Causes of Peace: Democracy, Interdependence,

and International Organizations, 1885-1992

John R. Oneal

University of Alabama

Bruce Russett

Yale University

July 1, 2001

Causes of Peace: Democracy, Interdependence, and International Organizations, 1885-1992

Abstract: Whereas single-equation analyses have provided important evidence for the Kantian theory of peace, a satisfactory evaluation of the theory requires establishing the causal direction among the variables. Here we focus on the dynamics of reciprocal causation between economic interdependence and interstate conflict over the period 1885-1992. Using distributed-lag analyses, we find that trade does have a substantively important, causal effect in reducing militarized disputes between dyads, especially serious conflict involving military fatalities. Militarized disputes also cause a reduction in trade, as liberal theory predicts. Our analyses indicate that democracy and joint membership in intergovernmental organizations, too, have important pacific benefits. Democratization does not increase the incidence of interstate disputes; and contrary to realists' expectations, allied states are not less conflict-prone than those that are unallied. Democracies and members of international organizations have higher levels of trade, but allies do not, *ceteris paribus*.

Causes of Peace: Democracy, Interdependence,

and International Organizations, 1885-1992

In *Perpetual Peace* (1927 [1795]), Immanuel Kant suggested that international peace could be established on a foundation of three elements: republican constitutions, "cosmopolitan law" embodied in free trade and economic interdependence, and international law and organizations. This was a visionary proposal. There were very few democracies in the world in the late 1700s and no international organizations as we now know them. There was trade, of course; but most countries followed mercantilist principles: subordinating the economy to the interests of the state, seeking economic independence when possible, and pursuing economic gains through the use of force. Though Kant presented his ideas over 200 years ago, it has only recently become possible to evaluate his "philosophical proposal" scientifically. In this article we focus on the causal character of the relations between the Kantian influences and peace by analyzing pooled dyadic time series.

Over the past twenty years, research on the causes of war has progressed rapidly by examining relations of pairs of states (dyads) observed through time. The analysis of dyadic time series marks an important advance over previous research at either the global or the state level. Attention to the behavior of pairs of states directly addresses the questions of greatest concern to political scientists and policy makers alike: which states are likely to fight one another, and which will remain at peace? Thus dyadic studies escape the ecological fallacy that plagued previous research at the systemic level. At the same time, unlike investigations of the behavior of individual nations, dyadic analyses easily accommodate variables that are inherently relational in character, including those central to realist theories of world politics: the balance of power and the existence of an alliance.

Though dyadic analyses have added to our understanding of international relations, few have exploited the dynamic information contained in the pooled time series. Here we do that by asking whether the Kantian influences—trade, institutionalized democracy, and joint memberships in intergovernmental organizations (IGOs)—affect the likelihood of militarized interstate disputes, holding constant the influence of past conflicts. Answers to these questions, when interpreted in the light of theory, give us important insights into the causal forces shaping interstate relations. This is important if we are to recommend to policy makers that they promote democracy and trade internationally and participate in international organizations as means of increasing the prospects for peace.

Previous research on the Kantian peace is suggestive but not conclusive on this point. It is likely that there are important reciprocal relations between the Kantian influences (and some realist variables) and the probability of interstate violence. A history of conflict may cause a nation to restrict personal liberties or even suspend democracy, becoming a "garrison state" (Lasswell 1941). Similarly, states' willingness to participate in IGOs with others may depend on the tenor of their relations, and this causal link may dominate the effect of international organizations on the likelihood of conflict: states may share membership in many IGOs only when they have a history of peaceful relations, and these shared associations may have no causal influence on the prospects for continued peace. The problem of reciprocal causation is most evident, however, when we consider the interaction of economic interdependence and peace. Kant and other classical liberals expected states to be constrained from resorting to force when they share important commercial relations precisely because conflict would threaten their interdependence and jeopardize the gains from trade. Economic agents are unlikely to trade and invest abroad if military conflict is a serious risk.

To clarify the causal effects of democracy, interdependence, and intergovernmental organizations on the likelihood of dyadic conflict, we use regression analyses that incorporate

distributed lags of important liberal and realist variables as well as the dyad's history of conflict. These tests are in the spirit of Granger's test of causality. Granger (1969) proposed that a variable X might be a cause of Y if past values of X can be used to predict Y more accurately than using past values of Y alone. Using data for the period 1885-1992 regarding nearly 10,000 pairs of states, we determine if past values of the Kantian influences allow a better prediction of the current likelihood of a dyadic dispute than the history of their past disputes and other controls. We also take advantage of the information in our pooled time series to address other questions regarding the dynamics of interstate relations. We determine whether the process of democratization (Mansfield and Snyder 1995, 1996) or expectations regarding future economic relations (Copeland 1996, 2000) affect the prospects for peace, thus expanding our comprehension of the stability of the Kantian system. Finally, we examine the dynamics of the balance of power by evaluating power-transition theory (Organski and Kugler 1980).

The Kantian Peace

In an examination of the period 1885-1992, Russett and Oneal (2001) estimate the chance of a dyadic dispute as a function of the following factors: the character of the states' political regimes, the economic importance of their bilateral trade, the number of IGOs in which they shared membership, whether the two states were allied, and the bilateral balance of power. They estimated the importance of these influences while controlling for contiguity, the distance separating the two states, and whether one state in the dyad was a major power. Strong support for liberal theory emerged. Compared with a "typical" pair of states, the annual probability of a militarized interstate dispute falls by 33 percent if the level of democracy in the less democratic state in the dyad—the state less constrained politically—is higher by one standard deviation, all other variables held constant. Economic interdependence, too, limits the use of force. The probability of a dispute drops by 43 percent, compared to the typical dyad, if both states are economically dependent on

their commercial relations. And a dense network of involvement in IGOs is associated with a 24 percent reduction in conflict.

This discussion of the independent effects of the three Kantian elements understates the benefits of Kant's prescription for peace because, in reality, democracy or interdependence or involvement in IGOs does not normally increase while the others remain constant. As Kant anticipated, these elements of the liberals' political and economic program are integrally related. By institutional and normative means, the leaders of democratic states are constrained from resorting to force against other democracies; but democracy, because it recognizes and encourages individual liberty and responsibility, fosters entrepreneurship and the expansion of commerce beyond a nation's boundaries. As the economic activities of citizens make countries interdependent, there is need for institutions that can regulate and facilitate commercial relations. International law and organizations are the natural response. Thus there is a logical sequence that links the freedom of citizens in democratic states to expanding commerce over a widening geographical area and to the growth of international institutions.[1] If all the Kantian influences are increased simultaneously, the probability of a dispute drops 71 percent below the rate for the typical pair of states (Russett and Oneal 2001).

These strong results in support of the democratic peace and the constraining influence of economically important trade are consistent with other recent research. The separate peace among democracies has been substantiated in a great variety of tests over the years. Chan (1997), Ray (1998), and Russett and Starr (2000) survey this vast literature. There have been fewer investigations of the benefits of economic interdependence, but support for the liberal view is extensive and growing; McMillan (1997), Copeland (2000), and Mansfield and Pollins (2001) provide useful surveys. The contribution of international organizations, on the other hand, has not been widely examined and the results are less consistent.

Bennett and Stam (2000) provide a particularly valuable independent assessment of the Kantian peace. They use several alternative estimators and specifications, and they control for several other influences thought to affect the incidence of dyadic conflict. Their tests include an indicator that conflict is likely based on the game-theoretic model proposed by Bueno de Mesquita and Lalman (1992). This is important because many regard that model of the strategic behavior of self-interested, expected-utility maximizers as the most sophisticated theory of interstate conflict. Bennett and Stam's results are consistent with the democratic peace in all twelve of their tests involving non-directed dyads.[2] Economic interdependence is significantly related to peaceful relations in nine of the twelve: the same number as the indicator of whether a dyad includes a major power and more than any other theoretically interesting variable except democracy. Joint membership in IGOs was not statistically significant in any test, but this is due in part to their sample of cases. Bennett and Stam include all possible pairs of states. Evidence for the pacific benefits of IGOs is much greater when analysis is restricted to politically relevant dyads (Oneal and Russett 1999b). It is also greater, even in analyses of all possible pairs of states, if the increasing trend in the number of international organizations through time is factored out.

The evidence supports a good prognosis because democracy is likely to continue to spread and interdependence to grow. A reduction in interstate violence would be a by-product of the rational pursuit of people's self-interested desire for freedom and prosperity. It is encouraging that peace does not depend on moral conversion. The prospects for peace are good, as Kant (1927 [1795]) noted, as long as even devils can calculate. Of course, realist principles still dominate interstate relations outside the Kantian system: overwhelming power does reduce the likelihood of conflict (Kugler and Lemke, eds. 1996). But as weapons of mass destruction became accessible to more and more states it is essential to find a safer, more sure foundation for a peaceful international system. Democracy, interdependence, and international organizations offer this promise.

Accounting for Reciprocal Relations

If we are to have confidence in this prognosis and encourage policies promoting liberal institutions and values, we must be as sure as science will allow that the Kantian influences *cause* a reduction in interstate conflict. Of course, as Hume cautioned, we can never establish causal relations beyond doubt; but we must do what we can to guard against the possibility that causality runs only from peace to the Kantian factors, or that the correlations are spurious because of the influence of some third factor. Indeed, as noted earlier, it is likely that there are important reciprocal relations between democracy, interdependence, and involvement in IGOs, on the one hand, and peace, on the other. This is most evident in the case of commerce: in the liberal view, it is the fear that conflict will disrupt beneficial commerce that leads a state to refrain from using military force against another. Thus the relationship between interdependence and peace is expected to be reciprocal: each is endogenously determined; neither is exogenously given.[3]

Russett and Oneal (2001: ch. 6) recognize these and other elements of endogeneity, but do not test for it beyond single equations with lagged variables. They find that the effect of a militarized dispute on dyadic trade is modest. Conflict does reduce commerce, as expected; but the decline is only 8 per cent.[4] That is substantially weaker than the lagged effect of trade on disputes which they report. This is some evidence that economically important trade really does reduce conflict and is not just a consequence of previous, peaceful interstate relations; but it is hardly decisive. We need to consider the reciprocal relation more carefully.

Various analysts (Pollins 1989a,b; Gowa and Mansfield 1993) show that trade is influenced by states' security interests. There are two ways this may occur. First, a state is apt to restrict commerce with its adversaries, fearing that they will use the economic gains from trade to threaten its interests. Unless the benefits of trade are exactly equal, one side gains more resources, relative to its partner, that could be devoted to the military. Thus, states must be concerned with the relative

gains from trade, not just their absolute benefits.   In times of war especially, states seek to prevent

their citizens from "trading with the enemy." Commerce between states at war was not uncommon

in earlier centuries (Barbieri and Levy 1999), but modern states are more effective in limiting such

activity.[5] States can also act against countries with which they are not actually at war, for example,

by limiting the sale of goods that are considered strategic: key raw materials or technological

products with possible military applications. Many such restrictions were imposed on East-West

trade during the cold war, and the United States retains significant limitations on trade with China,

Russia, and other countries, as well as a virtually complete embargo on trade with Cuba, Iran, Iraq,

Libya, and North Korea. Trade with adversaries is also limited by the self-interested actions of

businessmen, even without government sanctions. Entrepreneurs, as rational actors, will reduce

trade when they see their goods or their lives are endangered by military hostilities. At a minimum,

they will seek a greater margin of profit or more complete insurance coverage to compensate for the

risk; but these actions raise costs and lower demand, reducing commerce.

Secondly, security interests affect the pattern of trade because states often seek to increase

their economic interdependence with those with whom they have good relations. They promote

trade with states deemed reliable sources of key products like food, raw materials, and militarily

important technology; just as they may discourage it, by various barriers, with adversaries and

potential enemies (Krasner 1978). Trade among the members of an alliance is generally thought to

be greater than expected on purely economic grounds because they need not fear that the economic

gains that arise from their commercial relations will be used for hostile purposes. Indeed, Gowa

(1994) and Mansfield and Bronson (1997a,b) find that states do trade more with their allies than

with neutrals or adversaries. Morrow, Siverson, and Tabares (1998, 1999), however, report that

this relationship is not robust. It is certainly important, however, to determine whether

interdependence has important pacific benefits when the influence of alliances is held constant.

While states may be reluctant to trade with states that may become their adversaries (Grieco 1988), most states most of the time are not actively adversarial. Then, liberals argue, it is the absolute gains accruing to each trading partner that primarily motivates their behavior (Snidal 1991). Indeed, Morrow (1997) shows analytically that relative gains should rarely impede trade even between potential adversaries. But the incentives for trade are undoubtedly greatest for countries that enjoy peaceful relations. Such countries can enter into relationships of economic interdependence to improve their standards of living without worrying much about which gains more. In Powell's (1991: 1313) words, "If the use of force is no longer at issue, then a state's relative loss will not be turned against the state. Relative gains no longer matter, and cooperation now becomes feasible." In addition, the absolute gains that result from trade increase each state's security vis-à-vis potentially hostile third parties. Of course, private actors have their own incentives to trade when states enjoy a stable peace.

In a good review of the literature, Reuveny (2000: 37) says that, because trade and conflict plausibly affect each other, studies which neglect that interaction are likely to be misspecified. Thus, "simultaneity and dynamic modeling ought to become routine features of future studies." Several efforts have been made to address this issue. At the systemic level, Mansfield (1994) estimated a system of two simultaneous equations, one predicting the level of global trade and the other the number of wars in the international system. Early dyadic investigations (Polachek (1980, 1997) used two-stage and three-stage least squares regression analysis in recognition of the reciprocal relation between trade and conflict. Recently, Kim (1998) used simultaneous equations to disentangle the reciprocal relations between bilateral trade and dyadic interstate conflict, 1950-85. Her work is particularly important because she has a large number of cases and considers only militarized disputes and war (not political tensions). She concludes that the effect of trade on conflict is stronger than the effect of conflict on trade. This concurs with Hegre and Kim's (2000)

8

analysis of economic openness (the total trade-to-GDP ratio) and involvement in military conflict at the national level of analysis.

Beck et al. (1998) propose an alternative method to deal with the effect of past conflict on the current probability of a dispute. They note that the time series of pooled analyses are not composed of independent observations, violating one of the assumptions of regression analysis. Beck et al. suggest borrowing the insight central to statistical hazard models and estimating the effects of theoretically interesting variables while controlling for the length of time that has elapsed since the dyad's last dispute. With this technique, they find that democracy has important pacific benefits but that the bilateral trade-to-GDP ratio no longer is significantly related to a reduced probability of conflict. Since then, it has been demonstrated that, with longer time series or a variety of alternative specifications, the benefits of economically important trade are statistically significant and substantively important even controlling for the history of dyadic disputes (Oneal and Russett 1999a, 1999b, 2001; Bennett and Stam 2000; Hegre 2000; Mousseau 2000; Gartzke, Li, and Boehmer 2001).

Neither a system of simultaneous equations (or the related techniques of two- and three-stage least squares analysis) nor controlling for the years of peace since a dyad's most recent conflict (using either hazard analysis or Beck et al.'s (1998) method) is fully satisfactory. The first approach depends on the assumption that the reciprocal effects are simultaneous; i.e., that conflict in a particular year affects trade only in the same year and vice versa (Wold 1981). It seems more likely that the occurrence of a militarized dispute in one year will affect decisions by investors and traders for a number of years into the future. This is Beck et al.'s essential insight. But important commercial relations, too, may have a long-term effect: the likelihood of conflict will be lower for a dyad with a long history of close economic ties, even if it were recently involved in a dispute, than if the two states had never been interdependent. Controlling for the years of peace does not allow

9

for this possibility. Indeed, it assumes that the number of years elapsed since the last dispute is independent of the influences of the theoretical variables included in the regression analysis (Beck and Tucker 1996). It is much more likely that the years of peace that a dyad has enjoyed is itself a function of the past character of the two states' political systems, the level of their trade, etc.[6]

The problem inherent in simply controlling for the years of peace is particularly evident in the case of interdependence. Trade falls with the occurrence of a dispute. Commerce rises over time after a dispute has ended as traders' confidence in the durability of peace increases. Thus commercial relations are expected, on theoretical grounds, to be correlated with the years of peace. It is not surprising, then, that the statistical significance of interdependence often declines in the presence of such a control. Decisions on how to treat temporal dependence must take into account the theory being tested as well the methodological problems to be resolved, as Bennett (1999), too, observes.

A distributed-lags model, based on Granger-causality testing, is an additional way to address the issue of endogeneity. Using Granger's (1969) logic, democracy, economically important trade, etc. can plausibly be considered causes of peace if their past values can be used to predict the current likelihood of a dispute more accurately than using dyads' histories of disputes alone. The statistical test establishes precedence among the variables, and theory provides the causal connection. A distributed-lags model has several advantages. First, it does not assume that reciprocal effects are simultaneous but allows for conflict to affect the likelihood of conflict over a period of years. Second, it controls for temporal dependence in a manner that is substantially richer and more complete than a count of the time elapsed since the last dispute. In estimating the current likelihood of conflict, it can distinguish, for example, between a dyad that enjoyed an extended period of peace and then experienced a military dispute from a pair of states that had a dispute every year for many years. Third, it allows the past values of the variables of theoretical interest to

influence the current likelihood of conflict. Thus, long-term benefits of interdependence, etc. that ameliorate the harmful effects of a recent conflict can be detected. Fourth, it provides some protection against accepting a spurious correlation as evidence of a causal relation, because the lagged indicators of dyads' involvement in militarized disputes act as proxies for explanatory variables omitted from the regression equation (Burkhart and Lewis-Beck 1994). Finally, and not least important, it is simple to implement.

Gasiorowski and Polacheck (1982) looked at political conflict and cooperation between the United States and the Warsaw Pact using Granger tests; and Reuveny and Kang (1996, 1998) used vector autoregression analysis of the political relations of 16 and 19 dyads respectively. Gasiorowski and Polacheck found that trade reduces the incidence of conflict, independent of past levels of violence; Reuveny and Kang's results were more mixed. We focus on militarized interstate disputes, not political conflict of a non-violent nature, and employ the technique of lagged variables on a much longer period and for many more dyads: all states in the system for which data are available. That is important, because, as Reuveny (2000) notes, the relationship may vary substantially across dyads, so a small sample may not capture an important relationship. In widening the sample, we lose the opportunity to model separately the behavior of exporters, importers, and governments, and of variation across goods, as Reuveny urges. At present, the data necessary to do this for many dyads do not exist.

Historical Domain, Key Variables, and Sources of Data

We analyze dyadic interstate behavior, 1885-1992, for all dyads. Thus we examine the Kantian peace over a long period before the cold war and a few years after. All but the first year of World War I and II are omitted because bilateral trade data are fragmentary, as they are for the immediate postwar years, 1919-20 and 1946-49. Omitting all but the first year of the world wars, which consisted of conflicts between democracies and autocracies or between two autocracies,

biases our results against the democratic peace; but it also provides assurance that our results are not determined by these dramatic but atypical events (Farber and Gowa 1997). Our variables and data are very similar to those used in Russett and Oneal (2001), which can be consulted for additional information.

The Variables to be Explained: Onset of Militarized Disputes and of Fatal Militarized Disputes

The Correlates of War (COW) project has identified militarized interstate disputes, 1816-1992, and assembled information regarding the dispute and the participants (Jones, Bremer, and Singer 1996). Maoz (1999) has noted, however, that states on opposite sides of a multilateral dispute may never have directly threatened, displayed, or used force against one another. For example, Bulgaria and Japan are listed on opposite sides in World War I, but there is no evidence that they were directly engaged in conflict. Consequently, in order to identify those dyads where the states actually confronted one another, we use Maoz's dyadic dispute data. The variable ONSET equals 1 if either state threatened to use force, made a demonstration of its military capabilities, or actually used force against the other; it equals 0 otherwise.

We also consider the onset of fatal disputes, conflicts in which at least one member of the armed forces of the parties to the conflict died. Focusing on these particularly violent conflicts serves two purposes. First, it reduces bias in the reporting of less severe military incidents. The use of force at even a low level in Western Europe, e.g., small arms' fire across an international border, would not go unreported in the Western media from which the COW data are gleaned; such incidents in Africa are apt often to go unnoticed. Attention to fatal disputes also insures that our analyses are relevant to the violent interstate conflict of greatest concern to political scientists and policy makers alike. Many disputes are limited in severity and pose little real danger to peace. For example, on several occasions, Peru used its navy to seize American fishing boats that entered the territorial waters it claimed. This is coded by the COW project as an actual use of force (four on a

5-point scale), though there was little risk of armed conflict between the two countries. Our second dependent variable (FATAL) equals 1 in the first year in which a dyad was involved in a dispute that involved at least one military fatality; it equals zero otherwise.

Explanatory Variables:

Democracy. We use the Polity III data (Jaggers and Gurr 1995, 1996) to compute a summary measure of the political character of regimes, subtracting from each country's score on the democracy scale its score on the autocracy scale. The result (DEM_i) ranges from -10 for an extreme autocracy to +10 for the most democratic states. Because a dispute can result from the actions of a single state, the likelihood of conflict should be primarily a function of the degree of constraint experienced by the less constrained state in each dyad. We expect, therefore, that the less democratic state (DEM_L) in a dyad determines most strongly the danger of interstate violence: the more democratic this state, the more constrained from engaging in a dispute it will be, and the more peaceful the dyad.

Economic Interdependence. For the post-World War II era we use a new data set (Gleditsch 2000). It relies in large part on the same sources that have been used previously: the International Monetary Fund for bilateral trade data and the Penn World Tables for information on nations' GDPs, but Gleditsch supplies much data previously unavailable, notably on trade among communist countries. Since trade is expected to influence dyadic relations only if it is economically important, we divide the sum of a country's exports and imports with its partner by its GDP. As with the influence of democratic institutions, we expect the likelihood of a dispute to be primarily a function of the freedom of the less constrained state to use force. This is indicated by the bilateral trade-to-GDP ratio of the state less economically dependent on trade with its dyadic partner ($DEPEND_L$).

For the years before 1950, both bilateral trade data and GDPs are harder to acquire. For 1920-1938 we use the data on bilateral trade in current values and the exchange rates compiled by

the League of Nations. Before World War I, annual editions of *The Statesman's Yearbook* are the closest approximation to an institutional source of trade data. We also collected alternative estimates, compared them to our initial data set, and adjusted it accordingly. Maddison (1995) provides GDP for 56 countries in all regions of the world for 1870-1992. We used these with data on annual energy consumption (Singer and Small 1995) to estimate missing GDP information.[7]

Joint IGO memberships. We assess the influence of international organizations on interstate conflicts by counting the number of IGOs in which both states in a dyad share membership as indicated in the *Yearbook of International Organizations*. This is by no means an ideal measure of the importance and effectiveness of international organizations. It includes organizations that are weak and strong, regional and global, functional and multipurpose. Ideally, the total should be broken down and some organizations given special weight, but this effort is only beginning (Boehmer, Gartzke, and Nordstrom 2000). Consequently, we use the simple count of joint memberships; but to eliminate the strong rising trend in the absolute number of international organizations, we calculated states' involvement in IGOs relative to the yearly average for all states.[8]

Capability ratio. Realists emphasize the importance of the balance of power in interstate relations. The belief that an equal distribution of power deters conflict has deep historical roots, as does the idea that a preponderance of capabilities, by reducing uncertainty as to which side would win a contest of arms, is more likely to preserve the peace. Recent empirical work suggests, however, that it is preponderance that deters military action (Bremer 1992,1993; Kugler and Lemke, eds. 1996), and that is our hypothesis. Our index of relative power (CAPRATIO) is the natural logarithm of the ratio of the stronger state's military capability index to that of the weaker member. We use the COW project's data (Singer and Small 1995) on population, industry, and military forces to calculate military capabilities.

Alliance. Allies are thought to fight each other less than other states because they share common security interests, as well as other political and economic interests. We control for this influence using a variable (ALLIES) that equals 1 if the members of a dyad were linked by a mutual defense treaty, neutrality pact, or entente; it equals 0 otherwise. We updated information in Singer (1995) using Rengger with Campbell (1995).

Contiguity and distance. A potential for violence exists when at least one member of a dyad can reach the other with militarily effective force. For most states, that ability derives from geographic proximity. Furthermore, neighbors are likely to have the most reasons to fight—over territorial boundaries, natural resources, irredentism, etc. Thus, distance reduces the capability to fight and most of the incentives to do so as well. Because of the importance of this influence, we include two different terms to capture it as fully as possible. DISTANCE is the natural logarithm of the great circle distance in miles between the two states' capitals (or major ports for the largest countries); using the logarithm acknowledges a declining marginal effect. We also include NONCONTIG, which equals 1 if two states are not directly or indirectly contiguous (via colonies or other dependencies), and 0 if they share a land border or are separated by less than 150 miles of water. Because of widespread colonial empires for much of the period, these two measures are not highly correlated (r = 0.44).

The effect of distance in constraining conflict, however, is less for the great powers: those with the ability to deliver substantial forces or destructive power globally. These major powers have been identified by the COW project based on the consensus of historians. As an additional realist variable we add MINORPWRS, coded 1 if a dyad is composed of minor powers and 0 for those that include at least one great power.

Results: Trade Reduces Conflict

To clarify the causal relations connecting the Kantian influences to the onset of a militarized interstate dispute, we use distributed-lags analyses of pooled cross-sectional and time series data. The function linking the explanatory factors to the left-hand-side variable is logistic because our measure of interstate conflict is dichotomous. We calculate statistical significances using robust standard errors controlling for clustering by dyads (StataCorp 1999). We begin with our model of fatal interstate disputes:

$$FATAL_t = DEM_{L,t-1} + \ldots + DEM_{L,t-7} + DEPEND_{L,t-1} + \ldots + DEPEND_{L,t-7} + IGO_{t-1} + \ldots + IGO_{t-7} \tag{1}$$

$$+ CAPRATIO_{t-1} + \ldots + CAPRATIO_{t-7} + ALLIES_{t-1} \ldots + ALLIES_{t-7} + NONCONTIG_{t-1}$$

$$+ DISTANCE + MINORPWRS_{t-1} + FATAL_{t-1} + \ldots + FATAL_{t-7}$$

We account for the onset of a fatal militarized dispute for a pair of states in year t using seven lagged values of each of the main liberal and realist variables. Their influences are estimated while controlling for the history of dyadic disputes over the same period, whether the two states shared a border (either directly or through a dependency), the distance separating them, and whether the dyad included a major power. The last three variables are considered strictly exogenous, so only one value is included. For the other variables, the number of lags to be included was determined by adding terms until additional lags of FATAL were no longer statistically significant. In this way, we seek to insure that we have thoroughly controlled for the influence of past disputes on the current likelihood of conflict. If the other variables still add to the explanation of interstate violence, the causal relation posited by liberal or realist theory is corroborated.

The results of estimating equation 1 are reported in Table 1. Instead of giving the coefficients for all the individual terms, we report the sum of the seven coefficients for DEM_L, $DEPEND_L$, etc.; the chi^2 statistic for each of these sets of variables; and the probability that the individual coefficients are jointly insignificant. The sum of the coefficients indicates the net effect of a variable if its value remained constant over the seven-year period; the probability associated

with the chi^2 statistic is the likelihood that this net effect is zero. The coefficient, standard error, and the probability associated with the Wald test are reported for the strictly exogenous variables.

- - - - - - - - - - - - - - - - - - - -

Table 1 about here

- - - - - - - - - - - - - - - - - - - -

Column 1 shows the results for the onset of fatal disputes. Notably, the sums of the coefficients of each of the Kantian variables—DEM_L, $DEPEND_L$, and IGO—are negative, showing that higher levels of democracy, interdependence, and involvement in international organizations reduce the likelihood of a dyadic dispute. Indeed, joint memberships in intergovernmental organizations are more closely associated with peaceful outcomes in this distributed-lag analysis than in previous research. Moreover, this greater statistical significance is reflected in a much larger substantive effect, as will be seen. All the variables in the model—liberal and realist—are statistically significant at the .001 level except for the trade-to-GDP ratio ($p < .03$) and the indicator of an alliance. Surprisingly, allies are not significantly ($p < .59$) less likely to fight than non-allies; indeed, the sum of the coefficients is positive. As expected, a history of disputes increases the likelihood of a fatal dispute in the current year, and a preponderance of power, indicated by a large capability ratio, lowers the incidence of conflict. States that do not share a border and states distant from one another have fewer disputes. So too do minor powers. These results are robust with regard to the number of lags included in the analysis.

The results in column 2 for the onset of all disputes (not just those with fatalities) are very similar, at least for liberal theory. Six lagged values were sufficient to account for the influence of past disputes on the current likelihood of conflict. The coefficients of most of the theoretical terms are smaller, but all except the capability ratio ($p < .04$) are significant at the .001 level. The surprising result here is that allied states again have a greater incidence of disputes than do non-

17

allied states, and now this result is very significant statistically (p < .001). A possible explanation is suggested by Siverson and Starr (1991: 93) who, despite regarding alliances as a constraint on the use of force, also note that they create "salience and/or the ease of interaction." Evidently, alliances produce not just bonds of security, but grounds for diplomatic disagreement about institutions, decision-making procedures, burden-sharing, strategy, and related matters. Thus they raise the possibility of diplomatic and political disagreement, and even of some militarized disputes.

Alliances with a major power especially carry some danger (Oneal and Russett 1997, 1999a). Great powers sometimes are willing to threaten or use force against smaller allies to enforce their spheres of influence. Alliances among minor powers are more consistently associated with peaceful relations. The pacifying effect of being allies also varies through time. It was much stronger during the cold war than in the years before World War II; and the effect was particularly uncertain in the interwar years, 1920-1939 (Russett and Oneal 2001). Bennett and Stam (2000) also report substantial variation in the consequences of an alliance. Allies prove significantly less likely to fight in only two of their twelve tests for non-directed dyads.

Ultimately, it is the *substantive* significance of each influence that matters. If interdependent states, for example, were less likely to fight than others, but the change in the probability of conflict were small, the result would be "merely academic." We hope for results that are substantively important (indicated by the magnitude of the regression coefficients) as well as reliable and consistent (shown by the tests of statistical significance)—especially if a variable is amenable to manipulation by deliberate national policy. It becomes increasingly important to consider the practical implications of our findings as the size of the sample increases.[9]

It is hard to interpret the coefficients of logistic regression analyses because the curve that is fitted is S-shaped rather than linear, but we can make our results more concrete by estimating the effect each theoretical variable has on the likelihood that a militarized dispute will begin. First, we

calculated a baseline probability against which to make comparisons. We assumed that the dyad

had not had a dispute in the period represented in the lagged terms (seven years for fatal disputes,

six years in the analysis of all disputes), and we set all the lags of each of the continuous variables at

the same relatively low level, the value taken by a dyad at the tenth percentile among the contiguous

pairs of states. We postulated that the members of the dyad shared a border, were not allied, and

were not major powers. The distance between their capitals was set at the mean for the contiguous

pairs. We estimated the annual probability of the onset of a fatal militarized dispute for this dyad,

which serves as a baseline for comparison, using the estimated coefficients in column 1, Table 1.

To show the substantive effects of the theoretically interesting variables, we increased each of them,

one at a time, to the value taken by a dyad at the ninetieth percentile among the contiguous dyads,

or made the states allies.

- - - - - - - - - - - - - - - -

Table 2 about here

- - - - - - - - - - - - - - - --

As seen in column 1 of Table 2, the baseline probability for the onset of a fatal dispute is

.0086. Increasing the lower democracy score reduces this enormously—by 86 percent. Raising the

bilateral trade-to-GDP ratio, while holding all other variables at their baseline values, lowers the

probability of a dispute to .0058, a reduction of 32 percent. An increase in the pair's involvement in

IGOs from the tenth to the ninetieth percentile causes the likelihood of conflict to drop by 43

percent. Making the states allied has little effect—an increase of 1 percent. Increasing the

preponderance of the more powerful state greatly lowers the risk of a militarized dispute, by 71

percent. Yet this can hardly be taken as support for a policy of peace through strength. To go from

the tenth to the ninetieth percentile means increasing the superiority of the more powerful state from

1.3:1 to 50.7:1. Such an increase is well beyond the capacity of policy makers even in the long

term. This is evident if it is recalled that the capability ratio is calculated using the population and industry of states as well as military measures.

Just as the significance levels for the onset of all disputes were not much different from those for all disputes, the changes in probabilities in column 2 are quite similar to those in column 1. The effect of a predominance of power is notably reduced, but still is important. The impacts of democracy and interdependence are also lower but continue to be substantial. The effect of sharing common memberships in international organizations is equal to that of trade. Our distributed-lags analyses—capturing the impact of variables over time—reveal a stronger effect for IGOs than do previous analyses that simply lag IGOs a year behind disputes.

Several authors (Fearon 1994, Smith 1998, Gartzke, Li, and Boehmer 2001) propose that an enhanced ability to signal their intentions accounts for the separate peace among liberal states. Democracies and interdependent states benefit from being able to communicate their preferences by sending costly signals. Transparency, when coupled with support for a show of strength from the domestic opposition, allows these states to persuade adversaries of their resolve and thus to prevail without actually having to fight. Similarly, Boehmer, Gartzke, and Nordstrom (2000) argue that states joined by cohesive and well-institutionalized IGOs can use those organizations to exchange information and communicate credible signals of resolve. In that democracies and interdependent states are even less likely to have fatal disputes than lower-level ones, our empirical results fit such signaling hypotheses to a degree. But since they still are less likely to experience even low-level MIDS with each other than are other states, signaling clearly takes place primarily in political and diplomatic communications without the need even to threaten military force. Our results are, moreover, consistent with other theories of the liberal peace that emphasize the roles played by strong material interests and normative influences in allowing interdependent democracies embedded in a dense network of international organizations to avoid military conflict.

Overall, our results provide strong support for the benefits of democracy, interdependence, and international organizations; but again we have only considered their independent effects. Democracies are apt to become interdependent and collaborate in IGOs, and the three influences seem mutually reinforcing (Russett and Oneal 2001, ch. 6). It is appropriate, therefore, to estimate the effect of increasing all three Kantian factors simultaneously. Then, the incidence of fatal disputes falls by 95 percent, from .0086 per annum to .0004. The drop in the probability of the onset of any kind of dispute is also very great—a reduction of 79 percent.

Additional Analyses of the Dynamics of Interstate Relations

We next consider additional analyses to illustrate the dynamic effects of democracy, interdependence, and power. In the results we have reported thus far, we changed all the lagged values of a theoretical variable by the same amount to show its effect on the probability of conflict. We can take further advantage of the information in the time series to evaluate three theories that predict how change through time affects the prospects for peace. We examine Mansfield and Synder's concern about the dangers of democratization, Copeland's argument that expectations about future levels of interdependence affect the risk of conflict, and Organski and Kugler's theory regarding the dangers of a transition in power.

Democratization. The dynamic quality of our analysis allows us to reconsider whether democratization increases the risk of conflict, as Mansfield and Snyder (1995, 1996; Snyder 2000) suggest. The turbulent political changes associated with the end of the cold war and the wave of democratization in Eastern Europe and the former Soviet Union led to fears of a surge of international conflict fuelled by domestic instability. International relations scholars have long asked whether internal unrest increases the likelihood of external violence, but Mansfield and Snyder offer new reason to consider a "diversionary" theory of war. Countries in transition from dictatorship to democracy, they suggest, are conflict-prone because nationalism becomes a rallying

21

theme for demagogues seeking political support in an unstable political environment. Xenophobia and jingoism are effective political strategies when the populace is inexperienced in democratic political processes and the responsibilities of citizenship.

Dramatic changes in government often do occur at times of social and economic turmoil; and a domestic crisis may encourage a new regime, particularly in a democracy, to pick a quarrel with another state in order to solidify support at home. It is also plausible that democratization would produce instability that tempts neighboring states to attack while the government is weak and not fully in control of the nation. It is not obvious, however, that we should expect new democracies, because they are unstable, to be prone to conflict. The opposite possibility also exists: new democratic governments may be afraid to engage in foreign conflict because they are weak domestically and unsure if they can count on popular support.

We can ascertain the effects of democratization on the likelihood of conflict using distributed-lags analyses. The historical dynamics of government, i.e., the character of the less democratic state in each dyad through time, affect the likelihood of a current dispute just as the history of conflict does. The question is: does a recent transition from autocracy to democracy increase the probability of a fatal militarized dispute? To answer this question, we compare three probabilities of the onset of a dispute: for a dyad composed of two democracies throughout the previous seven years, for a dyad that included an autocracy for the entire period, and the average for five dyads that contained an autocracy until this state became democratic in year t-1, t-2, t-3, t-4, or t-5. We use the average of the last five dyads to indicate whether democratization increases the risk of conflict because the lagged measures of democracy are highly correlated. Consequently, the estimated coefficients of the individual terms should not be given too much weight.

The probability of a fatal dispute arising in a dyad containing a state that has consistently been autocratic is .0086. It is .0012, or 86 percent less, for a dyad composed of two democracies

throughout the past seven years. The average value for the dyads in which at least one state experienced a transition from autocracy to democracy sometime in the previous five years is .0034, 60 percent less than for a dyad that always contained an autocracy. Thus there is no evidence that democratization increases the likelihood of conflict. New democracies are more prone to conflict than those more well-established, but only seven years of democratic governance is needed to achieve the full 86 percent reduction in the incidence of fatal disputes. These results are consistent with other recent research (Thompson and Tucker 1997; Oneal and Russett 1997; Enterline 1998a, 1998b; Maoz 1998; Ward and Gleditsch 1998; Russett and Oneal 2001, ch. 3; Gleditsch and Ward 2000). If at least one state in a dyad of two democracies became autocratic at some point in the previous five years, the average probability of a fatal dispute rises to .0069. This confirms that it is the current political character of states that primarily determines their propensity to become involved in violent military conflict.

Expectations regarding future commercial relations. Copeland (1996, 2000) suggests that states' expectations regarding their future economic relations are crucial in shaping the prospects for peace. As liberals have argued, interdependence gives national leaders the incentive to avoid war; but if they expect their commercial relations to be interrupted in the near future, there is little to be lost by resorting to force today. Copeland concludes that high levels of interdependence foster peace only if expectations of future levels of trade are also high. If states anticipate their commercial relations will decline, they will not be seriously constrained from violence. Indeed, the fear that one side may interrupt their beneficial commerce may induce the other to resort to violence in an effort to prevent the loss, as realists have long warned (Hirschman 1980 [1945], Gilpin 1977). Thus, interdependence "can be either peace-inducing or war-inducing depending on the expectations of future trade" (p. 7). The danger that one state will threaten to disrupt trade seems greatest when, due to great differences in economic size, the states are asymmetrically dependent

upon their commercial relations (McMillan 1997). Then, the more independent party can threaten economic sanctions as means of exercising its power.

Copeland has demonstrated the plausibility of his theory through case studies. The difficulty in testing his theory statistically is in creating a measure of the expectations of national leaders. One approach is to assume that they project past trends into the future. Indeed in an early study Oneal and Russett (1997) reported that the pacific benefits of interdependence are greatest when states had high and rising levels of economically important trade. Here we adopt the same approach. To test Copeland's theory, we compare the probabilities of a fatal dispute for three dyads. For the first, the lower trade-to-GDP ratio is set at .0125, the 90th percentile for the contiguous pairs of states, throughout the seven-year period included in the distributed-lags model. The second dyad starts with no trade in year t-7, but the level of interdependence then rises in equal increments to the 90th percentile over time. The third dyad begins with a level of interdependence equal to .0250, twice the 90th percentile; but this falls smoothly over the next seven years to .0125.

The results of our test indicate that expectations regarding the future, at least as indicated in the trend of states' commercial relations, are not important determinants of interstate violence. The probability of a fatal dispute for the pair of states that are highly interdependent throughout the previous seven years is .0058, as shown in Table 2. It is .0061 for the pair that experienced increased trade over the past (suggestive of high expectations for the future) and .0055 for the dyad whose trade declined (suggesting low expectations). The differences among the three estimates are small, and contrary to the implications of Copeland's theory.[10]

Power-transition theory. The dynamic quality of our model also allows us to assess the effects of changes in the dyadic balance of power. Originally formulated by Organski (1968) and developed by others (Lemke and Kugler, eds. 1996, Kugler and Lemke 2000), power-transition theory draws attention to the danger of change, especially when rapid, in the distribution of military

capabilities. When most others believed an equal balance of power led to peace, Organski argued that an imbalance of power (or power preponderance) made the use of force either unnecessary (for the strong) or impractical (for the weak). The belief that a clear preponderance of power makes war unlikely was not new, but Organski stressed the need to take a dynamic view. An equal balance of power is dangerous compared to a situation where one state has a clear advantage, but war is most likely when the predominant state sees its advantage deteriorate and is overtaken by its rival. This period of transition in relative capabilities is said to be particularly dangerous because power is the basis for determining the status quo. A powerful state dictates the nature of its relations with others so that it benefits disproportionately. A shift in power allows the rising power to redress the situation. The more rapid the transition, the less likely it is that the two states will be able to adjust their relations peacefully to accommodate the changed circumstances of power.

Originally, Organski applied his theory only to the great powers. He saw the major powers as operating within spheres of influence where they used their power to maintain the peace. In such circumstances, the relative balance or imbalance among minor powers—including trends in that balance—would have relatively small impact on the prospects for peace. Consequently, the early work (Organski 1968, Organski and Kugler 1980: 42-45) focused on the great powers. Lemke (1996), however, developed a regional, multiple hierarchy model and tested it on South America, an area in which the largest power (the United States) did not typically intervene to enforce peace. Lemke's model proved useful in explaining the relations between local powers and challengers. In addition, though they concentrated on contenders for hegemony, Organski and Kugler (1980) cited approvingly evidence that power-transitions were dangerous for lesser states as well (Garnham 1976; Weede 1976). Consequently, here we assess whether a transition in power marks a dangerous period in the dyadic relations of all states.[11]

To determine if a power transition increases the prospect of conflict, we compare the predicted probabilities of a fatal dispute for three dyads: a pair of states in which one was 50 percent larger than its rival throughout the previous seven years, a dyad with an equal balance of power during this period, and two states that experienced a transition in power. Thus, the capability ratio of the first dyad is always 1.5, and for the second it is fixed at 1.0. The third dyad starts with a capability ratio of 1.5 but moves incrementally to 1.0 at the end of seven years. All the other variables in equation 1 are held constant at their baseline values.

The results provide only limited support for Organski's theory. The most peaceful dyad of the three, as expected, is the one characterized by a preponderance of power over the whole period. The probability of a fatal dispute is .0082. A dyad with an equal and stable balance of power has a 15 percent greater chance of conflict (.0094). The danger of conflict for the dyad that experienced a transition in power falls between these levels: the risk of a fatal dispute is .0086.

Conflict Causes a Reduction in Trade

To explore the matter of reverse causation, we perform another distributed-lag analysis, one in which the dependent variable is the natural logarithm of bilateral trade (imports plus exports). In keeping with economists' gravity model, we do not express trade as a proportion of GDP but include GDP as one of the independent variables. The other explanatory variables include previous levels of dyadic trade, the history of militarized disputes, and most of the other variables from the equation 1: our measure of joint memberships in IGOs, whether the states are allied, the lower democracy score, distance, and contiguity. As noted earlier, there is good reason to expect that democracies will trade more with each other than do other dyads, as allies may also do. Many international organizations—most notably the European Union but also those in other regions, like NAFTA and Mercosur, as well as quasi-universal organizations such as the IMF and the WTO— exist to strengthen and deepen commercial relations among their members.

The logarithm of distance is a standard component of the gravity model, because shipping costs tend to increase monotonically though not linearly with distance. Since even neighboring countries may have capitals far apart and states' contiguous dependencies may create additional opportunities for trade, our measure of contiguity is a useful additional measure of the possibility of low-cost trade (Frankel and Romer 1999). Gravity models of trade typically include two measures of the size of nations. One is the size of the their combined economies, so we take the logarithm of each state's GDP and then add them (Deardorff 1995; Helpman and Krugman 1985, ch. 6). The other size variable is the sum of the logarithm of the two countries' populations. If population increases and GDP is held constant, per capita income declines. Consequently, larger populations will be associated with lower levels of trade controlling for GDP, because poorer countries trade less than wealthier ones. First we analyze the effect of fatal disputes, then of all militarized disputes. With a continuous independent variable we can use ordinary least squares regression for the distributed-lag analysis. The model is:

$$\ln TRADE_t = \ln GDP_{,i+j,\,t-1} + \ldots + \ln GDP_{,i+j,\,t-10} + \ln POPULATION_{i+j,\,t-1} + \ldots + \ln POPULATION_{i+j,\,t-10} \qquad (2)$$

$$+ DEM_{L,\,t-1} \ldots + DEM_{L,\,t-10} + IGO_{t-1} + \ldots + IGO_{t-10} + ALLIES_{t-1} \ldots + ALLIES_{t-10} + NONCONTIG_{t-1}$$

$$+ DISTANCE + FATAL_{t-1} + FATAL_{t-2} + \ln TRADE_{t-1} + \ldots + \ln TRADE_{t-10}$$

As before, we sought to account fully for the effects of states' commercial history on current levels of trade. We used ten lags for our analyses with the onset of both fatal disputes and all disputes. We first included ten lags of FATAL and ONSET, and the probability that their coefficients were jointly zero was less than .001 in both cases; but because the onset of disputes is not highly correlated through time, only two lagged values of the conflict indicators were necessary to capture their effects on states' commercial relations.

- - - - - - - - - - - - - - - - - - - -

Table 3 about here

- - - - - - - - - - - - - - - - - - - -

27

Column 1 of Table 3 shows the results for the effects of the onset of fatal disputes and other influences on bilateral trade, and column 2 shows the effect of all disputes, not just fatal ones. In both columns, virtually all of the relationships are as hypothesized and highly significant. The gravity model variables perform as expected. More interestingly, democracies and states sharing many common IGO memberships trade more with each other, as the Kantian perspective suggests. A history of high levels of trade is manifested in continuing high trade, even controlling for the influences of nations' size and wealth. And, as liberal theory leads us to expect, dyads that have recently experienced a fatal dispute have reduced levels of trade. The effect of a dispute at lower levels of violence, however, is limited to the first year after its onset. The major surprise is the negative effect of alliances: controlling for the other variables in this model, allies actually trade less with each other.

- - - - - - - - - - - - - - - - -

Table 4 about here

- - - - - - - - - - - - - - - - -

Table 4 illustrates in substantive terms the implications of these analyses for the variables of theoretical interest here. By far the strongest effect is related to the experience of a dispute—especially one with fatalities. The onset of a fatal dispute reduces trade by more than 33 percent in the following year. The effect is still strong in the second year: trade is lower by nearly 26 percent. When the onset of all disputes is considered, the drop in trade in the first year is 19 percent; there is a drop of about 3 percent in the following year. This difference is not surprising, of course. We would expect serious military conflicts, those involving fatalities, to be more disruptive of commerce than mere threats to use force, even if those threats were accompanied by trade restrictions and sanctions.

28

Even for the analysis of all disputes, however, there is clear indication that interstate conflict does adversely affect interdependence. Thus, coupled with our analysis of the effect of economically important trade on conflict, it is evident that the causal relationship between the two is indeed reciprocal. Peace and commerce promote each other, as the liberals expected. In both analyses the causal impact is strongest when fatal disputes are analyzed. An increase in trade cuts the incidence of fatal disputes by 32 percent as compared with a 20 percent reduction in all disputes. Similarly, the damaging impact of a dispute on trade is greater when fatalities are suffered than for all disputes. Although the precise political processes remain to be established, the temporal effects are consistent with the causal interpretation offered by liberal theory.

Also worth attention are the positive effects of democracy and international organization memberships in encouraging trade. These effects are both statistically significant ($p < .001$) and make a substantive impact. The importance of IGO memberships in stimulating trade is especially strong, above 14 percent in both columns.

Conclusion

In this article we sought to assess the causal effects of democracy, interdependence, and joint memberships in intergovernmental organizations on the risk that a pair of states will become involved in a militarized dispute. We used distributed-lags models based on Granger's (1969) logic: the Kantian variables are plausible causes of peace if their influence is apparent after controlling for the history of dyadic conflict. We examined all pairs of states for which data are available for the period 1885-1992. The pacific benefits of democracy and trade are statistically significant, substantively important, and robust. If both states in a dyad are democratic, the likelihood of a fatal dispute is 86 percent less than if at least one state is an autocracy. Nor do we find any evidence that democratization is dangerous. New democracies are markedly more peaceful than autocracies, and the full benefits of democratic institutions and norms accrue quickly.

Increasing the strength of economic interdependence reduces the risk of fatal disputes by 32 percent. As liberal theory indicates, militarized disputes disrupt trade. This is why interdependent states seek to avoid violence, but the effect of isolated disputes is short-lived: bilateral trade is affected by disputes in only the past year or two. Finally, an increase in the number of shared international organization memberships cuts the risk of a fatal dispute by 43 percent—a greater effect than previously estimated (Russett and Oneal 2001). All these effects were calculated while controlling for the past incidence of conflict.

In actuality, it is not the independent benefits of the three Kantian influences that are of primary importance because the three generally go together. As shown in our analysis of bilateral trade, democracies are more interdependent, and interdependence is facilitated by the creation of IGOs to manage states' mutually beneficial relations. Other evidence shows that democracies join the same international organizations. Trade and involvement in international organizations may also make it difficult for authoritarian governments to survive. Consequently, it is useful to assess the effect of increasing all the Kantian elements simultaneously. Then, the incidence of fatal disputes drops by 95 percent.

The pacific benefits of democracy, economic interdependence, and international organizations are all the more apparent if they are compared to the effects of alliances and a preponderance of power—the elements stressed in realist theories of international politics. Surprisingly, alliances do not reduce the likelihood of interstate disputes, even fatal ones, when the influences of the Kantian influences and the history of dyadic conflict are held constant. This strongly suggests that the expansion of NATO is not the most efficacious means of securing the peace in central Europe. Of greater benefit would be the consolidation of democracy, growing interdependence, and a stronger web of international organizations. These objectives are better achieved by the European Union and its associated institutions than by NATO (Reiter 2001b). The

effect of a preponderance of power, the other factor emphasized by realists, can be substantial: an increase in the capability ratio reduces fatal disputes by 73 percent. But this is only attained by raising the ratio of militarily significant capabilities from 1.3:1 to 50.7:1. Because the measure of national capabilities includes population and industry, it is clearly impossible for states to achieve this effect on their own.

The evidence we have presented for the pacific benefits of the Kantian influences is especially important for our assessment of economic interdependence. Though free trade was advocated as a means of promoting peace before any state had become truly democratic, contemporary social scientists have been slow to appreciate the beneficial role that interstate commerce can play. The influence of international conflict on reducing states' commercial relations is generally conceded, but the effect of interdependence on reducing the likelihood of violence has been more controversial. We found clear evidence for causal relationships in both directions. We also confirmed that shared democracy and, especially, shared international organization memberships, promote economic interdependence.

As Organski suggested, power transitions are fraught with danger: dyadic analyses confirm that the loss of preponderance increases the risk of military conflict. The danger is, of course, greatest when leading states are involved, because a confrontation between them can easily diffuse throughout the system. The rapid economic growth of China makes this of more than academic interest today. But power-transition theorists also note that not all transitions eventuate in violent conflict. The Kantian perspective suggests how the rising power of China can be managed peacefully and violence avoided. While it lasts, the U.S. preponderance of power serves to deter; but deterrence based on nuclear weapons is dangerous. Even if the risk of war is low, the effects of a nuclear conflict could be catastrophic. Over time, the Chinese system of government may or may not become more democratic. If it does, that will increase the prospects for peace: a transition to

31

democracy is likely to be less dangerous than autocratic stability. Even in the absence of

democracy in China, however, our evidence indicates that a strong web of commercial ties and

international organizations can make a big difference.

Our analyses provide greater grounds for optimism than Kant enjoyed (Waltz 1962). Only

in the last hundred years have a sufficient number of interdependent, democratic states bound

together in international organizations come into existence that social scientific methods can be

used to evaluate his plan for peace. The results of our statistical analyses are consistent with the

view that a Kantian system of peace is evolving (Cederman 2001a,b; Covell 1998)—not as some

inexorably determined process, but one in which states and non-state actors adapt in response to the

challenges and opportunities of world politics.

References

Anderton, Charles, and John R. Carter. 2001. The Impace of War on Trade: An Interrupted Times-Series Study. *Journal of Peace Research* 38(4): 445-57.

Barbieri, Katherine, and Jack S. Levy. 1999. Sleeping with the Enemy: The Impact of War on Trade. *Journal of Peace Research* 36(4): 463-79.

Beck, Nathaniel, and Richard Tucker. 1996. Conflict in Space and Time: Time-Series-Cross-Section Analysis with a Binary Dependent Variable. Presented at the annual meeting of the American Political Science Association.

Beck, Nathaniel, Jonathan Katz, and Richard Tucker. 1998. Taking Time Seriously in Binary Time-Series-Cross-Section Analysis. *American Journal of Political Science* 42(4): 1260-88.

Bennett, D. Scott. 1999. Parametric Models, Duration Dependence, and Time-Varying Data Revisited. *American Journal of Political Science* 43: 256-70.

Bennett, D. Scott, and Allan C. Stam. 2000. When (Seemingly) Innocuous Decisions Matter: Research Design and Estimator Choices in the Analysis of Interstate Dyads. *Journal of Conflict Resolution* 44(5): 653-85.

Bliss, Harry, and Bruce Russett. 1998. Democratic Trading Partners: The Liberal Connection. *Journal of Politics* 60:4 (1126-47).

Boehmer, Charles, Erik Gartzke, and Tim Nordstrom. 2000. Do Intergovernmental Organizations Promote Peace? Paper presented at the Annual Meeting of the Peace Science Society (International), New Haven, CT: October.

Bremer, Stuart. 1992. Dangerous Dyads. *Journal of Conflict Resolution* 36 (2): 309-41.

Bremer, Stuart A. 1993. Democracy and Militarized Interstate Conflict, 1816-1965. *International Interactions* 18(3): 231-49.

Burkhart, Ross E., and Michael S. Lewis-Beck. 1994. Comparative Democracy: The Economic Development Thesis. *American Political Science Review* 88(4): 903-10.

Bueno de Mesquita, Bruce and David Lalman. 1992. *War and Reason*. New Haven: Yale University Press.

Cederman, Lars Erik. 2001a. Back to Kant: Reinterpreting the Democratic Peace as a Macrohistorical Learning Process. *American Political Science Review* 95(1): 15-32.

Cederman, Lars Erik. 2001b. Modelling the Democratic Peace as a Selection Process. *Journal of Conflict Resolution* 45(4): 470-502.

Chan, Steve. 1997. In Search of Democratic Peace: Problems and Promise. *Mershon International Studies Review* 39(1): 53-95.

Copeland, Dale. 1996. Economic Interdependence and War: A Theory of Trade Expectations. *International Security* 20(4):5-41.

Copeland, Dale. 2000. Trade Expectations and the Outbreak of Peace: Détente 1970-74 and the End of the Cold War 1985-91. In Jean-Marc Blanchard, Edward Mansfield, and Norrin Ripsman, eds., *Power and the Purse: Economic Statecraft, Interdependence, and National Security*. London: Cass.

Covell, Charles. 1998. *Kant and the Law of Peace*. New York: St. Martin's.

Deardorff, Alan. 1995. Determinants of Bilateral Trade: Does Gravity Work in a Neoclassical World? Working Paper, National Bureau of Economic Research, Cambridge, MA, December.

DiCicco, Jonathan, and Jack S. Levy. 1999. Power Shifts and Problem Shifts: The Evolution of the Power Transition Research Program. *Journal of Conflict Resolution* 44(6): 675-704.

Enterline, Andrew. 1998a. Regime Changes and Interstate Conflict, 1816-1992. *Political Research Quarterly* 51(2): 385-409.

Enterline, Andrew. 1998b. Regime Changes, Neighborhoods, and Interstate Conflict, 1816-1992. *Journal of Conflict Resolution* 42(6): 804-29.

Farber, Henry, and Joanne Gowa. 1997. Common Interests or Common Polities? *Journal of Politics* 57(3): 393-417.

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

Frankel, Jeffrey A., and David Romer. 1999. Does Trade Cause Growth? *American Economic Review* 89(3): 379-99.

Garnham, David. 1976. Power Parity and Lethal International Violence, 1969-1973. *Journal of Conflict Resolution* 20:379-94.

Gartzke, Erik, Quan Li, and Charles Boehmer. 2001. Investing in the Peace: Economic Interdependence and International Conflict. *International Organization* 55(2): 391-438.

Gasiorowski, Mark J., and Solomon W. Polachek. 1982. Conflict and Interdependence: East-West Trade and Linkages in the Era of Detente. *Journal of Conflict Resolution* 26(4): 709-29.

Gilpin, Robert. 1977. Economic Interdependence and National Security in Historical Persepctive. In Klaus Knorr and Frank N. Trager, eds., *Economic Issue and National Security*. Lawrence, KS: Regents Press of Kansas.

Gleditsch, Kristian Skrede. 2000. Expanded Trade and GDP Data Version 1. Unpublished ms., University of Glasgow, Faculty of Social Science.

Gleditsch, Kristian Skrede, and Ward, Michael D. 2000. War and Peace in Space and Time. *International Studies Quarterly* 44:1 (1-29)*.*

Gowa, Joanne. 1994. *Allies, Adversaries, and International Trade*. Princeton, NJ: Princeton University Press.

Gowa, Joanne, and Edward D. Mansfield. 1993. Power Politics and International Trade. *American Political Science Review* 87(2): 408-20.

Granger, Clive W. J. 1969. Investigating Causal Relations by Econometric Models and Cross-Spectral Methods. *Econometrica* 37: 424-38.

Green, Donald, Soo Yeon Kim, and David Yoon. 2001. Dirty Pool. *International Organization* 55(2): 441-68.

Grieco, Joseph. 1998. Realist Theory and the Problem of International Cooperation: Analysis with an Amended Prisoners' Dilemma Model. *Journal of Politics* 50(3): 600-24.

Hegre, Håvard. 2000. Development and the Liberal Peace: What Does It Take to be a Trading State? *Journal of Peace Research* 37(1): 5-30.

Hegre, Håvard, and Soo Yeon Kim. 2000. Conquest or Commerce? Statecraft in the Age of Interdependence. Paper presented at the annual convention of the International Studies Association, Los Angeles, CA, 14-18 March 2000.

Helpman, Elhanan, and Paul Krugman. 1985. *Market Structure and Foreign Trade: Increasing Returns, Imperfect Competition, and the International Economy*. Cambridge, MA: M.I.T. Press.

Hirschman, Albert O. 1980 [1945]. *National Power and the Structure of Foreign Trade.* Berkeley, CA: University of California Press.

Jaggers, Keith, and Ted Robert Gurr. 1995. Tracking Democracy's Third Wave with the Polity III Data. *Journal of Peace Research* 32(4): 469-82.

Jaggers, Keith, and Ted Robert Gurr. 1996. Polity III data. May.

> http://wizard.ucr.edu/~wm/polity/polity.html.

James, Patrick, Eric Solberg, and Murray Wolfson. 1999. An Identified Systemic Analysis of

> the Democracy-Peace Nexus. *Defence and Peace Economics* 10(1): 1-37.

James, Patrick, Eric Solberg, and Murray Wolfson. 2000. Democracy and Peace: A Reply to

> Oneal and Russett. *Defence and Peace Economics* 11(2): 215-29.

Kant, Immanuel. 1927 [1795]. *Perpetual Peace: A Philosophical Stretch*. The Grotius Society

> Publications, no. 7. Helen O'Brien, trans. London: Sweet and Maxwell.

Kim, Soo Yeon. 1998. *Ties That Bind: The Role of Trade in International Conflict Processes,*

> *1950-1992*. New Haven, CT: Ph.D. dissertation, Yale University.

Krasner, Stephen. 1978. *In Defence of the National Interest: Raw Materials, Investments, and*

> *U.S. Foreign Policy*. Princeton, NJ: Princeton University Press.

Kugler, Jacek, and Douglas Lemke. 1996. *Parity and War: Evaluations and Extensions of The*

> *War Ledger*. Ann Arbor, MI: University of Michigan Press.

Kugler, Jacek and Douglas Lemke. 2000. The Power Transition. In *Handbook of War Studies*,

> 2nd ed. Manus I. Midlarsky, ed. Ann Arbor: University of Michigan Press.

Lasswell, Harold D. 1941. The Garrison State. *American Journal of Sociology* 46(4): 455-68.

League of Nations. Various years. *International Trade Statistics*. Geneva: League of Nations.

Lemke, Douglas. 1996. Small States and War: An Expansion of Power Transition Theory, in

> Jacek Kugler and Douglas Lemke, eds., *Parity and War, Evaluations and Extensions of*

> The War Ledger. Ann Arbor, University of Michigan Press, 1996.

Lemke, Douglas and Jacek Kugler, eds. 1996. *Parity and War.* Ann Arbor: University of

> Michigan Press.

Maddison, Angus. 1995. *Monitoring the World Economy: 1820-1992*. Paris: Organization for

    Economic Cooperation and Development.

Mansfield, Edward. 1994. *Power, Trade, and War*. Princeton, NJ: Princeton University Press.

Mansfield, Edward D., and Rachel Bronson. 1997a. The Political Economy of

    Major-Power Trade Flows. In *The Political Economy of Regionalism*, eds. Edward D.

    Mansfield and Helen Milner. New York: Columbia University Press.

Mansfield, Edward D., and Rachel Bronson. 1997b. Alliances, Preferential Trading

    Arrangements, and International Trade Patterns. *American Political Science Review* 87

    (3): 624-38.

Mansfield, Edward, and Brian Pollins. 2001. The Study of Interdependence and Conflict:

    Recent Advances, Open Questions, and New Directions for Future Research. *Journal of*

    Conflict Resolution 45(6): xxx-xx.

Mansfield, Edward, and Jack Snyder. 1995. Democratization and the Danger of War.

    International Security 20(1): 5-38.

Mansfield, Edward, and Jack Snyder. 1996. The Effects of Democratization on War.

    International Security 20(4): 196-207.

Maoz, Zeev. 1998. Realist and Cultural Critiques of the Democratic Peace: A Theoretical and

    Empirical Re-assessment. *International Interactions* 24(1): 1-89.

Maoz, Zeev. 1999. Dyadic Militarized Interstate Disputes (DYMID1.1) Dataset—Version 1.1.

    ftp://spirit.tau.ac.il/zeevmaos/dyadmid60.xls. August.

McMillan, Susan M. 1997. Interdependence and Conflict. *Mershon International Studies*

    Review 41(2): 33-58.

Morrow, James D. 1997. When Do 'Relative Gains' Impede Trade? *Journal of Conflict*

    Resolution 41(1): 12-37.

Morrow, James D., Randolph Siverson, and Tressa Taberes. 1998. The Political Determinants of International Trade: The Major Powers, 1907-90. *American Political Science Review* 92(3): 649-62.

Morrow, James D., Randolph Siverson, and Tressa Taberes. 1999. Correction to 'The Political Determinants of International Trade. *American Political Science Review* 93(4): 931-33.

Mousseau, Michael. 2000. Market Prosperity, Democratic Consolidation, and Democratic Peace. *Journal of Conflict Resolution* 42(4): 472-507.

Mousseau, Michael, and Yuhang Shi. 1999. A Test for Reverse Causality in the Democratic Peace Relationship. *Journal of Peace Research* 36(6): 639-64.

Oneal, John R. 2002. Empirical Support for the Liberal Peace, in Brian Pollins and Edward Mansfield, eds., *New Perspectives on Economic Exchange and Conflict* (Ann Arbor: University of Michigan Press.

Oneal, John, and Bruce Russett. 1997. The Classical Liberals Were Right: Democracy, Interdependence, and Conflict, 1950-1985. *International Studies Quarterly* 41(2): 267-94.

Oneal, John R., and Bruce Russett. 1999a. Assessing the Liberal Peace with Alternative Specifications: Trade Still Reduces Conflict. *Journal of Peace Research* 36(4): 423-42.

Oneal, John R., and Bruce Russett. 1999b. The Kantian Peace: The Pacific Benefits of Democracy, Interdependence, and International Organizations, 1885-1992. *World Politics* 52(1): 1-37.

Oneal, John R., and Bruce Russett. 2000. Why `An Identified Systemic Analysis of the Democracy-Peace Nexus' Does Not Persuade. *Peace and Defense Economics* 11(2): 1-17.

Oneal, John R., and Bruce Russett. 2001. Clear and Clean: The Fixed Effects of Democracy and Economic Interdependence. *International Organization* 55(2): 469-86.

Oneal, John R., and Bruce Russett. 2002. Modelling Conflict While Studying Dynamics: A Response to Nathaniel Beck, in Gerald Schneider, Katherine Barbieri, and Nils Petter Gleditsch, eds., *Globalisation and Armed Conflict* (forthcoming).

Organski, A.F.K. 1968. *World Politics.* New York: Knopf.

Organski, A.F.K., and Jacek Kugler. 1980. *The War Ledger*. Chicago: University of Chicago Press.

Polachek, Solomon W. 1980. Conflict and Trade. *Journal of Conflict Resolution* 24(1): 55-78.

Polachek, Solomon. 1997. Why Do Democracies Cooperate More and Fight Less: The Relationship between Trade and International Cooperation. *Review of International Economics* 5(August): 295-309.

Pollins, Brian. 1989a. Conflict, Cooperation, and Commerce: The Effect of International Political Interactions on Bilateral Trade Flows. *American Journal of Political Science* 33 (3): 737-761.

Pollins, Brian. 1989b. Does Trade Still Follow the Flag? *American Political Science Review* 83 (2): 465-480.

Powell, Robert. 1991. Absolute and Relative Gains in International Relations Theory. *American Political Science Review* 85(4): 1305-22.

Ragnerud, Arvid, and Havard Hegre. 1997. The Hazard of War: Reassessing the Evidence for the Democratic Peace. *Journal of Peace Research* 34(4): 385-404.

Ray, James Lee. 1998. Does Democracy Cause Peace? In *Annual Review of Political Science* 1, Nelson W. Polsby, ed. Palo Alto, CA: Annual Reviews, Inc.

Reiter, Dan. 2001a. Does Peace Nurture Democracy? *Journal of Politics* 63(3): 935-48.

Reiter, Dan. 2001b. Why NATO Enlargement Does Not Spread Democracy. *International Security* 25(4): 41-67.

Rengger, N. J., with John Campbell. 1995. *Treaties and Alliances of the World*, 6th ed. New York: Stockton.

Reuveny, Rafael. 2000. The Trade and Conflict Debate: A Survey of Theory, Evidence and Future Research. *Peace Economics, Peace Science and Public Policy* 6(1): 23-49.

Reuveny, Rafael, and Heejoon Kang. 1996. International Trade, Political Conflict/Cooperation, and Granger Causality. *American Journal of Political Science* 40(3): 943-70.

Reuveny, Rafael, and Heejoon Kang. 1998. Bilateral Trade and Political Conflict/Cooperation: Do Goods Matter? *Journal of Peace Research* 35(5): 581-602.

Russett, Bruce, and Harvey Starr. 2000. From Democratic Peace to Kantian Peace: Democracy and Conflict in the International System. In *Handbook of War Studies, 2nd ed.* Manus Midlarsky, ed. Ann Arbor: University of Michigan Press.

Russett, Bruce, and John R. Oneal. 2001. *Triangulating Peace: Democracy, Interdependence, and International Organizations*. New York: Norton.

Singer, J. David, and Melvin Small. 1995. National Military Capabilities Data. Correlates of War Project, University of Michigan. Modified 12/28/94.

Singer, J. David. 1995. Alliances, 1816-1984. Correlates of War Project, University of Michigan.

Siverson, Randolph, and Harvey Starr, 1991. *The Diffusion of War: A Study of Opportunity and Willingness*. Ann Arbor: University of Michigan Press.

Smith, Alastair. 1998. International Crises and Domestic Politics. *American Political Science Review* 92(3): 623-38.

Snidal, Duncan. 1991. Relative Gains and the Pattern of International Cooperation. *American*

Political Science Review 85 (1): 701-27.

Snyder, Jack. 2000. *From Voting to Violence*. New York: Norton.

StataCorp. 1999. *Stata Statistical Software, Release 6.0*. College Station, TX: Stata

    Corporation.

Statesman's Yearbook, The. Various years. London: Macmillan.

Thompson, William R., and Richard Tucker. 1997. A Tale of Two Democratic Peace Critiques.

    Journal of Conflict Resolution 41(2): 428-54.

Wallace, Michael, and J. David Singer. 1970. Intergovernmental Organization in the Global

    System. *International Organization* 24(2): 239-87.

Wallensteen, Peter. 1984. Universalism and Particularism: On the Limits of Major Power

    Order. *Journal of Peace Research* 21(3): 243-57.

Waltz, Kenneth. 1962. Kant, Liberalism, and War. *American Political Science Review*

    56(2):331-40.

Ward, Michael D., and Kristian S. Gleditsch. 1998. Democratizing for Peace. *American*

    Political Science Review 92(1): 51-62.

Weede, Erich. 1976. Overwhelming Preponderance as a Pacifying Condition among

    contiguous Asian Dyads, 1950-1969. *Journal of Conflict Resolution* 20:395-411.

Wold, Herman. 1981. The Fix-Point Approach to Interdependent Systems: Review and

    Current Outlook. In Herman Wold, ed., *The Fix-Point Approach to Interdependent*

    Systems, pp. 1-36. Amsterdam: North Holland.

Table 1: Distributed-Lags Models of the Onset of Militarized Interstate Disputes,
1885-1992

Variable		Fatal MIDs	All Onsets
Democracy Score$_L$	Sum of ßs	-0.111	-0.0571
	Chi^2	79.0	37.2
	p	0.001	0.001
Trade-to-GDP Ratio$_L$		-31.4	-20.2
		16.3	24.8
		0.03	0.001
Joint Memberships in IGOs		-0.150	-0.0663
		93.3	24.5
		0.001	0.001
Allies		0.00562	0.0248
		5.6	30.8
		0.59	0.001
Capability Ratio (log)		-0.341	-0.101
		38.7	13.5
		0.001	0.04
Previous Dispute		10.4	6.28
		80.8	461
		0.001	0.001
Not Contiguous	ß	-1.73	-1.78
	SE$_ß$	0.25	0.16
	p	0.001	0.001
Distance (log)		-0.562	-0.565
		0.081	0.053
		0.001	0.001
Both Minor Powers		-1.98	-1.78
		0.24	0.13
		0.001	0.001
Constant		-3.77	-2.46
		0.69	0.44
		0.001	0.001
Wald Chi^2		1748.6 (45 df)	4224.3 (39 df)
p of Chi^2		.0001	.0001
Log likelihood		-1250.9	-4199.6
Pseudo-R^2		0.27	0.34
N		231,618	245,120

Table 2: Annual Probabilities of the Onset of a Militarized Dispute, 1885-1992,
Based on the Estimated Coefficients in Table 1

	Fatal MIDs		All Onsets	
	p	Change	p	Change
1. Democracy Score$_L$, Trade-to-GDP Ratio$_L$, IGOs, and Capability Ratio set at 10th percentile for contiguous dyads; Allies equals 0; Distance at mean for contiguous dyads; no disputes in previous 16 years	.0086	0	.020	0
2. Increase in Democracy$_L$ to 90th percentile; other variables at baseline values	.0012	-86%	.007	-66%
3. Increase in Trade-to-GDP Ratio$_L$ to 90th percentile; other variables at baseline values	.0058	-32	.016	-22
4. Increase in IGOs to 90th percentile; other variables at baseline values	.0049	-43	.016	-22
5. Allies equals 1; other variables at baseline values	.0086	+01	.021	+03
6. Increase in Capability Ratio to 90th percentile; other variables at baseline values	.0025	-71	.014	-30
7. Increase in Democracy$_L$, Trade-to-GDP Ratio, Sum IGOs to 90th percentile; other variables at baseline values	.0004	-95	.003	-79

Table 3: Distributed-Lags Models of Bilateral Trade (log), 1885-1992

Variable		Fatal MIDs	All Onsets
Democracy Score$_L$	Sum of ßs	0.00135	0.00136
	Chi^2	3.23	3.22
	p	0.001	0.001
Joint Memberships in IGOs		0.0366	0.0361
		31.8	31.3
		0.001	0.001
Allies		-0.00727	-0.00785
		3.90	3.91
		.002	.001
Gross Domestic Products (log)		0.0497	.0500
		94.4	93.5
		0.001	0.001
Populations (log)		-0.0163	-0.0161
		22.4	22.0
		0.001	0.001
Previous trade (log)		0.957	0.957
		54,518	53,400
		0.001	0.001
Dispute in t-1	ß	-0.401	-0.208
	SE$_ß$	0.092	0.042
	p	0.001	0.001
Dispute in t-2		-0.305	-0.0262
		-0.082	0.0389
		0.001	.50
Distance (log)		-0.0303	-0.0309
		0.0028	0.0028
		0.001	0.001
Contiguity		0.0159	0.0198
		0.0081	0.0081
		0.001	0.02
Constant		-1.08	-1.09
		0.04	0.04
		0.001	0.001
F (64, 8125)		93,429.1	92,586.4
p of F		.0001	.0001
R^2		0.95	0.95
N		154,388	154,123

Table 4: Change in Bilateral Trade, 1885-1992, in percent
Based on the Estimated Coefficients in Table 3

	Fatal MIDs	All Onsets
1. Dispute in year t-1	-33.0%	-18.7%
2. Dispute in year t-2	-26.3	-2.6
3. Increase in Democracy$_L$ from 10th to 90th percentile	+2.6	+2.6
4. Increase in IGOs from 10th to 90th percentile	+14.3	+14.1
5. Allies equals 1	-0.7	-0.8

Notes

[1] In addition, democracies tend to be interdependent and members of the same IGOs, and important feedback loops connect trade and international organizations (Russett and Oneal 2001, ch. 6). It may also be that economically important trade opens societies to external influences, making it difficult to sustain authoritarianism. In Kant's view (1927 [1795]), representative government is the prime mover in the process by which anarchy is transformed into cooperative international relations. Indeed, the pacific benefit of democracy is the most consistent of the Kantian influences (Beck et al. 1998, Bennett and Stam 2000).

[2] Tests using non-directed dyads do not attempt to predict which state in a dyad will initiate conflict. We prefer this approach because we are primarily interested in identifying dyads that are prone to violence—and the factors that make them dangerous—so policies can be adopted to improve the prospects of peace. Some questions derived from rational choice theory require directed analyses, but tactical considerations may lead the weaker state to act preemptively when it knows that the probability of conflict is high, as Poland did against Germany in 1939. We lack data on terrain, lapses in preparedness, etc. that influence this choice, so we rely on the analysis of non-directed dyads.

[3] Most attention has been paid to the reciprocal relations of trade and conflict. James, Solberg, and Wolfson (1999, 2000) consider democracy and conflict, but Raknerud and Hegre (1997), Mousseau and Shi (1999), Oneal and Russett (2000) and Reiter (2001a), addressing the same issue, find that democracy reduces the likelihood of a dispute even when the reverse effect is considered. The early work of Wallace and Singer (1970) suggested that the formation of IGOs was more a response to the end of major wars than a cause of peace; but Wallensteen (1984) thought they did limit the frequency and intensity of subsequent wars.

[4] Bliss and Russett (1998) and Morrow, Siverson, and Tabares (1998) find no statistically significant effect of disputes on trade, though in a shorter time period and a much smaller number of dyads respectively.

[5] Barbieri and Levy consider some twentieth century cases, but the results are inclusive, perhaps because they often include not just war years but many years after the war, during which trade might have rebounded. Anderton and Carter (2001) find that both major power wars and non-major powers commonly disrupt trade.

[6] Despite our reservations about the Beck et al. method, new tests over the full 1885-1992 period show the dispute-reducing effect of trade on conflict to be robust whether examined by their method or others Oneal 2002, Oneal and Russett 2002).

[7] We have trade data for 61% of the dyads 1885-1913 and 1920-1938. Various tests insure that the results are robust. The procedures are described in greater detail in Russett and Oneal (2001) and differ slightly from those in Oneal and Russett (1999b). The earlier estimates exaggerated the GDP of some small states, but the two sets are highly correlated (r = .98) and the differences do not alter the results reported earlier.

[8] IGO equals the number of a dyad's joint memberships minus the annual average for all dyads divided by the standard deviation all dyads' joint memberships.

[9] A common but erroneous belief holds that large samples guarantee statistically significant findings. A very large sample only increases the likelihood that small substantive effects will be detected, which is why it is important to examine their magnitudes.

[10] Nor is there evidence that asymmetrical interdependence increases the risk of conflict (Oneal and Russett 1999a,b).

[11] A full test of power transition theory would have to be sensitive to issues about a challenger's satisfaction with the status quo, the timing of disputes before or after the actual transition, the role of alliances, and many others. See DiCicco and Levy (1999); Powell (1999).