

The Study of Interdependence and Conflict

RECENT ADVANCES, OPEN QUESTIONS, AND DIRECTIONS FOR FUTURE RESEARCH

EDWARD D. MANSFIELD

*Department of Political Science
University of Pennsylvania*

BRIAN M. POLLINS

*Department of Political Science
The Ohio State University*

A burgeoning literature has emerged on the relationship between economic interdependence and political conflict. This literature is evaluated, and three issues are raised for future research. First, there is a need to improve the theoretical basis of claims about the influence of interdependence on conflict and to specify more clearly the causal mechanisms underlying any such relationship. Second, future research should identify the boundary conditions of the effects of interdependence on conflict. Third, much more attention must be paid to the definition and measurement of interdependence and conflict.

Over the past few decades, there has been a surge of interest in the relationship between economic interdependence and political conflict. One view that has gained considerable popularity is that growing economic exchange fosters cooperative political relations. Voiced with increasing regularity in both academic and policy circles, this idea has been used to help justify the formation of the European Economic Community, Richard Nixon's opening to China, Willy Brandt's *Ostpolitik*, and Henry Kissinger's conception of détente with the Soviet Union. Nonetheless, critics of this argument have not been stilled. Some observers maintain that, rather than fostering cooperation, heightened economic interdependence generates political discord. Even more widespread is the argument that economic exchange has no strong bearing on the high politics of national security.

This debate is hardly new. For centuries, the nature and strength of the links between interdependence and conflict have been the subject of heated disagreement. Until recently, however, these links remained the subject of remarkably little systematic scrutiny. Lately, the widely recognized need to fill this gap has stimulated a burgeoning empirical literature, the bulk of which concludes that greater economic inter-

AUTHORS' NOTE: For helpful comments and suggestions, we are grateful to Erik Gartzke, Richard Herrmann, Robert Jervis, Patrick McDonald, Joseph McGarvey, and Anthony Mughan. For financial support of this project, we thank the Mershon Center.

JOURNAL OF CONFLICT RESOLUTION, Vol. 45 No. 6, December 2001 834-859
© 2001 Sage Publications

dependence does indeed inhibit interstate hostilities. Still, the question cannot be considered closed, and our purpose here is to suggest directions for the next wave of research on interdependence and conflict.¹

We argue that three fundamental issues merit additional attention in future work on this topic. First, there is a pressing need to improve the theoretical basis of claims about the effects of interdependence on the use of force. Although considerable progress has been made over the past 20 years in moving beyond broad speculation about whether interdependence influences conflict, too little attention has been focused on identifying the causal mechanisms underlying any such relationship. Second, more effort should be devoted to identifying the boundary conditions of the effects of economic exchange on belligerence. Recent studies suggest that these effects may have changed over time and may differ across countries. There is also some evidence that these effects depend on certain domestic and international factors. We need a better understanding of how such factors condition the relationship between interdependence and hostilities. Third, too little attention has been paid to the definition and measurement of interdependence and conflict. Interdependence is a complex and multifaceted phenomenon; conflict between nations occurs at many levels and in several forms. Scholars have yet to resolve in what form and in what sense interdependence is expected to influence conflict of which type and at what level of intensity.

In the sections that follow, we summarize the core arguments that have been advanced about the relationship between economic exchange and political hostilities and review the recent spate of data-analytic studies designed to test these arguments. We then discuss the major theoretical issues facing scholars working on this topic and consider how the concepts of interdependence and conflict might be clarified and better integrated with causal arguments about the relationship between them. Addressing these issues is crucial. Not only will doing so promote a fuller understanding of how economic relations influence interstate hostilities, it will also help to resolve a broader set of debates over the merits of liberal and realist explanations of international relations, the causes of war, and the political economy of national security.

INTERDEPENDENCE AND CONFLICT: LIBERALS VERSUS REALISTS

Central to much of the literature on interdependence and conflict is the longstanding claim that open international markets and heightened economic exchange inhibit interstate hostilities. In developing this thesis, liberals have stressed a variety of different causal mechanisms.² One argument—cast primarily at the level of the nation-state—is that economic exchange and military conquest are substitute means of acquiring the resources needed to promote political security and economic growth (e.g., Staley 1939). As trade and foreign investment increase, there are fewer incen-

1. For a more extensive analysis of many of the issues raised in this article, see Mansfield and Pollins (forthcoming).

2. For an overview of the various strands of this argument, see de Wilde (1991), Doyle (1997), Keohane (1990), and Stein (1993).

tives to meet these needs through territorial expansion, imperialism, and foreign conquest (Rosecrance 1986). Conversely, heightened barriers to international economic activity stimulate conflicts of interest that can contribute to political-military discord (Viner 1951, 259). Another liberal argument—cast largely at the level of the country-pair, or dyad—is that economic intercourse increases contact and promotes communication between private actors in different countries as well as between governments. Increased contact and communication, in turn, are expected to foster cooperative political relations (Doyle 1997, chap. 8; Hirschman 1977, 61; Stein 1993; Viner 1951, 261).

Still another theme stressed by many liberals is that commercial openness generates efficiency gains that render private traders and consumers dependent on foreign markets. Because political antagonism risks disrupting economic relations between participants and jeopardizing the gains from trade, these actors have reason to press public officials to avoid military conflicts. For their part, public officials—who rely on societal actors for political support and have an interest in bolstering their country's economic performance—have reason to attend to such demands. This argument has been a centerpiece of liberal views on war for centuries. Montesquieu, for example, claimed that

the natural effect of commerce is to lead to peace. Two nations that trade together become mutually dependent: if one has an interest in buying, the other has an interest in selling; and all unions are based on mutual needs. (Quoted in Hirschman 1977, 80)

Whereas Montesquieu's claim centers on bilateral relations, the argument that heightened economic dependence inhibits belligerence has also been cast at the systemic level of analysis. As Barry Buzan (1984, 598) mentioned, a core element of the liberal position is that "a liberal economic order makes a substantial and positive contribution to the maintenance of international security."³

However, the liberal view has been criticized by mercantilists and many realists who insist that unfettered economic exchange can undermine the national security of states. Albert O. Hirschman ([1945] 1980), for example, has pointed out that the gains from trade often do not accrue to states proportionately and the distribution of these gains can affect interstate power relations. Shifting power relations, in turn, are widely regarded as a potent source of military conflict (Gilpin 1981; Levy 1989; Mearsheimer 1990). In the same vein, the extent to which trade partners depend on their commercial relationship often varies substantially among the constituent states. If one partner depends on a trading relationship much more heavily than another partner, the costs associated with attenuating or severing the relationship are far lower for the latter than the former. Under these circumstances, trade may do little to inhibit the less dependent state from initiating hostilities.

3. Erich Weede (1995) has advanced an argument related to the liberal claims summarized above that emphasizes the indirect effects of heightened trade on hostilities. As he put it, "trade within as well as between nations promotes prosperity. Prosperity promotes democracy. There is almost no risk of war among democracies" (p. 520).

Another challenge to the liberal thesis stresses that states have political reasons to minimize their dependence on foreign commerce. Military expansion offers one way to achieve this end. Hence, as trade flows and the extent of interdependence increase, so do the incentives for states to take military actions to reduce their economic vulnerability (Gilpin 1981, 140-41; Liberman 1996). Consistent with such arguments, Alexander Hamilton asserted in 1796 that protecting the industrial sector from foreign competition would enhance the United States' "security from external danger" and give rise to "less frequent interruption of their peace with foreign nations" than open trade policies (quoted in Earle 1986, 235). Furthermore, as commerce rises, so does the range of economic issues over which disputes can emerge. Kenneth Waltz (1970, 205, 222), for example, maintained that since

close interdependence means closeness of contact and raises the prospect of at least occasional conflict . . . the [liberal] myth of interdependence . . . asserts a false belief about the conditions that may promote peace.

As such, heightened interdependence may actually stimulate belligerence.

Finally, various observers conclude that international economic relations have no systematic bearing on political conflict (Buzan 1984; Gilpin 1987; Ripsman and Blanchard 1996/97). Many of them hold that hostilities stem largely from variations in the distribution of political-military capabilities and that power relations underlie any apparent effect of economic exchange on military antagonism. These scholars, for example, frequently point to the fact that economic ties between the major powers were significant prior to World War I but far less extensive prior to World War II as evidence that economic links have little systematic impact on armed conflict when core national interests are at stake.

STATISTICAL STUDIES OF THE RELATIONSHIP BETWEEN INTERDEPENDENCE AND CONFLICT

Despite enduring and heated debates about the relationship between interdependence and conflict, empirical analyses of this issue have emerged only recently. The vast bulk of such research has employed statistical methods to analyze large data sets. By contrast, a relatively small number of case studies on this topic have been conducted. We will discuss findings from these case studies at later points in this article. In this section, our purpose is to trace the evolution of large-*n* studies on interdependence and conflict since their inception in 1980.⁴ Most such studies support the liberal hypothesis that heightened economic exchange inhibits conflict, although some research challenges these findings. We will examine both camps in turn.

4. For a general overview of empirical studies published through the mid-1990s, see McMillan (1997). More recent studies are contained in Blanchard, Mansfield, and Ripsman (2000) and a special issue of the *Journal of Peace Research*, which was published in 1999 and edited by Katherine Barbieri and Gerald Schneider.

THE LIBERAL LINEAGE IN LARGE-N STUDIES

Rigorous efforts to examine the ties between economic intercourse and interstate conflict began roughly two decades ago with a pioneering study conducted by Solomon W. Polachek (1980). Far from beginning with a theoretical interest in international disputes, Polachek—a labor economist—simply wondered whether any insight into labor-management strife might be gained by studying political relations between economically interdependent countries.⁵ Just as strikes harm the welfare of workers and firms alike, he reasoned, interstate conflict may interrupt mutually beneficial commerce between nations, thus creating a material incentive to avoid the use of force. From this intuition, he developed a formal model showing that the higher the gains from trade between states, the lower the level of conflict between them. Polachek had essentially rediscovered the core liberal claim regarding economic ties and the spread of peace. To test this model, Polachek analyzed the relationship between the volume of bilateral trade and an indicator of the annual “net conflict” between countries constructed from the Conflict and Peace Data Bank (COPDAB) (Azar 1980). He found an inverse relationship between these variables, providing evidence for the liberal position.⁶

In the wake of this seminal article, dozens of studies have explored the links between international trade and hostilities. Most of them have followed Polachek (1980) in focusing on pairs of countries during the era since World War II, although some have been cast at the monadic or the systemic level of analysis, and some have examined longer periods of time (Domke 1988, 119-31; Mansfield 1994; Russett and Oneal 2001). The bulk of these studies have found that rising trade flows inhibit political conflict; however, they have also generated additional hypotheses, drawn links to neighboring research communities, and inspired important methodological innovations with broad implications for the study of international relations.

The first theoretical and empirical expansion of the liberal idea was offered by Pollins (1989a, 1989b). According to the liberal logic, heightened trade inhibits conflict because conflict interferes with commercial relations.⁷ Hence, economic agents (consumers, firms, etc.) should favor trade with friendly states and, all other things being equal, avoid trade with rivals and adversaries. In short, Pollins argued, the diplomatic climate between nations will significantly shape patterns of international economic exchange. A parallel argument was offered by Joanne Gowa and Mansfield (1993), who pointed out that trade generates security externalities. Specifically, the gains from trade enhance the political power of each commercial partner, and therefore the distribution of these gains can alter power relations between those partners, their friends, and their rivals. As such, countries will prefer to liberalize trade with allies—since alliances internalize the security externalities stemming from commerce—and restrict trade with adversaries.

5. For an account of how he became involved in the study of trade and conflict, see Polachek (forthcoming).

6. Close to this time, and working independently of Polachek, Arad and Hirsch (1983) offered a formal model of the liberal idea and applied it in a more discursive way to a study of Arab-Israeli relations.

7. However, a study by Barbieri and Levy (1999) challenged this assumption by pointing out various cases in which trade continued between warring countries.

The arguments put forward by Pollins (1989a, 1989b) and Gowa and Mansfield (1993) imply that a simultaneous relationship exists between trade and conflict. Interdependence may foster peace, but political-military relations also shape commerce. The issue of simultaneous causation had been recognized by Polachek (1980, 1992) and Pollins (1989b) and has been explored in various studies (Gasiorowski and Polachek 1982; Kim 1998; Mansfield 1994; Pollins and Reuveny 2000). Data, model specification, and estimation issues surrounding this topic are complex. But much of the literature on the subject suggests that the relationship between trade and conflict is indeed reciprocal. Consequently, studies examining only the influence of trade on conflict or that of conflict on trade—but not both—run the risk of generating results that are undermined by a simultaneity bias. More work on this question is needed.

Liberal theories of international relations do not focus solely on economic interdependence. They also emphasize the pacifying effects of democratic regimes and international organizations (Doyle 1997; Russett and Oneal 2001). Recently, John Oneal and Bruce Russett conducted a series of influential empirical analyses addressing these three legs of what they refer to as the “Kantian Tripod” (Oneal et al. 1996; Oneal and Russett 1997, 1999a, 1999b; Russett and Oneal 2001; Russett, Oneal, and Davis 1998). They have found considerable evidence that each leg strongly affects the likelihood of military disputes: democracy, extensive economic interdependence, and shared membership in supranational institutions all reduce the probability of antagonism.

Bridging research on the relationship between economic exchange and conflict to research on the democratic peace has proven to be quite fruitful. The various works by Oneal and Russett on this issue were seminal and gave rise to a rapidly expanding literature. Particularly important are studies that attempt to specify the conditions under which interdependence inhibits conflict, studies that measure interdependence using factors other than trade flows, and studies that bring recent methodological advances to bear. Each group of studies is discussed later in this article.

CHALLENGES TO THE LIBERAL CLAIM

Although much of the existing empirical literature indicates that the flow of trade is inversely related to conflict, some research has qualified this finding, and other studies reject it altogether. It is noteworthy that the earliest questions about Polachek’s (1980) findings were raised by Polachek himself, and two of the strongest challenges to the liberal proposition were mounted by his students—Mark Gasiorowski and Katherine Barbieri. From the outset, Polachek noticed that aggregating data across all dyads produced a negative relationship between trade and conflict but that analyses of U.S. relations with several other countries over time yielded a positive relationship between these variables (Polachek forthcoming). A closer look at U.S. relations with Warsaw Pact nations suggested that the relationship was nonlinear—negatively sloped for high values of trade, but ambiguous in other situations (Gasiorowski and Polachek 1982).

Gasiorowski (1986) took a different and important tack. He noted that economic interdependence is a multifaceted phenomenon. Some facets, such as the gains each state realizes from economic exchange, should inhibit conflict as the liberals predict.

Other facets, however, such as concerns over the distribution of these gains between states, could aggravate conflict as many realists predict. Gasiorowski disentangled the impact of different aspects of interdependence and found that it can have both conflict-inhibiting and conflict-promoting effects. Although his model was almost certainly underspecified (because it omitted a wide variety of variables besides interdependence that are likely to influence interstate conflict), and some subsequent work has found that different aspects of interdependence often have similar effects on conflict (Oneal and Russett 1999a), Gasiorowski's research points to the pressing need for improved measures of interdependence, an issue we discuss further below.

Barbieri (1996a) found that interdependence is positively related to dyadic conflict. She focused on the effects of trade asymmetries and national vulnerabilities created by foreign commerce—aspects of interdependence that realists believe to be conflict-inducing. Barbieri's work has generated considerable controversy, and her results remain open to question. The specification of her trade variables is highly nonlinear (Polachek forthcoming), which makes it difficult to interpret her findings. In addition, Oneal and Russett (1999a, 426) concluded that Barbieri's results are sensitive to slight changes in the specification of her trade indicators. Nonetheless, Barbieri's research raises fundamental questions about the nature and strength of the relationship between interdependence and conflict.

Finally, empirical support for the liberal argument has been challenged on methodological grounds. Specifically, some studies have criticized the statistical techniques used in time-series, cross-section research in which conflict is observed as a binary dependent variable, taking on the value of 1 if hostilities occur and 0 otherwise. In response to these criticisms, new estimation methods have been developed. The initial applications of these new techniques found little evidence that trade influences military disputes (Beck, Katz, and Tucker 1998; Beck and Tucker 1996), although subsequent applications have yielded results that more closely conform to the liberal position (Bennett and Stam 2000; Russett and Oneal 2001).

In all, large-*n*, data-analytic research on the relationship between interdependence and conflict has made crucial advances over the past 20 years. The core liberal claim has found a considerable amount of support. Extensions of the basic liberal idea and connections to compatible "islands of theory" have been established, most notably to the rapidly expanding body of work on the democratic peace. At the same time, challenges to this mainstream work highlight gaps in our understanding and unresolved questions about the links between interdependence and conflict.

THEORETICAL ISSUES FOR FURTHER EXPLORATION

Most of the burgeoning literature on interdependence and the use of force consists of empirical efforts to determine whether these two phenomena are related. Although this line of inquiry has yielded a set of important findings, inadequate attention has been paid to the causal mechanisms underlying these results. Equally, too little effort has been made to assess whether the interdependence-conflict relationship is bounded

by space and time and whether it depends on domestic or international conditions. We consider these issues in turn.

CONCEPTUAL FOUNDATIONS AND CAUSAL MECHANISMS

Even a casual review of the myriad arguments regarding interdependence and hostilities indicates that a wide variety of causal mechanisms have been stressed. Taking this literature as a whole, armed conflict between states has been linked to the interests of consumers, firms, industries, interest groups, nations, supranational institutions, and markets, among other factors. Some arguments are cast at the subnational level of analysis, for example, the claim that firms and consumers have vested interests in commerce that lead them to restrain government officials when conflict is on the horizon, lest hostilities rupture important economic ties. Other arguments are cast at the state level, as when it is argued that economic dependence motivates leaders to satisfy material needs via conquest rather than trade. Still another set of claims focuses on the dyadic level of analysis, for example, positing that the extent and asymmetry of interdependence between states influence the likelihood that they will resort to force. Finally, a number of different causal explanations are pitched at the supranational or systemic level of analysis. Among these explanations are that trade organizations reduce the likelihood of armed conflict among members, that heightened global trade reduces the prospects of war throughout the system, and that the anticipated negative response of capital markets to war gives national leaders pause before they resort to the sword.

In short, there is a welter of plausible hypotheses about the connections between interdependence and conflict. As long as scholars focus primarily on establishing whether these factors are systematically related, there will be various theories to fit the results of almost any empirical study. Greater attention, therefore, needs to be focused on specifying and testing the observable implications of particular causal mechanisms advanced in theories of interdependence and conflict. Doing so is likely to facilitate a better understanding of why and how economic exchange influences the outbreak of armed aggression.

Especially important is the need to articulate more fully the causal mechanisms underlying various theories. As noted earlier, the most widespread liberal argument is that open economic exchange leads private traders and consumers to become dependent on overseas markets. These actors have incentives to withdraw support for public officials who take actions—such as engaging in military conflicts—that are commercially harmful. Realizing this, public officials who need such support have reason to resolve interstate disputes before open hostilities break out.

It would be useful, however, to more fully develop this argument by addressing which groups in society benefit from open international markets, which groups are harmed by commercial openness, and the political influence of these respective segments of society, given existing domestic institutions. One possibility would be to draw on the Stolper-Samuelson theorem. It demonstrates that for a given country, trade barriers benefit the owners of factors of production in which the country is poorly

endowed and impose costs on the owners of factors of production in which the country is abundantly endowed (Stolper and Samuelson 1941). By increasing the risk of trade and the price of imports, military conflict can have exactly the same effect as heightened protection. As such, there is reason to expect that owners of locally abundant factors of production might coalesce to press political leaders to avoid conflict but that the owners of locally scarce factors might behave much differently (Rogowski 1989).

An alternative possibility would be to rely on a specific-factors framework (Mussa 1974), which—in contrast to the Heckscher-Ohlin theorem that underpins the Stolper-Samuelson model—assumes that some factors of production are immobile, at least in the short run. This framework suggests that military conflict is likely to impose particular damage on locally abundant factors that are immobile since they gain from open trade and cannot be easily relocated in the event of hostilities. Furthermore, a specific-factors approach leads to the expectation that lobbying for trade policy will occur along industry rather than factor lines (Magee 1980) and that the factors employed in export-oriented industries will be much more likely to press leaders to resolve political disputes than the factors employed in import-competing sectors.

Regardless of whether trade-policy preferences are drawn along industry or factor lines, however, more attention also needs to be paid to how domestic actors influenced by interdependence affect foreign policy. Recent work on the political economy of trade policy may prove useful in this regard.⁸ Some studies argue that government officials set trade policy with an eye toward balancing the preferences of special interests and society at large. Arye L. Hillman (1982, 1989), for example, has developed a model in which state leaders gain support if firms' profits rise and consumers realize an increase in real income. In this model, a tariff increases profits by raising domestic prices but also generates deadweight costs that depress consumers' income. To enhance the likelihood of retaining office, leaders set trade policy by establishing the optimal trade-off between the industry support generated by a tariff and the support of consumers generated by trade liberalization.

Other studies focus on how competition between politicians influences trade policy (Hillman and Ursprung 1988; Magee, Brock, and Young 1989). In many of these analyses, each candidate (or party) makes a pledge about the trade policy that will be enacted if that individual wins office. Each lobbying group then contributes to the campaign of the candidate whose trade policy would do the most to improve its members' utility, thereby bolstering that candidate's electoral prospects. A related strand of literature addresses how interest groups influence the structure of protection. Especially important in this regard is an article by Gene M. Grossman and Elhanan Helpman (1994) in which lobbies indicate the political contributions they will offer in exchange for a given trade policy, and then the government responds by setting policy to maximize its total contributions (across all lobbies) and aggregate societal welfare.

Clearly, none of these models was developed to explain the relationship between interdependence and conflict, and all of them would likely need adjustment before being used for that purpose. Equally, they do not offer any consensus on exactly whose interests will be reflected in foreign policy. One set of analyses suggests that the effect

8. For an overview of this literature, see Rodrik (1995).

of interdependence on conflict depends on how economic exchange influences both society in general and special interests, whereas another set suggests that this effect depends almost wholly on how interdependence bears on a government's core constituents. Nonetheless, building on such studies could help to redress a key weakness of most liberal explanations of international relations, namely, the tendency to rely on pluralist models of domestic politics, which lack a theory of the state specifying how societal actors' interests are aggregated, how such actors translate their interests into foreign policy, and which societal actors are most influential (Krasner 1978).⁹

Equally important is the need for liberal theories (and much of the research on the political economy of trade policy that we just reviewed) to more directly account for state preferences, since it is widely argued that national leaders have interests that influence foreign policy independent of societal actors (Doyle 1997; Krasner 1978; Stein 1993). For example, statist analyses often hold that public officials aim to advance the national interest. In countries where leaders view the gains from economic exchange as promoting social welfare and interstate conflict as likely to scuttle those gains, interdependence is likely to be a more potent impetus to cooperation than in countries where leaders worry about the adverse effects economic intercourse can have on national security. Other analyses assume that leaders attempt to maximize personal power or wealth. Based on such an assumption, heightened interdependence is more likely to inhibit conflict if both extensive interdependence and political cooperation bolster a ruler's authority or if both increase a ruler's ability to extract rents.

The upshot of the preceding discussion is that more attention needs to be focused on exactly how interdependence interacts with domestic institutions, leaders' preferences, and the interests of societal actors to influence interstate violence.¹⁰ There is an equally pressing need to specify how interdependence influences the process through which wars break out (Barbieri and Schneider 1999, 394). It is widely recognized that wars occur in at least two stages: the outbreak of a dispute between states and the escalation of this dispute to the point where force is used (Snyder and Diesing 1977). Existing studies have provided considerable insight into how economic exchange affects the outbreak of conflict. However, they have furnished little insight into how economic interdependence influences the escalation of disputes (Mansfield, Pevehouse, and Bearce 1999/2000; Morrow 1999). One possibility is to build on the insight that armed conflict is a consequence of failed interstate bargaining and link economic ties between states to the bargaining process.¹¹ In this vein, interdependence could be viewed as a signal sent in the course of bargaining, the costliness of which is related to the extent of economic exchange between states or the difficulty either state would face in foregoing its economic connections. It might then be feasible to specify the point at which a state's noncommercial interests (for military advantage, say, or defense of the homeland) overcome any effect of trade on hostilities.

9. Obviously, these studies offer just a sampling of the frameworks researchers might use to analyze how domestic actors influenced by interdependence affect foreign policy. Our point is simply that more attention needs to be devoted to this issue in the literature on interdependence and conflict.

10. On this issue, see also Barbieri and Schneider (1999).

11. For discussions of this issue, see Gartzke, Li, and Boehmer (2001); and Morrow (1999).

A related possibility is that highly interdependent states rarely engage in full-blown war because the costs of doing so are prohibitive. If, however, these states realize that war is unlikely, each one may be tempted to engage in acts of brinkmanship against the other(s) to meet its foreign policy goals since it can rest assured that these acts will not provoke a military reprisal. This scenario implies that interdependence might foster a great deal of low-intensity conflict, but such conflict is unlikely to escalate, thereby helping to reconcile the claims of realists and neomercantilists, on one hand, and liberals, on the other.¹²

Of course, these points are only suggestive. But addressing issues like those raised here—all of which involve improving the specification of causal processes—would enrich and deepen our understanding of the relationship between interdependence and the use of force.

BOUNDARY CONDITIONS AND CONTINGENCY

To date, neither liberals nor their critics have paid much attention to identifying the conditions under which their claims hold. Instead, arguments about the relationship between interdependence and conflict typically have an air of universality, applying to all actors in all times and places. Yet, a growing body of empirical literature indicates that the effects of economic exchange on the outbreak of hostilities depend on various domestic and international factors. Devoting more attention to these contingencies is another important step in promoting a fuller understanding of the interdependence-conflict connection.

Although theoretical arguments about this connection usually are silent on whether their claims are bounded (Barbieri and Schneider 1999), the influence of economic exchange on the use of force seems to have changed over time. As noted earlier, many studies have found that heightened economic exchange has inhibited conflict during the period since World War II, and some observers have arrived at similar conclusions based on analyses of the 19th and 20th centuries (Gasiorowski and Polachek 1982; Mansfield 1994; Oneal et al. 1996; Oneal and Russett 1997, 1999a, 1999b; Polachek 1980; Russett and Oneal 2001; Russett, Oneal, and Davis 1998). In contrast, however, some case study analyses focusing on the 17th and 18th centuries point out how the expansion of major-power trade networks within a discriminatory, mercantilist framework aggravated commercial rivalries and sometimes stimulated armed conflict (Holsti 1991; Levy 1999; Levy and Ali 1998; Milton 1999). Commerce therefore has expanded during the past four centuries within two different policy contexts: initially embedded in a more state-directed and imperialist environment during the mercantilist era and later within a more liberal economic regime. Few studies have addressed whether this shift generated a change in either the nature or the strength of the relationship between interdependence and conflict.

Instead, large-*n* studies have focused almost exclusively on the past half century and largely ignored whether and how the effects of interdependence changed over

12. We are grateful to Erik Gartzke for this point.

time.¹³ Taken as a whole, case studies of this relationship have assessed a much longer period. But even the latter analyses tend to center on the 20th century (e.g., Copeland 1996, 1999/2000; Papayoanou 1996; Ripsman and Blanchard 1996/97; Solingen 1998), largely because much of the historical work on the links between interdependence and hostilities addresses World War I and World War II. Important as those wars were, however, it is not clear that they are the best testing ground for theories of these links. One reason is that the primary participants in the world wars were major powers, states that generally had large and relatively well-diversified economies, and, as such, were less dependent on economic exchange than their smaller counterparts. Hence, interdependence may have a less pronounced influence on conflict between major powers than on disputes between weaker states.

Recent research indicates that the effects of interdependence are conditional on more than just the political power of economic partners. The existing literature, for example, has paid little attention to whether international institutions influence the relationship between interdependence and hostilities. A number of recent studies, however, found strong evidence that heightened trade flows inhibit the outbreak of military disputes between members of the same preferential trade arrangements (PTAs)—institutions designed to liberalize commerce among participants (Mansfield and Pevehouse 2000, 2001). In contrast, these same studies found little evidence that trade influences the resort to force among countries that do not belong to such arrangements. Further, Jack S. Levy (1999; see also Levy and Ali 1998) concluded that the interaction between commercial rivalry, power relations, domestic politics, and other factors contributed to friction between England and the Netherlands that bubbled over into war in 1652. In the same vein, Peter Liberman (1999/2000) reported that the effects of interdependence on belligerence during the first half of the 20th century hinged on the offense-defense balance.

Domestic politics also seems to condition the effects of interdependence on conflict. Particularly suggestive is recent work by Christopher Gelpi and Joseph M. Grieco (2001) showing that rising trade ties inhibit military disputes between democracies but tend to promote discord between other states. Their findings reinforce our earlier point about the need for greater conceptual clarity about how domestic political institutions filter the interests of various societal actors and groups. Equally, Etel Solingen (1998) has found that shifting domestic coalitions can stimulate important changes in both the outward economic orientation of countries and their propensity to fight. Paul A. Papayoanou (1996) also emphasized the interaction between interdependence, domestic coalitions, and state institutions. He argued that

balancing behavior that deters aspiring revisionist powers depends on there being extensive economic ties among status quo powers and few or no such ties between them and

13. Some statistical studies of the impact of interdependence on conflict have analyzed the period prior to World War II (Barbieri 1996a, 1996b; Domke 1988; Mansfield 1994; Oneal and Russett 1999b; Russett and Oneal 2001), as have certain analyses of the influence of conflict on interdependence (Barbieri and Levy 1999; Gowa 1994; Gowa and Mansfield 1993; Morrow, Siverson, and Tabares 1998). However, none of these studies reaches back further than the middle of the 19th century—still long after the mercantilist era—due largely to the paucity of reliable economic data for many countries.

aspiring revisionist powers, and status quo powers must also have political institutions that give median economic interests a prominent voice. (P. 45)

Finally, there is some evidence that the effects of interdependence on conflict hinge on domestic economic conditions. Håvard Hegre (2000), for instance, found that heightened interdependence has little effect on hostilities involving less developed states but inhibits belligerence between advanced industrial countries.

Taken together, these studies indicate that whether interdependence promotes or reduces antagonism depends on various domestic and international factors. To date, however, the ways these factors mediate the relationship have not been addressed in much depth. Additional research on this issue is sorely needed and should help identify the boundaries and limits of liberal and other claims.¹⁴ More generally, too little attention has been devoted to specifying and justifying the appropriate temporal domain for studies of interdependence and hostilities as well as the set of countries that should be included in empirical analyses. Case study analyses, for example, have focused primarily on the major powers, although existing theories address a much broader range of countries. Meanwhile, large-*n* researchers have generated samples composed of numerous countries, but important differences exist among many such samples that deserve closer scrutiny.¹⁵ For instance, there is some quantitative evidence that the effects of trade flows on conflict depend on whether all country-pairs or only “politically relevant” dyads (i.e., those that are either geographically contiguous or include at least one major power) compose the sample being analyzed (e.g., Barbieri 1996a, 1996b; but see Mansfield and Pevehouse 2001; Oneal and Russett 1999a).

These issues point to a number of key questions. Should the liberal claim be restricted to market economies because only they develop the private commercial interests with a vested interest in peace? Should it apply primarily to politically relevant dyads? Should the basic argument apply only since the beginning of the 19th century—when the virtues of exploiting comparative advantage in trade relations started gaining increased attention—or should it apply to the earlier mercantile era as well?¹⁶ Research addressing such questions will help to establish the boundaries of claims about interdependence and conflict.

THE CONCEPTUALIZATION AND MEASUREMENT OF INTERDEPENDENCE AND CONFLICT

Closely intertwined with the theoretical issues raised in the preceding section is a set of important questions concerning how to define and measure both interdepen-

14. On this issue, see also Keohane (1990), Mastanduno (1999/2000), and Stein (1993).

15. Another complicating aspect of any commercial network is that all bilateral relationships exist within an interconnected web. A change in any bilateral relationship will ripple through many other dyads. Pollins and Kirkpatrick (1987) tried to estimate parameters for the trade-conflict relationship in a system of equations, realizing only limited success. Recently, Penubarti and Ward (2000) employed modern methods in spatial autocorrelation to address the same question and found that our understanding of the main relationship may be sensitive to such network effects.

16. On the development of both mercantilism and liberal economic thought, see Irwin (1996).

dence and conflict. Various conceptualizations have been used, but the differences among them and the empirical implications of these differences have generated relatively little discussion. In this section, we therefore address the operationalization of interdependence and conflict.

THINKING ABOUT INTERDEPENDENCE

In the field of international relations, “economic interdependence” has two meanings. First, a group of countries is considered interdependent if economic conditions in one are contingent on those found in the others, for example, if inflation in France quickly places upward pressure on German prices. Second, countries are considered interdependent if it would be costly for them to rupture or forego their relationship, as would be the case if relations between the members of the Organization of Petroleum Exporting Countries and the advanced industrial countries (which rely heavily on petroleum imports) were severed. The first of these is generally referred to as sensitivity interdependence; the second is typically referred to as vulnerability interdependence (Baldwin 1980). The key difference between sensitivity and vulnerability interdependence hinges on the costs countries would bear should relations between them be disrupted.

Although these forms of interdependence—and the differences between them—are fairly straightforward, developing adequate indicators of them is not. First, distinct measures are needed for each of them because they often do not move in lockstep. Although there may be extensive economic connections between states (yielding a high level of sensitivity interdependence), they might not find it especially costly to replace these connections by either expanding economic interactions with third parties or making domestic economic adjustments (yielding a low level of vulnerability interdependence). Second, the best measures of sensitivity and vulnerability interdependence involve information about a counterfactual situation, namely, what the costs would be to one country should economic conditions change in or relations be interrupted with another country. Difficulties obtaining reliable estimates of that situation complicate efforts to measure interdependence, but it is nonetheless important for studies of its effect on conflict to demonstrate an awareness of these costs.

OBSERVING INTERDEPENDENCE

Economic interdependence has been measured in various ways, with most indicators closely linked to the flow of international trade. In part, this reflects the paucity of data available on forms of economic exchange other than merchandise trade. Although varied, measures of interdependence typically emphasize one of three themes: *openness*, *vulnerability*, or *gain*. Openness indicators are based in one way or another on the ratio of trade to total output. They rely on the idea that the higher the fraction of total output crossing state boundaries, the more costly would be the interruption of such flows. Researchers who emphasize the vulnerability theme have not arrived at the same degree of consensus regarding measurement. However, they frequently rely on indicators of trade asymmetry. Typically, such indicators are constructed using the

portion of trade (imports and/or exports) between a given pair of states, *A* and *B*, represented in the total trade of *A* and in the total trade of *B*. The more these two figures differ, the greater the asymmetry of interdependence between *A* and *B*.

The gain theme is somewhat different. As Polachek (1980) pointed out, the microtheory underpinning the central liberal claim hinges not on trade flows per se, but on the gains from trade. At best, these gains can only be measured indirectly since, strictly speaking, they presume the observation of a counterfactual condition (viz., what total product would be if there were no cross-border trade). Economists argue that the gains from trade are correlated with import (or export) price elasticities, and Polachek has used this indicator in various studies (Polachek 1992; Polachek and McDonald 1992; Polachek, Robst, and Chang 1999). Unfortunately, the limited availability of price data severely restricts the range of countries and years over which such elasticities can be used, although Polachek (forthcoming) recently reported that considerable progress has been made in collecting such data.

Of these three main conceptualizations, openness has been most widely employed by far in the literature on interdependence and conflict. Mansfield (1994) used this type of indicator and found that heightened global trade (as a percentage of global output) was inversely related to the frequency of war throughout the international system during the 19th and 20th centuries. Oneal and Russett (1997, 1999a, 1999b; Oneal et al. 1996; Russett and Oneal 2001; Russett, Oneal, and Davis 1998) have employed a related measure in a series of studies cast at the dyadic level of analysis and have reported results consistent with liberal claims. Similarly, at the unit level, William Domke (1988, 131) concluded that countries more connected to the global economy were less likely to go to war. Thus, studies based on the openness dimension of interdependence offer considerable support for the liberal view.¹⁷ Need we look further?

It is frequently argued that the ratio of trade to output—the leading indicator of commercial openness¹⁸—is a valid measure of both sensitivity and vulnerability interdependence (e.g., Oneal and Russett 1997). This ratio does provide a useful measure of sensitivity interdependence, since it indicates the extent to which trade partners' economies are intertwined. Its validity as an indicator of vulnerability interdependence, however, rests on the claim that as commerce between countries comes to make up a larger portion of each country's total economic output, it becomes increasingly costly for either partner to replace the trade conducted with the other. The basis of this claim can be questioned on three grounds.

First, the size of the flow of trade between states (taken either by itself or as a percentage of national income) may not furnish an accurate indication of the costs to them if their economic relations were disrupted. Yet, as noted earlier, the magnitude of these costs is central to assessing the extent of vulnerability interdependence (Baldwin

17. However, such support is by no means universal. See, for example, Beck, Katz, and Tucker (1998); and Beck and Tucker (1996).

18. It should be noted that various alternative measures of commercial openness have been developed (e.g., Leamer 1988; Sachs and Warner 1995). Furthermore, there have been recent efforts to develop measures of openness based on international finance (Quinn 1997). These indices tend to be monadic and are usually restricted to the period since World War II. Nonetheless, they might be analyzed fruitfully in certain types of future research on interdependence and conflict.

1980; Gasiorowski 1986; Hirschman [1945] 1980; Keohane and Nye 1977). States trading heavily that can easily locate close substitutes for the goods being exchanged clearly are not very dependent on each other. At the same time, states conducting little trade that would have great difficulty locating substitutes for the goods being exchanged may be highly vulnerable. In this light, it is interesting to note that Norrin M. Ripsman and Jean-Marc F. Blanchard (1996/97), who measured vulnerability by tracking trade in strategic goods, presented results at odds with the liberal position. Similarly, the indicator of interdependence offered by Barbieri (1998) combined the volume of trade and a measure of trade “salience” (which is similar to trade concentration and might be related to the difficulty of finding substitute commercial partners). She reported a positive association between interdependence and conflict.

A second problem with measuring interdependence based on the ratio of trade flows between states to the national income of each trade partner is that this value tends to be highly correlated with each partner’s economic size (Hegre 2000; Mansfield and Pevehouse 2000). Moreover, it is well known that economically large states tend to be politically powerful and that powerful states are disproportionately likely to become involved in military conflicts. As such, it is important to control for the independent effects of national income in studies of conflict that include the ratio of bilateral trade to national income; otherwise, an inverse relationship between this ratio and hostilities might simply reflect the influence of national income alone. To this end, a pair of recent studies of military disputes analyzed the independent effects of bilateral trade flows and gross domestic product (GDP) as well as their interactive effects via the ratio of trade to GDP (Mansfield and Pevehouse 2000, 2001). Another study estimated a gravity model of international trade—made up of the GDP of each trade partner and the distance between them—to determine the expected amount of commerce between states based on economic conditions and then used the residuals from this model as a measure of interdependence that is independent of national income (Hegre 2000).

As we discussed earlier, the results of these studies differ in important respects from the results of research focusing solely on the ratio of trade flows to national income. Mansfield and Pevehouse (2000) found strong evidence of an inverse relationship between trade flows and conflict involving PTA members but little evidence that commerce influences hostilities between other states. They also found no indication that the ratio of trade to national income affects military disputes (pp. 794-95). Hegre (2000) concluded that interdependence has little bearing on conflict involving less developed states but that it reduces the prospect of antagonism between advanced industrial countries.

Finally, the “cost” conception of vulnerability may be too restrictive, since some claims regarding interdependence and conflict do not center on the economic consequences of disrupting commerce but rather on the security implications of dependency or highly asymmetric trade relations. Some realists, for example, argue that highly asymmetric interdependence may restrain the more dependent partner in a dyad but should not be expected to deter the less dependent partner from resorting to force if their strategic interests collide (Hirschman [1945] 1980). Thus, economic ties between states may restrain only one party from resorting to armed force should a dispute arise while having no effect on (or possibly even inflaming the aggressiveness of) its coun-

terpart. Meanwhile, some Marxist and world systems scholars view asymmetric trade relations as innately exploitive and argue that this situation may heighten the prospect of conflict (Chase-Dunn 1989; Wallerstein 1984). Empirical exploration of these possibilities within the interdependence-conflict research community, however, is rare.

Equally rare are empirical studies employing the gain conceptualization of interdependence, despite the centrality of the efficiency gains from trade to most liberal arguments as well as to some criticisms of these arguments (e.g., Gowa 1994). Although the aforementioned “counterfactual measurement” problem is one reason for the infrequent use of this theme, economists argue that the gains from trade correlate with import (or export) price elasticities and often use this measure as a surrogate. Still, very few scholars have incorporated such a measure in trade-conflict studies (Gasiorowski 1986; Polachek 1992; Polachek and McDonald 1992; Polachek, Robst, and Chang 1999). The nature of the research question rightly impels most scholars to include a large number of countries in their analysis or to examine cases reaching back a century or more; but, as noted earlier, the limited availability of price data makes this sort of wide-ranging inquiry virtually impossible. Nonetheless, it is important that future research wrestle with the implications of the gain dimension of interdependence, given its theoretical importance to debates over the links between interdependence and conflict.

Regardless of whether empirical studies of interdependence stress openness, vulnerability, or gain, they almost always rely on trade data to measure interdependence. In many cases, this research strategy seems to stem from an implicit assumption that other forms of economic exchange are highly correlated with trade flows. The appropriateness of this assumption, however, is open to question, especially in an era when merchandise trade composes a dwindling fraction of all economic exchange. Furthermore, it is not clear that all aspects of economic interdependence (commercial, capital, monetary, etc.) should have the same effect on hostilities (Barbieri and Schneider 1999; Russett and Oneal 2001, 141). A recent study by Erik Gartzke, Quan Li, and Charles Boehmer (2001) broke new ground on this question by comparing the effects of international trade flows, monetary relations, and the cross-border movement of capital. Although their results should be interpreted cautiously, given the paucity of data on capital flows during the period they analyzed, Gartzke, Li, and Boehmer found that extensive monetary and capital ties are at least as likely to inhibit conflict as extensive commercial ties. More studies of this sort should follow.

Similarly, recent work suggests that considering both the international institutions that guide commerce and the flow of trade may enrich conventional measures of economic interdependence and add explanatory power to models of conflict (Mansfield and Pevehouse 2000, 2001; Mansfield, Pevehouse, and Bearce 1999/2000). Particularly important among such institutions are PTAs, arrangements that can foster interdependence through various channels. By liberalizing commerce among members, the establishment of a PTA typically leads to a shift in production within the arrangement to lower cost sources. This is likely to foster members’ dependence on these sources absent the availability of equally efficient producers located outside the PTA and low transaction costs of shifting to these external producers. In the same vein, to exploit economic opportunities within a PTA, firms sometimes make investments that support

trade with member countries and have little value outside these specific relationships (Yarbrough and Yarbrough 1992). Doing so heightens the dependence of firms on the continued existence of cooperative economic and political relations within the PTA. Furthermore, some PTAs have been accompanied by macroeconomic and monetary coordination between participants, which is likely to encourage economic integration and interdependence as well (Genberg and De Simone 1993). Moreover, since preferential arrangements limit the ability of participants to restrict access to their markets, members can reasonably anticipate that open commercial relations spurred by a PTA will persist and that the arrangement is likely to generate future economic benefits. For these reasons, PTAs are likely to promote interdependence between participants, an issue that has received far too little attention in studies of political conflict.

Calls for better measures of interdependence are hardly new. Indeed, a considerable amount of ink was spilled over this issue a few decades ago (Baldwin 1980; Gasiorowski 1986; Rosecrance and Stein 1973; Rosecrance et al. 1977; Tetreault 1980). But relatively little has been done to heed such calls, and the need for better measures of interdependence is pressing if we are to resolve debates over the relationship between interdependence and conflict. It is also noteworthy that scholars' choice of theme—openness, vulnerability, or gain—seems to be strongly correlated with their position on the strength and nature of this relationship: supporters of liberal claims tend to employ indicators emphasizing the themes of openness and absolute gain, whereas supporters of realist and neomercantilist arguments tend to highlight the themes of vulnerability and relative gain. We are not implying that the larger debate reduces to this single dichotomy, but more attention needs to be devoted to assessing why certain indicators of interdependence seem to provide greater support for one set of theories than another.

THINKING ABOUT CONFLICT

The influence of interdependence hinges not only on the form and facet of economic intercourse being analyzed but also on the type of international conflict being explained. Taken as a whole, research in this area has addressed an extremely broad spectrum of interstate conflict behavior, from hostile statements to full-scale war, while leaving unclear—both theoretically and empirically—whether economic interdependence should affect low-intensity conflict, high-intensity conflict, or both. Similarly, the question of how economic relations influence the escalation of political conflict remains open, as we discussed earlier. The problem is not that studies fail to define the type of conflict being analyzed: indeed, most empirical research is quite clear on that score. Rather, the problem is that the theoretical literature tends to be murky about what type of conflict should be analyzed and, partly as a result, empirical studies tend to define conflict based on the data at hand. The upshot is that existing research focuses on a wide range of different types of conflict, and at least some of the disagreement in the empirical literature can be traced to these differences.

What forms of interstate conflict should this research community address? The most ardent advocates of the liberal position would expect interdependence to inhibit political conflict at all levels of intensity, although much of the oft-cited work by

Immanuel Kant, the Manchester liberals, and others centers on war (Doyle 1997, chaps. 7-8). Realists, meanwhile, might readily concede that trade could suppress less salient interstate conflicts while denying any systematic effect as conflicts become more serious, placing core national interests at stake (e.g., Waltz 1970; Viner 1951). Still other advocates of the liberal proposition might argue just the opposite. States may continue to voice their differences—perhaps even threaten sanctions or the use of force—but domestic trade interests will restrain them from acting on such threats (thus preventing escalation to the highest levels of conflict) lest commerce be disrupted. Once again, the theoretical literature is composed of so many different claims that almost any empirical result can be fit to some extant theory. Improving the foundations of theories linking interdependence to conflict and further specifying the contingencies and boundary conditions of these theories will certainly help matters. But more attention to the different types of interstate conflict and conflict processes is also required to resolve existing debates in this research community. Future work should explicitly consider the likely effects of interdependence on lower-intensity conflict (trade disputes, sanctions, and threats of force), higher-intensity conflict (mobilization, use of armed force, and full-blown wars), and the escalatory and de-escalatory processes that move conflicts from one level to another.

OBSERVING CONFLICT

Among empirical studies, methodological orientation plays a large role in determining the facet of conflict that is addressed. The vast bulk of the historically oriented case studies focus on international war—especially major-power war. In contrast, most statistical analyses center on a much broader range of interstate disputes, although they are marked by considerable disagreement about which type of conflict should be addressed. Some of the earliest statistical research on interdependence and hostilities (Polachek 1980; Pollins 1989a, 1989b) relied exclusively on event data sets such as COPDAB and the World Event Interaction Survey (WEIS) (Azar 1980; McClelland and Hoggard 1969). The overwhelming number of such studies conducted during the past decade has focused on militarized interstate disputes (MIDs), which are episodes in which one state threatens, displays, or uses force against another state (Gochman and Maoz 1984). But there has been remarkably little discussion of why this focus is theoretically appropriate or the implications of shifting among these different data sets.¹⁹

The COPDAB, WEIS, and MID data sets capture markedly different types of foreign-policy behavior. COPDAB and WEIS record events over the broadest spectrum of international interactions—cooperative as well as conflictual—from low-intensity hostility (such as a verbal protest) to the most violent wars. In contrast, the MID data set records only instances involving the threat, display, or use of armed force. Subsequent interactions surrounding this triggering incident are aggregated into

19. For a recent effort to address these issues, see Pevehouse (2001). To be clear, our point is not that scholars should necessarily focus on a single type of conflict but rather that it is important to link the hypothesized effects of interdependence more explicitly to different conflict levels and processes.

a single data point or observation, an individual event that might persist for years. The differences may be substantial in the conceptualization and observation of “conflict” between two actors as either a continuous flow marked at regular time intervals (the COPDAB tradition) or an episode whose time span may be very brief or sometimes prolonged (the MID tradition).

Consider a well-known result from earlier research on interstate conflict: the correlation between “flows” of conflict and cooperation for a given pair of states tends to be high (Dixon 1983). In other words, relations between states are often marked by both cooperation and conflict. This tendency led many researchers using COPDAB or WEIS data to construct a “net conflict” or “net cooperation” indicator that captured the overall diplomatic climate between states (Polachek 1980; Pollins 1989a). But such measures of diplomatic relations are based on a very different way of conceptualizing friendliness and hostility than MIDs, which are by definition episodic, sometimes brief, sometimes prolonged, and at least fairly conflictual.²⁰ How would COPDAB-based and MID-based pictures of the patterns of interstate conflict compare? To our knowledge, virtually no one has checked for any such correspondence. Do MIDs simply map onto the highest end of the COPDAB conflict scale? Do countries engaging in MIDs (especially at the lower levels, which include episodes like fishing disputes) also exhibit high flows of cooperative behavior to settle such controversies?

Regarding our call for studies of the effect of interdependence on the escalation and de-escalation of conflict, it is not clear that either event-based flow indicators in the COPDAB tradition or episodic aggregations such as MIDs can tell us as much as we would like to know about conflict processes. Existing net conflict-cooperation indicators can capture the general diplomatic climate between countries but may be only loosely related to the escalation and de-escalation of crises. And Correlates of War researchers note that the information recorded for a single MID should not be viewed as the chronicle of a crisis. Nevertheless, a variety of research strategies remain. Case studies may employ process tracing in the analysis of crises to determine whether and how economic interdependence played a part in (de)escalation. Alternatively, large-*n* studies specifying the role that interdependence might play in distinguishing those MIDs that end in war from those resolved peacefully short of war would provide an initial look at this question. Data-analytic researchers might also consider employing collections better designed to record the etiology of crises, such as Russell Leng’s Behavioral Correlates of War data set (Leng and Singer 1988) or the compilation of 20th-century crises gathered by Michael Brecher and Jonathan Wilkenfeld (1997).

The nearly exclusive focus on militarized disputes by quantitative studies of interdependence and conflict during the past decade has certain theoretical and empirical limitations. Nonetheless, this focus has also contributed to the development of important advances in statistical methodologies. Incorporation of MID data into interdependence-conflict studies was roughly concurrent with the sharp rise in the use

20. Penubarti and Ward (2000, 10) argued that these very characteristics could make militarized interstate disputes particularly unsuitable to testing the relationship between trade and conflict. Whether one accepts this point or not, we submit that this research community would be better served to consider the meaning of “interstate conflict” in varied ways rather than relying exclusively on the given concept and measurement of militarized interstate disputes.

of maximum likelihood techniques in the field of international relations. These techniques facilitated the efficient estimation of models featuring a discrete dependent variable, such as the occurrence of a MID. Since then, closer consideration of the statistical properties of MIDs (e.g., that they can be viewed as “events” in a statistical sense, that they are typically arranged as pooled cross-sectional data, that they are relatively unusual events, and that they may both influence and be influenced by commercial ties) has prompted the development of various new maximum likelihood techniques that have broad applicability. Such advances include procedures for analyzing and correcting for temporal dynamics in event-count, time-series data (Beck, Katz, and Tucker 1998; Beck and Tucker 1996; Brandt et al. 2000), for the unbiased estimation of models predicting rare events (King and Zheng 2001), and for analyzing systems of simultaneous equations (Gasiorowski and Polachek 1982; Kim 1998; Pollins and Reuveny 2000; Reuveny and Kang 1998). These developments hold out the promise of allowing much closer correspondence among theoretical arguments, the estimating equations embodying those arguments, and the data used to test them.

In sum, more attention needs to be paid to the aspect and type of political conflict that should be the focus of research on interdependence and hostilities. It is clear that the prevailing diplomatic climate, the occurrence or absence of a militarized dispute, and war are only weakly linked. Consequently, they should not be used interchangeably in empirical studies as all-encompassing indicators of conflict. The tendency to do just that (albeit implicitly) is one reason why an understanding of the relationship between interdependence and conflict remains elusive. Indeed, research probing more deeply the meaning and measurement of both interdependence and conflict would likely make an important contribution to our understanding of the links between the two.

CONCLUSION

Just over a decade ago, a well-known review of the causes of war lamented the dearth of research on the relationship between economic interdependence and hostilities (Levy 1989, 261). Since then, scholars of international relations have addressed this issue with considerable enthusiasm, stimulating a still modest but rapidly growing literature. These recent studies have made considerable headway in assessing some key aspects of the influence of interdependence on political tensions.

But this body of literature has yet to resolve various core issues. First, a stronger theoretical foundation is needed for many of the competing claims about the relationship between interdependence and conflict. Second, too little stress has been placed on whether this relationship is stable over time—especially over periods before World War II—and across countries. More generally, there is a growing indication that the strength and nature of the effects of interdependence depend on various domestic and international factors. A better understanding of these factors and how they affect the links between economic exchange and political antagonism is badly needed. Third, existing studies often rely on different definitions and measures of both interdependence and conflict. Although that poses no inherent problem, these differences seem to

contribute to variations in the results of empirical studies; and existing theories offer no clear guidance as to which definitions and measures are most appropriate. Moreover, the most widely used measures of interdependence are excessively narrow, focusing on trade flows. There is a glaring need to resolve questions about the merits of relying on particular measures of interdependence and conflict as well as to assess the sensitivity of empirical results to the use of different measures.

The wide diversity of liberal, realist, and other arguments presents an unusually rich source of ideas to engage scholarly debate on the relationship between interdependence and conflict. All too often, however, this diversity has only left scholars talking past each other. The constructive engagement and resolution of these diverse claims will likely require the specification of spatial and temporal boundaries and the conditions and contingencies under which particular forms of interdependence might lead states toward or away from different types of conflict. These are tasks we have barely begun to tackle.

The relationship between interdependence and conflict bears on a host of crucial issues in the field of international relations, including the causes of war and the political economy of national security, regional integration, and international organization, respectively. It also bears on key foreign policy issues. Various Western governments—most recently the Clinton and Bush administrations—have argued that fostering international economic openness will promote both peace and prosperity. Existing studies offer some support for this position. Nonetheless, additional research is sorely needed to determine more precisely how, when, and to what extent economic interdependence affects the tenor of international politics.

REFERENCES

- Arad, Ruth, and Seev Hirsch. 1983. *The economics of peacemaking: Focus on the Egyptian-Israeli situation*. New York: St. Martin's.
- Azar, Edward E. 1980. The conflict and peace data bank (COPDAB) project. *Journal of Conflict Resolution* 24:143-52.
- Baldwin, David A. 1980. Interdependence and power: A conceptual analysis. *International Organization* 34:471-506.
- Barbieri, Katherine. 1996a. Economic interdependence: A path to peace or a source of conflict? *Journal of Peace Research* 33:29-49.
- . 1996b. Explaining discrepant findings in the trade-conflict literature. Paper presented at the annual convention of the International Studies Association, April, in San Diego, CA.
- . 1998. International trade and conflict: The debatable relationship. Paper presented at the annual convention of the International Studies Association, March, in Minneapolis, MN.
- Barbieri, Katherine, and Jack S. Levy. 1999. Sleeping with the enemy: The impact of war on trade. *Journal of Peace Research* 36:463-79.
- Barbieri, Katherine, and Gerald Schneider. 1999. Globalization and peace: Assessing new directions in the study of trade and conflict. *Journal of Peace Research* 36:387-404.
- Beck, Nathaniel, Jonathan N. Katz, and Richard Tucker. 1998. Beyond ordinary logit: Taking time seriously in binary time-series cross-section models. *American Journal of Political Science* 42:1260-88.
- Beck, Nathaniel, and Richard Tucker. 1996. Conflict in space and time: Time-series-cross-section analysis with a binary dependent variable. Paper presented at the annual meeting of the American Political Science Association, August-September, in San Francisco.

- Bennett, D. Scott, and Allan C. Stam. 2000. Research design and estimator choices in the analysis of interstate dyads: When decisions matter. *Journal of Conflict Resolution* 44:653-85.
- Blanchard, Jean-Marc F., Edward D. Mansfield, and Norrin M. Ripsman, eds. 2000. *Power and the purse: Economic statecraft, interdependence, and national security*. London: Frank Cass.
- Brandt, Patrick T., John T. Williams, Benjamin O. Fordham, and Brian Pollins. 2000. Dynamic modeling for persistent event-count time series. *American Journal of Political Science* 44:823-43.
- Brecher, Michael, and Jonathan Wilkenfield. 1997. *A study of crisis*. Ann Arbor: University of Michigan Press.
- Buzan, Barry. 1984. Economic structure and international security: The limits of the liberal case. *International Organization* 38:597-624.
- Chase-Dunn, Christopher. 1989. *Global formation*. London: Basil Blackwell.
- Copeland, Dale C. 1996. Economic interdependence and war: A theory of trade expectations. *International Security* 20:5-41.
- . 1999/2000. Trade expectations and the outbreak of peace: Détente 1970-74 and the end of the cold war 1985-91. *Security Studies* 9:15-58.
- de Wilde, Jaap. 1991. *Saved from oblivion: Interdependence theory in the first half of the 20th century*. Aldershot, UK: Dartmouth.
- Dixon, William J. 1983. Measuring interstate affect. *American Journal of Political Science* 27:828-51.
- Domke, William. 1988. *War and the changing global system*. New Haven, CT: Yale University Press.
- Doyle, Michael W. 1997. *Ways of war and peace: Realism, liberalism, and socialism*. New York: Norton.
- Earle, Edward Mead. 1986. Adam Smith, Alexander Hamilton, Frederick List: The economic foundations of military power. In *Makers of modern strategy from Machiavelli to the nuclear age*, edited by Peter Paret. Princeton, NJ: Princeton University Press.
- Gartzke, Erik, Quan Li, and Charles Boehmer. 2001. Investing in the peace: Economic interdependence and international conflict. *International Organization* 55:391-438.
- Gasiorowski, Mark. 1986. Economic interdependence and international conflict: Some cross-national evidence. *International Studies Quarterly* 30:23-38.
- Gasiorowski, Mark, and Solomon W. Polachek. 1982. Conflict and interdependence: East-west trade linkages in the era of détente. *Journal of Conflict Resolution* 26:709-29.
- Gelpi, Christopher, and Joseph M. Grieco. 2001. Democracy, interdependence, and the liberal peace. Paper presented at the annual meeting of the American Political Science Association, August-September, in San Francisco.
- Genberg, Hans, and Francisco Nadal De Simone. 1993. Regional integration and macroeconomic discipline. In *Regional integration and the global trading system*, edited by Kym Anderson and Richard Blackhurst. New York: Harvester Wheatsheaf.
- Gilpin, Robert. 1981. *War and change in world politics*. New York: Cambridge University Press.
- . 1987. *The political economy of international relations*. Princeton, NJ: Princeton University Press.
- Gochman, Charles S., and Zeev Maoz. 1984. Militarized interstate disputes, 1816-1976. *Journal of Conflict Resolution* 28:585-615.
- 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* 87:408-20.
- Grossman, Gene M., and Elhanan Helpman. 1994. Protection for sale. *American Economic Review* 84:833-50.
- Hegre, Håvard. 2000. Development and the liberal peace: What does it take to be a trading state? *Journal of Peace Research* 37:5-30.
- Hillman, Arye L. 1982. Declining industries and political-support protectionist motives. *American Economic Review* 72:1180-87.
- . 1989. *The political economy of protection*. New York: Harwood.
- Hillman, Arye L., and Heinrich W. Ursprung. 1988. Domestic politics, foreign interests, and international trade policy. *American Economic Review* 78:729-45.
- Hirschman, Albert O. [1945] 1980. *National power and the structure of foreign trade*. Berkeley: University of California Press.

- . 1977. *The passions and the interests: Political arguments for capitalism before its triumph*. Princeton, NJ: Princeton University Press.
- Holsti, Kalevi J. 1991. *Peace and war: Armed conflicts and international order, 1648-1989*. Cambridge, UK: Cambridge University Press.
- Irwin, Douglas A. 1996. *Against the tide: An intellectual history of free trade*. Princeton, NJ: Princeton University Press.
- Keohane, Robert O. 1990. Economic liberalism reconsidered. In *The economic limits to politics*, edited by John Dunn. Cambridge, UK: Cambridge University Press.
- Keohane, Robert O., and Joseph S. Nye. 1977. *Power and interdependence: World politics in transition*. Boston: Little, Brown.
- Kim, Soo Yeon. 1998. *Ties that bind: The role of trade in international conflict processes, 1950-1992*. Ph.D. diss., Department of Political Science, Yale University, New Haven, CT.
- King, Gary, and Langche Zeng. 2001. Explaining rare events in international relations. *International Organization* 55:693-715.
- Krasner, Stephen D. 1978. *Defending the national interest: Raw materials investments and U.S. foreign policy*. Princeton, NJ: Princeton University Press.
- Leamer, Edward E. 1988. Measures of openness. In *Trade policy issues and empirical analysis*, edited by Robert E. Baldwin. Chicago: University of Chicago Press.
- Leng, Russell, and J. David Singer. 1988. Militarized interstate crises: The BCOW typology and its applications. *International Studies Quarterly* 32:115-74.
- Levy, Jack S. 1989. The causes of war: A review of theories and evidence. In *Behavior, society, and nuclear war*, vol. 1, edited by Philip E. Tetlock, Jo L. Husbands, Robert Jervis, Paul C. Stern, and Charles Tilly. New York: Oxford University Press.
- . 1999. The rise and decline of the Anglo-Dutch rivalry, 1609-1689. In *Great power rivalries*, edited by William R. Thompson. Columbia: University of South Carolina Press.
- Levy, Jack S., and Salvatore Ali. 1998. From commercial competition to strategic rivalry to war: The evolution of the Anglo-Dutch rivalry, 1609-52. In *The dynamics of enduring rivalries*, edited by Paul F. Diehl. Urbana-Champaign: University of Illinois Press.
- Lieberman, Peter. 1996. *Does conquest pay? The exploitation of occupied industrial societies*. Princeton, NJ: Princeton University Press.
- . 1999/2000. The offense-defense balance, interdependence, and war. *Security Studies* 9:59-91.
- Magee, Stephen P. 1980. Three simple tests of the Stolper-Samuelson theorem. In *Issues in international economics*, edited by Peter Oppenheimer. London: Oriol.
- Magee, Stephen P., William A. Brock, and Leslie Young. 1989. *Black hole tariffs and endogenous policy theory*. New York: Cambridge University Press.
- Mansfield, Edward D. 1994. *Power, trade, and war*. Princeton, NJ: Princeton University Press.
- Mansfield, Edward D., and Jon C. Pevehouse. 2000. Trade blocs, trade flows, and international conflict. *International Organization* 54:775-808.
- . 2001. Institutions, interdependence, and international conflict. Paper presented at the annual meeting of the American Political Science Association, August-September, in San Francisco.
- Mansfield, Edward D., Jon C. Pevehouse, and David H. Bearce. 1999/2000. Preferential trading arrangements and military disputes. *Security Studies* 9:92-118.
- Mansfield, Edward D., and Brian M. Pollins, eds. Forthcoming. *Economic interdependence and international conflict: New perspectives on an enduring debate*. Ann Arbor: University of Michigan Press.
- Mastanduno, Michael. 1999/2000. Economic statecraft, interdependence, and national security: Agendas for research. *Security Studies* 9:288-316.
- McClelland, Charles A., and Gary D. Hoggard. 1969. Conflict patterns in the interactions among nations. In *International politics and foreign policy*, edited by James N. Rosenau. New York: Free Press.
- McMillan, Susan M. 1997. Interdependence and conflict. *Mershon International Studies Review* 41:33-58.
- Mearsheimer, John J. 1990. Back to the future: Instability in Europe after the cold war. *International Security* 15:5-56.
- Milton, Giles. 1999. *Nathaniel's nutmeg*. New York: Farrar, Straus and Giroux.
- Morrow, James D. 1999. How could trade affect conflict? *Journal of Peace Research* 36:481-89.

- Morrow, James D., Randolph M. Siverson, and Tressa E. Tabares. 1998. The political determinants of international trade: The great powers, 1907-1990. *American Political Science Review* 97:649-61.
- Mussa, Michael. 1974. Tariffs and the distribution of income: The importance of factor specificity, substitutability, and intensity in the short and long run. *Journal of Political Economy* 82:1191-203.
- Oneal, John R., Frances H. Oneal, Zeev Maoz, and Bruce Russett. 1996. The liberal peace: Interdependence, democracy, and international conflict, 1950-1985. *Journal of Peace Research* 33:11-28.
- Oneal, John R. and Bruce M. Russett. 1997. The classical liberals were right: Democracy, interdependence, and conflict, 1950-1985. *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 organizations. *World Politics* 52:1-37.
- Papayouanou, Paul A. 1996. Interdependence, institutions, and the balance of power: Britain, Germany, and World War I. *International Security* 20:42-76.
- Penebarti, Mohan, and Michael D. Ward. 2000. Commerce and democracy. Working paper no. 6, Center for Statistics and the Social Sciences, University of Washington, Seattle.
- Pevehouse, Jon C. 2001. *Who's fighting? Measuring conflict in the interdependence debate*. Department of Political Science, University of Wisconsin, Madison.
- Polachek, Solomon W. 1980. Conflict and trade. *Journal of Conflict Resolution* 24:55-78.
- . 1992. Conflict and trade: An economics approach to political international interactions. In *Economics of arms reduction and the peace process*, edited by Walter Isard and Charles Anderton. Amsterdam: North-Holland.
- . Forthcoming. Trade-based interactions: An interdisciplinary perspective. *Conflict Management and Peace Science*.
- Polachek, Solomon W., and Judith McDonald. 1992. Strategic trade and the incentive for cooperation. In *Disarmament, economic conversions and the management of peace*, edited by Manas Chatterji and Linda Rennie Forcey. New York: Praeger.
- Polachek, Solomon W., John Robst, and Yuan-Ching Chang. 1999. Liberalism and interdependence: Extending the trade-conflict model. *Journal of Peace Research* 36:405-22.
- Pollins, Brian M. 1989a. Conflict, cooperation, and commerce. *American Journal of Political Science* 33:737-61.
- . 1989b. Does trade still follow the flag? *American Political Science Review* 83:465-80.
- Pollins, Brian M., and Grant Kirkpatrick. 1987. Modeling an international trade system. In *Communication and interaction in global politics*, edited by Claudio Cioffi-Revilla, Richard L. Merritt, and Dina Zinnes. Beverly Hills, CA: Sage.
- Pollins, Brian M., and Rafael Reuveny. 2000. The liberal peace: Testing propositions in a simultaneous framework. Paper presented at the annual convention of the International Studies Association, March, in Los Angeles.
- Quinn, Dennis. 1997. The correlates of change in international financial regulation. *American Political Science Review* 91:531-51.
- Reuveny, Rafael, and Heejoon Kang. 1998. Bilateral trade and political conflict/cooperation: Do goods matter? *Journal of Peace Research* 35:581-602.
- Ripsman, Norrin M., and Jean-Marc F. Blanchard. 1996/97. Commercial liberalism under fire: Evidence from 1914 and 1936. *Security Studies* 6:4-50.
- Rodrik, Dani. 1995. Political economy of trade policy. In *Handbook of international economics*, vol. 3, edited by Gene M. Grossman and Kenneth Rogoff. Amsterdam: Elsevier.
- Rogowski, Ronald. 1989. *Commerce and coalitions: How trade affects domestic political alignments*. Princeton, NJ: Princeton University Press.
- Rosecrance, Richard. 1986. *The rise of the trading state: Commerce and conquest in the modern world*. New York: Free Press.
- Rosecrance, Richard, Alan Alexandroff, Wallace Koehler, John Kroll, Shlomit Laqueur, and John Stocker. 1977. Whither interdependence. *International Organization* 31:425-71.
- Rosecrance, Richard, and Arthur Stein. 1973. Interdependence: Myth or reality? *World Politics* 16:1-27.

- Russett, Bruce, and John Oneal. 2001. *Triangulating peace: Democracy, interdependence, and international organizations*. New York: Norton.
- Russett, Bruce, John 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.
- Sachs, Jeffrey D., and Andrew Warner. 1995. Economic reform and the process of global integration. *Brookings Papers on Economic Activity* 1:1-95.
- Snyder, Glenn H., and Paul Diesing. 1977. *Conflict among nations: Bargaining, decision making, and system structure in international crises*. Princeton, NJ: Princeton University Press.
- Solingen, Etel. 1998. *Regional orders at century's end: Global and domestic influences on grand strategy*. Princeton, NJ: Princeton University Press.
- Staley, Eugene. 1939. *The world economy in transition*. New York: Council on Foreign Relations.
- Stein, Arthur A. 1993. Governments, economic interdependence, and international cooperation. In *Behavior, society, and nuclear war*, vol. 3, edited by Philip E. Tetlock, Jo L. Husbands, Robert Jervis, Paul C. Stern, and Charles Tilly. New York: Oxford University Press.
- Stolper, Wolfgang, and Paul A. Samuelson. 1941. Protection and real wages. *Review of Economic Studies* 9:58-73.
- Tetreault, Mary Ann. 1980. Measuring interdependence. *International Organization* 34:429-43.
- Viner, Jacob. 1951. *International economics*. Glencoe, IL: Free Press.
- Wallerstein, Immanuel. 1984. Long waves as a capitalist process. *Review* 7:559-75.
- Waltz, Kenneth. 1970. The myth of national interdependence. In *The international corporation*, edited by Charles P. Kindleberger. Cambridge, MA: MIT Press.
- Weede, Erich. 1995. Economic policy and international security: Rent-seeking, free trade and democratic peace. *European Journal of International Relations* 1:519-37.
- Yarbrough, Beth V., and Robert M. Yarbrough. 1992. *Cooperation and governance in international trade: The strategic organizational approach*. Princeton, NJ: Princeton University Press.