i>		
	<i>Coefficient (Robust S. E.)</i>	<i>z (P&gt; z )</i>	<i>Sig.</i>	<i>Coefficient (Robust S. E.)</i>	<i>z (P&gt; z )</i>	<i>Sig.</i>	<i>Coefficient (Robust S. E.)</i>	<i>z (P&gt; z )</i>	<i>Sig.</i>
Democracy									
Lower Democracy	<b>-0.04510</b>	<b>-2.559</b>	*	<b>-0.02105</b>	<b>-1.257</b>		<b>0.02062</b>	<b>53.026</b>	***
	-0.01762	0.011		0.01675	0.209		0.00039	0.000	
Higher Democracy	<b>0.02822</b>	<b>1.783</b>		<b>0.01135</b>	<b>0.760</b>		<b>-0.01383</b>	<b>-37.508</b>	***
	0.01583	0.075		0.01494	0.447		0.00037	0.000	
Economic Growth	<b>-0.03064</b>	<b>-1.851</b>		<b>-0.02838</b>	<b>-1.726</b>		<b>0.00500</b>	<b>7.203</b>	***
(Lower Growth Rate)	0.01656	0.064		0.01645	0.084		0.00069	0.000	
Allies	<b>-0.50305</b>	<b>-2.165</b>	*	<b>-0.21124</b>	<b>-0.864</b>		0.26833	<b>53.151</b>	***
	0.23233	0.030		0.24455	0.388		0.00505	0.000	
Capability Ratio	<b>-0.00159</b>	<b>-1.979</b>	*	<b>-0.00149</b>	<b>-1.910</b>		<b>0.00002</b>	<b>3.106</b>	**
	0.00081	0.048		0.00078	0.056		0.00000	0.002	
Contiguity	<b>1.68874</b>	<b>5.983</b>	***	<b>1.83781</b>	<b>6.492</b>	***	<b>0.12770</b>	<b>22.981</b>	***
	0.28226	0.000		0.28307	0.000		0.00556	<.0001	
Trade-to-GDP Ratio	<b>-64.83073</b>	<b>-2.268</b>	*	<b>-52.60280</b>	<b>-1.892</b>		<b>4.64405</b>	<b>16.609</b>	***
(dependence, lagged by 1 year)	28.58354	0.023		27.80982	0.059		0.27962	0.000	
UN Voting Similarity				-1.12755	<b>-4.117</b>	***			
(Affinity, lagged by 1 year)				0.27391	0.000				
Constant	<b>-3.91429</b>	<b>-15.865</b>	***	<b>-3.76482</b>	<b>-15.290</b>	***	<b>0.17936</b>	<b>37.974</b>	***
	0.24672	0.000		0.24623	0.000		0.00472	0.000	
N	17910			17910			17910		
Chi <sup>2</sup> (#)	62.53(7)			79.44(8)					
P>Chi <sup>2</sup>	0.0000			0.0000					
Log Likelihood	-2652.29			-2613.14					
F							1880.73		
P>F							0.0000		
Pseudo R <sup>2</sup>	0.0977			0.111					
Adjusted R <sup>2</sup>							0.4235		

\*p &lt; .05, two-tailed test; \*\*p &lt; .01, two-tailed test; \*\*\*p &lt; .001, two-tailed test

TABLE 2. Extension of O Neal and Russett, 1998

<i>Dependent Variable</i>	<i>IV. MID (dummy)</i>			<i>V. DEMOCRACY</i>			<i>VI. MID (dummy)</i>		
<i>Independent Variables</i>	<i>Coefficient (Robust S. E.)</i>	<i>z (P&gt; z )</i>	<i>Sig.</i>	<i>Coefficient (Robust S. E.)</i>	<i>z (P&gt; z )</i>	<i>Sig.</i>	<i>Coefficient (Robust S. E.)</i>	<i>z (P&gt; z )</i>	<i>Sig.</i>
Democracy									
Lower Democracy	<b>-0.04088</b> 0.01807	<b>-2.262</b> 0.024	*						
Residuals of Lower Democracy							<b>-0.03886</b> 0.02025	<b>-1.919</b> 0.055	
Higher Democracy	<b>0.02738</b> 0.01561	<b>1.754</b> 0.079							
Residuals of Higher Democracy							<b>0.02242</b> 0.01698	<b>1.320</b> 0.187	
Economic Growth (Lower Growth Rate)	<b>-0.03400</b> 0.01660	<b>-2.049</b> 0.040	*				<b>-0.02861</b> 0.01634	<b>-1.750</b> 0.080	
Allies	<b>-0.50767</b> 0.24473	<b>-2.074</b> 0.038	*	<b>1.82430</b> 0.07084	<b>25.753</b> 0.000	***	<b>-0.64225</b> 0.24836	<b>-2.586</b> 0.010	*
Capability Ratio	<b>-0.00137</b> 0.00073	<b>-1.863</b> 0.063		<b>-0.00045</b> 0.00007	<b>-6.198</b> 0.000	***	<b>-0.00145</b> 0.00077	<b>-1.894</b> 0.058	
Contiguity	<b>1.70278</b> 0.28966	<b>5.879</b> 0.000	***	<b>-1.18718</b> 0.07736	<b>-15.346</b> 0.000	***	<b>1.67550</b> 0.25283	<b>6.627</b> 0.000	***

Trade-to-GDP Ratio									
Lower Dependence (lagged by 1 year)	<b>-58.07115</b> 28.60874	<b>-2.030</b> 0.042	*				<b>-64.75931</b> 26.34860	<b>-2.458</b> 0.014	*
Dependence on counterpart (lagged by 1 year)				<b>11.81162</b> 1.00000	<b>11.812</b> 0.000	***			
UN Voting Similarity	<b>-1.17819</b>	<b>-4.111</b>	***				<b>-1.23543</b>	<b>-4.183</b>	***
Residuals of Affinity (lagged by 1 year)	0.28659	0.000					0.29535	0.000	
GDP per capita				<b>0.00118</b> 0.00001	<b>155.530</b> 0.000	***			
Constant	<b>-3.97189</b> 0.24840	<b>-15.990</b> 0.000	***	<b>-5.68424</b> 0.06636	<b>-85.659</b> 0.000	***	<b>-3.77054</b> 0.20855	<b>-18.080</b> 0.000	***
N	17103			34569			17103		
Chi <sup>2</sup> (#)	77.22(8)						89.53(8)		
P>Chi <sup>2</sup>	0.0000						0.0000		
Log Likelihood	-2490.19						-2496.60		
F				5570.21					
P>F				0.0000					
Pseudo R <sup>2</sup>	0.1091						0.1068		
Adjusted R <sup>2</sup>				0.4462					

\*p < .05, two-tailed test; \*\*p < .01, two-tailed test; \*\*\* p < .001, two-tailed test

democratic peace to predict the IGO variable.<sup>15</sup> The statistical model is largely the same as that used in Oneal and Russett, 1999, to predict AFFINITY, though the model does an even better job of predicting IGOs (accounting for 63% of variance in the IGO variable; 1998:462). Russett, Oneal, and Davis, 1998, conclude that the IGO variable significantly reduces disputes, while Oneal and Russett (1999) use the same technique and weaker results to claim that the AFFINITY measure of preferences fails to explain dispute behavior. The logic of indirect causation appears malleable.

Since the technique has been applied to measures of inter-governmental organization membership and preference similarity, one can argue that it is no more (or less) unrealistic to treat democracy as if it were an endogenous variable. It may not be democracy *per se* but some other variables leading to democracy that reduce the occurrence of militarized conflicts between democratic states. For simplicity, consistency, and illustration, I adopt the same model used by Oneal and Russett to predict the similarity of United Nations roll-call votes, with one change. The literature on democratization suggests that it is not economic growth but prosperity that anticipates political liberalism (cf. Burkhart and Lewis-Beck, 1994). Earlier studies in the Oneal and Russett research program include a measure of wealth (Real Gross Domestic Product Per Capita [RGDPPC]) rather than growth (Maoz and Russett, 1993; Oneal et al., 1996; data from Summers and Heston, 1991). I use RGDPPC for each state in place of economic growth to predict “democraticness.” With the exception of the omitted democracy variables and the use of GDP per capita rather than first differences, Model V is the same specification as Model III (and of Oneal and Russett, 1998, Table 2, Model III). Notice too that the sample size is roughly twice that of the other models (to predict monadic democracy).

Attempting to “explain” democracy using variables like alliance ties and capability ratios is potentially controversial. I stress that I am simply trying to predict democracy. Other research has taken a more careful look at the antecedents to democracy (cf. Midlarsky, 1995, 1998). Here, I must balance between maintaining inter-comparability with Oneal and Russett’s analysis and selecting independent variables generally thought to account for democratization. By following Oneal and Russett’s specification as closely as practicable, I show the effect of their choice of model specification on the variable most associated with the democratic peace thesis. If essentially the same model used by Oneal and Russett to “explain” AFFINITY can account for democracy, then one may be tempted either to dismiss the theoretical significance of Oneal and Russett’s AFFINITY findings or to acknowledge that they apply equally to other variables as well.

In Model V (Table 2), I examine whether—according to the conditions set out by Oneal and Russett—democracy should be treated as if its effect on dispute propensity were really an indirect result of economic prosperity. I regress Oneal and Russett’s measure of democracy on RGDPPC, a dummy for alliance ties, a measure of the capability ratio, a dummy for contiguity, and economic dependence (monadic trade-to-GDP ratio). Model V shows that democracy is significantly associated with all of the variables on which it is regressed. Indeed, these variables (fewer in number than in Model III because of the absence of the two democracy variables) slightly *better* explain democracy than they do the similarity of UN roll-call voting. Approximately forty-five percent (45%) of the variance in regime type can be accounted for by the variables in Model V. Again, I store the residuals. This time, in addition, I must divide the democracy residuals into

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<sup>15</sup> Controlling for temporal dependence (Beck, Katz, and Tucker, 1998) changes the sign-value of the IGO membership variable to positive (it remains a highly significant predictor of dispute behavior; Gartzke, Li, and Boehmer, 1999). This finding appears to indicate problems with the construction of the Russett, Oneal, and Davis, 1998, IGO variable.

higher and lower values based on the two democracy variables used in the regular dyadic analysis of MID conflict (Residuals of Lower Democracy, Residuals of Higher Democracy).

Model VI incorporates residuals of democracy (in place of Oneal and Russett's two measures of democracy) and residuals of AFFINITY. The residuals for AFFINITY are again highly significant. In addition, the coefficient for the AFFINITY residuals suggests that changes in AFFINITY have a major impact on the probability of militarized conflict. The sign value of coefficients for the democracy residuals function in a manner similar to the regular measures of democracy. Residuals of the higher democracy score are positively associated with the likelihood of interstate militarized conflicts, while residuals of the lower democracy score are negatively associated with MIDs. However, neither of the residuals of the democracy scores is statistically significant. Removing portions of the democracy and AFFINITY variables attributable to other variables in the analysis makes democracy insignificant while the preference index remains highly significant. The results confirm that AFFINITY has an independent effect on peace even as these findings challenge the effect of democracy.

Of course, statistical significance is one thing and substantive impact is quite another. What is the relative importance of democracy and preference similarity in accounting for international conflict behavior? To examine this question, I look at the marginal effect of changes in the value of the democracy variables and of AFFINITY on the probability of a MID occurrence predicted by Model VI. A typical technique for calculating marginal effects is to hold values of the independent variables constant (often using mean values or "0" in the case of dichotomous variables), and then iterate changes in values of the independent variable of interest (using standard deviations or informative, substantively based, values). The problem with this approach is that one may posit combinations of values for the variables that do not occur empirically. The statistical software *Stata* offers a preferable technique called the "method of recycled predictions" (*StataCorp*, 1995). The method of recycled predictions calculates the effect of given values of the independent variable of interest on predicted values of the dependent variable using actual values of the other independent variables. A prediction of the dependent variable is calculated for each observation in the dataset for which there are no missing values. The mean of these predictions is the estimated probability of a MID for a given value of the independent variable of interest. The effect of changes in the independent variable can then be calculated by comparing mean predicted values of the dependent variable for each change in the independent variable.

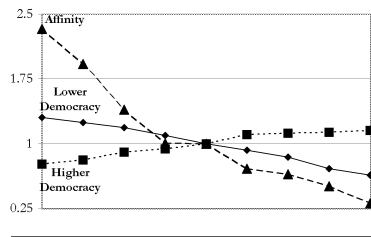
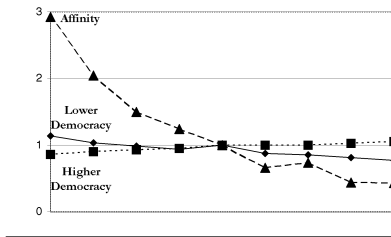
Table 3 presents the results of these calculations. There are two sections in Table 3. The first section, entitled "Likelihood of Experiencing Militarized Interstate Disputes (MIDs) Relative to Mean Values of Each Variable," provides a sense of the relative effect of variance in each independent variable on the dependent variable (MID occurrence). Reported probabilities of MID occurrence are relative to mean values of each variable. Absolute probabilities of a dispute in any given dyad year can be recovered from the matrix by multiplying bold values by the reference probability that appears below mean probabilities in brackets. Each matrix reports the relative effect of varying values of the independent variables. Small graphs below each matrix provide an intuitive description of the relative effect of each variable. Under Model II (Oneal and Russett's model incorporating AFFINITY without residuals), values of democracy alter the probability of a MID only modestly, but varying values of AFFINITY results in substantial changes. States with the most dissimilar preferences (on the left-hand side of the matrix and figure) are almost three times as likely to have a militarized dispute as states with the mean level of preference similarity. States with preferences that are one standard deviation closer than the mean are only about two-thirds as

TABLE 3. The Impact of Democracy and Preference Affinity on the Relative Probability of MIDs

Dep. Variable: MID	MODEL II (Regular Independent Variables)								MODEL VI (Residual Independent Variables)							
	LOW		Probabilities Based on Regular Values				HIGH		LOW		Probabilities Based on Residuals				HIGH	

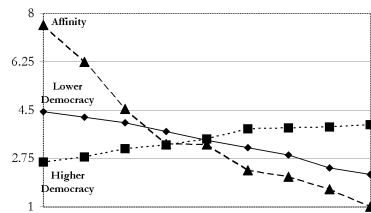
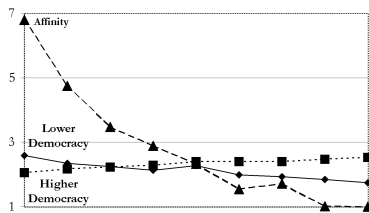
Likelihood of Experiencing Militarized Interstate Disputes (MIDs) Relative to Mean Values of Each Variable

Independent Variables	LOW		Probabilities Based on Regular Values				HIGH		LOW		Probabilities Based on Residuals				HIGH			
	min	1/2 min	mean - s.d.	zero	mean	mean + s.d.	1/2 max	mean + 2 s.d.	max	min	mean - 2 s.d.	mean - 1 s.d.	zero	mean	mean + s.d.	1/2 max	mean + 2 s.d.	max
Lower Democracy	1.14	1.03	---	0.94	1 [3.73%]	0.87	0.85	---	0.77	1.30	---	1.18	---	1 [3.83%]	---	0.84	0.71	0.64
Higher Democracy	0.86	0.90	0.93	0.95	1 [3.95%]	---	1.00	---	1.05	0.76	0.81	0.90	0.94	1 [3.88%]	1.11	---	---	1.15
Affinity	2.92	2.04	1.49	1.24	1 [3.82%]	0.66	0.74	0.43	0.43	2.33	1.92	1.39	1.00	1 [3.66%]	0.71	0.64	0.50	0.31



Likelihood of Experiencing Militarized Interstate Disputes (MIDs) Relative to Lowest Probability (Max Affinity)

Independent Variables	LOW		Probabilities Based on Regular Values						HIGH		LOW		Probabilities Based on Residuals						HIGH	
	min	1/2 min	mean - s.d.	zero	mean	mean + s.d.	1/2 max	mean + 2 s.d.	max	min	mean - 2 s.d.	mean - 1 s.d.	zero	mean	mean + s.d.	1/2 max	mean + 2 s.d.	max		
Lower Democracy	2.59	2.35	---	2.13	2.28	1.99	1.93	---	1.75	4.44	---	4.04	---	3.41	---	2.87	2.41	2.16		
Higher Democracy	2.06	2.17	2.24	2.29	2.41	---	2.41	---	2.54	2.63	2.80	3.11	3.24	3.45	3.82	---	---	3.97		
Affinity	6.80	4.75	3.47	2.89	2.33	1.54	1.71	1.01	1 [1.64%]	7.59	6.25	4.53	3.26	3.25	2.32	2.09	1.64	1 [1.12%]		



Values in brackets, [ ], are baseline probabilities for reference values of Affinity. Values omitted (—) occur out of sequence with the values of other variables.

Omitted values are interpolated in the graphs. Percentages and probabilities may not sum to one because of rounding.

likely to experience a MID. Comparing the effect of AFFINITY and LOWER DEMOCRACY at the maximum values, states with the most similar preferences are about half as likely to experience a MID as are the most democratic dyads (0.43 times the mean versus 0.77 times for democracy). Results for Model VI show similar changes in dispute probability. Regressing MIDs on residuals of democracy and AFFINITY shows that states with highly similar preferences are about a third as likely to experience a MID as the average dyad and less than half as likely as the



most democratic dyads (0.31 versus 0.64). Recall as well that none of the democracy variables is significant.

A second way to examine the relative impact of democracy and AFFINITY can be had by comparing the probability of disputes across variables. The second section of Table 3 reports the probability of a MID for each standard value of the three independent variables relative to the maximum value of AFFINITY. Again, let us look first at the results of Model II. States with the most divergent preferences are almost three times as likely to have a dispute as the most autocratic states. States with divergent preferences are almost seven times as likely to have a MID as states with very similar preferences. One must descend to values of AFFINITY that are near the mean before the probability of a MID is about the same as those of the most democratic states. When we look at the results of regressing the residuals of the three variables (Model VI), both democracy scores are in every case much more likely to be associated with militarized violence than are high values of AFFINITY. In studying the democratic peace, researchers wish to identify explanations for the near absence of disputes between certain states. Not only do the democracy variables show less variance than AFFINITY, even when treated as residuals, but theoretical interest lies in what variables are associated with minimal dispute behavior. As the relative probabilities show for both Model II and Model VI, the most democratic states are still about twice as likely to experience a MID as states with the most similar preferences. The most democratic states are about as likely to have a dispute as states with preference similarities of about half the maximum AFFINITY value. Not only does AFFINITY have a significant effect on peace independent of democracy, but pacific dyads are much more likely to be states with similar preferences.

*Replication and Extension of Oneal and Russett, 1999*

Results reported in Oneal and Russett, 1999, generally parallel those of Oneal and Russett, 1998. The newer study makes use of an improved estimator, General Equilibrium Estimation [GEE], to control for the spatial and temporal effects common to time-series—cross-section analysis. Oneal and Russett (1999) also employ the technique offered by Beck, Katz, and Tucker (1998) to control for temporal dependence, though they do not report these results in any detail. As mentioned above, the major substantive distinction between the two studies is the reported significance (at the 0.05 level) of the lower of the two democracy variables in Oneal and Russett, 1999, Table 2, Model II (the model that introduces the AFFINITY variable).

In Table 4, I provide samples of the results from a series of replications and extensions of the work reported in Oneal and Russett, 1999, Table 2. The sample size reported by Oneal and Russett, 1999, Table 2 is 17,718 cases (GEE drops five cases because they cannot be grouped for estimation). The samples in Table 4 differ in size, but they are always smaller than 17,718. As I mentioned above, Oneal and Russett do not lag the AFFINITY variable and omit interpolated cases for 1964. Here, I began with the data provided by Oneal and Russett and, by lagging the AFFINITY variable one period, produced the smaller sample size. In the previous analysis, I included data omitted by Oneal and Russett (values for 1964). Again, I also replicated the analysis precisely as reported in Oneal and Russett, 1999, Table 2 and examined a number of alternative constructions of variables yielding slightly different samples, including other operationalizations of the dependent variable. In every specification and variable construction examined *except* the one reported by Oneal and Russett, neither democracy variable is significant though AFFINITY remains highly significant. Further, as Model VIII demonstrates, repeating the process of regressing AFFINITY on democracy and the other independent variables and replacing AFFINITY in the MID's regression

TABLE 4. Replication and Extension of Oneal and Russett, 1999, Table 2, Using GEE

<i>Dependent Variable</i>	<i>VII. MID (dummy)</i>			<i>VIII. MID (dummy)</i>			<i>IX. MID (dummy)</i>		
	<i>Coefficient</i> (Semi-Robust S. E.)	<i>z</i> (P> z )	<i>Sig.</i>	<i>Coefficient</i> (Semi-Robust S. E.)	<i>z</i> (P> z )	<i>Sig.</i>	<i>Coefficient</i> (Semi-Robust S. E.)	<i>z</i> (P> z )	<i>Sig.</i>
Democracy									
Lower Democracy	<b>-0.02652</b>	<b>-1.838</b>		<b>-0.03081</b>	<b>-2.096</b>	*	<b>-0.02698</b>	<b>-1.565</b>	
	-0.01443	0.066		0.01470	0.036		0.01724	0.118	
Higher Democracy	<b>0.01146</b>	<b>0.833</b>		<b>0.01512</b>	<b>1.072</b>		<b>0.01213</b>	<b>0.818</b>	
	0.01376	0.405		0.01410	0.284		0.01482	0.413	
Economic Growth	<b>-0.02517</b>	<b>-1.864</b>		<b>-0.02548</b>	<b>-1.788</b>		<b>-0.02560</b>	<b>-1.804</b>	
(Lower Growth Rate)	0.01350	0.062		0.01425	0.074		0.01419	0.071	
Allies	<b>-0.34872</b>	<b>-1.464</b>		<b>-0.51988</b>	<b>-2.126</b>	*	<b>-0.42272</b>	<b>-1.122</b>	
	0.23822	0.143		0.24451	0.033		0.37687	0.262	
Capability Ratio	<b>-0.00158</b>	<b>-1.947</b>		<b>-0.00154</b>	<b>-1.959</b>	*	<b>-0.00153</b>	<b>-1.953</b>	
	0.00081	0.052		0.00079	0.050		0.00079	0.051	
Contiguity	<b>1.69156</b>	<b>6.235</b>	***	<b>1.57242</b>	<b>5.749</b>	***	<b>0.16184</b>	<b>5.160</b>	***
	0.27132	0.000		0.27353	0.000		0.31367	0.000	
Trade-to-GDP Ratio	<b>-40.65206</b>	<b>-2.184</b>	*	<b>-44.22490</b>	<b>-2.275</b>	*	<b>-41.71421</b>	<b>-2.056</b>	*
(dependence, lagged by 1 year)	18.61647	0.029		19.44158	0.023		20.28845	0.040	
UN Voting Similarity									
(Affinity, lagged by 1 year)	<b>-0.58443</b>	<b>-2.931</b>	**						
	0.19938	0.003							
Residuals of Affinity (lagged by 1 year)				<b>-0.55958</b>	<b>-2.791</b>	**	<b>-0.56091</b>	<b>-2.786</b>	**
				0.20049	0.005		0.20136	0.005	
Affinity Predicted by Democ., etc.							<b>-0.38591</b>	<b>-0.348</b>	
							1.10961	0.728	
Constant	<b>-3.76875</b>	<b>-17.205</b>	***	<b>-3.79787</b>	<b>-17.312</b>	***	<b>-3.75246</b>	<b>-15.646</b>	***
	0.21905	0.000		0.21938	0.000		0.23984	0.000	
N	17415			16909			16909		
Chi <sup>2</sup> (#)	69.39(8)			62.75(8)			62.78(9)		
P>Chi <sup>2</sup>	0.0000			0.0000			0.0000		

\*p < .05, two-tailed test; \*\*p < .01, two-tailed test; \*\*\*p < .001, two-tailed test

with the captured residuals continues to show that preferences impact peace independent of the effect of the liberal variables.

Finally, I assess the assertion by Oneal and Russett of dual paths from democracy to a reduction in dispute behavior. This component of Oneal and Russett's argument is emphasized in their newest work (1999). If the argument is correct, then the direct effect of democracy on peace should be demonstrable once the predicted component of AFFINITY is isolated. Perhaps it is necessary for the indirect effect of democracy on peace to be included in the model before democracy is significant. This would also allow an examination of the dual paths hypotheses offered by Oneal and Russett. If democracy has direct and indirect effects on militarized disputes, then presumably including separate variables for the predicted and residual components of AFFINITY allows an assessment of this argument, independent of the effect of AFFINITY. Model IX, the final model, offers such an assessment. Democracy variables demonstrate any direct effect of democracy on peace. The predicted portion of AFFINITY stands as a proxy for the indirect effect of democracy on peace. Finally, the residuals from the AFFINITY variable are included to see whether there exists any effect of AFFINITY that is independent of democracy. As can be seen, the results provide no support for Oneal and Russett's thesis. Neither of the democracy variables is significant. The portion of AFFINITY attributable to the liberal variables is also not significant. Only the residuals of AFFINITY retain the power to predict peace. Using data, variable construction, model specifications, and assumptions favorable to Oneal and Russett's premise, the results are still not supportive of their hypotheses. At the same time, the notion of preferences retains robust statistical corroboration and is reinforced theoretically by Oneal and Russett's own claims.

### C. Conclusion

This study appears to have resolved a controversy related to the democratic peace. Counter to the arguments in Oneal and Russett, 1997b, 1998, 1999, AFFINITY is not merely an artifact of liberal variables. Even the residuals from AFFINITY have a powerful pacifying effect on militarized disputes, independent of regime type, interdependence, and other variables. Further, the relationship between AFFINITY and the probability of disputes appears to be causal. Oneal and Russett acknowledge theoretical and empirical merit in a measure of preference similarity. Their critique is based on the assertion that preferences are caused by liberal variables. Since a similar claim cannot be made of the residuals of AFFINITY, there would seem to be no theoretical or empirical contradiction between the position offered by Oneal and Russett and the one offered here.

It remains to be demonstrated whether democracy itself is safely treated as an exogenous variable. Democracy is associated with the occurrence of militarized conflicts, but wealth and other variables used in standard regressions of the democratic peace anticipate democracy at least as well as they do preferences. The same rationale used by Oneal and Russett to challenge the exogeneity of preferences would seem to threaten liberal variables. At the same time, the research here is not intended to prove that the effect of democracy on the democratic peace is really attributable to economic development. I simply show that such an assertion is consistent with Oneal and Russett's own criteria and that it is compelling given their claims.

Nor should one conclude from these results that the liberal peace is in any way compromised. The findings challenge the notion that the democratic peace is due largely, or even substantially, to democracy. Conversely, the impact of economic liberalism, through trade and wealth, is substantiated by the results. Democracy is likely to continue to show itself as a significant contributor to the lessening of international violence. Democracy matters in accounting for the

democratic peace. It is just that its role is less “law-like” and increasingly subject to *caveats* and competitors (Levy, 1988). Democracy’s status in the democratic peace is certainly far from dead, but there appears to be a gradual withering away of democracy’s preeminence. Other variables have been shown to account for much of what was thought to be the private domain of joint democracy. We must ask ourselves at some point whether other variables deserve greater attention given the relatively modest portion of conflict behavior that can be accounted for by pairing republics.

At the same time, by any reasonable criteria, preferences matter. The effect of preferences remains highly significant regardless of model specification, variable construction, estimation technique, or sample. Preferences as measured by AFFINITY predict roughly three times the variation in dispute propensity of the democracy variables. States with the most similar preferences are about half as likely to experience a dispute as states with the most republican governments. Much remains to be explored in terms of how preferences operate, how they matter, and why. As Oneal and Russett point out, “the theoretical interpretation of the role that preferences play in motivating states to use force is still underdeveloped. Preferences are abstract” (1999:234). Yet, the abstraction of preferences has proven powerful theoretically and empirically. Ignoring preferences in seeking to account for the democratic peace is likely to yield misleading conclusions.

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