

Dyadic effects of democratization on international disputes

Shuhei Kurizaki

*Department of Political Science, University of California,
Los Angeles, 4289 Bunche Hall, Box 951472, Los Angeles,
CA 90095-1472, USA. Email: kurizaki@ucla.edu*

Abstract

I explore the dyadic, as opposed to monadic, effect of democratization on war. Using a simple repeated game of interstate interaction, I show that, as a state shifts towards democracy, its citizens acquire more opportunities and become more willing to remove those leaders that they expect will reduce their welfare. Rational leaders anticipate this consequence, and their incentives to maintain cooperative relationships with other democracies increase as their states become democratic. The hypothesis drawn from the model predicts that democratization will have a pacifying effect in a dyadic relationship between democracies. Empirical testing is designed to isolate the dyadic effect from the monadic and to distinguish among competing hypotheses. The predictions are tested with widely used data on political institutions and militarized interstate disputes. The result shows that democratization indeed reduces the likelihood of waging war. However, this pacifying effect is largely attributed to the dyadic effect with a democratic opponent; the risk of war remains unchanged when facing a non-democratic opponent.

1 Introduction

Over the last two decades, Immanuel Kant's ([1795] 1971) vision of achieving perpetual peace through democratic government has been rediscovered and has attracted a great deal of scholarly attention, generating the rapidly growing body of research known as 'democratic peace'. The claim that democracies rarely, if ever, fight each other is regarded as one of the few

empirical laws in the study of international relations (Levy, 1988, p. 662).¹ This finding has important implications for policymaking that promotes democratization around the world as a tool of national and international security policy. Yet, the applicability of the promotion of democratization as a security policy has been questioned as nascent democracies have been reported to be more prone to involvement in war (Mansfield and Snyder, 1995b). Given the fact that more than half of the states in the Asia-Pacific are progressing towards democracy, a full understanding of the relationship between democratization and war is imperative for the scholarly and policy-making communities.

Political scientists, however, have little understanding of the precise manner in which democratization impacts the likelihood of war, primarily because scholars rarely examine how interstate strategic environments shape the incentives and choices of democratizing states. Instead, previous work has typically limited its focus to the domestic considerations that determine the foreign policy choices of democratizing leaders, and, as a consequence, the dyadic effects of democratization on international disputes have been left unexplored. This exclusive focus on monadic effects is ironic because the democratic peace literature focuses on dyadic relationships, as opposed to their monadic effects (Russett, 1993; Rousseau *et al.*, 1996).²

The goal of this study is to take a step toward filling this gap in the current literature by adopting the strategic choice perspective. Recent developments in the study of strategic interaction among states imply that the dyadic pattern of behavior may differ from the monadic one since the interstate strategic environment plays a critical role in shaping the incentives of and constraints on foreign policymaking (e.g. Lake and Powell, 1999). The empirical puzzle I attempt to shed light on, then, is as follows: what is the dyadic, as opposed to monadic, effect of democratization on the likelihood of war? I examine how regime change affects a state's utility function and hence its conflict behavior, and how that effect in turn varies depending on the regime type of an opponent. I first show that equilibrium conditions under which war is likely are determined both by domestic political institutions and interstate strategic interactions. I then draw implications about the effects of regime change on the likelihood of war by comparing these conditions under different institutional settings.

Based on the results of this analysis, I depart from the existing literature by arguing that the effect of regime change on war is *conditional* on the regime type of the opposing state. The hypothesis drawn from a theoretical analysis anticipates that democratization decreases the likelihood of war only

1 For a comprehensive review of this literature, see Chan (1997)

2 On the dyadic nature of the democratic peace, see Rousseau *et al.* (1996).

in a dyadic relationship with democracies, while the risk of war remains unchanged when facing a non-democratic opponent. An empirical assessment is developed so as not only to isolate the dyadic effect from the monadic one within a single regression equation, but also to distinguish among several competing hypotheses. The advantage of this design is its ability to simultaneously evaluate the previously explored monadic aspect and the as-yet-unexplored dyadic aspect of the effect of democratization. The analysis of interstate disputes between 1816 and 1985 shows that, consistent with Enterline (1996) and Ward and Gleditsch (1998), democratization in general reduces the likelihood of war regardless of an opponent's regime type, while there is no evidence that supports the dangerous democratization thesis posited by Mansfield and Snyder. However, the pacifying effect of democratization is primarily attributed to dyadic relations with democracies; the risk of war remains unchanged when facing a non-democratic opponent.

The paper proceeds as follows. The next section reviews the existing literature. It briefly describes two sets of arguments on this issue, identifies their theoretical and empirical problems, and then suggests a solution to those problems. Section 3 presents a simple model of the strategic calculus and choice of political leaders in international interactions. It then sets out the empirical predictions that follow from the results of this model. The fourth and fifth sections describe a design of hypothesis testing, and the data and the operationalization of the variables, respectively. Section 6 presents the results of data analysis. Some conclusions follow.

2 Democratization and war: the existing literature

The existing literature on this issue can be grouped into two categories according to the predicted effects of democratization on international disputes. The first category, which I call the 'dangerous effect' thesis, argues that democratization increases the likelihood of war. The second category, which I call the 'pacifying effect' thesis, contends that democratization reduces a state's propensity to wage war.³ In this section I briefly review these two arguments, identify their theoretical and empirical problems, and suggest a solution to them.

2.1 *Dangerous democratization*

Mansfield and Snyder (1995a,b) advanced the dangerous democratization argument, which suggests that the potentially destabilizing effects of democ-

³ There is also a third category suggesting that democratization and war are independent (Oneal and Russett, 1997; Thompson and Tucker, 1997; Enterline, 1998a). However, theoretical explanations for this finding are not explicitly stated in these studies, so they are eliminated from this review.

ratization may lead to the danger of subsequent war.⁴ In a series of articles, Mansfield and Snyder (1995a, 1996, 1997, 2002) consistently find empirical support for their main hypothesis: democratizing states have a greater probability of waging war than states not experiencing regime change.⁵ In the ‘dangerous effect’ argument, two main imperatives – political *impasse* and the office-seeking goals of leaders – are the driving force of this observation. That is, democratization often results in a period of political *impasse* in which it is difficult for new leaders not only to build policy coalitions but also to retain power (Mansfield and Snyder, 1995a, p. 26). The struggle between new and old élite groups, as both try to secure their survival and attain power in the transitional regime, leads them to appeal to nationalist sentiment, and to seek the support of the newly important mass populace. During such a transitional period, one of the most effective ways to pursue mass support is through the unifying effects of external conflict (Snyder, 2000). Accordingly, élites in nascent democracies often seek to bolster their public support by resorting to risky yet prestigious military action (Mansfield and Snyder, 1995a, p. 33). Consequently, the ‘dangerous effect’ thesis also implies that it is not only democratization *per se* but also rapid and unstable institutional change that increases the likelihood of subsequent war, which is analogous to the story of the traditional diversionary theory of war (Levy, 1989).

2.2 Democratizing for peace

Mansfield and Snyder’s dangerous democratization thesis has been challenged by several subsequent studies, which indicate that democratization has a ‘pacifying effect’ (Enterline, 1996, 1998a,b; Maoz, 1998; Ward and Gleditsch, 1998). Focusing on the initial shaping of institutions and norms, Ward and Gleditsch (1998) argue that the process characterizing domestic political changes conditions the subsequent pattern of interstate conflict. It is logically inconsistent to maintain that democratizing states are war prone, while observing peaceful relations among democratized states. ‘If transitions to democracy are dangerous’, they argue, ‘then newly institutionalizing states will rely *more* on warfare . . . because decision making will rely on

4 Note, however, that proponents of the democratic peace also suggest that fragile, transitional democracies are not necessarily bound by the democratic peace because of their unstable domestic political institutions and immature democratic norms (Russett, 1993). In this light, Mansfield and Snyder’s ‘dangerous effect’ argument does not challenge the widely accepted claim that the democratic peace proposition holds only among stable, well-established democracies (Mansfield and Snyder, 1995a, p. 21).

5 However, subsequent reassessments of Mansfield and Snyder’s (1995a) original findings indicate that their statistical analysis suffers from a number of research design flaws and that what Mansfield and Snyder claim to find does *not* actually support their central thesis (Thompson and Tucker, 1997, p. 442; see also Maoz, 1998).

international violence during an important evolutionary period' (Ward and Gleditsch, 1998, p. 53). Drawing on empirical evidence that democracies exhibit monadic pacific tendencies (e.g. Benoit, 1996), they claim that warfare cannot be a dominant and successful foreign policy of democratizing states because those states' institutions and norms tend not to reflect such reliance on warfare. These arguments lead these scholars to believe that as countries become more democratic, they become more peaceful. Empirically, Ward and Gleditsch (1998) and Enterline (1996, 1998b) find strong evidence for this pacifying effect.⁶

2.3 *Mixed evidence and the monadic focus: empirical and theoretical issues*

Unlike the firm consensus on the 'democratic peace' observation, empirical evidence on the link between democratization and war is at best mixed. Subsequent re-examinations of the 'dangerous effect' thesis have generated inconsistent empirical results and have provoked a debate over research design. These inconsistent results are puzzling because previous studies essentially employ the same data sets and a similar research design that focuses on the monadic aspect of the relationship. While the debate over research design provides rich insights into methodological issues in this literature, it also reveals that empirical evidence is highly sensitive to a particular research design.⁷

A major theoretical problem of the existing literature on democratization and war is that it fails to take into account the strategic interactions between states, and focuses exclusively on the monadic aspects of the effects of democratization. That is, both the 'dangerous effect' and 'pacifying effect' arguments focus on the domestic consequences of democratization and draw inferences about the monadic foreign policies of transitional democracies, without the systematic consideration of the opposing state's (likely) action.⁸ However, international disputes, as well as many other political phenomena, involve mutually interdependent decisions, in which each player makes

6 Interestingly, those studies that argue that democratization has a pacifying effect also find support for one of Mansfield and Snyder's (1995a,b) claims: the more intense or rapid the transition is, the more likely democratizing states are to be involved in war. See, for example, Ward and Gleditsch (1998).

7 The major debates appeared in *International Security* and *Journal of Conflict Resolution*. See Enterline (1996), Mansfield and Snyder (1996, 1997), and Thompson and Tucker (1997).

8 Notable exceptions are Enterline (1998b) and Oneal and Russett (1997). While Oneal and Russett (1997) find no evidence of the dyadic effect of democratization on war, their argument is unclear since no theoretical exposition is explicitly provided. Insightful discussion of the consequences of democratization for the strategic interaction between states is found in Enterline (1998b), which links the symbolism and signaling functions of regime change to neighboring states' foreign policy.

decisions conditional on the past decisions made by others and on its anticipation of the decisions that others are likely to make.

For example, Mansfield and Snyder (1995a,b) implicitly assume that leaders make their decisions solely based on domestic imperatives such as political *impasse* or their office-seeking goals, and then posit that leaders in transitional democracies are likely to employ aggressive foreign policies in an attempt to maximize their prospects of remaining in power. However, while it seems plausible that leaders facing political challenges have an incentive to acquire mass support through a rally-round-the-flag ‘diversionary’ war, there is no logical reason why leaders should resort to ‘war’ whenever they seek popular support. In reality, not all states experiencing domestic turmoil become belligerent. The domestic context alone does not account for the occurrence of an international dispute; the interstate strategic setting also strongly affect a leader’s decision.

Together, these theoretical and empirical problems boil down to a single issue: the dyadic effect of democratization on war remains unexplored. The failure to isolate dyadic from monadic effects may result in a situation in which these two effects cancel out each other (in observing the overall effect of democratization on war), provided that the dyadic and monadic effects have different impacts (i.e. positive or negative). This may explain why existing evidence is inconsistent and sensitive to subtle details of research design.

My solution to these theoretical and empirical problems is to explore the previously unexamined dyadic aspect of the effect of democratization on war from a strategic choice perspective. This solution may allow us to unravel the complexity of the monadic and dyadic effects of democratization. In doing so, I depart from the existing literature by arguing that the effect of democratization on war is *conditional*: the causal effect of regime change on the likelihood of war varies, depending on the opponent’s regime type.⁹

As is apparent from Table 1, while the empirical regularity of the democratic peace was ‘discovered’ by looking at the dyadic aspect of stable democracies’ foreign policies (e.g. Bueno de Mesquita and Lalman, 1992; Russett, 1993; Rousseau *et al.*, 1996), the dyadic aspects of the foreign policies of transitional democracies have not been explored. This lacuna represents a gap in our understanding of democratization’s effect on peace and war. The remainder of this paper is an attempt to plug this gap.

9 Bueno de Mesquita *et al.* (1999) point out the relevance of the dyadic focus in analyzing the relationship between democratization and war.

Table 1 The existing literature

	Stable democracies	Transitional democracies
Monadic effect	The democratic pacifist thesis (Benoit, 1994; Hewitt and Wilkenfeld, 1996; Rummel, 1983, 1995)	Dangerous democratization (Mansfield and Snyder, 1995a, 2002) Democratizing for peace (Enterline, 1996, 1998b; Maoz, 1998; Ward and Gleditsch, 1998)
Dyadic Effect	The democratic peace thesis (Russett, 1993; Rousseau <i>et al.</i> , 1996; Bueno de Mesquita <i>et al.</i> , 1999)	Unexplored issue

3 Theory

Regime change often involves rearrangements of political institutions. Political institutions define the rules of the game in a society, which in turn structure incentives in political interaction. Regime change is then associated with institutional change that shapes the way societies evolve over time (North, 1990, p. 3).¹⁰ With this institutional focus in mind, I assume that as far as questions concerning the effect on foreign policymaking are concerned, regime change can be represented by the change in a state's utility function.

Regime change can be thought of as a catalyst for a possible shift in a state's utility function and hence its conflict behavior. This may be because regime change often results in changes to the rules of the game and thereby induces different incentive structures. The idea that a change in the form of government also modifies policy preferences is not particularly novel. In analyzing the formation and dissolution of alliances, for example, Morrow (1991, pp. 916–917) points out that one of the conditions that motivates a state to modify its foreign policy is a change in the state's utility function 'through shifts in government'.¹¹ I adopt this analytical perspective, and explicitly take the interstate strategic interaction into account when considering the relationship between democratization and war.¹²

How can we assess the effect of regime change on a state's utility function

10 Democratization is thus defined as a shift toward a political system with such institutional characteristics as free and fair elections, freedom of speech, public and contested competition with opposition, and so on.

11 Drawing on Morrow's theory, Siverson and Starr (1994) show that regime change has significant impacts on a state's restructuring of its alliances.

12 Of course, all regime change is not the same in its form, type and direction along the democracy and autocracy continuum, and so on. In fact, shifts in the utility function are not the only consequence of regime change. Yet, in order to isolate the effect of democratization on the propensity for war, I focus on the change in incentives and constraints that leaders face, ignoring many other aspects of regime change.

and hence the likelihood of war? One straightforward way to do so is to compare conditions for cooperation or conflict before and after regime change, as a function of the strategic calculus and choice of leaders. I take two steps to accomplish this. First, I specify the equilibrium conditions under which cooperation occurs. These conditions are determined both by the institutional characteristic of political accountability and the interstate strategic environment. As a second step, by using these equilibrium conditions specified under various institutional settings, I draw some implications about the impact of regime change on the likelihood of war. In the next subsection, I present a basic model of repeated interstate interaction built around the repeated prisoner's dilemma (PD). Conditions are derived in which a kind of tit-for-tat strategy can reach equilibrium. I then construct another equilibrium that incorporates domestic political selection processes, analogous to the 'agent-specific grim trigger' strategy of McGillivray and Smith (2000).

3.1 A model of an interstate interaction

To capture the strategic calculus and choices of states in international relations, we need to begin with a consideration of the basic form of interstate 'strategic' interaction. Consider a pair of states engaging in infinitely repeated plays of the PD. In each period, each state can choose to play one of two strategies: cooperate or defect. An interaction will result in one of four different outcomes: either both cooperate (CC), both defect (DD), or one defects unilaterally while the other cooperates (CD and DC). The stage game's payoffs are shown in Table 2. A state may place a greater value on short-term gains than long-term gains in future periods. Let δ be the discount factor that represents the present value of a sequence of future payoffs, where $0 < \delta < 1$. If the interstate interaction takes place quite frequently, then δ is close to one, whereas if the interaction is quite infrequent, then δ is close to zero.

Suppose that this PD is to be played repeatedly. One equilibrium is, of course, for states always to defect. There are other equilibria in which cooperation occurs. Among a variety of strategies that support cooperation in

Table 2 The stage game

		State B	
		Cooperate	Defect
State A	Cooperate	R, R	S, T
	Defect	T, S	P, P

$$T > R > P > S \text{ and } T + S < 2R.$$

equilibrium, consider the *contrite tit-for-tat* (cTFT) strategy (Boerlijst *et al.*, 1997; see also Bendor, 1993; Wu and Axelrod, 1995; Signorino, 1996). The cTFT is different from the standard tit-for-tat in that if a player unilaterally defects and is then punished, it does not retaliate, as opposed to the indefinite sequence of punishments in every other period. This strategy involves two types of standing: *good* and *bad*. Both players begin the game in good standing. In subsequent periods, the players act and obtain a new standing, depending on their own actions and on the previous standing of both players. A player is in good standing if it has cooperated in the previous period, or if a player defected to punish the defector. A player is in bad standing if it has unilaterally defected when the opponent is in good standing. To regain good standing in the next period, a player must cooperate in the current period if one is in bad standing or if its partner is in good standing.

A state's standing can be interpreted in many ways. A natural interpretation is reputation or political posture. For example, Iraq gained bad standing by invading Kuwait in 1991. This invasion prompted UN military sanctions, leading to the first Gulf War. Once Saddam Hussein had withdrawn his armed forces from Kuwait, UN forces stopped pursuing Iraqi troops. Although Hussein's regime did not return to good standing after the end of the Gulf War, its 'punishment' for invading Kuwait did not last after Iraq capitulated to UN forces.

Unlike the standard TFT strategy, cTFT constitutes a subgame perfect equilibrium (SPE) in which cooperation is supported. The conditions for such an equilibrium depend on the value of the discount factor such that the strategy profile in which each state plays cTFT is a SPE if

$$\delta \geq \max\left(\frac{T-R}{R-S}, \frac{P-S}{R-S}\right)^{13}$$

This Axelrodian condition states that cooperation is possible as long as the 'shadow of the future' is long enough for the punishment mechanism to counteract the temptation to defect.

The result, however, implies the difficulty of avoiding the mutually undesirable outcome in the context of international 'militarized' interaction, since an international conflict is a relatively rare event and hence the discount factor is usually small. When a state anticipates infrequent future interaction, and hence becomes less patient, unilateral defection becomes

13 A proof of this argument is simply based on the one-period deviation principle, which is readily available elsewhere, and hence I omit it here (e.g. Fudenberg and Tirole 2000, pp. 108–110). Formal solutions and proofs are available from the author upon request. The proof provides the logic with which cooperation can be maintained.

beneficial for a state. In other words, the infrequency of international disputes easily overcomes the ‘shadow of the future’ necessary to maintain cooperation.

3.2 Incorporating domestic politics: tit-for-tat with domestic selection

While it may be the case that the structure of the international system induces an insufficient discount factor δ , it is still possible to support cooperation in equilibrium if there is an additional deterrent mechanism. The recent development of microfoundations for domestic influences on foreign policy indicates that domestic political institutions provide such mechanisms (e.g. Fearon, 1994). This could be accomplished if political institutions allowed a domestic selection to entail some degree of governmental accountability.

Accordingly, I modify the interstate interaction game specified above by adopting the ‘agent-specific’ punishment mechanism proposed by McGillivray and Smith (2000). In common with McGillivray and Smith (2000) and the related literature, the modified game rests on principal–agent relations. The government, acting as a state’s agent, assumes the responsibility to make and implement foreign policy on behalf of the people, the principals. Principal–agent relations are based on the following behavioral assumptions.

The first assumption is that of office-seeking agents. Agents inherently value holding office and hence seek to maximize their chance of staying in office, as they simply enjoy being in power or as a means to pursue their policy objectives. However, agents are subject to removal in one way or another, but want to be selected. This implies that agents care about how principals evaluate their foreign policy performance, since this evaluation affects their chances of holding office in the future. Agents must therefore act in a manner to anticipate the potential principal reaction to their performance to accomplish their goals, and enhancing the benefits of the principals is a feasible way to do so.

The second assumption is that of retrospective-voting principals. In domestic selection processes, the principals reward or punish their agents for their foreign policy performance.¹⁴ If the agents’ performance improves the welfare of the principals, then they reward the incumbent agents by main-

¹⁴ Although this ‘sanction’ assumption is widely employed in the so-called exogenous audience costs model of crisis bargaining (e.g. Fearon, 1994, 1997), it suffers from poor empirical support and theoretical inconsistencies (Guisinger and Smith, 2003; Ramsay, 2003; see also Fearon, 1999). Nevertheless, since the goal of the game-theoretic exercise here is to elucidate a basic logic of dyadic effects of regime change on foreign policy, it is sufficient to base its argument on a ‘sanction’ model of accountability despite its problems.

taining them in office, but otherwise the principals punish their agents by replacing them with a new agent.¹⁵

I also assume that free and fair election is just one instance of agent selection, so that principal–agent relations and related assumptions are relevant in autocracies as well as in democracies (Fearon, 1994; Bueno de Mesquita and Siverson, 1995; Goemans, 2000; McGillivray and Smith, 2000). While all agents seek some incumbency advantages and face some possibility of removal, states differ from each other institutionally and so does the cost incurred by the principals if they punish the agents. It is just that the costs for principals to remove their leaders vary across different domestic institutions.¹⁶ Thus, all agents in all states are accountable to some extent. Agents may be more accountable if political institutions keep down the costs of removing agents, as in a democracy, whereas agents may be less accountable if the institutional arrangement of removing agents requires relatively high costs, as in an autocracy.

Given these assumptions, the modified game allows the principals opportunities to replace their agents by adding the domestic selection phase.

1. Agents in two states, A and B, play the PD substage game with the payoffs specified in Table 2. In addition, by staying in power, agents obtain office-holding rewards V .
2. The principals in each state, A and B, get payoffs associated with the outcome of the interstate interaction in the phase 1; hence they know its outcome and their agents' choices. Then, the principals decide whether to replace their agents at a cost of K , where $0 \leq K \leq 1$.
3. The agents in each state, A and B, observe the outcome of the domestic selection process in phase 2 in states A and B.

According to the office-seeking assumption, agents obtain office-holding rewards V in phase 1, in addition to payoffs from the interstate PD specified in Table 2. Having played the international phase of the game (phase 1), each incumbent agent is subject to domestic selection (phase 2). By the retrospective-voting assumption, the principals of each state evaluate their respective agents' performance in the interstate PD (phase 1) when they decide whether to replace or retain the incumbent agents (phase 2). The

15 While domestic punishment is rarely observed, that does not necessarily undermine the plausibility of these assumptions. Rather, punishment is not readily observable either because of successful deterrence by the principals' threats of punishment, or because of the high costs of replacing agents due to the lack of institutional arrangements for accountability. On the difficulty of observing the domestic punishment and its effects, see Schultz (2001). On the high cost of replacing agents, see the discussion below.

16 Electoral institutions are not the only institutions that tend to establish governmental accountability, and an election is just one of many methods of political participation that may influence and control the agents.

degree to which agents are accountable to the principals is determined by the magnitude of costs of removing agents, K . States with relatively low K , like democracies, have reliable institutional arrangements of political accountability, such as free and fair elections. On the other hand, states with relatively high K , like autocracies, have weak institutional support for accountability, a practical example of which is opposition to freedom of speech.

Now let us define the modified cTFT strategy for the agents and the principals in the presence of domestic selection. To the cTFT strategy I add the condition that if the agent in state A fails to follow the strategy in phase 1, the principals replace their agents in phase 2 at a cost of K whenever agents deviate from the strategy in phase 2. Because each agent begins the stage game in the cooperative relationship in phase 1, and because the outcome of domestic selection is observed in phase 3, the states in the non-cooperative relationship return to the mutually cooperative relationship immediately upon replacing the defecting agent in phase 1. But it is also possible that a state may deviate from this strategy as principals fail to punish their agent due to the high costs of doing so. I shall refer to this version of cTFT strategy as the *contrite tit-for-tat with domestic selection* (cTFT/DS) strategy.¹⁷

As discussed in the previous section, it is possible to specify conditions on the discount factor δ so that for the agents playing, cTFT/DS is in equilibrium. The following proposition expresses how δ , K and V affect the conditions that support cooperation.¹⁸

Proposition: *The strategy profile in which all players use cTFT/DS in each round is a subgame perfect equilibrium of the interstate interaction game specified above if and only if*

17 The cTFT/DS strategy is an extension of McGillivray and Smith's 'agent-specific grim trigger' (ASGT), in which a state seeks to punish the agents rather than the nation as a whole (McGillivray and Smith, 2000, p. 809). However, the two strategies differ in an important way. The cTFT/DS strategy does not require the strong ASGT assumption that a state's foreign policy change is conditional on the opponent's polity change. This assumption implies that once a state defects, other states keep punishing the defecting state forever – even if such a contingency is off the equilibrium path. The analysis here shows that this implausible assumption is not necessary to derive the equilibrium in which polity change induces a state to shift its foreign policy. Hence, it seems more reasonable to assume that a state simply conditions its foreign policy on the opponent's policy and political posture, not necessarily on its regime type. cTFT strategy captures this assumption nicely. McGillivray and Smith (2000, p. 819) recognize the problems generally associated with GT strategy by referring to 'renegotiation proof'. However, the ASGT strategy can be renegotiation proof only if an agent is accountable, but it fails for unaccountable agents. This is simply because ASGT strategy is not a subgame perfect equilibrium if and only if an agent is not accountable by their definition.

18 It is easy to show that the strategy profile in which all players use cTFT/DS in each round is a subgame perfect equilibrium. The argument is a simple extension of the one-stage deviation principle and hence is omitted. See also note 13.

$$\delta \geq \max\left(\frac{T-R}{T-R+V}, \frac{K}{R-P+K}\right)$$

The upper bound on K is $\delta(R-P)/(1-\delta)$.

The equilibrium analysis suggests that rational principals immediately remove the incumbent agent who has defected, as long as the cost of removing the agent is sufficiently low such that $K < \delta(R-P)/(1-\delta)$. If a rational agent could anticipate the principals' equilibrium behavior, it would never defect.

The proposition indicates that principal-agent relations may promote cooperation among states by adding another deterrent mechanism and hence making deterrent threats more efficient. Deterrence now functions between agents and their principals, as well as between states. That is, the principal's threats of removal (or domestic audience costs) can also deter the agents from unilateral defection. Anticipating the principals' likely reaction to defection, the agents would avoid jeopardizing their tenure in office, as they seek office-holding rewards V in the future. In addition, even if unilateral defection occurs despite the deterrent effect of domestic punishment, the principals could restart cooperation more quickly by replacing the defecting agent with a new one.

However, both the credibility of the deterrent effect through the principals' threats of punishment and the feasibility of replacing the agents largely hinge on the magnitude of the costs associated with removal, K . As the proposition indicates, the condition under which all players use the cTFT/DS strategy in equilibrium requires a sufficiently low value of K . Let K^* denote the value of the upper bound on K such that $K^* = \delta(R-P)/(1-\delta)$. If $K > K^*$, the peace-promoting mechanisms of the principal-agent relations become virtually dysfunctional – as the principals would not and cannot replace the defecting agents even if not doing so invites longer international punishment. Thus, the critical value K^* divides the pattern of interaction within a dyad into two cases. Table 3 summarizes these two patterns of interaction, characterized by the lower bound on discount factor δ necessary for cooperation, and two types of institutional arrangements according to the value of K . For the two mechanisms above to counteract the agent's temptation to deviate from the strategy, it is necessary that the states be equipped with institutional arrangements that lower the costs of removal (i.e. $K \leq K^*$), such as free elections.¹⁹ While there are many different

¹⁹ Thus, for the cooperative relationship to emerge, it is not necessary to assume that a state can observe the degree to which the opposing state is accountable. See, for example, Bueno de Mesquita and Lalman (1992, p. 156).

Table 3 The dyadic interstate interactions

		State B	
		Accountable ($K \leq K^*$)	Non-accountable ($K > K^*$)
State A	Accountable ($K \leq K^*$)	$\max\left(\frac{T-R}{T-R+V}, \frac{K}{R-P+K}\right)$	$\max\left(\frac{T-R}{R-S}, \frac{P-S}{R-S}\right)$
	Non-accountable ($K > K^*$)	$\max\left(\frac{T-R}{R-S}, \frac{P-S}{R-S}\right)$	$\max\left(\frac{T-R}{R-S}, \frac{P-S}{R-S}\right)$

Note: Entries are the lower bounds for discount factor necessary to support cooperation within a dyad consisting of two types of political institutions, when cTFT/DS strategy is played, where $K^* = \delta(R-P)/(1-\delta)$.

interpretation of K , one natural interpretation of this variable is the level of accountability.

Table 3 shows that a domestic selection process in the presence of healthy accountability (i.e. $K \leq K^*$) makes cooperation possible under conditions that weak accountability (i.e. $K > K^*$) could not maintain. To see this more precisely, suppose we have a dyad in which either state A or B is not sufficiently accountable. Then, even if both states A and B use cTFT/DS strategies, the behavioral pattern in this dyad is identical to the one generated under cTFT, where no domestic selection takes place. Consequently, for cooperation to be supported in this kind of dyad, it must be the case that $\delta \geq \max\{(T-R)/(R-S), (P-S)/(R-S)\}$. This implies that the conditions for cooperation with the cTFT/DS strategy would fail unless both agents are accountable enough (i.e. $K \leq K^*$). Notice that the bound on δ is lower using cTFT/DS than with cTFT, so that cTFT/DS makes it much easier to achieve cooperation than it was using cTFT. That is to say, the prospect of mutually cooperative behavior in democratic dyads with healthy accountability is better than in mixed and non-democratic dyads. This behavior in equilibrium is analogous to the finding of McGillivray and Smith (2000) and may be called ‘democratic peace’.²⁰

3.3 Conditional effects of regime change on war

Having specified conditions that support cooperation in equilibrium under various institutional settings, we can now explore some implications of the impact of democratization on war. Table 4 displays some representative

²⁰ It is worth recalling that this result is obtained with an assumption that is not nearly as strong as McGillivray and Smith’s. I simply assume that a state changes its policy in response to the opponent’s *policy* change, rather than *polity* change.

Table 4 Dyadic effects of regime change on international interaction

State A	More democratic ←			→			Less democratic			
Accountability, K	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	10.0
State B										
Accountable ($K \leq K^*$)	0.091	0.167	0.231	0.286	0.333	0.375	0.412	0.444	0.474	0.500
Non-accountable ($K > K^*$)	0.667	0.667	0.667	0.667	0.667	0.667	0.667	0.667	0.667	0.667

Note: Entries are numerical examples of the lower bound on discount factor δ necessary to support cooperation through pursuit of a cTFT/DS strategy as a function of the standard payoffs of PD (i.e. $T = 4$, $R = 3$, $P = 2$ and $S = 1$) and the opponent regime type. The lower the value of K , the greater the political accountability, and hence the more democratic a state is.

values of the lower bound on discount factor δ necessary for cooperation among states A and B, given the costs of replacing the agents K and a standard numerical example of the PD payoffs (i.e. $T = 4$, $R = 3$, $P = 2$ and $S = 1$).

Table 4 shows two basic facts: (i) the effect of K on δ is conditional on the type of political institution of the opposing state; (ii) δ decreases as K decreases when facing an accountable opponent, while K has no impact on δ when facing a non-accountable opponent. This means that the degree of accountability in state A as measured by the costs of removing the agents, K , has no effect on the likelihood of cooperation until the cost of removal in state B drops below the threshold K^* . Below this threshold, changes in the cost of removal and hence shifts in the degree of governmental accountability in state A have large impacts on the prospect for mutually cooperative behavior. Suppose that the costs of removal in state B are sufficiently high ($K > K^*$). In this case, the degree of accountability in state A has no effect on the discount factor δ , so that a relationship between states A and B remains unchanged even if state A becomes more accountable. Suppose, on the other hand, that political institutions in state B guarantee sufficiently low costs of removal ($K \leq K^*$). Then, as the costs of removal in state A decrease, the pattern of interaction with accountable state B evolves into the same pattern generated by cTFT/DS, so that it becomes more likely that the mutually cooperative relationship in this interaction will be maintained. For example, if political institutions in state A change so that the costs incurred by the principals to replace the agents, K , increase from virtually no cost (0.1) to the highest possible cost (1.0), then the behavioral pattern of state A towards accountable state B is more likely to become cooperative as the lower bound on the discount factor δ decreases from 0.500 to 0.091.

The logic behind this result is straightforward. As a state becomes more accountable, the principals obtain more opportunities and become more willing to remove agents who are expected to reduce the principals' welfare.²¹ Anticipating this consequence, rational agents attempt to avoid unilateral defection against accountable opponents, since doing so would be more costly, as the risk of losing V in the future increases when K decreases. Consequently, as political institutions attain a higher degree of governmental accountability, agents' incentives to avoid the breakdown of mutually cooperative relationships with accountable states grow stronger. Recall that even if the agents face these incentives to behave accordingly, when facing non-accountable states ($K \leq K^*$), the behavioral pattern of interaction with such states does not converge to the one specified in the equilibrium strategy in the proposition.

Now, these results suggest that, in the context of interstate 'militarized' interactions, the effect of institutional change on the likelihood of war is *conditional* on the regime type of the opposing state. Following convention, I shall refer to a state with a low cost of removal as a democracy ($K \leq K^*$), and to a state with a high cost of removal as a non-democracy ($K > K^*$). It follows, then, that when the opposing state is a non-democracy, democratization has no impact on the likelihood of war. But when facing a democratic opponent, the likelihood of war becomes lower as a state becomes more democratic. As discussed above, this may be because when shifting toward a democratic system, a transitional state enters into a mutually cooperative relationship with other democracies. These empirical predictions imply that the nature of the effect of regime change on war is primarily *dyadic* as opposed to *monadic*, as the existing literature suggests. This, I argue, is how the relationship between democratization and war works. I label this result the 'conditional effect' argument.

The 'conditional effect' argument is not inconsistent with Mansfield and Snyder (1995a,b) in that leaders desire to stay in power, but it does not necessarily embrace their claim that such office-seeking leaders seek prestigious victories in foreign affairs in order to bolster mass public support and hence to enhance their authority over their constituencies. The analysis indicates that even if leaders, for one reason or another, face incentives to please their constituencies by delivering the short-term, higher payoff T to them, domestic audience costs – generated through domestic selection – may counteract such temptation more strongly in their relations with other democracies as a state becomes more democratic. Thus, Mansfield and Snyder's (1995a,b) claim that leaders who desire to retain power resort to belligerent foreign

21 Put differently, feasible domestic selection provides the people with a means of punishing their leaders who deviate from an internationally optimal strategy.

policies does not hold under conditions specified in the proposition.²² Further, this finding – that the behavioral pattern of democratizing states' foreign relations converges to the behavioral norm among democracies – seems to some extent parallel to Ward and Gleditsch's (1998) conjecture that democratizing states' pattern of interstate conflict evolves into democratic peace.

4 Hypothesis testing

Now that our theoretical predictions of the impact of shifts in political institutions on the likelihood of war have been specified, we turn to an empirical investigation. In order to enhance the empirical evaluation of the conditional effect argument, I compare it with a set of competing hypotheses drawn from the existing literature. In this section, I present the hypotheses to be tested and consider a strategy of hypothesis testing that allows us to differentiate between hypotheses.

4.1 Hypotheses

The analysis of the theoretical model advances the 'conditional effect' argument, which suggests that the effect of regime change on war is conditional on the opponent's regime type. In particular, it anticipates that democratization has a pacifying effect only in terms of relationships with other democracies, while changes in political institutions do not affect a state's relationships with non-democracies. By contrast, a set of monadic arguments – the dangerous effect and pacifying effect arguments – implies that the effect of democratization on the likelihood of war does not vary across different opponent types.

Even though these two monadic arguments contain rich empirical detail, for the purpose of the comparative assessment, I focus on one empirical implication that is central to the concerns addressed here: the relationship between democratization and the risk of war. The dangerous effect argument advanced by Mansfield and Snyder (1995a,b) posits that democratizing states have a greater probability of waging war than states not experiencing regime change. Likewise, another branch of the monadic argument, the pacifying effect argument, suggests that democratization reduces a state's propensity for war in any kind of interstate relationship (Enterline, 1996, 1998b; Ward and Gleditsch, 1998). Besides these monadic effect arguments,

22 More broadly, the 'conditional effect' argument suggests that foreign adventurism is never successful but is always punished in a democratic polity, since it represents a unilateral shift to defection. In other words, the 'diversionary theory' of war does not apply to democracies since the story of diversionary foreign policy is typically built on the autocratic setting that may involve myths of nationalism and imperialism. See Levy (1989) and Snyder (2000).

there is another important argument that forms the null hypothesis in this study: democratization and the propensity for war are independent (Enterline, 1998a; Oneal and Russett, 1997; Thompson and Tucker, 1997). The following are summary statements of each of these arguments.

Hypothesis 1 (null): Democratization has no systematic effect on the probability of war against either democracies or non-democracies.

Hypothesis 2 (dangerous effect): Democratization increases the probability of war, regardless of the opposing state's regime type. This effect holds across any kind of dyadic relation.

Hypothesis 3 (pacifying effect): Democratization decreases the probability of war, regardless of the opposing state's regime type. This effect holds across any kind of dyadic relation.

Hypothesis 4 (conditional effect): The effects of regime change on war vary depending on the regime type of the opponent. In particular, democratization decreases the likelihood of war only in a state's relations with other democracies, while it has no systematic effect on war when facing a non-democratic opponent.

Table 5 indicates specific empirical predictions drawn from each of these four hypotheses. The null hypothesis (H1), of course, predicts no systematic effect of democratization on war in any kind of relationship. The dangerous effect hypothesis (H2) predicts that democratization has a positive effect on the likelihood of war in general. While H2 implies the positive effect of democratization on war in every dyadic relationship, it does not explicitly

Table 5 Hypotheses for the effects of democratization on war

The effect of democratization on the likelihood of . . .	Hypothesis 1: <i>null</i>	The decision-theoretic perspective		The strategic choice perspective
		Hypothesis 2: <i>dangerous effect</i>	Hypothesis 3: <i>pacifying effect</i>	Hypothesis 4: <i>conditional effect</i>
<i>Monadic aspect</i>				
War in general	= 0	+	-	(= 0/-)
<i>Dyadic aspect</i>				
War with democracies	= 0	(+)	(-)	-
<i>Dyadic aspect</i>				
War with non-democracies	= 0	(+)	(-)	= 0

Note: Entries indicate the predicted effect of democratization on the likelihood of waging war in a specific type of interstate relationship. Predictions in parentheses indicate that a hypothesis does not state its prediction explicitly, which implies that those effects should be non-systematic.

state specific predictions in a dyadic relationship. Similarly, while the pacifying effect hypothesis (H3) predicts a negative effect on the likelihood of war in general, H3 does not explicitly state the effect on dyadic relationships, even though it implies a negative effect on war, both with democracies and non-democracies. Finally, the conditional effect hypothesis (H4) predicts a negative effect of democratization on war with other democracies but no systematic effect on war with non-democracies. Again, H4 does not explicitly state its prediction with respect to the monadic effect of democratization on war. While one might argue that although specific predictions regarding the monadic effect are not stated, the overall effect of democratization on war must be zero or negative, depending on the number of democratic states in the international system at the time of a dispute. Yet, this conjecture is *ad hoc* and ambiguous. Rather, it would be straightforward to say that the model developed here implies that the monadic effect of democratization on war is not systematic and hence is expected to be statistically insignificant.

4.2 Testing

Given the four hypotheses presented above, the empirical model must accomplish the following two tasks. The first, of course, is to distinguish among the four competing hypotheses. It is clear from Table 5 that merely looking at either one of the monadic and dyadic effects does not help us distinguish one hypothesis from another, because different hypotheses yield the same prediction. For example, H1 (null) and H4 (the conditional effect) overlap, predicting that there should be no systematic effect with respect to the monadic effect of democratization on war. However, if we look at both the monadic and the dyadic effects simultaneously, we would be able to differentiate the four hypotheses, since they formulate mutually exclusive predictions with respect to the combination of the monadic effect on war in general and the dyadic effect on war with democracies.

The second task is to isolate the dyadic effect from the monadic one within a single regression equation. This can be done by creating an empirical model that allows us to identify two different causalities: the direct (monadic) effect on war with any states and the conditional (dyadic) effect on war conditional on the regime type of the opposing state. The most widely used technique to capture such a conditional causality is to introduce an interaction term into a regression equation, which can be generated by adding to a regression equation the product of the main effect and the modifying effect (Jaccard *et al.*, 1990):

$$\text{WAR}_i = \beta_0 + \beta_1 \text{CHANGE}_i + \beta_2 (\text{CHANGE}_i \times \text{DEM}d_j) + \beta_3 \text{DEM}d_j + \sum \beta_k \text{CONTROLS}_k + \varepsilon \quad (1)$$

where WAR_i represents state i 's behavior in an interstate militarized interaction. $CHANGE_i$ represents regime change experienced by state i . The interaction term, $CHANGE_i \times DEMd_j$, is a product of $CHANGE_i$ and $DEMd_j$, where $DEMd_j$ is the opponent j 's democracy dummy. This interaction term takes on a value of zero when the opposing state j is non-democratic, while it is equal to the value for $CHANGE_i$ when facing the democratic opponent. Note that the main effect of the opposing state j 's democracy dummy, $DEMd_j$, is also included even though there is no theoretical basis for the inclusion. I do so because excluding either one of main effects leads to specification error in the presence of an interaction term.

One of the advantages of this empirical model is its ability to provide a coherent answer to both the previously explored monadic aspect and the as-yet-unexplored dyadic aspect of the relationship between democratization and war. Estimating β_1 and β_2 allows us not only to separate the monadic and dyadic effects, but also to distinguish among four hypotheses through the combination of these two coefficients. β_1 and β_2 represent the monadic and dyadic effects, respectively. As the conditional effect hypothesis suggests, β_1 should be roughly equal to zero and β_2 should be negative. Each of the four hypotheses discussed above predicts the following combinations of signs for β_1 and β_2 in equation (1):

<i>Hypothesis 1 (null)</i>	$\beta_1 = 0$ and $\beta_2 = 0$
<i>Hypothesis 2 (dangerous effect)</i>	$\beta_1 > 0$ and $\beta_2 \cong 0$
<i>Hypothesis 3 (pacifying effect)</i>	$\beta_1 < 0$ and $\beta_2 \cong 0$
<i>Hypothesis 4 (conditional effect)</i>	$\beta_1 \cong 0$ and $\beta_2 < 0$

5 Suggestive evidence

While a complete empirical assessment of the conditional effect is beyond the scope of this paper, I present some suggestive evidence. Previous studies employ different aspects of behavior in international disputes, such as the onset and initiation of war and/or militarized interstate disputes (MIDs). However, the theoretical framework employed in this paper assumes that two states are already in a conflict situation, which requires the dependent variable to center on the intra-conflict behavior of each state. For the purpose of empirical evaluation of the theoretical implication, this paper, therefore, focuses on intra-conflict behavior, which is not necessarily consistent with previous findings.²³ In this sense, the evidence demonstrated in the subsequent sections is more suggestive than conclusive.

23 I have examined demoralization's effect on the onset and initiation of war in a separate study.

5.1 The data

The unit of analysis is the directed dyad, rather than the summed dyad, for two reasons. First, testing these hypotheses requires the empirical model to link a state-level attribute (i.e. regime change) to its dyadic interstate behavior. The use of the directed dyad enables us to use state-level data, while maintaining the dyadic level of analysis. Second, the summed dyad may ‘obscure which state in the dispute is in fact forcing the crisis up the escalation ladder’ (Rousseau *et al.*, 1996, p. 515). In order to evaluate the monadic effect, we need to identify each state’s behavior within a dispute by using the directed dyad.²⁴ However, using the directed dyad as the unit of analysis may violate one of the basic assumptions of statistical estimation: the independence of observations. Since the directed dyad is created by dividing a single dispute into multiple decisions, it is likely that observations in the same dyad are interdependent. To ameliorate this problem, I correct potential heteroskedasticity due to the intra-dyad interdependence of decisions, by calculating Huber–White robust standard errors that cluster observations belonging to the same dispute.

Dependent variable

The dependent variable is the conflict behavior of each state, representing whether a state in a dispute resorts to war. I use the MID data set compiled by the Correlates of War project (Jones *et al.*, 1996). MIDs are instances in which at least one state took militarized action against at least one other state, involving threats, displays or actual uses of military force (Gochman and Maoz, 1984, p. 587). This data set contains 2042 disputes and 4798 observations for the behavior of each state involved, for the period 1816–1992. The level of hostility of each state’s behavior is coded on a five-point scale: (1) no militarized action, (2) threat to use force, (3) display of force, (4) limited use of force and (5) full-scale war. Defining one state waging full-scale war in the MIDs dataset requires at least 100 battle-related fatalities or commitment of at least 1000 troops (Singer and Small, 1982). The dependent variable WAR_i is then a dichotomous variable coded 1 if the state i ’s action satisfies this definition, and 0 otherwise.

Independent variables

The main independent variables are the institutional characteristic and its change in states i and j , DEM_d_j and $CHANGE_i$, respectively. In order to facilitate comparisons with previous studies, I follow the commonly used

²⁴ The use of intra-conflict behavior as a dependent variable makes it unnecessary to employ the ‘politically relevant dyads’, which may result in measurement error and selection bias by precluding observations that would otherwise be relevant to the study.

procedure of constructing these variables, including data sources, definition and operationalization (e.g. Mansfield and Snyder, 1995a; Enterline, 1998a,b; Ward and Gleditsch, 1998). The regime score is created by subtracting the autocracy index from the democracy index reported in the POLITY III data set (Jagers and Gurr, 1996). This score ranges from -10 (least democratic) to 10 (fully democratic). DEM_d_j is coded 1 if the opponent j 's regime score is >6 , and 0 otherwise. Following Mansfield and Snyder (1995a) and Ward and Gleditsch (1998), to measure the change in state i 's political institution, $CHANGE_i$, I use a window of 10 years and calculate the difference in a state's regime score which ranges from -20 (the full autocratization), to 0 (no regime change), and to 20 (full democratization).

In addition, two more variables, namely DEM_i and $VARIANCE_i$, are included to control for other aspects of domestic institutions. DEM_i controls for the level of democracy in state i , which equals the regime score at the time of the dispute. $VARIANCE_i$ is also included to control for the intensity and/or the rapidity of regime change, since previous studies consistently find evidence that the more intensive the regime change, the higher the probability of war, regardless of the direction of regime transition or the opposing state's regime type (Mansfield and Snyder, 1995a; Ward and Gleditsch, 1998). To deal with this possible effect, following the methods used by Ward and Gleditsch (1998), I calculate the variance of regime score for a 10-year period prior to the dispute.

Besides domestic variables, two more sets of variables are included to control for the international environment and dispute attributes. I construct $CAPABILITY_{ij}$ to measure the dyadic ratio of national capabilities, using the COW military capability index, which contains three elements: military forces, economic strength and demography (Singer and Small, 1993). First, a percentage share of each element in the international system is calculated for each state. I then average the percentages of the three elements. Finally, state i 's relative capability is calculated as a ratio to the combination of three elements in both states i and j . This variable ranges from 0 to 1. When the value approaches 1, state i enjoys a preponderance of power over its opponent j . The dummy variable $ALLIANCE_{ij}$ is coded 1 if state i and opponent j share an alliance at the outbreak of the dispute, and 0 otherwise, based on the Formal Alliance Data compiled by the COW project (Singer and Small, 1984). Table 6 displays the details of coding rules and summary statistics for all seven variables.

5.2 Data analysis

A preliminary examination of the data suggests that the distribution of values on the dependent variable is highly skewed, with ~ 10 times fewer ones

Table 6 Label, definition and descriptive statistics

Variable and label	Definition	<i>n</i>	Mean or proportion	SD	Min	Max
War (WAR _{<i>i</i>})	Dummy variable coded 1 if a state <i>i</i> wages war in a dispute, and 0 otherwise.	3616	0.084	0.277	0	1
Regime change (CHANGE _{<i>i</i>})	Difference in state <i>i</i> 's regime score in the ten-year period prior to the dispute, ranging from -20 (highest level of autocratization), to 0 (no regime change), and to 20 (highest level of democratization): $X_{i,t} - X_{i,t-10}$.	4118	0.075	40.64	-19	20
Actor's democracy score (DEM _{<i>i</i>})	State <i>i</i> 's current regime score at time <i>t</i> , ranging from -10 (least democratic) to +10 (most democratic): $X_{i,t}$	4508	100.15	70.41	-10	10
Opponent's democracy dummy (DEM _{<i>d</i>})	Opposing state <i>j</i> 's democracy dummy coded 1 if the current regime score $X_{j,t}$ is greater than 6, and 0 otherwise.	4526	0.241	0.428	0	1
Intensity of regime transition (VARIANCE _{<i>i</i>})	The variance of state <i>i</i> 's regime score in the ten-year period prior to a dispute: $\frac{1}{10} \sum_{t=1}^{10} (X_{i,t} - \bar{X})^2$.	4487	50.17	130.31	0.000	1030.1
Relative capability ratio (CAPABILITY _{<i>ij</i>})	Dyadic ratio of relative national capability, ranging from 0.0 (the opposing state <i>j</i> 's power preponderance), to .5 (balance of power), and to 1.0 (a state <i>i</i> 's power preponderance): $\frac{\text{(state } i\text{'s relative capability)}}{\text{(state } i\text{'s relative capability} + \text{opposing state } j\text{'s relative capability)}}$	4247	0.496	0.344	0.000	0.999
Alliance (ALLIANCE _{<i>ij</i>})	Dummy variable coded 1 if state <i>i</i> and opposing state <i>j</i> are allied, and 0 otherwise.	4798	0.211	0.408	0	1

Table 7 The effect of regime change on war: probit estimation

Independent variables	Monadic model		Conditional model		Conditional model A	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
CONSTANT	-0.990	0.114***	-0.973	0.114***	-10.12	0.102***
CHANGE _{<i>i</i>}	-0.014	0.010*	-0.002	0.013	-0.004	0.014
CHANGE _{<i>i</i>} × DEM _{<i>d</i>}			-0.054	0.019***	-0.031	0.018**
DEM _{<i>d</i>}	-0.378	0.142***	-0.470	0.153***		
VARIANCE _{<i>i</i>}	0.004	0.003	0.002	0.003	0.002	0.003
DEM _{<i>i</i>}	-0.011	0.007*	-0.012	0.008	-0.008	0.007
CAPABILITY _{<i>ij</i>}	-0.536	0.123***	-0.539	0.124***	-0.515	0.120***
ALLIANCE _{<i>ij</i>}	0.210	0.158	-0.192	0.158	-0.151	0.157
<i>n</i>	2605		2605		1801	
Log likelihood	-6590.0		-6540.8		-2420.8	
χ ² (d.f.)	630.33(6)***		670.54(7)***		4050.87(8)***	

Note: Huber–White robust standard errors are used to control for intra-dyad interdependence.

* $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$. All tests are one-tailed.

than zeros. In 8.4% of the cases, states wage war, while 91.6% of the cases involve no war. Performing ordinal procedures such as probit estimation against this sort of ‘rare events data’ would result in biased coefficients and underestimated probability of events (King and Zeng, 2001). Nonetheless, a probit model is chosen for the sake of parsimony.²⁵ Table 7 presents the regression estimates for three models. The first column displays estimates for the monadic model, in which I replicate the monadic effect arguments advanced by the previous studies. The second and third columns report estimates for the conditional models that allow us to conduct a critical test of the competing hypotheses specified above.

Comparing the dyadic and the monadic effects on war

In the monadic model, the coefficient for the monadic effect of democratization, CHANGE_{*i*}, is negative, suggesting that democratization decreases the subsequent likelihood of waging war in a dispute against all regime types. Moreover, the CHANGE_{*i*} coefficient is statistically significant at the 0.10 level. This result renders tentative support for the ‘pacifying effect’

²⁵ The application of the methods proposed by King and Zeng (2001) to correct problems associated with ‘rare events data’ does not appear to substantially affect the results presented below, either in terms of statistical and substantive significance, or signs of coefficients. In addition, King and Zeng note that their methods are more useful when the proportion of events (1’s) in the sample is under 5% (p. 157).

argument, while it contradicts the ‘dangerous effect’ argument. While interesting, this result may be an artifact of the mixture of the monadic and the dyadic effects, since the monadic model does not separate these two causal effects. Also, the monadic model does not distinguish among the four competing hypotheses, since, as noted earlier, each of these hypotheses drawn from respective arguments is a combination of the signs of two coefficients for the monadic and dyadic effects, as shown in equation (1). As such, to test hypotheses we next examine the conditional model.

In the conditional model, the dyadic effect of democratization on war is separated from the monadic effect by introducing an independent variable for the additional effect of regime change when the opposing state is democratic. The estimation result yields the following combination of two coefficients: $\beta_1 = 0$ and $\beta_2 < 0$. The coefficient β_1 on $CHANGE_i$ remains negative but falls short of conventional statistical significance thresholds, as opposed to the negative and significant result obtained in the monadic model. This suggests that democratization has no systematic effect on the monadic likelihood of waging war against all regime types. On the other hand, the coefficient β_2 for the additional, dyadic effect of democratization $CHANGE_i \times DEMd_j$ is negative and statistically significant, meaning that democratization has a pacifying effect in dyadic relations with democracies. While the monadic model indicates that democratization has a pacifying effect regardless of the opposing state’s regime type, this effect disappears when the dyadic effect is isolated from the monadic one in the conditional model. This result suggests that the conditional effect hypothesis (H4) is well supported by the evidence, while the other three hypotheses – H1 (null), H2 (the dangerous effect) and H3 (the pacifying effect) – are rejected.

It is also important to note that the standard errors of $CHANGE_i$ in these two models are roughly the same. This suggests that the insignificance of the coefficient β_1 on $CHANGE_i$ in the conditional model is due to a decrease in the magnitude of the coefficient, rather than an increase in the standard error. This is an indication that it is the cluster of disputes against democratic opponents that systematically contributes to the reduction in the coefficient on $CHANGE_i$ in the monadic model. This result implies that previous evidence of the monadic effect of democratization on war is indeed an artifact of the failure to distinguish effects according to the opposing state’s regime type. In other words, the previous studies’ focus on the monadic aspect of the relationship between democratization and war may have resulted in a compounding of the monadic and dyadic effects.

One might have doubts about the estimation results of the conditional model, since the main effect of the opposing state’s democracy dummy $DEMd_j$ is included, even though there is no theoretical basis for the inclusion.

Recall, however, that I included DEM_d_j because excluding either component of an interaction term constitutes a specification error, which results in a biased estimate of the interaction term. Nonetheless, in order to verify the robustness of the result, I now test a modified specification excluding DEM_d_j in the conditional model A. The result reported in column 3 of Table 7 reveals that the signs of the $CHANGE_i$ and $CHANGE_i \times DEM_d_j$ coefficients remain the same as in the original conditional model, though there is a decrease in statistical significance. Thus, the dyadic nature of the pacifying effect of democratization seems fairly stable and robust. This result confirms support for the conditional effect hypothesis (H4) developed in this study.

Since the coefficient for the additional effect of democratization on war in the dyadic relations between a transitional democracy (i) and a stable democracy (j) is estimated through the interaction term $CHANGE_i \times DEM_d_j$, we can obtain a coefficient estimate for just this dyadic relationship by summing the two coefficients on $CHANGE_i$ and $CHANGE_i \times DEM_d_j$ in the original conditional model. This yields a negative coefficient ($-0.054 - 0.002 = -0.056$), which implies that democratization decreases the overall likelihood that a democratizing state wages war against a democratic opponent. Moreover, this overall effect is statistically significant ($P < 0.0002$, $\chi^2 = 14.06$ with 1 d.f.). Thus, democratization does indeed have a pacifying effect in dyadic relations with other democracies. Having found that the dyadic effect of democratization is pacifying, the next question that one might ask would be whether a democratizing state indeed behaves differently in its dyadic relations with democracies than in its monadic relations with all kinds of states. This question can be addressed as the statistical significance of the difference between the monadic and the dyadic effects. The difference between two coefficients on $CHANGE_i$ and $CHANGE_i \times DEM_d_j$ in the conditional model yields a coefficient of -0.052 , which is again statistically significant at $P < 0.072$ ($\chi^2 = 3.24$ with 1 d.f.). Thus, the nature of the effect of democratization on war is primarily dyadic, which is also meaningfully different from the monadic effect.

In all three models, the $VARIANCE_i$ coefficient remains positive but statistically insignificant. Contrary to Mansfield and Snyder's (1995a,b) conjecture and findings in other studies (e.g. Ward and Gleditsch, 1998), this result suggests that the intensity of the regime transition does not have a systematic effect on the probability of waging war.

Another domestic control variable, DEM_i , is also consistently negative but statistically insignificant except in the monadic model, which suggests that a state's current democracy level has no systematic effect on its dispute behavior. This result is inconsistent with the monadic view of the democratic peace, which posits that democracies are more peaceful towards all states

than non-democracies are (Rummel, 1983, 1995; Benoit, 1994; Hewitt and Wilkenfeld, 1996).

In addition to domestic control variables, the sign and statistical significance of the coefficients of the two other variables controlling for international factors are also stable and plausible across all models. The coefficient on $CAPABILITY_{ij}$ is negative, meaning that the more powerful state i is relative to its opponent, the less likely state i is to wage war in a dispute. The statistically insignificant coefficient on $ALLIANCE_{ij}$ suggests that once a dispute begins, a shared alliance tie has no systematic effect on a state's behavior in the dispute (Buono de Mesquita, 1981, pp. 150–152).²⁶ Overall, a likelihood ratio test indicates that the explanatory power gained by including all these control variables is statistically significant ($P < 0.000$, $\chi^2 = 164.61$ with 1 d.f.).

The interpretation of the precise nature of the dyadic effect is somewhat complicated. To understand it more intuitively, Figure 1 illustrates the dyadic effects of a state's regime change on its probability of waging war. The solid slope represents the predicted probability that a state wages war when the opposing state j is democratic (i.e. $DEM_d_j = 1$), whereas the dashed slope represents the dyadic effect of regime change when facing a non-democratic opponent (i.e. $DEM_d_j = 0$).²⁷ More precisely, the solid slope captures the conditional coefficient ($\beta_1 + \beta_2 DEM_d_j$) on $CHANGE_i$ just for dyadic relations with democracies, which is obtained by rewriting equation (1). Likewise, the conditional coefficient for regime change when facing a non-democratic opponent is represented solely by the coefficient for the monadic effect (β_1). This is because when the opposing state is non-democratic, the interaction term $CHANGE_i \times DEM_d_j$ and the modifying term DEM_d_j are always zero.

Sorting out the effect of regime change according to the opponent's regime type (DEM_d_j) leads to four possible scenarios. First, the dangerous effect hypothesis (H2) suggests that since democratization has exclusively monadic and dangerous effects, the two slopes should be identical and increasing. The second scenario – the pacifying effect hypothesis (H3) – suggests that since democratization has monadic and pacifying effects, these two slopes should again be identical, but decreasing. Third, if democratization

26 Moreover, this insignificant coefficient on $ALLIANCE_{ij}$ is not due to the multicollinearity that might inflate the standard error. The results of auxiliary regressions applied for all models in this study show that none of the insignificant variables including $ALLIANCE_{ij}$ has a greater R^2 than those of the specified models.

27 Predicted probabilities are based on the estimates of the conditional model (column 2 in Table 7), and are obtained by changing the value of state i 's regime change and opponent j 's democracy dummy (i.e. $CHANGE_i$, DEM_d_j and $CHANGE_i \times DEM_d_j$) and holding other values constant at their mean or mode.

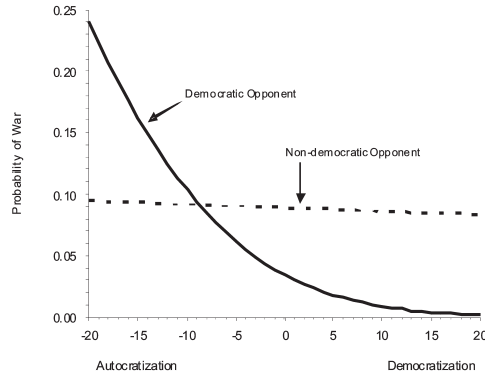


Figure 1 The dyadic effects of regime change on war: conditional model.

has a pacifying effect, and this effect has both monadic and the dyadic aspects simultaneously, the two slopes should be downward but different.²⁸ However, Figure 1 shows that the fourth scenario is at work. That is, as the conditional effect hypothesis (H4) suggests, the two slopes are distinguishable: the dashed slope is weakly decreasing, whereas the solid slope is strongly decreasing.

Figure 1 highlights how previous studies compound the two kinds of effect of democratization. The type of the opposing state alters the magnitude of the substantive impact of democratization. A regime transition towards democracy slowly decreases the probability of waging war against democracies, but as a state becomes more democratic the risk of war against other democracies drops very quickly. This result may explain why the ‘democratization for peace’ literature produces strong evidence of the pacifying effects of democratization. It appears that the dyadic impact of democratization reinforces the seemingly strong pacifying effect of democratization with a monadic framework. In addition, there is no evidence supporting the ‘dangerous democratization’ argument.

In sum, the results of empirical assessment are consistent with the predictions of the model developed in this study. In particular, they suggest that the shift of political institutions from non-democratic to democratic has a pacifying effect only in a state’s dyadic relations with democracies, whereas it has no systematic effect on either monadic relations or dyadic relations with non-democracies. Further, this result also implies that a transitional democracy’s behavioral pattern of interstate militarized interaction in its

²⁸ Yet the third scenario can further be divided into two cases depending on the sign of the coefficient on DEM_d . If the DEM_d coefficient is positive, then the dashed line should be steeper than the bold line, while if it is negative, then the bold slope should be steeper than the dashed line.

dyadic relations with democracies evolves into the behavioral norm established among democracies, which is often called ‘democratic peace.’

7 Conclusion

I have explored a previously unexamined issue in the literature: the dyadic effect of democratization on war. I began by suggesting that previous studies suffered from an exclusive focus on the monadic aspect of the democratic peace vision, and as a consequence yielded mixed predictions. This flaw may explain why the existing evidence in this literature is inconsistent and sometimes contradictory. Using a simple repeated game of interstate interaction, I have shown that as a state shifts its political institutions and gains greater governmental accountability, the principals gain more opportunities and become more willing to remove agents who are expected to undermine their principals’ welfare in the future. Rational agents anticipate this consequence, and their incentives to avoid breaking the mutually cooperative relationship with other democracies grow stronger as the regime moves towards democracy. The primary hypothesis drawn from this analysis anticipates that democratization has a pacifying effect in dyadic relationships with other democracies.

Using data on militarized interstate disputes and political institutions from 1816 to 1985, I have tested this hypothesis. Tests have shown that previous evidence of the monadic-pacifying effect is an artifact of the failure to sort out the effect according to the opposing state’s regime change. Instead, democratization reduces the likelihood of waging war in relations with democracies, whereas the risk of war remains unaffected when facing non-democratic opponents. These results suggest that the ‘pacifying effect’ argument (Enterline, 1996, 1998b; Maoz, 1998; Ward and Gleditsch, 1998) is not entirely incorrect, but holds at most in part. Democratization reduces the overall risk of war but this effect is generated particularly by the dyadic nature of its effect.

According to some observers, the democratic transition in East and Southeast Asia during the 1980s and 1990s has afforded populations more ability to influence their governments’ policies. After Nixon’s visit to Beijing and the US–China *rapprochement*, for example, it became strategically important for Taiwanese businesses and their government not to upset cooperative relations with economic partners in other democratic countries. This is one of the incentives that led to Taiwanese democratization in the 1990s (Takeuchi, 2000). The Taiwanese government’s incentives to maintain cooperative relations with democratic countries grew stronger as the regime became more accountable to its constituents’ interests. Therefore, after the transition, the Taiwanese government could not afford to break cooperative

relations, especially with democracies, because that would risk electoral support.

This study falls short of capturing the dynamics of regime change, however. This is because the model developed here ignores the heterogeneous preferences of the principals over interstate interaction, when analyzing the strategic calculus and choice of leaders in transitional democracies. That is, I ignore domestic political struggles among multiple groups (or coalitions) of domestic actors that may often be associated with regime change, and I focus on only one aspect of regime change: the utility shift associated with institutional change. In this light, it may be the case that the dangerous effect argument (H2) and the conditionally pacifying effect argument (H4) are both correct, given that the $VARIANCE_i$ coefficient in the conditional model was positive and substantively – though not statistically – significant. Recall that the conditional effect argument does not necessarily deny a potentially dangerous effect of regime change. Hence, this study does not undervalue the contribution made by the ‘dangerous effect’ thesis (Mansfield and Snyder, 1995a,b, 2002).

Yet, this problem does not fundamentally undermine the results obtained in this study. This is primarily because the conditional effect argument advanced here is not meant to capture the *complete* data generating process, but is meant to capture a *partial* process of data generation, of the link between democratization and war (Morton, 1999, ch. 4). The main contribution of this study, instead, is to show that, in common with the ‘democratic peace’, the nature of the effect of democratization on war is essentially dyadic, rather than monadic. Democratization creates a pacific relationship with democratic states, though not necessarily with non-democratic states.

Acknowledgements

This article is based on my senior thesis. My special thanks to Kuniko Inoguchi for her encouragement. An earlier version was presented at the annual meeting of the International Studies Association, Portland, OR, 25 February–1 March 2003. For helpful comments on earlier drafts, I am grateful to Matt Baum, Michael Chwe, Takashi Inoguchi, Masaru Kohno, Barb Koremenos, Brandon Prins, Ken Schultz, Art Stein, George Tsebelis, Jana von Stein, and four anonymous reviewers. All remaining errors are, as usual, solely my own.

References

- Bendor, J. (1993) ‘Uncertainty and the evolution of cooperation’, *Journal of Conflict Resolution*, 37, 709–734.

- Benoit, K. (1996) 'Democracies really are more pacific (in general): reexamining regime type and war involvement', *Journal of Conflict Resolution*, 40, 636–657.
- Boerlijst, M.C., Nowak, M.A. and Sigmund, K. (1997) 'The logic of contrition', *Journal of Theoretical Biology*, 185, 281–293.
- Bueno de Mesquita, B. (1981) *The War Trap*. New Haven, CT: Yale University Press.
- Bueno de Mesquita, B. and Lalman, D. (1992) *War and Reason: Domestic and International Imperatives*. New Haven, CT: Yale University Press.
- Bueno de Mesquita, B. and Siverson, R.M. (1995) 'War and the survival of political leaders: a comparative study of regime types and political accountability', *American Political Science Review*, 89, 841–855.
- Bueno de Mesquita, B., Morrow, J.D., Siverson, R.M. and Smith, A. (1999) 'An institutional explanation of the democratic peace', *American Political Science Review*, 93, 791–807.
- Chan, S. (1997) 'In search of democratic peace: problems and promise', *Mershon International Studies Review*, 41(May), 59–91.
- Enterline, A.J. (1996) 'Driving while democratizing (DWD)', *International Security*, 20, 183–196.
- Enterline, A.J. (1998a) 'Regime changes and interstate conflict, 1816–1992', *Political Research Quarterly*, 51, 385–409.
- Enterline, A.J. (1998b) 'Regime changes, neighborhoods, and interstate conflict, 1816–1992', *Journal of Conflict Resolution*, 42, 804–829.
- Fearon, J.D. (1994) 'Domestic political audiences and the escalation of international disputes', *American Political Science Review*, 88, 577–592.
- Fearon, J.D. (1997) 'Signaling foreign policy interests: tying hands versus sinking costs', *Journal of Conflict Resolution*, 41, 68–90.
- Fearon, J.D. (1999) 'Electoral accountability and the control of politicians: selecting good types versus sanctioning poor performance', in A. Przeworski, S.C. Stokes and B. Manin (eds), *Democracy, Accountability, and Representation*. Cambridge: Cambridge University Press.
- Fudenberg, D. and Tirole, J. (2000) *Game Theory*. Cambridge, MA: MIT Press.
- Gochman, C.S. and Maoz, Z. (1984) 'Militarized interstate disputes, 1816–1976: procedures, patterns, and insights', *Journal of Conflict Resolution*, 29, 585–615.
- Goemans, H.E. (2000) *War and Punishment: The Causes of War Termination and the First World War*. Princeton, NJ: Princeton University Press.
- Guisinger, A. and Smith, A. (2002) 'Honest threats: the interaction of reputation and political institutions in international crises', *Journal of Conflict Resolution*, 46, 175–200.
- Hewitt, J.J. and Wilkenfeld, J. (1996) 'Democracies in international crisis', *International Interactions*, 22, 123–142.
- Huth, P. and Russett, B. (1988) 'Deterrence failure and crisis escalation', *International Studies Quarterly*, 32, 29–46.
- Jaccard, J., Turrissi, R. and Wan, C.K. (1990) *Interaction Effects in Multiple Regression*. Thousand Oaks, CA: Sage.
- Jagers, K. and Gurr, T.D. (1996) POLITY III: regime change and political authority, 1800–1994 [computer file] (Study #6695). 2nd ICPSR version. Boulder, CO: Keith

- Jagers/College Park, MD: Ted Robert Gurr [producers], 1995. Ann Arbor, MI: ICPSR [distributor], 1996.
- Jones, D., Bremer, S. and Singer, D. (1996) 'Militarized interstate disputes, 1816–1992: rationale, coding rules, and empirical patterns', *Conflict Management and Peace Science*, 15, 163–213.
- Kant, I. ([1795] 1971) 'Perpetual peace: a philosophical essay', in H. Reiss (ed.), *Kant: Political Writings*, 2d edn. London: Cambridge University Press.
- King, G. and Zeng, L. (2001) 'Logistic regression in rare events data', *Political Analysis*, 9, 137–163.
- Lake, D.A. and Powell, R. (eds) (1999) *Strategic Choice and International Relations*. Princeton, NJ: Princeton University Press.
- Levy, J. (1988) 'Domestic politics and war', *Journal of Interdisciplinary History*, 18, 653–673.
- Levy, J. (1989) 'The diversionary theory of war: a critique', in Manus I. Midlarsky (ed.), *Handbook of War Studies*. Boston, MA: Unwin Hyman.
- Mansfield, E.D. and Snyder, J. (1995a) 'Democratization and danger of war', *International Security*, 20, 5–38.
- Mansfield, E.D. and Snyder, J. (1995b) 'Democratization and war', *Foreign Affairs*, 74, 79–97.
- Mansfield, E.D. and Snyder, J. (1996) 'The effect of democratization on war: the authors reply', *International Security*, 20, 196–207.
- Mansfield, E.D. and Snyder, J. (1997) 'A reply to Thompson and Tucker', *Journal of Conflict Resolution*, 41, 457–461.
- Mansfield, E.D. and Snyder, J. (2002) 'Democratic transitions, institutional strength, and war', *International Organization*, 56, 297–337.
- Maoz, Z. (1996) *Domestic Sources of Global Change*. Ann Arbor, MI: University of Michigan Press.
- Maoz, Z. (1998) 'Realist and cultural critiques of the democratic peace: a theoretical and empirical re-assessment', *International Interactions*, 24, 3–89.
- McGillivray, F. and Smith, A. (2000) 'Trust and cooperation through agent-specific punishments', *International Organization*, 54, 809–824.
- Morrow, J.D. (1991) 'Alliances and asymmetry: an alternative to the capability aggregation model of alliances', *American Journal of Political Science*, 35, 904–933.
- Morton, R.B. (1999) *Methods and Models: A Guide to the Empirical Analysis of Formal Models in Political Science*. Cambridge: Cambridge University Press.
- North, D.C. (1990) *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- Oneal, J. and Russett, B. (1997) 'The classical liberals were right: democracy, interdependence, and conflict, 1950–1985', *International Studies Quarterly*, 41, 267–294.
- Ramsay, K.W. (2003) 'Crisis bargaining and representative democracy', mimeo, Department of Political Science, University of Rochester.
- Rousseau, D., Gelpi, C., Reiter, D. and Huth, P. (1996) 'Assessing the dyadic nature of the democratic peace, 1918–1988', *American Political Science Review*, 90, 512–533.
- Rummel, R.J. (1983) 'Libertarianism and international violence', *Journal of Conflict Resolution*, 27(March), 27–72.

- Russett, B. (1993) *Grasping the Democratic Peace: Principles for a Post-Cold War World*. Princeton, NJ: Princeton University Press.
- Schultz, K.A. (1998) 'Domestic opposition and signaling in international crises', *American Political Science Review*, 92, 829–844.
- Schultz, K.A. (2001) 'Looking for audience costs', *Journal of Conflict Resolution*, 45, 32–60.
- Signorino, C.S. (1996) 'Simulating international cooperation under uncertainty: the effects of symmetric and asymmetric noise', *Journal of Conflict Resolution*, 40, 152–205.
- Singer, J.D. and Small, M. (1982) *Resort to Arms*. Beverly Hills, CA: Sage.
- Singer, J.D. and Small, M. (1984) Annual alliance membership data, 1815–1965. ICPSR Study #5602.
- Singer, J.D. and Small, M. (1993) National material capabilities data, 1816–1985. ICPSR Study #9903.
- Siverson, R.M. and Starr, H. (1994) 'Regime change and the restructuring of alliances', *American Journal of Political Science*, 38, 145–161.
- Snyder, J. (2000) *From Voting to Violence: Democratization and Nationalist Conflict*. New York: Norton.
- Takeuchi, H. (2000) 'The principle and the reality of the Taiwan issue: the impact of domestic transitions on the cross-straits relationship', paper presented at Western Conference of the Association for Asian Studies, Long Beach, CA, 6–7 October 2000.
- Thompson, W.R. and Tucker, R. (1997) 'A tale of two democratic peace critiques', *Journal of Conflict Resolution*, 41, 428–454.
- Ward, M.D. and Gleditsch, K.S. (1998) 'Democratizing for peace', *American Political Science Review*, 92, 51–62.
- Wu, J. and Axelrod, R. (1995) 'How to cope with noise in the iterated prisoner's dilemma', *Journal of Conflict Resolution*, 39(1), 183–189.