Economic Interdependence, the Democratic State, and the Liberal Peace

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The debate about the relationship between economic interdependence and military conflict is one of the oldest in the field of international relations. Most recently, this debate has been defined by the starkly contrasting conclusions of John R. Oneal and Bruce M. Russett (Oneal and Russett 1997, 1999a; Russett and Oneal 2001; see also Oneal et al. 1996) on the one hand, and Katherine Barbieri (1996, 1998) on the other. While Oneal and Russett contend that economic interdependence promotes peace, Barbieri suggests that it can actually promote conflict. These scholars differ in their research choices with regard to such important matters as the rules for data inclusion and the range of countries that should be analyzed. However, they converge in a decision to conceptualize their research question as one of trying to understand the individual, independent impacts made by economic interdependence and democracy on the occurrence of military conflicts between nations.

We seek in this chapter to explore a new path for analyzing democracy, interdependence, and war. Specifically, we explore the possibility that the impact of trade and democracy may be contingent upon one another. We ground this interest in the possible interaction between economic interdependence and democracy in a review of the work of Immanuel Kant and a number of modern writers on interdependence and on the domestic incentives of political leaders. We contend that this literature implies that economic interdependence may *reduce* the risk of war between democracies but *exacerbate* the risk of such conflicts between nondemocracies. Thus—along with Oneal and Russett—we suggest that the classic liberals may indeed have been right, but in a

manner more complex than anticipated by many modern scholars. Rather than the two acting independently, the combined influence of democracy and interdependence may create a powerful web of constraint that reinforces the zone of peace among increasingly interdependent democracies. However, the absence of mutual democracy may vitiate the pacifying effect of economic interdependence between nations.

In terms of the paths of future research discussed by Edward D. Mansfield and Brian M. Pollins in the introduction to this volume, we view this work as an effort to substantiate the microfoundations of the liberal peace. Our contention is that the liberal peace cannot be understood without taking into account the incentives that state leaders have to engage in international conflict and the way that domestic political institutions shape and determine those incentives.

Democracy, Trade, and Peace: The Current Debate

As Mansfield and Pollins detail in their introduction, liberal scholars have long contended that economic interdependence can be a powerful source of peace, while realists have remained skeptical of any such pacifying influences. Recently this debate has been centered on the contrasting conclusions of liberal scholars such as Oneal and Russett (Oneal and Russett 1997, 1999a; Russett and Oneal 2001) and realists such as Barbieri (1996, 1998). In particular, the debate has focused on issues of measurement, data selection, and statistical modeling. We contend, however, that this debate may be hampered by conceptual problems as much as by empirical ones. In particular, we believe that scholars have addressed only *one* of the two traditional liberal arguments relating economic interdependence to the reduction of the probability of war. A *second* liberal argument linking interdependence to peace has yet to be evaluated systematically. Pursuit of this second argument might help us move forward in understanding the connection between economic integration and world peace.

The first traditional liberal argument, put forward by such writers as Adam Smith, Thomas Paine, Norman Angell, and, in recent times, Edward Morse, suggests that economic interdependence *by itself* increases the value of peace between nations that rationally calculate their interests and thereby reduces the danger of war between them (Doyle 1997; Paine 1956; Angell 1913; Morse 1970). However, there is a second liberal argument about economic interdependence and war. This second argument can be traced to Immanuel Kant and his 1795 work *Perpetual Peace*. Kant's basic hypothesis regarding economic interdependence is that it may dampen the risk of war between states *if the governments of*

those states are responsive to and representative of a wider rather than a narrower range of societal interests. In modern terms we would call such states democracies. Kant's argument would lead us to expect that *it is the joint appearance of, and the interaction between,* growing economic interdependence and mutual democracy that bring about a diminution of the probability of militarized conflicts between states.[1]

Kant's emphasis on the joint operation of representative government and economic interdependence can be observed in the sharp contrast he draws between the probable impact of economic interactions on his idealized republics and the effects of actual economic interactions between the European nations and foreign groups around the world (Doyle 1997, 252–87). In the latter instances, according to Kant, economic interaction is clearly and closely associated with hostility and war. In contrast, Kant argues that commercial relations that take place between nations that are republics and hence are responsive to the true interests of their populations would be characterized by "hospitality."

For Kant, then, economic exchange between nonrepublics is likely to be associated with inequality, exploitation, and ultimately violence. Between republics, in contrast, the effects of commerce would be different. In this context, because of the opportunity for commerce to be shaped both by mutual respect and by international legal protection, commerce would spur the development of more cosmopolitan populations who would be more amenable to peaceful interchange rather than be prone to war.

Modern Microfoundations for the Kantian Hypothesis

Given the longstanding intuition that democracy and trade may somehow act together to prevent military conflict, we seek to embed this expectation in a more systematic theoretical framework that accounts more explicitly for the incentives that individual state leaders have regarding the decision to initiate a militarized conflict. We construct our argument from two basic microlevel assumptions. First, we assume that international military conflict is a result of deliberate cost/benefit decisions made by national leaders. Second, regardless of the political institutions in which they operate, we assume that national leaders have one fundamental objective: to retain office. Leaders may wish to do so out of selfish motives (the desire to use their offices to acquire wealth, prestige, and even more power), altruistic concerns (the desire to produce policy outcomes the leader believes appropriate for his or her community), or some combination of these motives. But, in all circumstances, retaining office

is a necessary condition for the achievement of whatever goals are motivating leaders.

Given these two assumptions—that national leaders are the key foreign policy actors and that they want to retain office—we ask how the disruption of trade as a result of military conflict will influence the ability of democratic and nondemocratic leaders to retain office. In developing our response, we draw on recent theoretical work on the impact of domestic regime-types on national foreign policy performance put forward by Bueno de Mesquita et al. (1999a, 1999b). These authors share our assumption that leaders in all types of polities have retention of office as their fundamental objective. Furthermore, they contend that two central characteristics define the structure of any polity: (1) the range of citizens who participate in the selection of national leaders (the "selectorate") and (2) the minimum size of the coalition within the selectorate whose support leaders must enjoy in order to attain and retain national leadership (the "minimum winning coalition"). Bueno de Mesquita et al. observe that leaders believe they are most likely to stay in office by providing benefits to their minimum winning coalition and that such benefits may either be "private goods" (i.e., goods granted directly and enjoyed exclusively by the coalition members) or goods associated with public policy successes that are enjoyed not just by the members of the coalition but by the citizenry as a whole.

Democracies tend to be characterized by large selectorates and large minimum winning coalitions that are relatively clearly defined and institutionalized. Most important for our concerns, the winning coalitions within democratic states generally have to be quite broad and tend toward the inclusion of the median member of the selectorate.[2] The breadth of these winning coalitions in democracies makes it difficult to satisfy the necessary number of constituents through payments of such private goods as money, desirable work or housing, or other preferential treatment. Democratic leaders may (and indeed do) engage in these practices, but in order to retain a sufficiently large coalition they will generally also have to provide public policy successes whose benefits are more widely consumable by the public. One key example of such a public policy success is economic growth.[3]

In authoritarian states the breadth of the selectorate may vary widely. In corporatist or communist authoritarian systems, large sections of the population—such as organized labor or public-sector bureaucrats—may be considered a part of the selectorate. In highly personalized dictatorships, on the other hand, the selectorate may be exceedingly small. In general, however, authoritarian systems are likely to be characterized by relatively small winning coalitions. Because leadership competition is neither routinized nor institutional-

ized, relatively small groups are capable of seizing and holding power—particularly if they control the use of force.

Since authoritarian leaders only need to satisfy a relatively narrow winning coalition, it will often be possible for them to retain office through the provision of private goods to their supporters. These goods may include preferential treatment of various types, but they all include discriminatory practices that advantage the leader's supporters.[4] Of course, authoritarian leaders may retain office through the provision of widely consumable public policy benefits as well. For a number of reasons, however, we believe they are likely to prefer the provision of private goods. First, public policy success is difficult to achieve. For example, to the extent that it depends upon international or cyclical influences, the maintenance of economic growth may be beyond the capacity of state leaders. The provision of domestic advantages, however, is generally under the control of the authoritarian leader and can be provided with relatively little difficulty. Second, the provision of widely consumable benefits such as economic growth may actually be *dangerous* for authoritarian leaders, since resources accrue to the leaders' *opponents* as well as to his or her supporters.[5] These resources may be turned toward efforts to remove the leader so that a different coalition can hold power and extract resources from the society. Consequently, in the absence of clear rules and the abjuration of violence, nondemocratic leaders can benefit most by seeking to reward those who support them while simultaneously punishing opponents, often through violence or intimidation, and undermining their future influence in the political process.

Bueno de Mesquita et al. provide an institutional model that appears to account for a number of important empirical findings in the international relations literature, including not just the democratic-peace finding but also the finding that democracies on average do better in international conflicts than do nondemocracies (1999a). Most important for our concerns, they suggest further that the need for public policy successes will instill in democratic leaders a higher level of interest in promoting overall national economic growth than is true of nondemocratic states (1999a). Moreover, Bueno de Mesquita et al. (1999a, 157–59) demonstrate empirically that larger winning coalitions are a positive predictor of stronger national economic performance, and on the basis of their analysis they conclude (159) that "big winning coalitions pressure leaders to perform especially well on public policy issues. These leaders have the greatest incentive to provide prosperity for their citizens."[6]

We build our argument on these two key insights generated by Bueno de Mesquita et al.: first, democratic leaders need public policy successes to stay in office to a much greater degree than is true for nondemocratic leaders; and sec-

ond, the need for public policy success gives democratic leaders a greater incentive than autocrats to promote aggregate economic growth. We believe these two facts have major implications for our theoretical understanding of the effects of economic interdependence, because they clarify how democratic and nondemocratic leaders assess the value of economic interdependence and thus how trade affects the prospects for war. The key to this theoretical insight lies in the relationship between trade and economic growth.

The standard model of trade has long recognized the capacity for international trade integration to improve the aggregate growth rate of a country during the period in which integration is occurring.[7] Moreover, the many different strands of economic analysis that constitute the new "endogenous growth theory" highlight opportunities for trade to boost the national economic growth rates of countries well beyond that anticipated by the standard model of trade. Trade is a powerful mechanism for the expansion and deepening of markets and thereby may by itself encourage new investments in technology; it also creates additional opportunities for local firms to gain access to new technologies. Through these and other mechanisms, trade can directly and indirectly enhance the productivity of the factors of production and thereby raise national growth rates.[8]

Consequently, we expect democratic leaders to be relatively more concerned than nondemocratic leaders about the prospective effects of the breakdown of foreign trade as the result of a militarized dispute, for it is especially in democracies that the delivery of a public policy success such as economic growth is likely to play an important role in affecting the tenure of leaders.[9]

This line of inquiry does not imply that nondemocratic leaders are indifferent to national economic growth or that nondemocratic leaders do not sometimes seek to promote such growth. Yet we would suggest that while some autocratic leaders may prefer national economic growth and even use it to retain office, virtually *all* democratic leaders know that they will rise or fall politically on the basis of their capacity to deliver (or at least be associated with) national economic growth.[10] While even nondemocratic leaders may not survive in the face of a precipitous decline in national economic activity (Przeworski and Limongi 1997), they should nevertheless typically be better able than democratic leaders to insulate their narrower minimum winning coalition from the immediate pains associated with trade disruption.

By consequence, insofar as trade affects national growth rates, and the latter is vital to the tenure of democratic leaders but is relatively less important to the tenure of nondemocratic leaders, we expect that the prospect of forgoing economic growth as a result of the interruption of normal trading relations will be

more salient to democratic as opposed to nondemocratic leaders. Therefore, economic interdependence should be more likely to dampen the desire of democratic state leaders than of nondemocratic leaders to become embroiled in militarized conflicts with trading partners.[11]

Finally, this line of reasoning recognizes that democracies do not produce perfectly open international markets. In particular, as endogenous tariff theory teaches us (Mayer 1984; Magee, Brock, and Young 1989; Magee and Young 1987; Yang 1995), producer groups that are disadvantaged by economic openness may use democratic procedures to slow or even reverse trade liberalization. Still, while endogenous tariff theory may help us understand why a democracy does not have fully open markets and might elect to raise certain barriers to trade for domestic political reasons, our argument picks up the story one step later than endogenous tariff theory. That is, we suggest that, *given* that level of trade interconnectedness, democratic leaders will be more likely than nondemocratic leaders to fear being penalized politically if their country suffers reduced efficiency, and reduced prospects for growth, as a result of a prospective militarized dispute that might interrupt the trade the two states currently enjoy.

Some Preliminary Evidence

We conducted a preliminary test of this hypothesis relying on the data from Oneal and Russett and from Barbieri. Our analyses essentially replicate their studies, but we add an interaction effect to assess our hypothesis that the impact of interdependence depends on the presence of democracy. We test our hypotheses using a logit estimator developed by King and Zheng (2001) that is specifically designed to analyze rare-events data.[12]

Our central expectation predicts that the coefficient on the interaction between lower trade dependence and the lower democracy score will be *negative*. This result would indicate that democracy has a negative impact on the relationship between economic interdependence and the likelihood of military conflict. The results of our analysis are displayed in table 1.

Table 1 begins by replicating the results obtained by Oneal and Russett in their 1997 and 1999 articles. Specifically, the first column in this table estimates the impact of interdependence without considering its interactive relationship with joint democracy. In this analysis, the lower level of trade dependence has a negative and statistically significant impact on the probability of a militarized dispute ($b = -59.8$, $p < .05$). These results are virtually identical to those previously obtained by Oneal and Russett.[13] In the second column of table 1, how-

ever, we alter our specification of the relationship between trade and conflict to include an interaction between democracy and trade. These results are consistent with our argument about the contingent effects of trade. The coefficient interaction term is sharply negative and statistically significant ($b = -9.2$, $p < .01$). Democracy, then, has a negative impact on the relationship between trade and militarized conflict.

Interestingly, the coefficient for minimum trade dependence alone is *positive* and statistically significant ($b = 70.0$, $p < .01$). Thus for autocratic dyads (lower democracy score = 0), trade actually *increases* the risk of the onset of

TABLE 1.   Rare Event Logit Analysis of Interdependence and Militarized Conflict

	Oneal and Russett Model	Gelpi and Grieco Model	Barbieri Model	Gelpi and Grieco Model
Democracy and trade variables				
Higher trade dependence	2.165361	2.753232	.8764845	1.196292
	(2.53289)	(2.945742)	(1.242568)	(1.27821)
Lower trade dependence	−59.84746**	70.03705***	−2.796712	40.88669**
	(27.31289)	(21.35268)	(7.820172)	(16.91234)
Low democracy*low dependence	—	−9.1990124***	—	−5.112203**
		(3.114966)		(2.03721)
Lower democracy score	−.0799635***	−.0682912***	−.0889366***	−.0684289***
	(.0144423)	(.149086)	(.0135308)	(.0146611)
Control variables				
States are contiguous	2.422643***	2.399035***	2.024707***	2.010191***
	(.1823223)	(.1800043)	(.1807285)	(.1788292)
Ln of distance between capitals	−.7413389***	−.7352883***	−.5087709***	−.515989***
	(.0737623)	(.0734984)	(.0744669)	(.0746215)
Ln of the capability ratio	−.2213404***	−.2160703***	−.1413387**	−.1478311***
	(.0491381)	(.0493941)	(.0567392)	(.0560496)
Major power dyad	2.367381***	2.370438***	1.691204***	1.731483***
	(.2182432)	(.2148915)	(.1833376)	(.1786299)
Shared alliance ties	−.431342**	−.4067954**	−.256184	−.2578869
	(.1788635)	(.1745658)	(.1916961)	(.1890018)
Peace years spline 1	−.2492606***	−.2520216***	−.2745662***	−.2743555***
	(.0205096)	(.0206799)	(.0208258)	(.0208768)
Peace years spline 2	.2275365***	.2255997***	.271429***	.2674516***
	(.0384143)	(.0387908)	(.0403214)	(.0405259)
Peace years spline 3	.060272	.0691889	−.0083323	.0019075
	(.0468533)	(.0475673)	(.0487585)	(.0496631)
Peace years spline 4	.0822345	.085339	.1640632***	.1551048***
	(.0614902)	(.0606483)	(.0597203)	(.0593308)
Number of observations	28,100	28,100	12,574	12,574

Note: Standard errors for coefficients appear in parentheses. Huber-White robust standard errors allowed for clustering on each dyad. All tests for statistical significance are two-tailed.
*$p < .10$; **$p < .05$; ***$p < .01$.

militarized conflict. This result was not entirely anticipated by our argument, but neither is the result inconsistent with our logic. Specifically, our examination of leaders' incentive to retain office led us to the hypothesis that interdependence *would* reduce conflict between democracies. The behavior of authoritarian leaders, however, was harder to anticipate because they can choose whether or not they wish to retain office through public policy successes or the distribution of private benefits. These results would indicate that—as an empirical matter—authoritarian leaders are generally *not* sensitive to the costs of trade disruption associated with militarized disputes. As a result, trade actually exacerbates conflict between these states as anticipated by realists such as Barbieri.

Next we obtained Barbieri's data for trade dependence and replicated the analyses we had performed on Oneal and Russett's data. The results of these analyses are displayed in the third and fourth columns of table 1. As with Oneal and Russett, we began by replicating Barbieri's results without considering the interaction of democracy and trade. The third column of table 1 describes these results. In this case, the impact of the lower level of trade dependence is not substantively or statistically significant ($b = -2.8$, n.s.). This result is consistent with Barbieri's 1996 and 1998 analyses contending that, at best, trade does not constrain military conflict. In the fourth column of table 1, however, we again introduce the interaction between democracy and trade. When we considered only the independent effects of democracy and trade, the coding rules used by Barbieri and Oneal and Russett led to nearly diametrically opposed conclusions about the impact of economic interdependence. Once we take into account the interaction between democracy and trade, however, the results from the two competing data sets are nearly identical. As was the case with Oneal and Russett, Barbieri's trade data provides strong support for our argument. Specifically, the coefficient on the interaction between the lower democracy score and lower trade dependence is negative and statistically significant ($b = -5.1$, $p < .05$). Also mirroring our results from the Oneal and Russett data, the coefficient on the lower trade-dependence score alone is positive and statistically significant ($b = 40.9$, $p < .05$). This coefficient indicates that economic interdependence between two autocratic states (lower democracy score = 0) actually increases the probability of a militarized dispute.

While the results in table 1 can give us an estimate of the statistical significance of our variables of interest, it is very difficult to gauge their substantive impact directly from the rare-event logit coefficients. Consequently, in figure 1 we present the marginal impact of dyadic trade dependence on the incidence of conflict as the lower democracy score in the dyad changes from 0 to
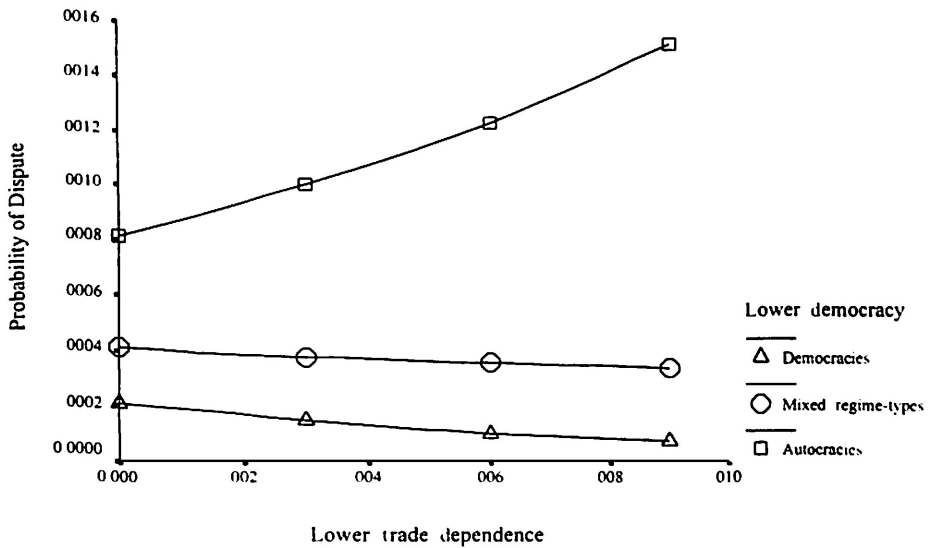
Fig. 1.   Impact of interdependence on the probability of a militarized dispute, depending on joint democracy

20.[14] Since the results using the Oneal and Russett and Barbieri measures of trade are nearly identical, we present marginal effects for the Oneal and Russett data only.

The squares in figure 1 summarize the impact of trade on autocratic dyads (lower democracy score = 0). Under these circumstances, the expectations of Barbieri (1996, 1998) appear to be supported. As the figure indicates, each 0.3 percent increase in trade dependence between autocracies increases the relative risk of a militarized dispute by approximately 25 percent. Overall, a shift across this entire spectrum of trade dependence increases the annual probability of militarized conflict within an autocratic dyad from 0.08 percent to 0.15 percent, a nearly 100 percent increase in the risk of a dispute.

The circles in figure 1 describe the impact of trade dependence on conflict in dyads with mixed regime-types (lower democracy score = 10). In this case, increases in trade dependence have a very modest negative impact on the probability of a militarized dispute. An increase in trade from 0 to 0.3 percent of gross domestic product (GDP) leads to a 7 percent reduction in the relative risk of a militarized dispute. Additional increases in trade to 0.6 percent and 0.9 percent of GDP generate 5 percent and 6 percent reductions in the risk of a dispute respectively. Overall, this increase in dyadic trade dependence reduces the

probability of a dispute from 0.041 percent to 0.036 percent, a relatively modest 12 percent drop in the risk of a dispute.

Within democratic dyads (lower democracy score = 20), however, mutual trade dependence has a substantial pacifying impact. As the triangles in figure 1 indicate, a shift in dyadic trade from a situation in which two democratic states do not trade with one another at all, to one in which the less dependent state enjoys a dyadic trade volume equal to 0.3 percent of its GDP, reduces the relative risk of a dispute by 29 percent. A continued increase in dyadic trade dependence from 0.3 percent to 0.6 percent reduces the relative risk of a militarized dispute by an additional 27 percent. A further increase in dyadic trade up to 0.9 percent on the part of the less dependent democracy reduces the risk of conflict by an additional 36 percent. Hence, for *democratic* dyads, this net increase in trade dependence reduces the probability of a militarized dispute from 0.021 percent to 0.007 percent—a 67 percent reduction in the risk of a dispute.

Conclusion

Our study indicates that classical liberal scholars were right to draw attention to the constraint that the costs of trade disruption can place on the outbreak of military conflict. However, we also find that sensitivity to these costs depends critically on the structure of a state's domestic regime, as was anticipated by Immanuel Kant. Democratic leaders rely on the support of relatively broad minimum winning coalitions, and as such they must deliver public policy successes such as economic growth; fearful of losing such growth, they are more likely than nondemocratic leaders to be averse to foregoing the benefits of trade, including the capacity of trade to be a motor for aggregate national economic growth. Nondemocratic leaders, relying upon the provision of private goods to a smaller range of key backers, are relatively less likely to be concerned about growth and, therefore, the risk that a militarized international dispute will lead to a rupture of trade and the growth impulse associated with it. Consequently, trade acts as a powerful constraint on conflict within democratic dyads. For autocratic states, however, economic interdependence may actually increase the incidence of military conflict because the entangling of their economies gives them a cause for conflict without introducing commensurate constraints against the use of force.

Our results indicate that there is indeed a liberal peace, and it is comprised of at least two distinct influences. First, we find that democratic states are generally less likely to engage in military conflict with one another. This finding holds true even in the absence of interdependence. Second, we find that

between democratic states, trade dependence acts as an *additional* constraint on the outbreak of military conflict.

NOTES

1. While Oneal and Russett (1997) model Kant's argument as if he posited only independent effects for democracy and economic interdependence on the probability of war, their textual interpretation of Kant could be consistent with a reading of Kant that would ascribe an interactive effect between the two. For example, they interpret Kant as suggesting in *Perpetual Peace* that "peace can be built on a tripod of *complementary* influences: republican constitutions (i.e., representative democracy), international law and organization, and 'cosmopolitan law' (i.e., economic interdependence)" (268, emphasis added). Influences that are complements of one another make each other complete, and in this sense we may say that the magnitude of the impact that each factor identified by Kant will have on the probability of war is conditioned by the presence or absence of the other. Similarly, Oneal and Russett suggest that, based on their reading of Kant, we may expect that "economic interdependence *reinforces* [domestic] structural constraints and liberal norms by creating transnational ties that encourage accommodation rather than conflict" (269). The idea that economic interdependence reinforces, or accentuates, the effects of democracy and international law would seem to be consistent with the suggestion that there are interactions between the variables that have an impact on the probability of war. We also suggest that while the recent assessment by Russett, Oneal, and Davis of the independent effect of mutual international organizational membership on the probability of militarized conflict between states is helpful, future analysis would benefit from an assessment of the interactive impact of international law and organization with the two variables examined in this chapter. See Russett, Oneal, and Davis 1998 and Oneal and Russett 1999a.

2. Clearly, election rules and procedures do not guarantee that the "median voter" will be represented in every democratic system. For our purposes the important assumption is that democratic winning coalitions will generally be large relative to authoritarian winning coalitions.

3. These goods must be widely consumable, but they need not be "public goods" in the technical sense. That is, the goods need not be nonrival and nonexcludable. For example, the poor may be excluded from the benefits of economic growth if the leader can build an adequately large coalition of the rich.

4. The concept here is analogous to the use of the term *rents* in the economics literature. See Lake 1992 for an application of this concept to international conflict.

5. Indeed, insofar as economic growth promotes the development of independent social forces that may come to oppose authoritarian rule, as suggested by modernization theory, nondemocratic leaders might view the curtailment of growth positively! More realistically, nondemocratic leaders may be expected to prefer national economic

growth to be sufficiently great that they can extract from the economy benefits sufficient to retain the support of the members of their minimum winning coalition but not so large that it unleashes and empowers social forces that might come to threaten their hold on power.

6. Employing different measurements, Barro (2000, 220–22) finds a somewhat different relationship between regime-type and economic growth, one that tends toward an inverse-U association. That is, initial movement from very low to middle-level democracy scores is associated with an increase in growth, after which further increases are associated with an abatement of national growth performance.

7. Very useful overviews of the theoretical and empirical studies relating economic openness to national economic growth are provided by Edwards (1993, 1998). However, declining economies of scale would eventually curtail the capacity of this specialization in product ranges through trade to raise the rate of economic growth for the country as a whole. For a graphical treatment, see Caves, Frankel, and Jones 1999, 36–39.

8. An early statement of endogenous growth theory was put forward by Romer (1986). Romer (1994) presents an important intellectual history of the development of the endogenous growth research program, and in it he emphasizes the importance of how the expansion of markets, together with government protection of intellectual property (which in turn permits temporary monopoly rents for innovators), increases the incentives for firms to engage in research and development and thereby directly and indirectly increase a nation's skills, thereby enhancing its national rate of growth. For helpful summaries of the development of the different lines of analysis in the endogenous growth research program, see Long and Wong 1997. Grossman and Helpman (1994) provide a superb discussion of how, from the viewpoint of this approach, trade can often, but not always, contribute to improved national growth rates. For reviews of empirical studies that link economic openness to investments in innovations and thus to greater medium-term economic growth, as well as supplementary statistical tests of the relationship, see Edwards 1998 and Lawrence and Weinstein 1999.

9. That economic growth does have a major impact on leadership tenure in democracies is well documented in political science: indeed, research on American politics and on the politics of other industrialized democracies has indicated that overall macroeconomic performance is the central determinant of leaders' tenure in democratic nations (Fiorina 1978; Kinder and Kiewiet 1981; Kinder, Adams, and Gronke 1989; and Lewis-Beck 1990).

10. If, ex ante, we would identify which authoritarian leaders so prefer public policy successes like economic growth as part of a strategy to extract private goods for themselves or supporters, or to claim governing legitimacy, we would expect international economic interdependence through trade and other mechanisms to have a restraining effect on their use of force similar to that we expect of democratic leaders.

11. In a similar vein, Papayoanou (1996, esp. 66, 77) argues that differences in the way liberal democracies and autocratic regimes respond to economic interdependence help explain Britain's failure to make it clear to Germany well before August 1914 that it

would fight the latter if it initiated a war against Belgium and France. Papayoanou argues that the British government was constrained in the years up to 1914 in balancing against a rising German threat because British business interests were deeply concerned that doing so would put their highly profitable economic relationships with Germany into jeopardy. In contrast, Germany's authoritarian regime prevented German economic actors who had a comparable stake in economic relations with Britain (primarily bankers and exporters other than those in heavy industry) from effectively voicing their concerns about a conflict between the two countries. Thus, if societal interests that have a stake in economic ties with a potential adversary also possess access and effective voice, as is the case in liberal democracies, then economic interdependence will be likely to constrain the country's political-military strategy; however, if societal interests with an interest in economic ties with the adversary do not have access and effective voice, as is the case in authoritarian regimes, then economic interdependence will have little impact on the country's political-military strategy.

12. Logit estimation is analogous to linear regression but is an appropriate statistical tool for dichotomous dependent variables.

13. Specifically, these results are nearly identical to those reported in Oneal and Russett 1999, table 2. We were able to replicate their results exactly using traditional logit analysis. The use of the King and Zheng rare-events-corrections procedure yields only very minor changes in the coefficients.

14. All marginal effects were calculated with peace years set at 0, the modal value in the data set.

REFERENCES

Angell, Norman. 1913. *The Great Illusion: A Study of the Relation of Military Power to National Advantage.* New York: G. P. Putnam's Sons.

Barbieri, Katherine. 1996. Economic Interdependence: A Path to Peace or a Source of Interstate Conflict? *Journal of Peace Research* 33:29–49.

———. 1998. International Trade and Conflict: The Debatable Relationship. Paper presented at the 39th annual convention of the International Studies Association, March 18–21, Minneapolis.

Barro, Robert. 2000. Democracy and the Rule of Law. In *Governing for Prosperity*, ed. Bruce Bueno de Mesquita and Hilton L. Root. New Haven: Yale University Press.

Bueno de Mesquita, Bruce, James D. Morrow, Randolph M. Siverson, and Alastair Smith. 1999a. An Institutional Explanation of the Democratic Peace. *American Political Science Review* 93:791–807.

———. 1999b. Policy Failure and Political Survival: The Contribution of Political Institutions. *Journal of Conflict Resolution* 43:147–61.

Caves, Richard, Jeffrey Frankel, and Ronald Jones. 1999. *World Trade and Payments*. Reading, MA: Addison-Wesley.

Doyle, Michael. 1997. *Ways of War and Peace: Realism, Liberalism, and Socialism*. New York: W. W. Norton.

Edwards, Sebastian. 1993. Openness, Trade Liberalization, and Growth in Developing Countries. *Journal of Economic Literature* 31:1358–93.

———. 1998. Openness, Productivity, and Growth: What Do We Really Know? *Economic Journal* 108:383–98.

Fiorina, Morris P. 1978. *Retrospective Voting in American National Elections*. New Haven: Yale University Press.

Grossman, Gene M., and Elhanan Helpman. 1994. Endogenous Innovation in the Theory of Growth. *Journal of Economic Perspectives* 8 (winter): 23–44.

Kant, Immanuel. 1983. *Perpetual Peace and Other Essays on Politics, History and Morals*. Trans. Ted Humphrey. Indianapolis: Hackett Publishing.

Kinder, Donald, Gordon S. Adams, and Paul W. Gronke. 1989. Economics and Politics in the 1984 American Presidential Election. *American Journal of Political Science* 33:491–516.

Kinder, Donald, and D. Roderick Kiewiet. 1981. Sociotropic Politics: The American Case. *British Journal of Political Science* 11 (June).

King, Gary, and Langche Zeng. 2001. Explaining Rare Events in International Relations. *International Organization* 55:507.

Lake, David. 1992. Powerful Pacifists: Democratic States and War. *American Political Science Review* 86:24–37.

Lawrence, Robert Z., and David E. Weinstein. 1999. Trade and Growth: Import-Led or Export-Led? Evidence from Japan and Korea. Working paper 7264, National Bureau of Economic Research. Available at <http://www.nber.org/papers/w7264>.

Lewis-Beck, Michael S. 1990. *Economics and Elections: The Major Western Democracies*. Ann Arbor: University of Michigan Press.

Long, Ngo Van, and Kar-yiu Wong. 1997. Endogenous Growth and International Trade: A Survey. In *Dynamics, Economic Growth, and International Trade*, ed. Bjarne S. Jensen and Kar-yiu Wong. Ann Arbor: University of Michigan Press.

Magee, Stephen P., William A. Brock, and Leslie Young. 1989. *Black Hole Tariffs and Endogenous Policy Theory: Political Economy in General Equilibrium*. Cambridge: Cambridge University Press.

Magee, Stephen P., and Leslie Young. 1987. Endogenous Protection in the United States, 1900–1984. In *U.S. Trade Policy in a Changing World Economy*, ed. Robert M. Stern, 145–95. Cambridge: MIT Press.

Mayer, Wolfgang. 1984. Endogenous Tariff Formation. *American Economic Review* 74:970–85.

Morse, Edward L. 1970. The Transformation of Foreign Policies: Modernization, Independence, and Externalization. *World Politics* 22:371–92.

Oneal, John R., Frances H. Oneal, Zeev Maoz, and Bruce M. Russett. 1996. The Liberal Peace: Interdependence, Democracy, and International Conflict, 1950–85. *Journal of Peace Research* 33:11–28.

Oneal, John R., and Bruce M. Russett. 1997. The Classical Liberals Were Right: Democracy, Interdependence, and Conflict, 1950–85. *International Studies Quarterly* 41:267–94.

———. 1999a. Assessing the Liberal Peace with Alternative Specifications: Trade Still Reduces Conflict. *Journal of Peace Research* 36:423–42.

———. 1999b. The Kantian Peace: The Pacific Benefits of Democracy, Interdependence, and International Organization, 1885–1992. *World Politics* 52:1–37.

Paine, Thomas. 1956. Letter to Abbe Raynal. In *The Anglo-American Tradition in Foreign Affairs: Readings from Thomas More to Woodrow Wilson*, ed. Arnold Wolfers and Laurence W. Martin, 126–38. New Haven: Yale University Press.

Papayoanou, Paul. 1996. Interdependence, Institutions and the Balance of Power: Britain, Germany, and World War I. *International Security* 20:42–76.

Przeworski, Adam, and Fernando Limongi. 1997. Modernization: Theories and Facts. *World Politics* 49:155–84.

Romer, Paul M. 1986. Increasing Returns and Long-Run Growth. *Journal of Political Economy* 94:1002–37.

———. 1994. The Origins of Endogenous Growth. *Journal of Economic Perspectives* 8 (winter): 3–22.

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

Russett, Bruce M., John R. Oneal, and David R. Davis. 1998. The Third Leg of the Kantian Tripod for Peace: International Organizations and Militarized Disputes, 1950–1985. *International Organization* 52:441–67.

Yang, C. C. 1995. Endogenous Tariff Formation under Representative Democracy: A Probabilistic Voting Model. *American Economic Review* 85:956–63.