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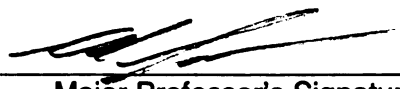

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GLOBALIZATION, POLITICAL COSTS, AND STRATEGIC DECISIONS

By

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ABSTRACT

GLOBALIZATION, POLITICAL COSTS, AND STRATEGIC DECISIONS

By

Wonjae Hwang

The "third wave of democratization" along with the ongoing economic globalization in the last two decades has made domestic politics important in the modern society. Characterized by the advent of new actors and new global issues, globalization or economic interdependence mandates that scholars in international relations look carefully at the process of decision-making in international politics. With the growing importance of domestic politics and domestic actors, a structural proposition that international structural factors dominate states' behavior has been weakened. In fact, international political events are basically determined by the interaction between these multiple levels: the state level, the dyadic state level, and the international system level. In this regard, this dissertation assesses multilevel structures in decisions on international political events.

Investigating political leaders' strategic consideration on political cost, it attempts to explain the varying effect of economic liberalization on interstate conflict. Contrary to the liberal peace, the effect of economic interdependence on the onset of international conflict is not constant but heterogeneous, depending on domestic political situation. The effect of economic globalization on national welfare should be examined not only by overall economic growth but also by inequality within countries. If economic

globalization is associated with the increase of inequality within countries, the pacifying effect of trade on interstate conflict can be offset.

In sum, this study explores a theoretically and empirically proper way of analyzing the effect of economic globalization on international relations and political leaders' strategic decisions.

For My Beloved Family

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By its very nature, a dissertation is a collective enterprise. Although only my name appears as author, I could not have completed this immense undertaking without the help and guidance of many people. While I cannot thank all of them by name without doubling the size of this volume, I want to give special thanks to a few special people.

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INTRODUCTION

Over the last two centuries, proponents and critics of an open global economy have debated whether the free flows of goods, capital, and services make the world more or less peaceful.[1] One view is that as nations increase their commercial, financial, and cultural ties, they are less likely to go to war. The opposing view holds that world economic liberalization worsens inequality *between* and/or *within* countries conflict (Agenor 2003; Bourguignon and Morrisson 2002; Lindert and Williamson 2001), increasing interstate or intrastate conflict.

Scholarly efforts of clarifying the relationship between economic liberalization and peace have recently intensified in international relations studies. A host of scholars advocating the liberal peace argue that free trade or economic openness is beneficial to countries. Since trade is assumed to bring benefits to all trading partners, the concern of losing benefits from potentially lost trade weaken political leaders' likelihood of choosing military actions when they face international crisis. However, this treatment of the effect of economic liberalization on interstate conflict is oversimplified because it considers the effect of trade on domestic politics as homogeneous. Depending on the domestic political situation, however, economic liberalization may increase or at least may not decrease the probability of interstate conflict onset. This happens where *policy costs* do not necessarily affect political leaders' *political costs*. It implies that we should look at domestic politics to have a comprehensive understanding of decision-making.

[1] A host of scholars in international economics view that globalization began from the decade of 1820s. For example, O'Rourke and Williamson (2000) show that international commodity price convergence did not start until the decade, and that a powerful move toward liberal policy appeared during that decade as well. Maddison (1995) and Bourguignon and Morrisson (2001) also monitor the world economy from the year of 1820.

The "third wave of democratization" (Huntington 1991) along with the ongoing economic globalization in the last two decades has made domestic politics important in the modern society. The advent of new actors and new global issues, which soften borders between nation states, mandates that scholars in international relations look carefully at the process of decision-making. With the growing importance of domestic politics and domestic actors, a structural proposition that international structural factors dominate states' behavior has been weakened. Decisions on international political events should be analyzed at multiple levels.

Multilevel Structure and Strategic Decisions in International Politics

This dissertation calls attention to multilevel structures in international politics. International politics is often intertwined with domestic politics. Domestic institutions affect decisions on interstate relations. The existing international structure or international norms constrain or limit the interaction between nation states. Therefore, international political events are basically determined by the interaction between multiple levels. On the other hand, in the era of economic globalization or democratization, the role of agents – such as individual states in the international system, political leaders in a state, nongovernmental organizations, or multinational companies – is more important than ever before. The growing importance of agents in international politics requires us to revisit and reexamine carefully the agent-structure problem. That is, the theoretical relationship and the interaction between agents and structure should be clarified (Desseler 1989; Waltz 1999).

The emphasis on the role of agents makes the strategic approach seem reasonable in explaining international political phenomena. Political leaders' strategic consideration of political costs is the primary source of decision-making. It is a reasonable assumption that political leaders are strongly concerned with the implications of foreign policy decisions for their own political survival.[2] It implies that political leaders should "take domestic interests as well as foreign realities carefully into account because they want to survive to enjoy the benefits of office" (Bueno de Mesquita 2000, p.111), especially when political leaders do not have strong political support at home. Considering "political" risk is essential to understanding political decisions (Lamborn 1991; Baldwin 1995; Bueno de Mesquita, Morrow, Siverson, and Smith 1999). As a consequence, theoretical models of strategic politics must address these multi-level game structures, clearly thereby providing crucial answers regarding the relationship between opportunity (structure) and willingness (agents) simultaneously. This type of rigorous specification and subsequent empirical testing is demanding, but necessary.

The strategic approach in international political studies is important especially in that it emphasizes the substantial importance of domestic institutions in international politics. By investigating the relationship between agents and multilevel structures, this approach makes it possible to integrate domestic and international games in a theoretically coherent way. This argument also implies that both willingness (preferences) and decision contexts (opportunity) should properly be addressed and empirically tested in rational choice models. I develop an analytical model and empirically test hypotheses from a multi-level hierarchical model on the liberal peace.

[2] Political survival indicates that a political leader is not deposed from his office in the year in question.

That is, this research addresses questions on the relationship between economic interdependence and militarized conflict using a multi-level analysis.

Three Essays

This dissertation consists of three different but inter-connected essays. The first essay highlights a multilevel structure in the analyses of international politics. Potential theoretical and statistical problems caused by failing to account for a multilevel structure in an analysis are discussed. After reviewing the agent-structure problem, this study shows how the theoretical relationship between agent-centric factors and structure-centric factors is set up with logical consistency. As a way of specifying and testing the relationship between multiple levels, a multilevel model is introduced. The potential of this model is discussed along with the comparison with other statistical models.

Specifically, this study explores if changes in the structure of the international system or international norms affect the interaction between countries, and also if countries respond to the structural constraints in different manners depending on their domestic institutions. A systemic approach to democratic peace is examined as a substantive example. This essay shows that international democratic norms have a positive effect on third party settlement attempts to territorial disputes, and that depending on the regime type of dyadic states, the behavior of dyadic pairs of states varies. Finally, it argues that as the proportion of democracies in the international system increases, nondemocratic states are more likely to rely on such peaceful measures as third party intervention to settle their territorial disputes.

The second essay attempts to trace monadic effects on dyadic behavior. Paying attention to two types of heterogeneity inherent in a dyadic approach to the liberal peace, this essay aggregates dyadic observations into individual states. Political leaders' strategic positions in domestic politics as a main source of heterogeneity at the sate level are analyzed. To maintain theoretical consistency in explaining the relationship between domestic politics and international politics, this analysis also uses a multilevel hierarchical model. As a result, this research provides a way of examining the heterogeneous effect of economic interdependence on interstate conflict, which depends on domestic institutions. Using a Bayesian simulation method and various statistical tests, the second essay shows that trade or economic liberalization has mitigating effects on interstate conflict more likely in democratic systems or systems where political leaders' behavior is significantly checked by people than other systems. In other words, this essay argues that domestic political 'institutions' do matter in understanding economic 'policy' effects on interstate conflict.

The third and final essay focuses on the effect of trade on inequality *within* countries. There is a controversy about whether or not trade has increased or decreased the level of inequality within countries. There are also empirical difficulties in measuring the level of inequality within countries.[3] Nevertheless, as the world economy has continued to be integrated, evaluating the effect of trade on inequality within countries becomes more important and necessary. The diversionary theory posits that political

[3] For example, a recent article in a journal notices the discrepancy between the 'national-account estimates' (income poverty) and the 'household-survey estimates' (consumption poverty) in measuring the level of inequality. It argues that to the evaluate changes in inequality, we should compare growth in average consumption with the growth in average income, highlighting the danger of focusing too much on the dollar-a-day threshold. (For details, refer to *The Economist* (2004), using the following link: http://www.economist.com/printedition/displayStory.cfm?Story_ID=2498851.)

leaders have an incentive to take military actions to remain in power by diverting attention from internal problems such as a weak economy to external issues (DeRouen 1995; Leeds and Davis 1997; Levy 1989; Morgan and Bickers 1992). It implies that a high level of inequality within countries can intensify political leaders' willingness of diversionary use of force. As a result, if economic liberalization has something to do with a high level of inequality within countries, economic liberalization or trade also has an indirect effect on interstate conflict. Finally, this essay tests if trade has increased inequality within countries, controlling other theoretically important variables including the size of population in a country. This essay ascertains the extent to which inequality within countries is relevant factor to political leaders faced with the decision to use force. It tests a model of the diversionary theory that treats the inequality within countries variable as an endogenous variable. Finally, the third essay demonstrates that, as the level of inequality within countries grows, political leaders are more likely to engage in international conflict as a way of diverting attention from domestic issues, and that the pacifying effect of trade on interstate conflict is offset by its negative effect on equality within countries.

Overall, this dissertation highlights the importance of employing multilevel analyses in explaining international political events. A theoretically and empirically proper way of analyzing the effect of economic globalization on international relations, the interaction between the international system and nation state, and the effect of trade on domestic politics, is explored through this study.

CHAPTER I

A Multilevel Analysis of International Politics:

A Systemic Approach To Democratic Peace

Abstract

Analysis of the dynamics of the interactions between multiple levels is demanding, because it requires us to answer theoretical puzzles and statistical challenges inherent in multilevel data. Multilevel data has been widely used in studies of international relations. Nevertheless, it is hard to find a well-defined statistical model that accounts for the dynamic interplay across levels of analysis with theoretical consistency, properly determining the relationship between levels. This paper argues that the failure to account for multilevel structure in data of international relations may cause serious theoretical and statistical problems, and explores the potential of *multilevel models* for studies of international politics. A systemic approach to the democratic peace is examined as a substantive example. International democratic norms have a positive effect on third party settlement attempts to territorial disputes. Depending on the regime type of dyadic states, the behavior of dyadic pairs of states varies. That is, as the proportion of democracies in the international system increases, nondemocratic states are more likely to rely on such peaceful measures as third party intervention to settle their territorial disputes.

Multilevel Interaction And International Relations Studies

One of the persistent themes in research of international politics involves analyzing the impact of international structural factors on the behavior of individual states. The relationship between polarity and international stability (Bueno de Mesquita 1975; Deutsch and Singer 1964; Waltz 1979), the impact of international norms on third party intervention (Dixon 1993; Mitchell 2002; Raymond 1993), and the influence of international regimes on capital control policy (Kastner and Rector 2003) are such examples. In these studies, the primary theoretical emphasis is placed on the structure of the international system, the role of international norms, ideas, or international governance (Finnemore and Sikkink 1998; Katzenstein 1996; Krasner 1983). Here, we observe the existence of a hierarchical structure between multiple levels, where international environments condition interactions between states.

Analysis of the dynamics of the interactions between multiple levels is demanding, because it requires us to answer theoretical puzzles and statistical challenges inherent in multilevel data. Multilevel data consists of multiple units of analysis, where, based on theoretical expectations, one unit should be grouped or clustered with others: for instance, states are grouped within the structure of the international system.

First, to be a powerful tool for analyzing the relationship between multiple levels, multilevel analyses must explore how the whole *system* works, how multiple levels are structured in the system, and how agents are connected with structures, properly handling the issue of the relationship between agents and structures (Braumoeller 2003a; Buzan, Jones, and Little 1993; Goertz 1994; Wendt 1987). By failing to explain a theoretical

relationship between multiple levels, our arguments suffer from a lack of theoretical clarity and logical consistency.

Despite causal complexity[4] in theoretical models (Braumoeller 2003b), it is difficult to find a well-defined statistical model that accounts for the dynamic interplay across levels of analysis with theoretical consistency. Statistically, the failure to account for the hierarchical structure of the data may result in "inconsistent" parameter estimates as well as "underestimation of the variance" of the estimated coefficients (Beck 2001; Rodriguez and Goldman 1995). This problem is also related to unmeasured heterogeneity. In this regard, this paper underscores the need for an empirical evaluation of theoretical models in multilevel analyses.

Discussing theoretical and statistical issues in regard to modeling multilevel data structures, this paper explores the potential of *multilevel (hierarchical) modeling* for improving scholarship in international relations. Multilevel (hierarchical) modeling is now established as the appropriate tool for modeling data with hierarchical structures (Goldstein 1995; Hox 2002; Raudenbush and Bryk 2002; Steenbergen and Jones 2002). Comparing multilevel modeling with other methods of modeling, this paper demonstrates how multilevel modeling can significantly improve the study of international politics.

In the following, first, I discuss theoretical and statistical issues related to multilevel structure in the data commonly used in international relations research. The theoretical and statistical potential of multilevel modeling in dealing with multilevel data is examined in the second section. As a substantive example, the argument of the

[4] If the effect of an explanatory variable on the dependent variable is in some ways affected by the other explanatory variables in a model, the causal path of impact is complex.

systemic approach to democratic peace is examined and empirically tested in the third section.

Problems Caused By Disregarding Multilevel Structure

Theoretical Issues

Agent-Structure Problem

A basic tenet of social science research is that scholars make basic assumptions about the main actor and its goal. Based upon these assumptions, the level of analysis is determined. In multilevel analyses of international politics, however, it is often hard to define these basic assumptions required for projecting a theoretical argument.

A systems-level theory in general defines a state as a unitary actor (agent), and power, security, or wealth[5] as its main goals. Structural (contextual) factors at the international system level, which changes over time, are believed to constrain and set boundaries on activities of individual states, a type of agents. For example, structural features of the international system such as the number of major powers (whether or not it is bipolar, multi-polar, etc.), the format of alliances, or the existence of a hegemonic state, are assumed to have constraining effects on the behavior of states in the international political arena, determining the nature of interactions between states (Deutsch and Singer 1964; Krasner 1983; Keohane and Nye 1977; Waltz 1979). Since structural factors external to individual states give shape to foreign policy, and thus induce a common trend in international politics, the role of agents is negligible in this approach. As a result, the main level of analysis is the international system.

[5] This assumption is often used as one of the main criteria of differentiating realism, neo-realism, and neo-liberalism in international politics.

Meanwhile, it is also argued that agents are autonomous in determining international political outcomes. State-centric properties or dyadic state relational factors are believed to affect international political events. From this perspective, theoretical emphasis is given to the role of agents and their interactions rather than international structural conditions in explaining international political consequences. Structure explains only the possibilities of agents' action, and even structure can be the outcome caused by agents' interactions (Dessler 1989)[6]. Agents are the main unit of analysis in this approach.

Students of international politics, therefore, face the longstanding question about the "agent-structure problem." The agent-structure problem indicates the difficulty of identifying a clear deterministic cause at the level of structure or agents (Giddens 1979; Waltz 1979; Wendt 1987, 1999). Since "human agency is the only moving force behind the actions, events, and outcomes of the social world" and at the same time "human agency can be realized only in concrete historical circumstances that condition the possibilities for action and influence its course" (Dessler 1989, p.443), it is a hard task to explain both agents' power and the causal relevance of structural factors in a logically and ontologically consistent way. In this regard, this is also a unit of analysis problem (Raudenbush and Bryk 2002).

Accordingly, any attempts to analyze multilevel data should clearly discuss the ontological and epistemological standpoints about the agent-structure problem in explaining political phenomena (Braumoeller 2003a; Wendt 1987). Since multilevel data consists of multiple actors playing at possibly multiple structures, solving the agent-

[6] Dessler (1989) defines this agent-centric view as "the transformational model", while he defines the structure-centric view as "the positional model."

structure problem becomes complicated. That is, in multilevel analyses such as the two-level game analyses (Fearon 1994; Mo 1995; Morrow 1991; Putnam 1988) or studies of the strategic approach, multi-units of actors at multi-levels are compounded and thus detecting the main actor and its basic motivation becomes difficult. Here, an important theoretical question is, "if two or more units and sources of explanations are operating together, how are their different analyses to be assembled into a whole understanding?" (Buzan 1995) Failing to properly answer this question is very likely to cause logical inconsistency in an argument.

Structures as a Conditional Factor

As a way of dealing with the theoretical and empirical difficulty in connecting agents with structure, studies of international politics often assume that agent-centric factors and structural factors are independent from each other. These studies thus assume that the effect of agent-centric variables on international political events is not influenced by international structural variables. Even in this case, however, a relative weight of theoretical importance should be assigned to each level. Nevertheless, not all scholars clearly state how this weighting works. Methodologically it is not clear how it can be done, either. More importantly, as the strategic approach explains, domestic and international factors should often be interdependent. If this is the case, a theory should tell the story about the interactions between structure and agents (Dessler 1989; Lieberman 2002; Wendt 1987, 1999), and an empirical test should distinguish agent-centric variables from structure-centric variables, illustrating how the causal or conditional relation between these variables can be examined.

When a group of explanatory variables in a model are not independent from each other, the relationship between these variables can be causal, correlational, or conditional. Causal relation means that one of the explanatory variables is endogenous to at least one of the other explanatory variables. Since the existence of endogeneity in a model causes biased inferences, researchers try to cope with this problem using various remedies (King, Keohane, and Verba 1994).

Nevertheless, when it is theoretically difficult to identify a causal relationship between two explanatory variables, although these variables are associated with each other, we often refer to the relationship as correlational. In this case, since we do not make a theoretical assumption about causality, the direction of impact between these variables is bilateral. In order to solve the inefficiency problem caused by high degree of collinearity, several remedial measures exist (Wooldridge 2000).

In models of international politics with multilevel data, the relationship between explanatory variables is often *conditional*. Since there is no causality between variables, the relationship is not causal. Since the interaction is not bilateral, the relationship is not correlational, either. Conditional relationships indicate that, given a theoretical framework, an explanatory variable constrains the causal path of impact of another explanatory variable, although these variables are by nature independent from each other. It is the case where "the effect of some explanatory variables on the dependent variable is contingent on structural features that vary from country to country" (Beck 2001). Conditional relationships between explanatory variables are typical in multilevel data,

where units at a low level can be grouped into a high level. Figure 1[7] describes the conditional relationship between multiple levels.

As Figure 1 indicates, international systemic structural factors can have a constraining impact on the behavior of dyadic states. Structure (or context) is not simply another variable in a list of explanatory factors, because its influence is pervasive (Western 1998). In a single level of analysis, international affairs between states are mostly explained based on dyadic relational variables such as the relative size of power. In multilevel analyses, however, international systemic structures, as constant features, can limit states' choices and their behavior. Structures of the international system vary across different time points in the latter case, while domestic institutions vary across states in the former case.

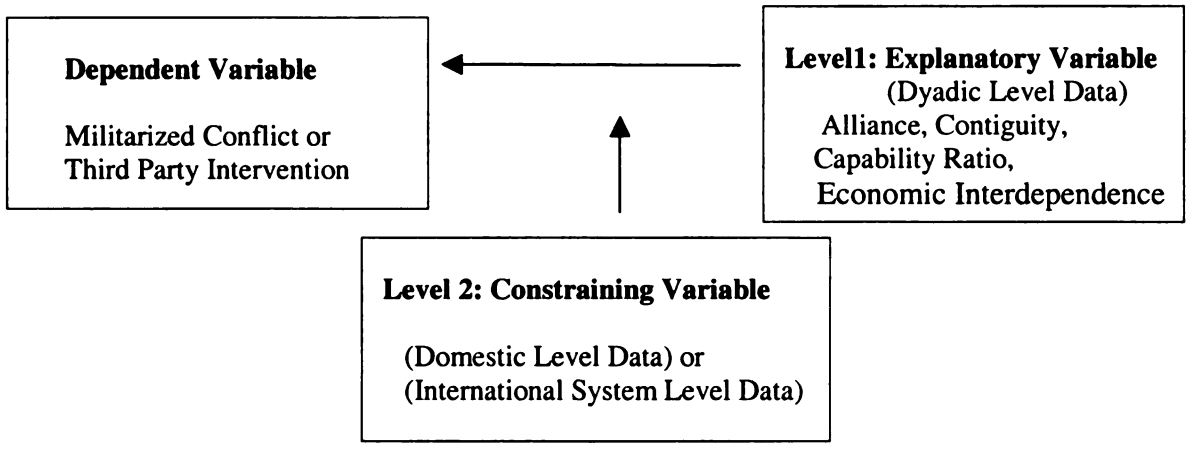
Statistical Issues

Heterogeneity And Type I Error

When we use pooled data, it is assumed the world is completely homogeneous. Based on this assumption, one can obtain pooled estimates of a model. Unfortunately, the complete homogeneity assumption is very unrealistic in the 'real world,' especially when we deal with almost all nation states in our analyses over a long time period. Individual states operate under heterogeneous structural environments. Since states share common experiences to some degree given structural environments *and* their experience varies due to changes of international systemic structure, norms, or culture, the complete

[7] Goertz (1994) explains context (structure) in three different modes of relationship: context as cause, context as barrier, and context as changing meaning. In the conditional relationship, context (structure) is understood as changing meaning in his terminology. The relationship between cause and effect varies according to the surroundings in which agents' behavior occurs.

Figure 1. Theoretical Logic of the Regression Models



homogeneity assumption can hardly be maintained in data with a relatively long time period.

To address heterogeneous properties, we need to cluster dyadic relations in accordance with varying structures of the international system. By disregarding common properties of states within a cluster, we fail to explain the correlation between states within a cluster. Since states within a cluster show similar patterns of behavior, the direction of correlation between states is often positive. This means that we are likely to underestimate the size of standard errors in a statistical test, if we disregard heterogeneous structure. As a result, our statistical test results are not credible. We will commit a Type 1 error by accepting false hypotheses. In the worst cases, even wrongly signed coefficients will be obtained (Raudenbush and Bryk 2002; Steenbergen and Jones 2002; Western 1998).

This problem is related to unmeasured heterogeneity. Unmeasured heterogeneity is a type of omitted variable bias. Thus, if the unobservable structure specific effects are not constant across time points, biased estimators will be obtained.[8] If the underlying relationship between the outcome variable and the explanatory variables is nonlinear, the failure to account for the hierarchical structure of the data may result in "inconsistent" parameter estimates as well as "underestimation of the variance" of the estimated coefficients (Beck 2001; Rodriguez and Goldman 1995).

Why Multilevel Models?

Causal Heterogeneity, Uncertainty, and Conditional Effect

[8] See Greene (2000, pp.590-651).

In Figure 1, the reality of the multilevel structure of international relations data is empirically modeled in several ways: dummy variable models, interactive models, and multilevel models. Multilevel models are also referred to as hierarchical models (Goldstein 1995; Rasbash et al. 2002; Rodriguez and Goldman 1995; Western 1998), *random-coefficient models* [9] in the econometrics literature (Rosenberg 1973), or *covariance components models* in the statistical literature (Dempster, Rubin, and Tsutakawa 1981).

Dummy variable models employ a series of dummies to measure institutional difference. For example, when we believe that each state has its own specific domestic institutions, and that the impact of state specific institutions on the relationship between states is theoretically meaningful, we can introduce unique dummies for all of the individual states (save one). 'Temporal' dummies can be used for capturing heterogeneity or structural differences in the international system. Statistically, this way of modeling is advantageous in that it accounts for the differences between heterogeneous states. On the other hand, theoretically, dummy variable modeling provides no substantive explanation about the origin of heterogeneity at the subgroup level because it does not introduce any predictors from that level. Moreover, since this modeling exhausts the degrees of freedom by including a number of dummy variables equivalent to the number of cases minus one, this methodology often represents a problem, especially when the total number of observations is small.

An interactive model includes an interaction term between an explanatory variable at the subgroup level and another explanatory variable measuring heterogeneity

[9] According to Raudenbush and Bryk's (2002) terminology, the multilevel model is the same as the random coefficients model (RCM) when RCM allows both the intercept and the slope(s) in the model to be random, introducing predictors of structural features.

at the group level. By including a predictor at the group level, interactive models provide a substantive explanation on the origin of heterogeneity. This modeling method is possible if we assume the partial effect of an explanatory variable on a dependent variable depends upon the magnitude of another explanatory variable (Wooldridge 2000). The decision to introduce an interaction term is generally based on theoretical reasoning that there is correlation between two variables.

Unfortunately, this way of model specification also entails costs. First, by using an interaction term, we allow the partial effects of both variables in the interaction term to be mutually dependent on each other. In other words, the direction of correlation in the interaction term is bilateral. However, we cannot keep the bilateral dependence assumption in all cases.

In multilevel analyses, this is significant problem. This is because we should clarify the ontological relationship between agents and structure (or between multiple levels) and also because the ontology of a model varies depending on a theoretical belief. For instance, we can assume structure has dominant influence over an outcome. Thus, structural features at the system level (for instance, the international system level) are considered importantly in a model, while agent-centric variables (for instance, dyadic state level variables) are believed to have only a minor impact on the outcome. Agents play virtually little role in this case (Waltz 1979).

Another ontological position assumes a reverse relationship between structure and agents. Agent-centric variables are mainly used to explain international political consequences. Moreover, agents' interaction may bring changes in the structure of the international system. Finally, we can assume that both structure and agents are equally

important and that the relationship between agents and structure (or between multiple levels) is reciprocal (Dessler 1989; Wendt 1999). While structure constrains agents' choice and behavior, agents' interaction may also change the structure of the international system. Likewise, models with a multilevel data structure should clarify the ontological relationship between multiple levels. In interactive models, however, we cannot easily specify the ontology of the model.

In addition, interactive models must make the unrealistic assumption that there is no remaining heterogeneity at the group (international system) level.[10] In other words, by relying on the unrealistic assumption that one or a few predictors fully account for the variation at the group level (the zero error term assumption), modeling method becomes statistically incomplete (Steenbergen and Jones 2002).

Compared to previous ways of modeling, multilevel models have several advantages. First, by allowing the intercept in a model to be random, they can identify group (structure) effects. A statistical test will show if there are significant group effects. Second, monitoring if the effect of a subgroup level variable on a dependent variable plays out differently as institutional settings change, multilevel models can explain causal heterogeneity. Theoretically, we can clearly make a distinction between causal effects of subgroup level variables and constraining effects of group level variables. Third, by tracing dyadic states' behavior trajectory over structure, we can identify the effect of dyadic interaction. That is, if dyadic states react to the structural changes in a different way, it shows that agents can behave autonomously, independent from structural constraint. Finally, although multilevel modeling is similar to interactive modeling in that

[10] Steenbergen and Jones (2002) provide a clear explanation about the differences between these three ways of modeling. Refer to their article for details.

it introduces predictors for the existing heterogeneity into the model specification, multilevel modeling does not require holding the zero error term assumption. In this sense, multilevel (hierarchical) models supply more accurate forecasts and estimates, providing "a more realistic account of all the sources of uncertainty associated with the comparative research design than the model with interaction terms" (Western. 1998, p.1238). In addition, compared to complete pooling or un- pooling methods, multilevel models as a partial pooling method provide compromising estimates between the two extreme methods. As a result, estimates of multilevel models are more realistic than others.

In order to see how multilevel modeling works and how significantly different results are brought about depending on which of the above-mentioned methodologies is employed, in the next section I test a model of a systemic theory of the democratic peace using a multilevel model.

Application of the Multilevel Model Method

Democratic Norms And Third Party Conflict Resolution

In this section, we examine a systemic approach to the democratic peace to demonstrate the application of the multilevel model method to international relations studies. According to normative dyadic approaches to the democratic peace, democratic dyads should be more likely to resolve disputes peacefully and also turn to third parties in the dispute resolution process. This is because democratic states share an affinity with international legal processes and institutions (Simmons 1999), favor the use of compromise and nonviolence (Dixon 1993; Russett 1993), or create a norm of trust in

legal procedures (Raymond 1994). The means of third party conflict resolution can include mediation, arbitration, and so on. A systemic approach to the democratic peace, meanwhile, sheds light on the interactions between democratic states and the behavior of nondemocratic states. While most of the democratic peace literature focuses on a tendency of democracies, this line of research pays attention to the idea that democratic norms can become international norms affecting a tendency of nondemocracies (Mitchell 2002). That is, as the number of democracies and interactions between democracies increase, democratic norms can be externalized into international norms and therefore even nondemocratic states can adopt democratic norms.

Democratic norms can affect the behavior of nondemocratic dyads in several ways. The increasing number of peaceful territorial dispute settlements through third party intervention between democracies can provide useful lessons to nondemocratic dyads. In addition, the increasing proportion of democracies in the international system indicates the increase of the number of third parties that maintain a good reputation as mediators. In other words, as the number of democracies increases, the opportunity for solving disputes through democratic third parties also increases for nondemocratic dyads. When one of the member states in a nondemocratic dyad[11] is a democracy, the dyad is more likely to solve territorial dispute through third party intervention than a nondemocratic dyad where neither of the members in the dyad is a democracy. This is because one of the dyadic partners holds democratic norms. The existence of a democratic partner in a nondemocratic dyad can be a good signal to the other partner in terms of succeeding in dispute resolution through third party intervention. This signaling is intensified as the proportion of democratic states increase.

[11] A dyad is defined to be nondemocratic when one (or both states) in a dyad is nondemocratic.

Hypothesis

Any test of a systemic theory of the democratic peace that fails to distinguish the structural effect of the international system on states from the effect of dyadic relational factors will provide an incomplete, and quite possibly inaccurate, evaluation of the theory (Waltz 1979)[12]. In other words, the effect of international norms on states must be distinguished from the effect of dyadic relational factors. To sort out the systemic effect of international norms on states from the effect of dyadic relational variables, first the theoretical relationship between the international system unit and the dyadic unit (i.e., the relationship between structure and agents) should be clarified, and then the processes of interactions between the two units should be explained in a consistent manner.

If structural factors and dyad-centric factors are assumed to interact with each other, this seemingly complex relationship can be understood time serially. First, given *a time point*, states' behavior is influenced by structural factors. Prevailing international norms will drive all states including nondemocracies to behave in a similar way. In this case, international norms or structure has conditional effects on states' behavior. However, the relationship between structure and agents is not unilateral in that interaction between individual states can cause changes in the implication of structural effect of the international system with respect to third party intervention *over time*. In other words, if interaction between *democratic* states has an impact on the behavior of *nondemocratic* states, and thus causes changes in the effect of international norms on nondemocratic states' behavior over time, these two types of dyadic states will exhibit different trends in their behavior regarding third party dispute resolution. That is, as interaction between

[12] Waltz argues that without showing how the systems level, or structure, is distinct from the level of interacting units, "one does not have a systems approach or a systems theory at all" (1979, p.40).

democratic states increases and accordingly the effect of democratic international norms on the behavior of nondemocracies is intensified, nondemocracies will adopt third party intervention at a higher rate than democracies do. Therefore, if nondemocracies show significantly different trends over time from democracies with respect to the likelihood of third-party dispute resolution, we can identify the agents' effect. The main hypothesis of the systemic theory of democratic peace is provided below.

Hypothesis 1.1: *As the proportion of democracies in the international system increases, the likelihood of third-party dispute resolution in nondemocratic dyadic disputes increases.*

In this hypothesis[13], the main actors are nondemocratic (dyadic) states and the structure factor is the proportion of democracies in the international system. Under this hypothesis we expect that as the proportion of democracies increases, so to will the extent of third party intervention. In addition, nondemocratic states are more likely to adopt democratic norms as the proportion of democracies increases, thus increasing third party intervention. To test this hypothesis, a multilevel model, rather than an interactive model, is the ideal vehicle to employ given its ability to specify the hierarchical structure present in the data, not to mention its above-mentioned statistical advantages discussed.

Empirical Analysis

[13] This hypothesis is actually tested in Mitchell's article (2002). By showing the significance of this hypothesis in a series of tests, her work makes an invaluable contribution to the development of a systemic theory of the democratic peace.

Specification and Operationalization[14]

In the hypothesis, the dependent variable is a dummy variable coded one for third-party attempts to settle a territorial claims and zero for bilateral settlement attempts. Six hundred and ninety different settlement attempts, for a total of 114 dyadic territorial claims in the Americas (North, Central, and South America) from 1816 to 1997 are analyzed. The data were collected by the Issue Correlates of War (ICOW) Project (Hensel 1999, 2001). The Polity III data set (Jaggers and Gurr 1995) is used to measure a nation's democratic status. Any nation with a score of six or higher on the scale (ranging from 0 to 10) of the democracy variable in the data set is considered to be democratic. To create a dyadic measure of regime type, if one or both nations in a dyad are nondemocratic, it is coded as one, and zero otherwise. The same data set is used to measure the annual proportion of democracies in the international system.

Multilevel models are used when clustering observations is possible and meaningful. Therefore, the decision regarding how to cluster (group) dyadic observations is very important. If there is any systematic change over time, *time* also plays a role as a high level in a hierarchy (Goldstein 1995; Raudenbush et al. 2002). Since the structure of the international system has group effects on dyadic behavior in a time period and the effects change over time by assumption, *time* consists of a hierarchical structure in this model. Here, dyadic observations are clustered within time periods in two ways. There are 690 observations over a 182 year of time period in the data. Therefore, the average number of cases per year is very small, which might bring incorrect estimates (Raudenbush and Bryk 2002). In addition, it is hard to say that the structure of

[14] The data used in this paper come primarily from Mitchell's research (2002). I am very grateful to her for sharing this data.

international system changes yearly. To solve these problems, I clustered all observations by 5 year time periods, resulting in 37 clusters. Due to the concern that this way of clustering may have a significant effect on outcomes, as a diagnostics I also conducted analysis where I grouped observations into 19 clusters by 10 year time period. Comparison of these two multilevel models will show how different ways of clustering affect the results.

There are three control variables. If one side is a dominant power, it should be able to impose its preferred settlement (Hansel 2001). Thus, power asymmetry is expected to have negative effect on third party intervention. Power asymmetry is measured by the capability ratio of the challenger to the target. The Correlates of War composite capability index is used for capability, which is created with the EUGene program (Bennett and Stam 1998). If a dyad has experienced prior militarized disputes, it will attract the attention of third parties and this will therefore increase the likelihood of third party settlement attempts (Dixon 1994; Hansel 2001). This second control variable is coded as one if a dyad fought a militarized dispute in the ten years prior to the start of settlement attempt, and zero otherwise. The final control variable indicates whether there have been any prior attempts to manage the territorial claim. Prior management activity is expected to increase the likelihood of third party intervention (Dixon 1993).

The Multilevel Logit Model

To perform a multilevel analysis with the binary dependent variable, the multilevel logit model is used. The multilevel (in our case, two level) logit model can be written in the general form

$$\pi_{ij} = f(X_{ij}\beta_j), \tag{1.1}$$

where π_{ij} is the probability that the *i*-th dyadic territorial claim in the *j*-th structure of the international system is associated with third party intervention. *f* is a nonlinear function (logit link function) of the linear predictor $X_{ij}\beta_j$. We need to specify a distribution for the observed response $y_{ij}|\pi_{ij}$. The y_{ij} are the observed (0,1) responses with the standard assumption that they are binomially distributed $y_{ij} \sim Binomial(n_{ij}, \pi_{ij})$, where n_{ij} is the denominator for the probability π_{ij}. We also have $\text{var}(y_{ij}|\pi_{ij}) = \pi_{ij}(1-\pi_{ij})/n_{ij}$. The model including the dyadic level variation can now be written as

$$y_{ij} = \pi_{ij} + \varepsilon_{ij} x_0 ,$$

where x_0 is used to specify the variation at the first level. With the assumptions that the n_{ij} are all equal to 1 and x_0 is also equal to 1,[15] the variance of the dyadic level random term ε_{ij} is $\pi_{ij}(1-\pi_{ij})$. Full details can be found in Goldstein's (1995), Rodríguez and Goldman's (1995), and Rasbash et al.'s (2002).

The usual interactive model with binary response is specified in the following form:

$$\text{logit}(\pi_i) = \beta_0 + \beta_1 * Asymmetry_i + \beta_2 * priorMID_i + \beta_3 * priorManagement_i +$$
$$\beta_4 * Nondemocracy_i + \beta_5 * Nondemocracy * proportion_i + \beta_6 * proportion_i + \varepsilon_i ,$$

where π_i is the probability that the *i*-th dyadic territorial claim is resolved by third party intervention. In this interactive model, we have to assume that the proportion of democracies perfectly account for the effect of international system on third party

[15] This assumption means that "the binomial model is assumed to hold precisely" (Hox 1995, 77). To test if a Binomial assumption holds or if the model exhibits 'extra Binomial' variation (overdispersion), I obtained a dyadic level variance based on the extra Binomial distributional assumption and reported it in Table 1. The dyadic level variance multiplier is only slightly different from one. And the other parameters obtained with the extra Binomial distributional assumption have hardly changes (these results are not reported here). As a result, there is little evidence that the response is not Binomially distributed.

intervention, which could be incorrect. In other words, the interactive model assumes no error term at the international system level. But, there could be other international systemic factors such as the number of major power (poles), which affect the behavior of nondemocratic dyads.

With the two level logit model, we define the probability π_{ij} as a function of the intercept and linear predictors as follows:

$$\text{logit}(\pi_{ij}) = \beta_{0j} + \beta_1 * Asymmetry_{ij} + \beta_2 * priorMID_{ij} + \beta_3 * priorManagement_{ij} + \beta_{4j} * Nondemocracy_{ij} + \varepsilon_{ij}. \quad (1.2)$$

Additionally, the intercept and the coefficient of nondemocracy variable are functions of the international system level predictor, *proportion* variable:

$$\beta_{0j} = \gamma_0 + \gamma_1 * proportion_j + \mu_{0j}, \quad (1.3)$$

$$\beta_{4j} = \alpha_0 + \alpha_1 * proportion_j + \mu_{4j}, \quad (1.4)$$

where π_i is the probability that the *i*-th dyadic territorial claim in the *j*-th structure of the international system is resolved by third party intervention. This specification allows the coefficient of dyadic type variable, β_{4j}, and the intercept term, β_{0j}, to be a function of the international system variable. That is, it assumes that the proportion of democracies in the international system affects the behavior of nondemocratic states in regard to third party intervention (the slope) as well as the probability of third party intervention for all states (the intercept term). The subscript *j* denotes different clusters in terms of the proportion of democracies in the international system. To simplify the model, we substitute Equations (1.3) and (1.4) into Equation (1.2):

$$\text{logit}(\pi_{ij}) = (\gamma_0 + \gamma_1 * proportion_j + \mu_{0j}) + \beta_1 * Asymmetry_{ij} + \beta_2 * priorMID_{ij}$$

$$+\beta_3 * priorManagement_{ij} + (\alpha_0 + \alpha_1 * proportion_j + \mu_{4j}) * Nondemocracy_{ij} + \varepsilon_{ij}$$

$$= \gamma_0 + \beta_1 * Asymmetry_{ij} + \beta_2 * priorMID_{ij} + \beta_3 * priorManagement_{ij} + \gamma_1 * proportion_j$$

$$+ \alpha_0 * Nondemocracy_{ij} + \alpha_1 * proportion_j * Nondemcracy_{ij} + \mu_{4j} * Nondemocracy_{ij} + \mu_{0j} + \varepsilon_{ij}. \quad (1.5)$$

In this Equation (1.5), γ_0 denotes the intercept and γ_1 is the effect of the international system level predictor. $\beta_1, \beta_2, \beta_3$ and α_0 are the effect of the dyadic level predictors. α_1 is the effect of the cross-level interaction between the dyadic and the international system levels. The multilevel disturbance term is composed of the three different components, μ_{0j}, μ_{4j}, and ε_{ij} . μ_{0j} is the international system level disturbance in the equation (1.3) of the dyadic level intercept. μ_{4j} is the international system level disturbance in the equation (1.4) of the dyadic level slope. ε_{ij} is the dyadic level disturbance capturing any possibly omitted predictors at the dyadic level. As a result, the multilevel disturbance term does not have constant variance. The multilevel disturbance variance is a function of the dyadic type variable unless μ_{4j} is zero.

Estimation

To estimate parameters illustrated above, we need to specify a few assumptions about the three components of the disturbance term. First, like in OLS analysis, we make the zero mean assumption for the three components of the multilevel disturbance term: $E[\mu_{0j}] = E[\mu_{4j}] = E[\varepsilon_{ij}] = 0$. Each component originated from the international system level has a constant variance and a normal distribution: $Var[\mu_{0j}] = \omega^2$, $Var[\mu_{4j}] = \tau^2$. The component from the dyadic level has a constant variance: $Var[\varepsilon_{ij}] = \sigma^2$. The variance of the ε_{ij} is given as 1. This means the model is fitted to have a Binomial error distribution. Since the international system level disturbances on the intercept and the slope may be

correlated, we need to estimate the covariance term between these disturbances (Snijders and Bosker 1999): $Cov[\mu_{0j}, \mu_{4j}] = \psi$. To identify the multilevel model, we also need to assume zero covariance between the system level disturbances in both the intercept and the slope equations and the dyadic level disturbance: $Cov[\mu_{0j}, \varepsilon_{ij}] = Cov[\mu_{4j}, \varepsilon_{ij}] = 0$.

In order to estimate the parameters in equation (1.1), we need to linearize the exponential function and then to apply quasi-likelihood estimation using the binomial distribution assumption to define the dyadic level variation (Goldstein and Rasbash 1996). I use the iterative generalized least squares (IGLS) algorithm for implementing estimation. Since the IGLS procedure produces biased estimates in general by taking no account of the sampling variation of the fixed parameters especially when the sample size is small, I use the restricted version of iterative generalized least squares (RIGLS) algorithm that leads to unbiased estimates of random parameters (Goldstein 1995).[16] I use a stringent convergence criterion for the parameter estimates. The relative change from one iteration to the next is at most 0.001. As a specific method for linearization and estimation, I use the second-order penalized quasi-likelihood (PQL) procedure to obtain estimates. As the previous studies confirm (Goldstein 1995; Goldstein and Rasbash 1996; Raudenbush and Bryk 2002), the second-order PQL procedure produces almost unbiased estimates for the fixed and the random parameters. MLwiN statistical package is used for obtaining these estimates (Rasbash et al. 2002).

Results

[16] For a detailed discussion and proofs, refer to Goldstein (1995) or Hox (1995).

Table 1 provides the estimates in all three different models: one interactive model and two multilevel models.[17] The nondemocracy variable is statistically insignificant in all three models, while the negative sign of the coefficient in the interactive model changed into a positive sign in the second multilevel model. While the interaction term's coefficient in the interactive model is statistically significant, it is not in the two multilevel models. This difference is generally due to the increase of its standard error. Therefore, this result shows that we are likely to underestimate standard errors and thus make erroneous conclusions about statistical significance by ignoring the multilevel data structure. As expected, a history of costly conflict contributes to a higher likelihood of third party intervention, while power asymmetry has negative effect on it. Prior management activity is not statistically significant in explaining third party intervention.

In regard to interpretation of the test results, however, special care is required. The effect of the nondemocracy variable should be jointly evaluated with its interaction term. It means we should not separately look at *t*-statistics of nondemocracy variable and its interaction term (Wooldridge 2000). Although either the nondemocracy variable or its interaction term, or both, is statistically insignificant, we cannot conclude that the nondemocracy variable is statistically insignificant. The p-value for the Likelihood Ratio (LR) test of the joint significance in the interactive model is .0023, which means that both

[17] The estimates of the interactive model were obtained by replicating the model in Mitchell's (2002) paper. The estimates of the multilevel model and all other estimates in this paper were obtained using MLwiN V1.1 (Rasbash et al. 2002).

Table 1. Third-Party Attempts to Settle Territorial Claims

Variable	Interactive Model	Multilevel Model	
		Clustered by 10-year term	Clustered by 5-year term
Proportion of Democracies	4.927** (1.933)	4.062 (4.968)	6.592 (5.270)
Nondemocratic Dyad	– 0.421 (0.665)	– 0.280 (1.376)	0.106 (1.344)
Proportion*Nondem	4.737* (2.338)	4.409 (5.012)	3.084 (5.242)
Asymmetry	– 0.0158* (0.008)	– 0.018**(0.007)	– 0.017**(0.005)
Prior MID	1.1869** (0.219)	1.154**(0.333)	1.122**(0.304)
Prior Management	0.2268 (0.361)	0.189 (0.452)	0.201 (0.433)
Constant	– 3.77** (0.648)	– 3.696**(1.525)	– 4.327**(1.518)
Variance Components			
System Level			
Constant (ω^2)		0.950 (0.523)	1.199 (0.837)
Nondemocracy (τ^2)		0.016 (0.251)	0.827 (0.714)
Constant, Nondemocracy (Covariance: ψ)		–0.304 (0.354)	– 0.899 (0.749)
Dyadic Level (σ^2)		[a]1.034**(0.110)	[a]1.087**(0.144)
χ^2 (1) = 22.33**			

Note: Multilevel table entries are maximum likelihood (RIGLS) estimates with robust standard errors in parentheses.
* = p < 0.05, ** = p < 0.01

[a] By a Binomial distributional assumption, the random coefficient at the first (dyadic) level ε_{ij} was defined with a zero mean and a variance which was constrained to equal one. However, to test whether or not a Binomial assumption holds or whether the model exhibits 'extra Binomial' variation, I obtained a dyadic level variance based on the extra Binomial distributional assumption and reported it here. As we see, the dyadic level variance multiplier is only slightly different from one. And although it is not reported here, the other parameters have hardly changed. As a result, there is little evidence that the response is not Binomially distributed.

variables are jointly significant at the conventional significance level.[18] The LR test results in the two multilevel models give the same answer. The p-value for the LR test is almost zero[19] in each model.

If we simply look at the coefficient of nondemocracy variable in the interactive model or in the first multilevel model, we will incompletely conclude that nondemocracy dyads have a negative effect on third party settlement attempts. Its positive sign in the second multilevel model is also conflicting with the one in the interactive model. But, the coefficient of the nondemocracy variable supposedly measures the effect when the proportion of democracies is zero, which is not interesting and practically impossible (in the sample, the smallest proportion of democracies is .01). To obtain the substantively meaningful partial effect of the nondemocracy variable on third party settlement attempts, we must plug-in interesting values of the proportion of democracies into *both* additive term and interaction term.

Moreover, since the model is nonlinear, the effect of the nondemocracy variable on the dependent variable is not constant. Accordingly, looking at the effect of the nondemocracy variable on the changes in the predicted probability of third party settlement attempts is preferable to estimating the partial effect. For this purpose, I simulate the interactive model using "Clarify" program[20] (King, Tomz, and Wittenberg 2000) in order to obtain detailed information regarding the predicted probability of third

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[18] The LR test is based on the difference in the log-likelihood functions for the unrestricted and the restricted models. In the restricted model, nondemocracy variable and its interaction term are dropped. The likelihood ratio statistic is twice the difference in the log-likelihoods: $LR = 2[\ln(L_{ur}) - \ln(L_r)]$. The LR statistic has an approximate chi-square distribution with two degrees of freedom.

[19] The LR test for joint significance of the nondemocracy variable and its interaction term was performed for each multilevel model. There are few differences between the results in the two models. The two variables are jointly significant at the 1% significance level.

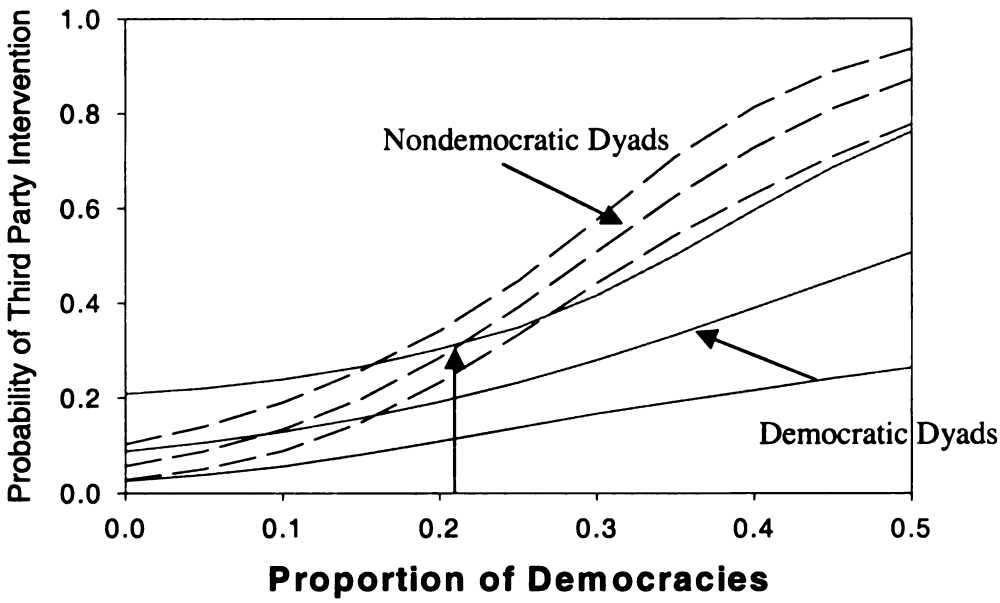
[20] This program uses Monte Carlo simulation to convert the raw output of statistical procedures into interesting results. For more details, refer to their article (King, Tomz, and Wittenberg 2000) or the program website: http://gking.harvard.edu/clarify/docs/clarify.html.

party settlement attempts. To capture the effect of increasing the proportion of democracies on the predicted probability and its 95% confidence intervals for both democratic dyads and nondemocratic dyads, I vary the proportion of the democracy variable from its minimum to maximum, holding all other variables at their mean values. All binary variables are set equal to their modal value.

Figure 2 reveals that both democratic dyads and nondemocratic dyads are more likely to rely on third party resolution as the proportion of democracies increases. It signifies that regardless of the regime type, all dyads are constrained by the structural effect of the international system to some extent. To identify the systemic effect of democratic norms on nondemocracies, we should observe that the increasing rate of third party intervention in nondemocracies should be higher than the rate from democracies. In fact, Figure 2 shows that nondemocratic dyads have different trends in their behavior from democratic dyads over time.[21] As a result, this is consistent with the hypothesis that the democratic norm of third party intervention on territorial dispute settlement becomes an international norm. One of the reasons why nondemocratic states are more sensitive to the systemic effect than democratic states is that nondemocratic states have few alternative methods for resolving territorial disputes. Democratic states have relatively many options with respect to dispute settlement. Democratic states, which share democratic norms, can peacefully resolve disputes bilaterally without relying on third party intervention. The large variation in the probability of third party intervention for democratic dyads in Figure 2 supports this reasoning.

[21] Table 3 in Mitchell's article (2002) shows a similar result. She explains this result in three ways. "The percentage of democratic dyads in the Americans that have disputed over territory is quite small." "The United states has been able to resolve the vast majority of its disputes bilaterally." And, "Democracies are initially able to resolve disputes peacefully without external aid."

Figure 2. Probability of Third Party Settlement Attempts



* The solid lines indicate the mean and its 95% confidence intervals of probability of third party settlement attempts for democratic dyads, while the dotted lines indicate the same terms for nondemocratic dyads. Before the proportion of democracies reaches its 21% point, the behavior of democratic dyads and nondemocratic dyads are not meaningfully distinguishable each other. However, after the proportion of democracies exceeds its 21% point, the behavior of nondemocratic dyads is significantly different from that of democratic dyads. Nondemocratic dyads are more likely to rely on third party resolution.

Of great interest, the figure shows that the nondemocracy variable (and thus democratic norms) is substantively meaningful when the proportion of democracies in the international system becomes about 21% or higher. Before the proportion of democracies reaches 21%, the effect of the systemic variable on the behavior of nondemocratic dyads is not distinguishable from that on the behavior of democratic dyads. This contributes to the statistical insignificance of the nondemocracy variable. However, after the proportion of democracies exceeds 21%, the behavior of nondemocratic dyads is significantly different from that of democratic dyads.[22] This finding illustrates when the *systemic* effect of democratic norms on nondemocratic dyads can be effective in the international system.

With the significant theoretical implication of the interactive model, this way of modeling entails cost. It is based on the mutual dependence assumption between two components in the interaction term, and it also requires the zero error term assumption at the international system level, which are inappropriate and unrealistic. We might have the underestimation problem. In multilevel models, however, we don't have these problems anymore, and even we get additional information: the necessity of introducing variables at the international system level into the model specification, and statistical test results of the multiple error components.

Table 2 shows the results of analysis of variance (ANOVA). This test is important because it shows whether there is significant variation in third party intervention at both the dyadic level and the international system level. All of the variance components are statistically significant in the two multilevel models. This means that both dyadic and

[22] Gleditsch and Hegre (1997) make a similar argument. They report that with increasing democratization over time, the frequency of war starts to decline only after 36% of states are democratized.

Table 2. ANOVA (Analysis of variance)

Parameter	*10-Year Term(19 clusters)*		*5-Year Term(37 clusters)*	
Fixed Effects	0.268**	(0.045)	0.269**	(0.034)
Constant				
Variance				
Components				
System Level	0.033**	(0.013)	0.032**	(0.009)
		16.3%		15.9%
Dyad Level	0.170**	(0.009)	0.169**	(0.014)
		83.7%		84.1%

** = $p < .01$

Note: Table entries are maximum likelihood (IGLS) estimates with estimated standard errors in parentheses and the percentages of the variance in third party intervention. The ratio of each variance component to the total variance in third party intervention can be used to indicate the importance of each level in the model. Since this comparison is difficult to be done for a binary model, I fitted the model as a Normal response model as a crude way of performing this test (Rasbash et al. 2002). The result suggests that by ignoring the multilevel character of third party intervention, we will miss an important source of variance at the system level. It also shows that the method of clustering has a negligible effect on the ratio of each variance component to the total variance.

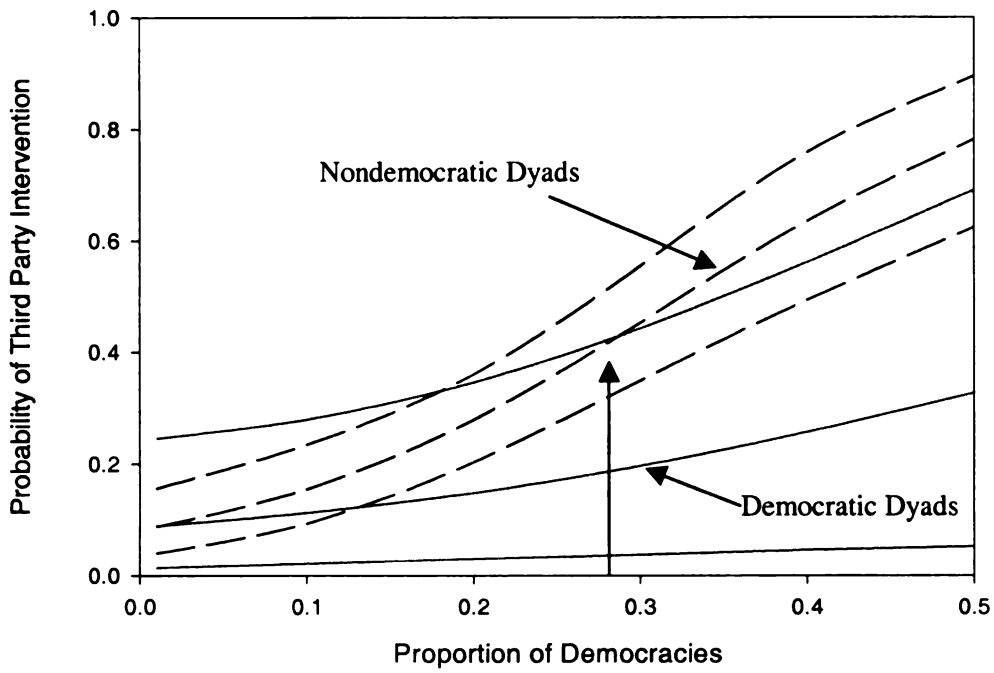
international system levels are important for third party intervention. The ratio of each variance component to the total variance in third party intervention can be used to indicate the substantive importance of each level in the model (Rasbash et al. 2002; Steenbergen and Jones 2002). Since this comparison is difficult to carry out for a binary model, I fit the model as a Normal response model as a crude way of performing this test as recommended by Rasbash et al. (2002). The international system level accounts for about 16% of the total variance in third party intervention, while the dyadic level explains about 84% of the total variance. The result suggests that by ignoring the multilevel character of third party intervention, we will miss an important source of variance in third party intervention and make incomplete conclusions about third party intervention. It underscores the validity of fitting this model as a multilevel model. Table 2 also demonstrates that the method of clustering has a negligible effect on the size of variance in each level.

Figure 3, obtained from the first multilevel model with 19 clusters, shows changes in the means of predicted probability of third party intervention and their 90 percent confidence intervals. For this purpose, I employ Markov Chain Monte Carlo (MCMC) estimation methods with the Metropolis-Hastings (MH) algorithm (see Jackman 2000 for details).[23] The output of MLEs is used to initialize the MH sampler. A standard Wishart prior is assumed for the international system level variance parameter.[24]

[23] Since I use MCMC methods only to obtain this figure, detailed explanation on this method is skipped in this paper to save space.

[24] To perform convergence diagnostics, I utilize two distinct convergence diagnostics (Geweke, Heidelberger and Welch) (Cowles and Carlin 1996; Smith 2003). These diagnostics indicate that the sample output perfectly converges to the posterior distribution.

Figure 3. Third Party Settlement Attempts



* This figure comes from the first multilevel model with 19 clusters. The output is obtained by the Markov Chain Monte Carlo (MCMC) simulation method. These lines indicate the mean of the last 10,000 samples of the 150,000 sample run and its interval from the 5^{th} to the 95^{th} percentiles of these samples. The solid lines indicate probability of third party settlement attempts for democratic dyads, while the dotted lines indicate the same term for nondemocratic dyads. As the proportion of democracies increases, the behavioral difference between these two types of states gets bigger. Nondemocratic dyads are more likely to rely on third party resolution. The slope of the mean line of nondemocratic dyads is steeper than the one of the democratic dyads. The variation of the nondemocratic dyads is smaller than the one of the democratic dyads.

This figure illustrates that the proportion of democracies has an increasing effect on the probability of third party intervention in both nondemocratic dyads and democratic dyads. Furthermore, it shows that the behavioral difference between nondemocratic dyads and democratic dyads become larger, as the proportion of democracies increases. The slope of the nondemocratic dyads' line is steeper than that of the democratic dyads. Since the multilevel model solves the underestimate problem, the confidence intervals are wider than the ones in Figure 2. As Figure 2 informs, the nondemocracy variable is *substantively* meaningful when the proportion of democracies reaches a certain level, about 28%.[25] As a result, it identifies the necessity of clustering structure differences in the international system when we look at structural effect on dyadic behavior.[26] It also implies that the effect of the nondemocracy variable (agent-centric variable) should simultaneously be evaluated with the constraining effect of international systems or international norms especially in nonlinear models.

The systemic variable, the proportion of democracies, is statistically significant in the interactive model, while it is not statistically significance in the two multilevel models at the conventional significance level. However, to evaluate the effect of the proportion of democracies on third party intervention, again, we have to look at the joint significance of this variable with its interaction term using the LR test. The p-values for the LR test of the joint significance in both the interactive model and the two multilevel models are almost zero, which means that both variables are jointly significant.

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[25] Gleditsch and Hegre (1997) make a similar argument. They report that with increasing democratization over time, the frequency of war starts to decline only after 36% of states are democratized.

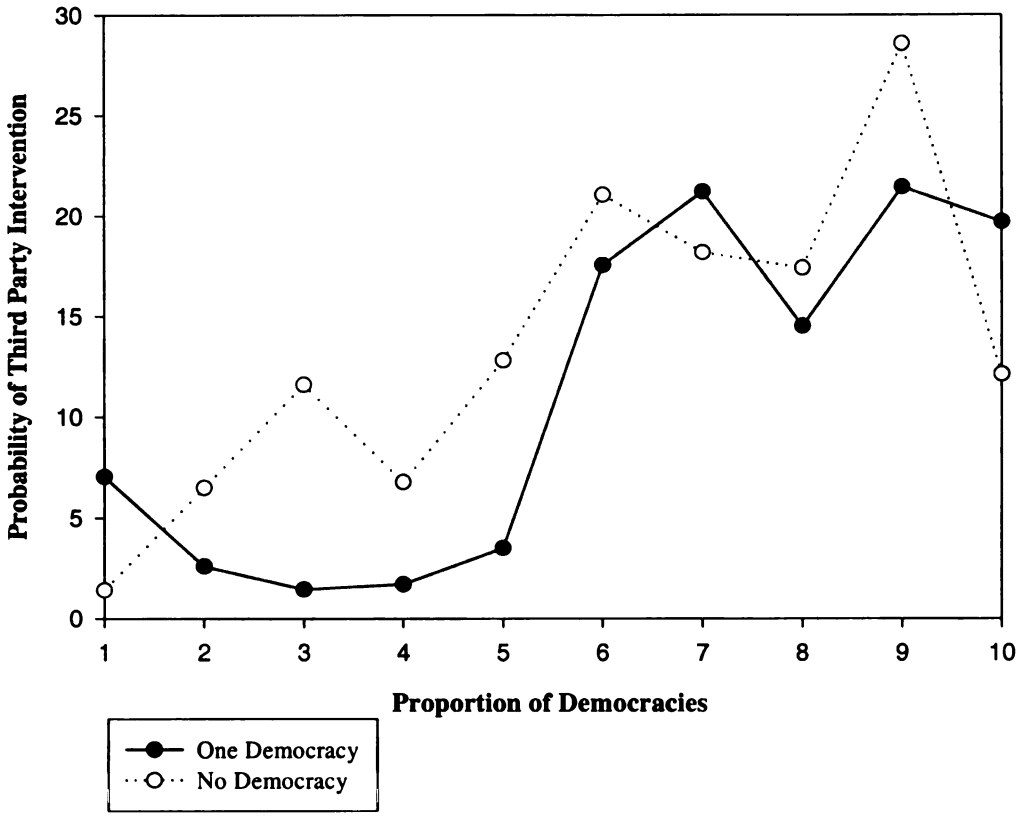
[26] The White test also confirmed the existence of heteroskedasticity problem. A graphical method of checking the source of the heteroskedastic variance informed that the proportion of democracies contributed to the existence of heteroskedasticity.

Figure 4 shows how the proportion of third party intervention changes in each type of nondemocratic dyad, as the proportion of democracies in the international system increases. The proportion of third party intervention in each type of nondemocratic dyad greatly increases as the proportion of democracies increases. This figure shows that the systemic constraining power of democratic norms on nondemocratic states can be effective both indirectly through a democratic partner in the dyad and directly through the international system. Especially noteworthy, when the proportion of democracies exceeds a certain point, approximately 21% of democracies in the international system, nondemocratic dyads are more involved in third party intervention.

A hypothesis test for the variance (τ^2) and covariance (ψ) of the system level random term (δ_j) is interesting in multilevel models. This test shows if there is still significant effect of this random term on the unexplained variation at the system level in a multilevel model *after* we controlled the effect of nondemocracy variable on the heterogeneous variance in this model. I carried out the Wald test for this purpose. This yielded a chi-squared value for the joint hypothesis that both variance and covariance parameters are zero of 1.467 on 2 degrees of freedom. As a consequence, this test provides little evidence for an effect at the 5% significance level. The separate test for each term in Table 1 confirms this result. Neither the variance nor the covariance of the system level disturbance is statistically significant at the 5% significance level.

Discussion

Figure 4. Third Party Settlement Attempts



* This figure shows the changes of proportion of third party intervention for nondemocratic states due to the increase of proportion of democracies in the international system. It shows that the structural changes of the international system affects the behavior of nondemocratic states both directly and indirectly. Regardless of the specific type of a nondemocratic dyad (whether it has one democracy), the proportion of third party intervention increases as the proportion of democracies increases. Especially when the proportion of democracies exceeds a certain level, a nondemocratic dyad with one democracy comes to behave significantly differently.

The multilevel model is very useful in testing the institutional (systemic) effect on individual states. Multilevel modeling is possible when we are able to cluster structures of the international system that vary over time. Unlike studies in comparative politics, however, there is no general agreement (or at least understanding) on the way of clustering units (in this case, the structure of the international system) like parties for individuals, nation states for parties, or regions for states. Introducing year dummies into a model is the conventional method of clustering structural differences in the international system. However, in a model with year dummies, we are unable to explain what factor actually accounts for the structural differences.

The nature of differences between clusters can be qualitative or categorical. For example, if the unit of clustering in multilevel data is the school district for students or the region for states, the systemic variable is qualitative and categorical. In this case, the number of clusters carries theoretical importance. The "names" of districts or regions convey theoretically important meaning. On the other hand, if the difference between clusters is quantitative, how many clusters we have in multilevel data is not as important as in the former case. In this case, theoretical emphasis will be given to the origin of the difference between clusters, not to the number of clusters. Unlike schools or regions, clustering observations within time periods is quantitative. Therefore, the number of clusters is not so important, once we have enough observations in each cluster. The results in the two multilevel models confirm this argument, suggesting that the method of clustering does not significantly bring changes in interpreting theoretical implication.

Meanwhile, there could be various ways in which the international system affects the behavior of individual states. The applicability of multilevel modeling into various

multilevel analyses of international politics should be tested in further studies. Efforts to develop and refine appropriate methods of clustering structural differences in the international system should be continued.

Conclusion

This paper highlights the importance of the empirical evaluation of theoretical models. Modeling multilevel structure in the data of international politics is an issue of specification. Inappropriately specified models cannot properly account for a theory. On the other hand, well-defined statistical models can make a theoretical argument sharp and distinct. In this regard, this paper contributes to theory testing and development in international politics by introducing multilevel modeling into the literature of structuralism.

Systemic theories stress the effect of the international systemic environment on the behavior of states and states' response to the system. In spite of the theoretical importance of this perspective, scholarly effort to test these systemic theories has to date been insufficient. The multilevel model provides an adequate test of systemic theories and shows how states interact with the structure of the international system. The paper's results, employing a multilevel model, support the systemic account for democratic peace: nondemocratic nations are more likely to involve third parties in their dispute resolution processes as the proportion of democracies increases. The spread of democratic norms into nondemocratic states identifies the effect of democratic norms in the international system. Recognizing this trend in nondemocratic dyads, this paper's findings also bolster the arguments of constructivism. They demonstrate the manner in

which international norms become effective in changing the behavior of states in the international political arena.

By ignoring multilevel structure in the data or incorrectly defining the relationship between multiple levels, we are likely to have invalid and unreliable estimates in an empirical model. As a strong analytical tool for dealing with multilevel data, a multilevel model provides more accurate estimates than an interactive model, taking account of uncertainty at the international systemic level. A multilevel model also clarifies the theoretical relationship between agent-centric variables and structure-centric variables. By ignoring constraining effects of structure on agents' behavior and also by overlooking agents' response to structural constraints, we can fail in making correct prediction on the trend of agents' behavior. As all three models in this paper identify, the increase in the proportion of democracies in the international system (the strength of structural effect) has an impact on both democratic and nondemocratic dyads' behavior. It demonstrates that agents' behavior is dependent upon the constraining power of structure. More interestingly, after the proportion of democracies exceeds a certain threshold, nondemocracies' behavoir is significantly different from that of democracies. As a result, this research illustrates how agents and structures interact with each other.

CHAPTER II

Tracing Monadic Effects on Dyadic Behavior:

A Strategic Approach to the Liberal Peace

Abstract

Foreign policy decisions are often strategic in that international politics is intertwined with domestic politics. By ignoring the constraining effect of domestic politics on foreign policy decisions, studies in international politics suffer from significant theoretical and empirical deficiencies. Paying attention to two types of heterogeneity inherent in a dyadic approach to the liberal peace, this research aggregates dyadic observations into individual states. Political leaders' strategic positions in domestic politics as the main source of heterogeneity at the sate level are analyzed. To maintain theoretical consistency in explaining the relationship between domestic politics and international politics, this analysis uses a multilevel hierarchical model. This way of modeling helps clarify the constraining effect of domestic institutions on international politics. As a result, this research provides a way of examining the heterogeneous effect of economic interdependence on interstate conflict, which depends on domestic institutions. In short, by highlighting multi-level data structure in decision-making and empirically testing multilevel models using a Bayesian simulation method, this research traces monadic effects on dyadic behavior.

Introduction

A host of scholars have refined the liberal peace arguments over the last decade (e.g. Maoz and Russett 1993; Oneal and Russet 1999, 2002; Barbieri and Schneider 1999; Beck, Katz, and Tucker 1998; Hegre 2000). Arguing that an expansion of civil liberty enhances the prospects for peace in the international system, this scholarship has explored the link between domestic institutional arrangements or liberty norms and the onset of interstate conflict. The central argument has regarded the pacifying effect of economic interdependence or democratic regimes on interstate conflict. This scholarship has made significant theoretical and empirical developments in international relations studies.[27]

Despite this progress, these studies still limited in their ability to respond to some theoretical and empirical challenges. First, the literature on the liberal peace lacks a *strategic* perspective, overlooking the role of political actors (agents) in explaining the relationship between domestic politics and international politics. Political leaders are strategic decision makers in that they are selective in choosing foreign policies, given domestic and international political situations. For instance, depending on political leaders' personal stability in domestic politics and their strategic consideration on political costs, decisions concerning engagement in international conflict can vary across nation states and even in a single state over time. Since theoretical justification of the liberal peace is built on its emphasis on domestic politics, liberal peace studies should explore the relationship between the political leadership and civil society and its impact on interstate interactions.

[27] Especially, this scholarship has contributed to the improvement of statistical analysis. It centers on the unit of analysis, rare events, temporal dependence, endogeneity, unmeasured heterogeneity, etc.

Second, in pursuit of the link between domestic institutions and international politics, recent international relations studies accept comparative political methods (e.g. Bueno de Mesquita, Morrow, Siverson, and Smith 2000, 1999; Hegre 2000). However, comparative cross-country studies have been handicapped "by a lack of detailed data on the political and institutional characteristics of countries, and their change over time" (Beck, Clarke, Groff, Keefer, and Walsh 2001). Since international relations (IR) studies have relied on pooled data or time-series-cross-sectional data (TSCS)[28], the limitation in obtaining functionally equivalent data in comparative studies is also a serious obstacle for IR scholars in specifying domestic institutional conditions under which governments or political leaders make decisions. To examine the nexus of domestic institutions to foreign policies, we have to answer two fundamental questions: Which domestic political institutions are relevant to decision-making? And under what conditions do such institutions matter? Unfortunately, data providing a disaggregated picture of a particular state's political context and simultaneously maintaining a strong power of functional equivalence across states have been rare.[29]

Third, to incorporate domestic covariates into the analysis, IR scholars often use *directed* dyad year format of data. It implies that we take dyads as units of analysis *and* at the same time treat individual states in a dyad as another units of analysis. Accordingly, the use of directed dyad data requires us to answer theoretical and statistical questions. Theoretically, we face the unit of analysis problem. To maintain logical consistency, we

[28] In the TSCS data, cross-sectional observations (N) are not randomly selected (Beck 2001). Accordingly, country-specific factors carry substantive meaning more in this data structure than in other data structure like the panel data.

[29] One of the popular concepts used in studies of domestic politics is "the winning coalition". However, the previous used measures for this concept have been time-invariant in most cases, and thus could not fully capture the changes of domestic institutional impact on the real politics (e.g. Bueno de Mesquita, et al. 1999, 2000)

should provide theoretical explanation and justification regarding the relationship between multiple units from multiple levels in data. Despite the growing popularity of using directed dyad data in IR studies, scholars in this area have paid little attention to the mixture of units of analysis and its theoretical problem. Statistically, we have to deal with two types of *unexplained* variance (error terms) originated from multiple levels of analysis. Thus, the unobserved heterogeneity inherent in most of the models in the liberal peace literature (Green, Kim, and Yoon 2001; King 2001) should be explained at the two levels: the dyadic level and the state level.

Finally, the theoretical reasoning of the liberal peace is primarily based on *monadic* factors. That is, the level of liberty within an individual state is the primary interest in the liberal peace theory. Yet, the actors in a dyad are engaged in a strategic interaction. Such strategic interactions go between two states or between political leaders in two states, while it occurs between a political leader and the citizens in a monadic approach. If the theoretical emphasis is given to monadic factors, its statistical test should be performed in a theoretically consistent way by distinguishing monadic effects from dyadic effects on decision-making.[30] This final criticism raises an issue about hierarchical data structure. The repeated observations at the dyadic level are nested within the state level. In other words, if a state's behavior is explained or determined by domestic political factors, repeated measures at the dyadic level should be grouped within the state. To sort out monadic effects from dyadic effects, this paper suggests using a multilevel (hierarchical) analysis. Through this analysis, the hierarchical structure of data can

[30] In this regard, Gleditsch and Hegre (1997) raise a similar issue about three levels of analysis. They suggest that peace and regime type can be examined at the dyadic, nation, and system level.

properly be defined, and the constraining effect of domestic institutions on the dyadic relationship can thoroughly be explored.

In the followings, first, I discuss multilevel data structure in studies of international conflict. The theoretical and statistical necessity of distinguishing monadic effects from dyadic effects in the strategic approach is argued. Second, based on a brief review of the liberal peace argument and its development, a strategic speculation of the liberal peace is introduced. Third, a series of statistical tests on the relationship between domestic institutions and interstate conflict are conducted. To capture the constraining monadic effects of domestic politics on international politics, a multilevel analysis is performed.

Multilevel Data Structure in International Relations

Monadic Effects vs. Dyadic Effects

Including the onset of militarized interstate disputes, most international political events have often been understood as outcomes caused mainly by the interaction between pairs of dyadic states with the structural approach. For this reason, dyadic analyses with dyad-year data, which emphasize the importance of dyad-centric factors, have recently prevailed in international relations studies. In a dyadic analysis, however, we are likely to face the unobserved heterogeneity problem or 'misestimated precision' (Raudenbush and Bryk 2002). The unobserved heterogeneity problem or misestimated precision occurs when we miss theoretically important dyadic characteristics in explaining outcomes. As well known, unobserved heterogeneity causes biased estimates, incorrect standard errors,

and the problem of inconsistency.[31] However, this problem also occurs at the state level. Since the repeated measures convey information about a state's behavioral trajectory over time, grouping observations within a state is necessary. Specifically, we notice the necessity of grouping observations within a state in several ways.

First, each state has its own geopolitical conditions. Since geopolitical conditions often limit or direct a state's interest and behavior, affecting decision-making, a state's decisions made at various time points can be explained by constant geopolitical factors. Moreover, geopolitical conditions are often a source of conflict (Diehl 1991). Second, each state has its own cultural background and military history, which have shaped the preferences of its leaders. These factors are not easily changeable but gradually cumulative. For instance, a political leader or the people in a state may be war-prone, peace-prone, or neutral, regardless of the relationship with any dyadic opponent. A state's risk-relational type in many cases persists over time and often provides powerful explanation on political decisions such as militarized disputes. Finally, reflecting on history, we observe that a set of states frequently have engaged in militarized disputes compared to other states. Whatever the reasons could be[32], these states reveal the fact that individual states' (not dyadic) characteristics do matter with respect to the likelihood of interstate disputes. It is not simply a higher level of economic interdependence, or "longer histories of economic interdependence" between dyadic states, that mitigates conflict (Box-Steffensmeier, Reiter, and Zorn 2003). The likelihood of militarized

[31] See Greene for details (2000: 590-651).

[32] Geopolitical explanations such as Mackinder's "heartland-rimland" analysis or Ratzel's "Anthropogeographie" have appealed in this field. As well known, geopolitics, which a group of German geographers developed, was used to justify Nazi expansion (Dougherty and Pfaltzgraff 1997). Explanation based upon economic factors such as imperial wars by major states against considerably weaker states is another rationale.

disputes is also dependent on individual states' characteristics or domestic institutional *context*.

The strategic approach to international conflict summarizes nicely the necessity of distinguishing monadic effects from dyadic effects. In models of strategic politics, political decisions on the initiation of (or participation in) interstate conflict are not determined only by international structural factors such as the distribution of power, alliances, contiguity, and economic interdependence between dyadic states. These decisions, however, can also be influenced by the domestic institutional context. For example, when political leaders have a strong incentive to divert people's attention from domestic problems to international issues, they can initiate interstate conflict strategically to rally domestic support. Since strategic theories place the theoretical importance on the interaction between domestic politics and international politics, models of strategic politics must address the multi-level structure in an analysis, clearly thereby providing crucial answers regarding the ontological relationship between domestic politics and international politics. Statistically, the failure to account for multilevel data structures may result in inconsistent parameter estimates and inefficient variance of the estimated coefficients (Beck and Katz 2001b; Rodriguez and Goldman 1995).

In a dyadic analysis, the problem of unobserved heterogeneity basically centers on dyadic heterogeneity. In a dyadic analysis with individual state level accounts, on the other hand, the unobserved heterogeneity problem can also occur at the individual state level as well as at the dyadic level. By disregarding heterogeneity existing at the state level, we face the same statistical problems that we might have at the dyadic level. A theoretical explanation on the outcome of interest will be incomplete. As a result, we

have to deal with two types of unexplained variations originated from both levels of analysis. If multiple units from multiple levels are introduced into an analysis, we should provide a theoretical explanation on the relationship between multiple units to maintain logical consistency. This type of rigorous specification, measurement, and subsequent empirical testing is demanding, but necessary.

Why a Multilevel Model[33] Analysis?

Various remedies for unobserved heterogeneity have been suggested. To determine a proper way of dealing with the unobserved heterogeneity problem in TSCS data with binary response variables (BTSCS) (which is a typical data format in IR studies), continuous scholarly effort has been made to testing validity of fixed effects models (Green et al. 2001; Beck and Katz 2001b; King 2001), random effects (frailty) models (Box-Steffensmeier et al. 2003), or the between-and within-cluster estimation (Zorn 2001). Simply, 'fixed effects' models assume that each dyad differs in its intercept, while each dyad differs in its error term in random effects models. The between- and within-cluster estimation is for capturing both cross-sectional and temporal differences in dyads. Despite the previous efforts having made significant contributions to methodological developments in the arena of international politics, much attention needs to be paid to two types of heterogeneity in multilevel data and also to a theoretical explanation of the origin of heterogeneity.

Multilevel hierarchical models (or random coefficient models) have rapidly become established as the appropriate tool for modeling data with complex hierarchical structures (Beck 2001; Beck and Katz 2001a; Congdon 2003; Martin 2001, Steenbergen

[33] Multilevel models (Goldstein 1995; Hox 1995) are also called as hierarchical models (Raudenbush and Bryk 2002; Western 1998) or random coefficient models (Beck 2001).

and Jones 2002). Allowing the intercept and parameter coefficients to be random, multilevel hierarchical models can monitor how domestic institutional contexts affect international political outcomes. This way of modeling also has advantages in providing "more accurate forecasts and estimates, providing a more realistic account of all the sources of uncertainty associated with the comparative research design" than other models such as the interaction model (Western 1998, p.1238).

Although the heterogeneity problem has been viewed as a methodological issue, the *causes* of heterogeneity are of substantive interest. That is, if a theory tells that political leaders' decisions are systematically affected by certain domestic institutional conditions (Putnam 1988; Morrow 1991; Fearon 1994; Mo 1994, 1995), the constraining effect of domestic institutions on the interaction between dyadic states should be explored. In this case, first of all, we need to clarify the theoretical relationship between dyadic units and state units. In the strategic approach, domestic institutional context often explains internal effects on policy decisions, while dyadic relational factors create external structural conditions that affect decision-making. In this regard, by employing multilevel hierarchical structure into the model, we are able to successfully separate domestic political factors from dyad-centric factors, clarifying the relationship between the two levels.

Despite the importance of illustrating causes of heterogeneity at the state level, it has been a hard task for international relations scholars to properly define and empirically test the effects of domestic institutions on international political events. Since each state has its own domestic context, it seems difficult to explain domestic variations using a single measure. However, since a multilevel model does not require holding the 'zero

error term' assumption, we do not have to assume that a single predictor explains all sources of heterogeneity existing at the state level (Steenbergen and Jones 2002; Western 1998).

Practically, to trace monadic effects on dyadic behavior, we need to explore information at the state level. When the sample size within a state is large enough to bring us precise estimates, grouping is possible and necessary. Given a relatively long time span in most of IR studies, for instance from the year 1816 to the year 2000 in this paper, we observe that most of states have survived through this time span. Finally, with theoretical rationales and empirical opportunity, IR scholars can sort out monadic effects on international political events from dyad-centric factors in multilevel analyses.

The Liberal Peace and Heterogeneous Domestic Politics

This research reevaluates liberal peace arguments, which posit that economic interdependence has a pacifying effect on militarized conflict. The logic of the liberal peace is simply that increased costs of potentially lost trade diminish the probability of conflict. Since trading states recognize that militarized disputes might bring serious consequences to their economic relations, they become reluctant to get involved in disputes against trading partners as the level of trade goes up. In the liberal peace studies, therefore, a high level of economically important trade, as usually indicated by the bilateral trade-to-GDP ratio, is associated with a low level of incidences of militarized interstate disputes and war, even after controlling for theoretically interesting other influences: geographic distance, the balance of power, alliance, and the existence of major powers.

The liberal peace maintains a theoretical assumption that policy costs caused by lost trade are significantly associated with decision makers' political costs. Relaxing this assumption, recent studies have focused on domestic politics, based on the idea that domestic political factors condition the pacifying effect of economic interdependence on conflict (Hegre 2000). For instance, indicating that the interdependence literature ignores state-market relations, Garztke and Li analyze how "costly signaling through global markets facilitates ex ante bargains by allowing observers to infer the value of strategic variables" (Garztke and Li 2001, p.7).

The strategic approach views that political leaders' foreign policy decision making can vary in response to domestic political situation. If political leaders enjoy a relatively low level of autonomy domestically, they are more likely to be concerned about policy outcomes and the likelihood (opportunity) of policy failure. On the other hand, if political leaders are relatively free from domestic constraints, they are less likely to concern about policy failure and thus more likely to stick to their preferences (willingness). This perspective is based on the assumption that policy decisions are mainly determined by political leaders' drive to survive. In other words, political leaders' behavior is basically analyzed in relation to political leaders' political survival. In order to survive and enjoy the benefits of office, political leaders should carefully take domestic interests as well as the international political reality into account, especially when political leaders do not have strong political support at home. Accordingly, considering *political* risk is essential to understanding political decisions (Lamborn 1991; Baldwin 1995; Bueno de Mesquita et al. 1999). Such a theoretical innovation makes it possible to integrate domestic and international "games" (Putnam 1988) played by

various types of political leaders. Overall, this perspective improves scholarly knowledge on the dynamic relationship between domestic politics and interstate conflict, providing a more comprehensive understanding on political leaders' strategic decision-making (Reiter 2003).

Policy Costs and Political Costs

The liberal peace advocates contend that, since trading states recognize that militarized conflict might bring serious economic losses, they are more likely to be reluctant to engage in interstate disputes as the level of trade goes up. This argument is held on the basic assumption that *policy* costs are directly associated with *political* costs[34] for political leaders. In other words, it assumes that political leaders lose (or benefit) equally from adversity (or prosperity). However, if this assumption cannot be held, that is, if policy failure does not significantly risk political leaders' survival[35], we should explore the structure of domestic politics. Domestic politics is an important factor in calculating the political costs of potentially lost trade. By ignoring the role of domestic politics and political costs in evaluating the liberal peace, we also fail to explain the behavior of 'liberal autocracies' and 'illiberal democracies.' Liberal autocracies may frequently engage in interstate conflict, while illiberal democracies may keep a peaceful relationship with other states. As a result, the pacifying effect of economic interdependence on interstate conflict should be examined along with domestic institutional context.

This research attempts to explain heterogeneity at the state level by testing a proposition that the pacifying effect of trade on conflict is contingent on the domestic institutional context. Depending on the level of personal stability in domestic politics,

[34] Political costs are associated with political leader's power position in a country, while policy costs with the national wealth.
[35] Political survival indicates that a political leader is not deposed from his office in the year in question.

political leaders' decision making on conflict can change. In turn, the consequences of conflict can bring changes in political leadership and their political survival. This implies that the significant economic loss resulted from interstate conflict (policy costs) does not always entail political leaders' political failure (political costs) in domestic politics.

Measuring Domestic Institutions

In the previous studies, the measure of domestic institutions is often another name of the regime type, which is typically classified into two categories, democracies or autocracies (non-democracies). Since this measure is time-constant for a relatively long time period, it is hard to capture dynamic changes in the relationship between the state and the civil society in a country over time. Especially, this measurement problem is serious when we deal with autocracies.[36] Even in democracies, since various domestic sectors are acting in each country, we cannot sufficiently explain overall domestic institutional contexts which are associated with political leaders' political survival. Undeveloped states seem even more problematic. Even more troubling is that data tends to be systematically missing from such countries – the state is simply so underdeveloped that it cannot gather statistical data.

To evaluate domestic institutional contexts, this study uses two concepts: the winning coalition and the selectorate. A winning coalition is defined as: "those members of the selectorate whose support is essential to keep the incumbent leadership in office." The selectorate is defined as: "all those people in a country who have an institutionally granted right or norm that gives them a say in choosing the government" (Bueno de

[36] It is hard to overcome this problem when we deal with autocracies (nondemocracies). Maybe, it is because it is difficult to get good information on autocracies, or because autocracies do not actually have variations in their domestic institutional conditions. Due to this reason, many studies have often limited their research objects within OECD countries or democratic countries.

Mesquita et al. 1999, p.148). The mechanism through which these political institutions affect political leaders' perception about their political survival is straightforward.

When the size of the winning coalition is large, political leaders are able to hold on to political power in relying on policy success, rather than on 'private goods allocations.' In such cases, political leaders are more likely to perceive themselves to be constrained by domestic interests and domestic institutions when they make decisions on international politics. [37] Therefore, political leaders are more likely to behave strategically. Their behavior can be strategic because political leaders' desire for political survival makes them place less weight on the importance of international structural factors (opportunity) than they would otherwise do with respect to interstate conflict. This is the case where high economic interdependence has a pacifying effect on interstate conflict. Since policy costs are strongly associated with political costs, political leaders should be very cautious in engaging in conflict against trading partners. As a result, as the size of winning coalition increases, domestic institutional context is more likely to affect decision-making on conflict.[38] Alternatively, if the winning coalition is relatively small, leaders are less likely to care for policy success because they can easily maintain support from the winning coalition by supplying private goods (Bueno de Mesquita et al. 2000; 1999; Gelpi and Grieco 2001). There is less of an incentive for political leaders to behave

[37] In general, there is a high level of political competition on the leadership in these countries with a large winning coalition.

[38] This paper assumes that, under strong domestic constraint (a relatively big size of winning coalition), political leaders are less likely to decide to engage in interstate conflict. Some may view that strong domestic constraint leads political leaders to interstate conflict in some cases, especially when a majority of people in a country support armed conflict. Although the latter argument is useful in explaining the onset of interstate conflict in some cases, it does not harm the theoretical maintenance of this paper. In this paper, we focus on the *indirect contextual* effect of domestic politics on the probability of MIDs. That is, based on the liberal peace arguments, we assume that citizens do not want to get disadvantages from the loss of trade. Based on this assumption, this research argues that the pacifying effect of interdependence on conflict is conditional on domestic institutional context. The more decision makers are constrained by domestic politics, the more the pacifying effect of economic interdependence on conflict is intensified.

strategically for their political survival. They are less likely to be cautious in making decisions. Political leaders have a bigger leeway for maintaining personal preferences. In this case, domestic institutional context may not strongly affect decision-making on conflict.

Meanwhile, holding the size of the winning coalitions constant, the size of the selectorate is expected to have a negative effect on the chance that a defector in a winning coalition will be accepted into the rival's winning coalition. This means that members in a wining coalition will be more loyal to their political leaders as the size of the selectorate increases (Bueno de Mesquita et al. 2000). As a result, given a certain size of the winning coalition, political leaders are less likely to perceive themselves to be constrained by domestic political factors as the size of the selectorate increases.

Tsebelis' work (2002) is related to this argument. He shows how the number of "veto players" in a political system affect policy stability, impeding significant departures from the status quo. According to his argument, we are able to analyze political systems regardless of the level of their institutional complexity, observing the number of veto players or their ideological distance from each other.

With respect to the effect of domestic politics on political leaders' strategic decisions, the diversionary theory provides a somewhat different perspective than the one I presented above. The contribution of the diversionary theory to the studies of international relations is significant. It explains well the strategy that political leaders can use international conflict to divert people's attention from domestic matters to international issues (Leeds and Davis 1997[39]; Smith 1996). According to the rationale of

[39] They suggest that, in order to externalize domestic discontent, states in economic crisis may initiate militarized conflicts against states with high growth.

this theory, political leaders whose domestic political positions are not stable often have a stronger incentive to be involved in interstate conflict than leaders with stable domestic political positions. This perspective seems contradictory with the theoretical argument in this research. But, a strategic view on the liberal peace in this study does not come into conflict with the argument of the diversionary theory, because this study focuses only on the constraining effect of domestic politics on the relationship between economic interdependence and interstate conflict. In other words, it is not assumed that the issue of political leaders' political survival has a *direct* effect on the likelihood of interstate conflict.[40] This paper examines why and how economic interdependence can have heterogeneous effect on interstate conflict, and, as a conditional factor, political leaders' strategic position in domestic politics is introduced in order to provide an explanation to the puzzle. Due to the assumption that political survival is a political leaders' main goal, scholars of the diversionary theory cannot deny the existence of the constraining effect of domestic politics on the relationship between economic interdependence and interstate conflict. Under relatively strong domestic constraints, it is not an easy decision for political leaders to cut off a strong economic tie with their trading partners by initiating conflict against them. In a multilevel model structure, we can set up the relationship between domestic politics and interstate conflict to be conditional and thus make a more general statement on interstate conflict.

Propositions, Modeling, and Estimation

Propositions

[40] In order to test the direct effect of domestic politics on interstate conflict, which is not the interest of this paper, we need to control various specific domestic level variables.

The first proposition of this research tests the extent to which domestic politics explains the onset of militarized interstate disputes. In other words, this proposition examines if a multi-level hierarchical model is necessary in testing the liberal peace arguments:

Proposition 2.1: *The onset of militarized interstate disputes is significantly explained at the state level.*

If domestic institutional context does matter, then the probability of militarized interstate onset should partly be explained at the state level. Analysis of variance at each level in the multilevel data is used as a preliminary step to test this proposition. If political leaders are constrained by domestic institutions, they tend to be more careful with conflict initiation or participation than they would otherwise be. Therefore, the next proposition tests the strategic view of the liberal peace:

Proposition 2.2: *As the size of the winning coalition increases, the pacifying effect of economic interdependence on militarized dispute onset will increase, holding all else constant.*

If political leaders' position in domestic politics is not stable, they should be concerned about political costs from potentially lost trade. Accordingly, as the size of the winning coalition increases, political leaders are more likely to be cautious of engaging in conflict against strong economic partners. On the other hand, if political leaders perceive their political positions to be very stable in regard to their political survival, they will behave non-strategically. Political leaders are less likely to be cautious of having conflict against trading partners, since to some extent they can endure the costs coming from lost trade.

Testing this proposition helps us understand why economic interdependence may have heterogeneous effects on the onset of militarized disputes.

A Three-Level Hierarchical Model

In order to set up the relationship between trade and conflict in a three-level framework, I use a "three-level hierarchical model." In the first level of the three-level hierarchical model, we observe a set of binary outcomes Y_{tij} representing either the onset of militarized interstate disputes or not:

$$Y_{tij} \sim Bern(\pi_{tij}),$$

π_{tij} is the probability of the outcome. Of particular interest in this analysis are the modeling of heterogeneity at levels 2 and 3 (dyads and states), and resulting impacts on fixed regression coefficients. The responses are classified by state *j*, dyad *i*, and by dyadic year *t* within dyads. The first level of this three level model with a logit link for the binary outcome is specified in the following form:

$$\begin{aligned}\text{logit}(\pi_{tij}) = \alpha_{0ij} + \alpha_{1ij} * Interdependence_{tij} + \alpha_{2ij} * Democracy_{tij} + \alpha_{3ij} * Parity_{tij} + \alpha_{4ij} * Alliance_{tij} + \\ \alpha_{5ij} * Distance_{tij} + \alpha_{6ij} * Contiguity_{tij} + \alpha_{7ij} * Onepower_{tij} + \alpha_{8ij} * Twopowers_{tij} + \\ \alpha_{9ij} * Peaceyear_{tij} + \alpha_{10ij} * Spline1_{tij} + \alpha_{11ij} * Spline2_{tij} + \alpha_{12ij} * Spline3_{tij} + \varepsilon_{tij}. \quad (2.1)\end{aligned}$$

By defining the first level intercept coefficient as random, we can specify the second level as:

$$\alpha_{0ij} = \beta_{00j} + \mu_{0ij}, \quad (2.2)$$

where β_{00j} is the average intercept across the second level units (dyads), μ_{0ij} is the unique increment to the intercept associated with the second level unit *i*. Since we are mainly focusing on the effect of level-3 (states) on fixed coefficients, no predictors are

introduced in this model. We can also specify that the second level intercept vary randomly:

$$\beta_{00j} = \gamma_{000} + \nu_{00j}, \tag{2.3}$$

where γ_{000} is the average intercept across the third level units (states), ν_{00j} is the unique increment to the intercept associated with the third level unit *j*. Equations (2.2) and (2.3) allow us to estimate the variability in the regression coefficients (intercepts) across both level 2 and 3 units. The next step is to model this variability especially at the level-3. Based on a strategic theory of the liberal peace, we can specify that the effect of economic interdependence varies as a function of the sizes of the winning coalition and the selectorate:

$$\alpha_{1ij} = \gamma_{10j} + \gamma_{11j} * WC_{t0j} + \gamma_{12j} * S_{t0j} + \nu_{10j}, \tag{2.4}$$

where γ_{10j}, γ_{11j}, and γ_{12j} are level-3 coefficient (fixed effects), and ν_{10j} is a level-3 random effect. Unlike in Equation (2.4), we don't include the same level-3 predictors in Equation (2.3). As illustrated above, this is because we assume that domestic institutions affect the probability of militarized interstate disputes through its relationship with economic interdependence. Now, if we substitute Equation (2.2), (2.3), and (2.4) into Equation (2.1), it yields:

$$\begin{aligned}\text{logit}(\pi_{tij}) = {} & \gamma_{000} + \gamma_{10j} * Interdependence_{tij} + \gamma_{11j} * WC_{t0j} * Interdependence_{tij} + \gamma_{12j} * S_{t0j} * Interdependence_{tij} \\ & + \alpha_{2ij} * Democracy_{tij} + \ldots\ldots + \varepsilon_{tij} + \mu_{0ij} + \nu_{00j} + \nu_{10j} * Interdependence_{tij}. \end{aligned} \tag{2.5}$$

As a result, in Equation (2.5), the multilevel disturbance term is composed of the four different components, ε_{tij}, μ_{0ij}, ν_{00j}, and ν_{10j}.

For the α and γ parameters, I assume a normal distribution with a flat prior. And

for each level-2 and level-3 random effects, I assume for each a normal distribution and a multivariate normal distribution: $\mu_{0ij} \sim N(0,\Omega_u)$, $\nu_{p0j} \sim MN(0,\Omega_{\nu_p})$. The assumed prior for level-1 variance parameter is $\varepsilon_{tij} \sim N(0,1)$, while level-2 variance parameter is assumed to have a Gamma distribution with a flat prior: $\Omega_{\mu}^{-1} \sim G(0.001,0.001)$. For the level-3 variance parameter, I assume a standard Wishart prior: $\Omega_{\nu_p}^{-1} \sim W(R_0,2)$. To identify the multilevel model, we need to assume zero covariance between three level disturbances:

$$Cov[\mu_{0ij},\varepsilon_{tij}] = Cov[\nu_{00j},\varepsilon_{tij}] = Cov[\nu_{10j},\varepsilon_{tij}] = Cov[\mu_{0ij},\nu_{00j}] = Cov[\mu_{0ij},\nu_{10j}] = 0.$$

All the priors are chosen not to significantly dominate the iteration procedure. And all the distributional assumptions are based on the information found out in many previous studies (Congdon 2003).

This formulation has a three-level hierarchical structure. In this model framework, we can separate domestic context (level-3) from dyadic factors (level-2). The second level of this analysis relates dyadic relational factors to MIDs, and the third level incorporates domestic context by explaining variation in the parameter estimates.

The first step to test this argument is to check a multilevel structure in the data. A one-way ANOVA (analysis of variance) with random effects can help to decompose the variance in militarized interstate disputes:

$$Disputes_{tij} = \gamma_{000} + \nu_{00j} + \mu_{0ij} + \varepsilon_{tij}.$$

In this model, γ_{000} is the grand mean of militarized interstate disputes. ν_{00j} contains cross-state variation, while μ_{0ij} contains cross-dyadic variation. Finally, ε_{tij} captures dyadic year temporal variation. In order to argue that all three levels of analysis are important for militarized interstate disputes, all three-variation terms should be statistically significant.

Estimation

Beck and Katz (2001a) report that parameters of multilevel models (random coefficients models in their terminology) with TSCS data are poorly estimated in Stata or Limdep statistical packages, which mainly use GLS algorithm for obtaining estimates. Following their suggestion, I use a Bayesian simulation method to estimate the parameters. Estimation and inference via Bayesian simulation method such as Markov Chain Monte Carlo (MCMC) methods are advantageous in various aspects (Jackman 2001). First of all, instead of finding simple point estimates for the parameters of interest, we can make a large number of simulated random draws from the joint posterior distribution of all the parameters. And then we can use these random draws to form a summary of the underlying distribution, which provides much reliable estimates. In addition, when we have to deal with very complex models like multilevel models, Bayesian simulation methods help to solve computational difficulties.

The parameters that I must estimate are as follows: $\theta = \{\gamma, \alpha, \Omega\}$. Given the data set, $Y = \{Y_{ij}\}$, we can estimate the parameters from the posterior distribution:

$$f(\theta|Y) \propto f(Y|\theta) f(\theta),$$

where $f(Y|\theta)$ is the likelihood. The likelihood function summarizes the information about θ in Y. Thus, the function of θ is proportional to $L(\theta|Y) \propto f(Y|\theta)$. $f(\theta)$ is the prior, which is constructed from the priors and the hyperparameters of the model. Finally, the posterior density is proportional to the product of the prior distribution and the likelihood:

$$f(\theta|Y) \propto L(\theta|Y) f(\theta).$$

Due to the complex data structure in which the parameters γ vary across domestic contexts, it is very difficult to estimate this model using maximum likelihood estimation.

In order to estimate simultaneously all the parameters, I employ Markov Chain Monte Carlo (MCMC) estimation methods. Specifically, the posterior distribution $f(\theta|Y)$ is investigated with the Metropolis Hastings sampler. Compared to the Gibbs sampling, the Metropolis Hastings (MH) sampler is useful when the conditional posterior distributions do not have simple forms. This is because the MH sampling method allows the proposal distribution to have any form. Since, for binary response models, the conditional posterior distributions for both fixed effects and the residuals do not have standard forms, the MH sampling is used for the parameters in this model. The Winbugs[41] and MLwiN (Rasbash et al. 2002) statistical packages are used for this purpose.

The binary dependent variable in this analysis has few events compared to the large amount number of nonevents. Rare events can bring biased logit coefficients in small samples, causing underestimation of event probabilities (King and Zeng 2001). To see if the data in this research reveals the 'rare events' problem, I employ a new, robust estimation procedure that King and Zeng (2001) have developed.[42] Comparison of the estimates obtained through this suggested method with the estimates in the normal logit model can clarify if the 'rare events' problem is serious in the data.

Operationalization

The dependent variable is militarized interstate disputes. This variable is coded as one if a militarized interstate dispute occurred between the members of that dyad in that year, and zero otherwise. There has been controversy about the way of measuring militarized interstate disputes (MIDs) (Hegre 2000). Heightening the cutoff point will

[41] This soft ware is available at <http://www.mrc-bsu.cam.ac.uk/bugs/winbugs/contents.shtml>.
[42] This estimation procedure can be done using the software "ReLogit", which is publicly available at <http://gking.harvard.edu>.

aggravate the 'rare events' problem. Adversely, lowering the threshold for inclusion can yield more flexibility in dealing with data. That is, it will help to reduce both the 'rare events' problem and the problem of unreasonably combining data obtained from relatively long periods of time (Gleditsch, Strand, Eriksson, Sollenberg, and Wallensteen 2001).

As a result, I use Oneal and Russet's (2002) MIDs data set compiled by the Correlates of War (COW) Project. A militarized interstate dispute involves the threat, display or use of force short of war by one member state, explicitly directed towards the government, official representatives, official forces, property or territory of another state. They incorporate Zeev Maoz's (1999) revised data for more accurate dyadic analyses. The data set covers the time period of 1816-2000. Directed dyads data format will be used. Including many dyads that have almost zero chance of being involved in militarized disputes is unrealistic. Thus, this research uses "politically relevant dyads."[43] A pair of dyadic states is defined as a politically relevant dyad if it includes at least one major power or it is geographically contiguous. By limiting the pool of cases to relevant dyads, the rare events problem is reduced. The measures of variables are described in Table 3.

This research corrects for the temporal dependence problem by creating a spline function for peace years (Beck, Katz, and Tucker 1998). To measure level-2 predictors, the winning coalition and the selectorate, first, I use Bueno de Mesquita et al.'s suggestion (1999). Their measures have recently been popular in many international

[43] To see if findings remain significant only when we restrict our analysis to politically relevant dyads, analyses with all dyads are also performed and reported in Appendix 2. And, there are no substantively significant differences in the outcomes between the two data sets.

Table 3. Variable Descriptions

Variable	Description
MIDs	The onset of militarized dispute (1= onset). The Correlates of War (COW) MID data. Available in EuGene.
Dependence	The ratio of dyadic trades to the GDP of each partner in constant US dollars. The trade dependence value for the least commercially engaged member of the dyad is used for the level of economic interdependence. Available in EuGene.
Democracy	The regime score for the less democratic dyad member. This score come from the Polity III "institutionalized democracy" score minus the "institutionalized autocracy" score for each state (Jaggers & Gurr 1995). Available in EuGene.
Alliance	Whether or not the dyad members are allied (1=allied). Available in EuGene.
Parity	A continuous variable bounded between zero and one, indicating the ratio of the weaker dyad member's capabilities to those of the stronger dyad member. Capabilities are based on the COW project's Composite Capabilities Index. Available in EuGene.
Contiguity	It is coded as one when the dyad members are geographically contiguous by a land border. Available in EuGene.
Distance	The natural log of distances between capital cities. Available in EUGene.
Major Powers	Two dichotomous variables, one equal to one if only one dyad member is a major power, the other equal to one only if both dyad members are major powers. Available in EUGene.
Winning Coalition	A composite of four items: (1) "Xrcomp" (the competitiveness of executive recruitment), (2) "Xropen" (the openness of executive recruitment), (3) "Parcomp" (the competitiveness of political participation), and (4) "Regtype" (regime type) in Polity II and Polity III data (Jaggers and Gurr 1995). Available in EUGene and ICPSR (Inter-university Consortium for Political and Social Research) data archive in the university of Michigan.
Selectorate	"Legislative Selection" variable in Polity II data is used. Available from ICPSR data archive.
Checks	The number of veto players measured between 1975 and 2000. Available in the Database of Political Institutions (DPI) 2000 (Beck et al. 2001).

relations studies. "Legislative Selection" variable in Polity II data set is used to measure the size of the selectorate, which varies only from 1 to 3. This variable measures the selective breath of the members of each country's legislature. If there is no legislature, it is coded as 0. If the legislature is chosen by heredity, by ascription, or by the effective executive, it is coded as 1. If members of the legislature are selected by popular election, it is coded as 2. Therefore, it is believed that the larger the value of this variable, the larger the size of the selectorate.

To measure the size of the winning coalition, we construct a composite index based on the variables "Xrcomp", "Xropen", "Parcomp", and "Regtype" in Polity III data set[44] (Jaggers and Gurr 1995). Xrcomp variable measures the competitiveness of executive recruitment. The value of this variable is 1, 2, or 3. A coded value of 1 indicates that the chief executive is selected by heredity or in unopposed elections. If this variable is larger than or equal to 2, one point is assigned to the winning coalition variable. Xropen variable measures the openness of executive recruitment. If the executive is not recruited by heredity, another point is given to the winning coalition variable. Parcomp variable measures competitiveness of political participation. If political participation is highly competitive, another point is added to the winning coalition variable. Regtype variable measures the regime type. If a political system is not a military or military/civilian regime, one more point is assigned to the winning coalition variable. With the base value of one, finally, this index varies one to five. The data for this variable is from Polity II data set.

[44] "Regtype" variable existed in only Polity II data set and was not updated in Polity III and beyond. A revised version of the data, Polity IIID, was released in 2000.

Due to the small range of variations, these measures may not fully explain variations in domestic institutions. As an alternative way of measuring domestic context, the "Checks" variable in the Database of Political Institutions (DPI) 2000 (Beck et al. 2001) is used for the winning coalition. This variable is originally designed to measure the number of veto players across different political systems. By counting the number of veto players in a political system, we may be able to have a flexible way of measuring the effect of domestic institutions on policy outcomes (Tsebelis 2002). The Checks variable is coded as 1 if legislatures are not competitively elected. This variable is incremented by one in each following case: if there is a chief executive, if the chief executive is competitively elected, or if the opposition controls the legislature. In addition, in presidential systems, this variable is incremented by one both "for each chamber of the legislature unless the president's party has a majority in the lower house and a closed list system is in effect" and "for each party coded as allied with president's party and which has an ideological orientation closer to that of the main opposition party than to that of the president's party." In parliamentary systems, the Checks variable is incremented by one both "for every party in the government coalition as long as the parties are needed to maintain a majority" and "for every party in the government coalition that has a position on economic issues closer to the largest opposition party than to the party of the executive" (Keefer 2002). Finally, an increase of the number of veto players in a political system indicates that political leaders are more likely to be checked by their opponents or by the people. Therefore, this variable goes well with the concept of the winning coalition as a proxy variable. Compared to Bueno de Mesquita et al.'s composition index (1999;

2000), the Checks variable that varies from one to eighteen is believed to efficiently capture changes in domestic context[45] (See Appendix A for details).

Result

The first step in multilevel models is to check if there is significant variation in the probability of militarized dispute occurrence at both state and dyad levels. For this purpose, Table 4 reports the result in the one-way ANOVA model. This test provides us the evidence that the multilevel character of the data should not be ignored. The ratio of each variance component to the total variance in the onset of militarized disputes can be used to indicate the importance of each level in the model (Rasbash et al. 2002; Steenbergen and Jones 2002). Since this comparison is difficult to carry out for a binary model, I fit the model as a Normal response model as a crude way of performing this test as recommended by Rasbash et al. (2002). Although we should not rely completely on this test result in evaluating the necessity of introducing a multilevel model, it can be a preliminary step to begin a multilevel analysis. To see if the applicability of multilevel models is limited only to directed dyad year format of data, I also report the result from the non-directed dyad year data.

All of the variance components are statistically significant in each multilevel model. In the two-level model with non-directed dyad year data, the dyadic level explains about 17% of the total variance in the onset of interstate conflict, while the dyadic year level explains about 83% of the total variance. The two-level model with directed dyad

[45] One of the examples, which show the goodness of this measure over Bueno de Mesquita et al.'s composition index, is Argentina. Between 1983 and 2000, the value of Bueno de Mesquita et al.'s composition index for Argentina is fixed at 3. On the other hand, DPI index indicates that the size of winning coalition has frequently fluctuated between the value of 1 and 5 during the same time period, which is much closer to the trends in the history of Argentina.

Table 4. Analysis of variance with Random Effects

Parameter	*Non-Directed Dyad Year*				*Directed-Dyad Year*			
Fixed Effects Constant	0.004** (0.000)		0.022** (0.001)		0.031** (0.003)		0.028** (0.003)	
Variance Components								
State Level					0.002** (0.000)	9%	0.001** (0.000)	4.4%
Dyad Level	0.001** (0.000)	16.7%	0.004** (0.000)	17.4%			0.003** (0.000)	13.0%
Dyadic Year Level	0.005** (0.000)	83.3%	0.019** (0.000)	82.6%	0.022** (0.000)	91%	0.019** (0.000)	82.6%

** = $p < .01$

Note: Estimated standard errors are in parentheses. The percentage of each level variance of the onset of militarized interstate conflict is reported. The ratio of each variance component to the total variance in the onset of conflict can be used to indicate the importance of each level in the model. Since this comparison is difficult to be done for a binary model, I fitted the model as a Normal response model as a crude way of performing this test. The result suggests that by ignoring the multilevel character of the onset of conflict, we will miss an important source of variance at the dyadic level of the state level to some degree.

year data reports similar results. Meanwhile, when we compare variance at the dyadic year level with the one at the state level, about 9% of the total variance is resulted from the state level. Finally, in the three-level model, variance components to the total variance take 82.6%, 13%, and 4.4% at each dyadic year, dyad, and state level. Overall, these results imply that there are significant variances in the onset of conflict at both dyadic and state levels as well as at the dyadic year level. The result demonstrates that, by ignoring the multilevel character of the onset of militarized conflict, we will miss important sources of information on the total variance and make incomplete conclusions about the onset of interstate conflict. It underscores the validity of fitting this model as a multilevel model.

In Table 5, estimates from four different models are reported. Using a MH sampler, I generate a large number of samples from the joint posterior density of the parameters and obtain the summary statistics used for inference in multilevel models.[46] In the logit with splines model, the corrected logistic estimates are obtained by controlling the possible rare events problem. The normal logit estimates and corrected logit estimates are almost identical in this analysis, implying that there might not be the 'rare events' problem in the data.

To check if parameter estimates converge to the posterior distribution, I use various diagnostic methods. Graphical inspection of MCMC sequences is important in assessing problems with convergence. According to trace plots of the iterative history of MCMC sequences, it is hard to say that there is a problem with convergence (See Appendix C). As an alternative, I use the Raftery-Lewis diagnostic (Raftery and Lewis

[46] I let the sampler run for more than 100,000 iterations, and saved the last 40,000 (or 60,000) iterations for inference.

Table 5. The Onset of Militarized Interstate Disputes (Politically relevant dyads)

Variable	Logit with splines model[a]	ANCOVA with Random Effiects Model	The Slopes-as-outcomes Model1	The Slopes-as-outcomes Model2
Democracy	–0.046** (0.004)	– 0.030** (0.007)	–0.025** (0.007)	–0.030** (0.012)
Interdependence	–19.591**(5.951)	–16.140**(7.501)	89.73** (34.10)	–44.54[c] (35.62)
Parity	1.0116**(0.092)	1.049**(0.180)	1.056** (0.181)	1.372**(0.348)
Alliance	–0.142** (0.059)	– 0.303** (0.086)	–0.279** (0.087)	–0.179 (0.181)
Distance	–0.265** (0.026)	– 0.538** (0.063)	–0.542** (0.064)	–0.505**(0.110)
Contiguity	0.468** (0.098)	0.402** (0.193)	0.400** (0.206)	1.855** (0.433)
One Power	–0.012 (0.101)	– 0.377 (0.208)	–0.383 (0.208)	0.302 (0.472)
Two Powers	0.972** (0.123)	0.231 (0.251)	0.210 (0.252)	2.200**(0.710)
Interdep*WC			–27.19**(11.16)	
Interdep*S			–4.122 (14.44)	
Interdep*Checks				–9.058[c] (8.564)
Constant	0.101 (0.210)	0.893 (0.490)	0.924 (0.535)	–2.432** (0.872)
Variance Components				
Sate Level				
Constant		0.930** (0.199)	0.935** (0.199)	1.013** (0.315)
Interdependence			884.61 (1227.5)	4522.2 (3358.1)
Covariance			4.129 (12.881)	2.894 (24.301)
Dyad Level		1.238** (0.141)	1.238** (0.140)	2.683**(0.417)
Dyadic Year Level		[b]0.996**(0.004)	[b]0.923**(0.000)	[b]0.876**(0.007)
Deviance (-2LL)	14045.028	10829.40	10811.01	3786.99
DIC		11393.10	11380.66	4150.70

Note: Multilevel table entries are Bayesian estimates obtained from the Metropolis-Hastings (MH) sampling methods. Standard errors are in parentheses. Spline variables are not reported to save space. (N=60,961). * = $p < 0.05$, ** = $p < 0.01$

[a] Logit estimates are corrected for controlling the rare events problem. Despite the concern of rare events problem, it seems that it is not the case in this analysis. The normal logit estimates and corrected logit estimates (King and Zeng 2001) are almost identical.

[b] By a Binomial distributional assumption, the random coefficient at the first level was defined with a zero mean and a variance which was constrained to equal one. However, to test whether or not a Binomial assumption holds or whether the model exhibits 'extra Binomial' variation, I obtained a dyadic level variance based on the extra Binomial distributional assumption.

c. LR test for joint significance of "Interdependence" and its interaction term is statistically significant.

1992). This diagnostic tests for convergence to the stationary distribution and estimates the length of Markov chain needed to accurately estimate quantiles of interest. The test results show that the parameter estimates are significant with 95% of Monte Carlo probability.

The logit with spline variable model in the first column supports the previous liberal peace argument (Oneal and Russett 1999, 2002). Strong economic interdependence mitigates the probability of militarized dispute onset. To see if the effect of economic interdependence on MIDs is conditional on domestic politics, I obtained three different multilevel models.

In the ANCOVA with random effects model in the second column, we let the intercept vary across both dyads and states. In this model, the dyadic and the state effects are conceived as random effects. Accordingly, our main interest is given to error variance terms both at the dyad and the state levels. The two error variance terms at both the state level and the dyad level are all statistically significant, which suggests that we need to incorporate both dyadic and state level predictors into the models in order to explain between-variations in both dyads and states. Another important thing to be noticed in the random coefficients model is the standard error of the interdependence variable. Compared to the one in the standard logit model, the standard error in the ANCOVA model as well as in the two other multilevel models increased. This is because we grouped total observations within states.

In the two slopes-as-outcome models, we include state level predictor(s) into the model so that we can explain the variability of the slope of interdependence variable. The state level error variance term, which comes from the variability of the slope of

interdependence variable, and also its covariance term with the state level intercept error variance, are statistically insignificant. It implies that we might not need further state level variables to explain the slope variability. A hypothesis test for the joint significance of these two terms, the Wald test, also confirms this fact. The Wald test in the first slope-as-outcome model yields a chi-squared value of 0.554 on two degrees of freedom, providing little evidence for an effect at the 5% significance level. The Wald test in the second slope-as-outcome model reports the same result. Meanwhile, as can be expected, the dyadic level error variance and the state level intercept error variance are still statistically significant. This is because we did not incorporate any predictors for the state and dyad level intercepts.

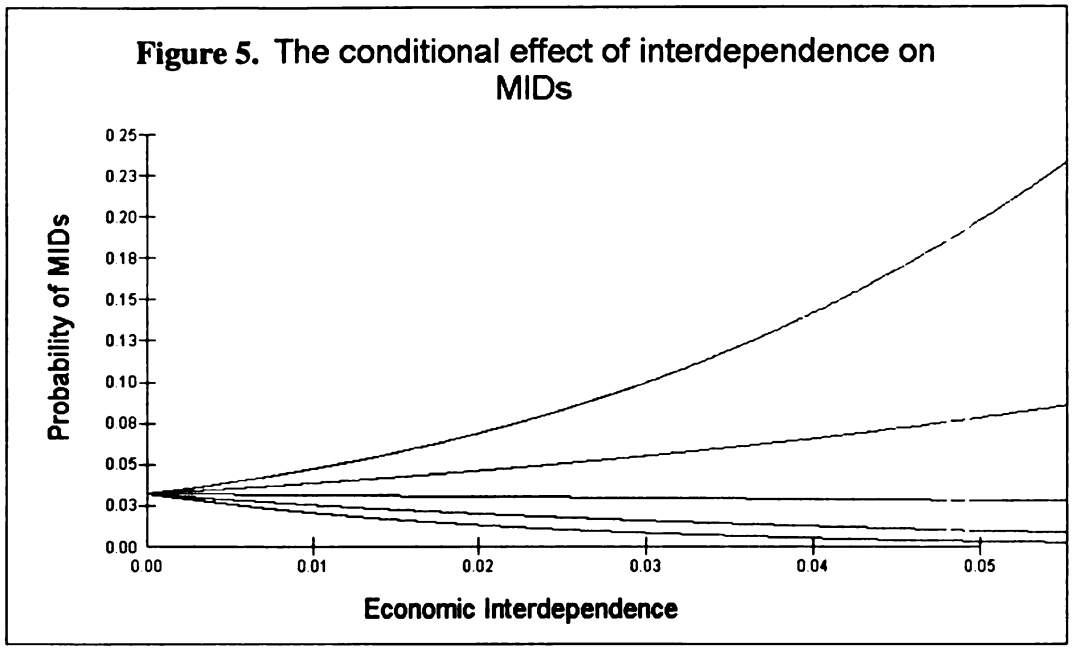
In these models, the role of newly introduced state level variables is important. First of all, we need to check if the introduction of state level variables into the models have an impact on the interpretation of the interdependence variable. Statistically, the effect of the interdependence variable should jointly be evaluated with its interaction term(s). Although the interdependence variable may not be statistically insignificant (in the last model), we should not look at separate *t* statistics of interdependence variable and its interaction term(s) (Wooldridge 2000). The p-values for the Likelihood Ratio (LR) test of the joint significance in the two slopes-as-outcomes models are almost zero, which means that interdependence variable and its interaction term(s) are jointly significant at the conventional significance level. [47] Therefore, we cannot say that economic interdependence does not affect the onset of militarized disputes, although both

[47] The LR test is based on the difference in the log-likelihood functions for the unrestricted and the restricted models. In the restricted model, nondemocracy variable and its interaction term are dropped. The likelihood ratio statistic is twice the difference in the log-likelihoods: $LR = 2[\ln(L_{ur}) - \ln(L_r)]$. The LR statistic has an approximate chi-square distribution.

Interdependence variable and its interaction term with Checks variable in the second slope-as-outcomes model are statistically insignificant.

The interaction term between interdependence and the winning coalition variables in the third model is statistically significant, which means that the pacifying effect of economic interdependence on MIDs varies between states depending on the size of winning coalition. As the size of the winning coalition increases, economic interdependence is more likely to mitigate the probability of militarized dispute onset. Interestingly, the effect of interdependence variable is not monotonic anymore. When the size of the winning coalition is relatively small, which means that a political leader is weakly influenced by domestic politics, there is no pacifying effect of trade on militarized disputes. However, as the size of winning coalition is bigger, which means that a political leader is more likely to be concerned with policy outcomes and political costs, a pair of dyadic states with strong economic ties is less likely to involve in militarized disputes. Figure 5 well illustrates this point. In Figure 5, we observe five different lines, where each line indicates the effect of economic interdependence on the probability of MIDs at a different level of the winning coalition variable. From the highest line to the lowest one, the size of the winning coalition increases. For this figure, all other control variables are fixed at their means or modes (for dummy variables), while the selectorate variable is fixed at three (its maximum value).

As Figure 5 illustrates, the economic interdependence variable mitigates the probability of militarized dispute onset only when the size of the winning coalition is big enough (more than 3 in the scale of the variable). It implies that if political leaders do not have to concern about political costs from lost trade, a strong economic tie with a



* These five lines show the changes of probability of militarized dispute onset according to the changes of the size of winning coalition. From top to bottom line, the size of winning coalition varies from one to five. All the control variables are fixed at their means or modes (for dummy variables). This figure indicates that the effect of economic interdependence on the probability of MIDs varies across states depending upon domestic institutional context.

potential opponent does not decrease the probability of militarized dispute onset. In the meantime, the interaction term between interdependence and the selectorate variables has a negative sign. Although it is different from our theoretical expectation, the interaction term is not statistically significant.

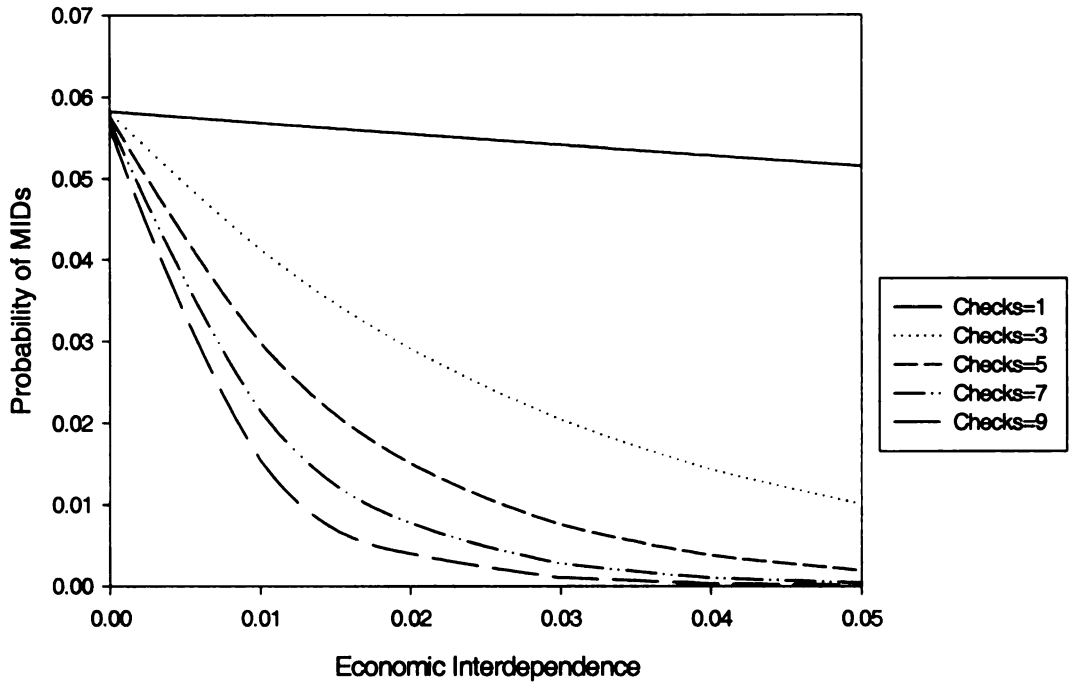
Figure 6 also shows that decisions on international conflict are influenced by domestic institutional context. Using Checks variable, which measures the number of veto players in a state, this figure[48] monitors if the probability of militarized dispute onset significantly changes as the number of veto players increases. As expected, the pacifying effect of trade on MIDs becomes more significant as the value of Checks variable increases. Checks variable is statistically significant in the model with all dyads. All substantive implications in the multilevel models in Table 5 do not significantly change in the multilevel models in Table 8 in Appendix B, where all dyads are used.

All four models report similar results for the control variables. Democratic dyads tend not to fight with each other. Power parity leads to interstate disputes. Alliance mitigates the onset of conflict. The longer the distance between dyadic states, the less they are involved in conflict. Contiguity is another important factor of contributing to the onset of militarized interstate disputes. If dyadic members are both major powers, they are more likely to have disputes. If only one dyadic member in a dyad is a major power, the dyadic states are less likely to engage in interstate disputes, although this last variable is not statistically significant in any model.

Table 5 also reports deviance and the Deviance Information Criterion (DIC) for each multilevel model as a way of model assessment (Spiegelhalter, Best, Carlin, and van

[48] This figure is obtained from the model with all dyads. Since Checks variable is not statistically significant in the model with politically relevant dyads, the constraining effect of Checks variable is tested in the model with all dyads.

Figure 6. The conditional effect of interdependence on MIDs



* These five lines show the changes of probability of militarized dispute onset according to the changes in "Checks" variable (the number of veto players). From top to bottom line, Checks variable varies from one to 9. Since few observations in this variable take the value 10 or more, these cases are not included in this figure. All the control variables are fixed at their means or modes (for dummy variables) except Contiguity variable (fixed at one). This figure indicates that the pacifying effect of economic interdependence on the probability of MIDs is significantly intensified as the number of veto players increases in domestic politics. All dyads are used for this figure.

der Linde 2002). The DIC is a generalization of the Akaike Information Criterion (AIC). The DIC diagnostic can be used to compare models, as it consists of the sum of two terms: the measure of the 'fit' and the measure of 'complexity' (taking account of the number of parameters) of a particular model. Since a smaller value of the DIC indicates a better model, the multilevel model in the third column seems slightly better than the ANCOVA model with random effects model.

Conclusion

The theoretical reasoning of the liberal peace is based on an assumption that lost trade always disadvantages political leaders. Relaxing the homogeneity assumption, this paper attempts to connect domestic politics to the analysis of international politics. This paper also addresses the question of whether political leaders' strategic position in domestic politics influences their decisions on whether to engage in militarized conflict. The results of this analysis suggest that, depending on domestic institutional context and the expected size of political costs, political leaders take different courses of action even under the same dyadic relational conditions. That is, as the size of the winning coalition increases, economic interdependence is more likely to mitigate the probability of militarized dispute onset. Thus, political leaders' strategic consideration on their political survival may explain why economic interdependence has heterogeneous effect on interstate conflict.

Interstate conflict is not solely explained by dyadic effects, but also by monadic effects. In sorting out monadic effects from dyadic effects, we should be cautious of two types of heterogeneity originated from both dyad and state levels in directed dyad (year)

data. In this case, dyadic observations should be grouped within states. By failing to properly specify multilevel data structure in an analysis, we are likely to have inefficient and inconsistent estimates and thus to wrongly reject the null hypothesis. A response of this paper to the existence of two types of heterogeneity and to the limitation in obtaining functionally equivalent data at the state level is to use a multilevel model. Statistically, a multilevel model is better than other models in that it does not require a strong assumption that a single measure explains all existing heterogeneity at the group (the state or dyads) level. Theoretically, a multilevel model can clarify the ontological relationship between multiple units (actors) from multiple levels of analysis. Testing the liberal peace using a multi-level hierarchical model with a Bayesian simulation method, this paper shows how domestic institutions affect dyadic behavior and how the causal heterogeneity can be explained without a strong statistical assumption.

Meanwhile, this research has some limitations in applying a strategic theory to the liberal peace. The measures of domestic political institutions used in this paper are not perfect. To investigate the linkage between domestic politics and international politics, we need to develop a well-refined measure applicable to various political systems for comparative purpose. Decisions about interstate conflict can also be explained (constrained) by international systemic factors such as the power of a hegemonic state or prevailing international norms, not only by dyadic relational factors. Investigating the possibility of much complex modeling will be a further step for future research.

CHAPTER III

Globalization, Inequality Within Countries, and Interstate Conflict

Abstract

This study ascertains the extent to which inequality within countries is relevant factor to political leaders faced with the decision to use force. It tests a diversionary theory of the use of force that treats inequality within countries as an endogenous variable. As important covariates for inequality within countries, political leaders' winning coalition and trade dependence are introduced. This design allows the author to assess the direct and indirect effects of trade on the probability of using force, supporting for a revised diversionary theory. Finally, this study demonstrates that political leaders are more likely to engage in international conflict as a way of diverting attention from domestic problems, as the level of inequality within countries grows, and that trade indirectly increases the probability of militarized interstate dispute onset by increasing the level of inequality within countries.

Introduction

The world economy has continued to be integrated over the last two centuries. The ongoing economic globalization in the 21st century has made scholars revisit a traditional topic in international relations studies, interstate conflict, from an economic point of view. A political economy of international relations emphasizes the linkage between the economy and uses of force. A host of scholars have investigated the pacifying effect of economic interdependence on interstate conflict (e.g. see Barbieri and Schneider 1999; Beck, Katz, and Tucker 1998; Maoz and Russett 1993; Oneal and Russet 1999, 2002). The logic of the liberal peace is simply that increased costs of potentially lost trade diminish the probability of interstate conflict. Since trading states recognize that militarized disputes might bring serious consequences to their economic relations, they become reluctant to engage in militarized disputes with their trade partners, as the level of trade goes up. The basic assumption in this argument is that economic liberalization benefits trade partners, providing 'absolute gains'[49] to all trading states. Therefore, relative gains or inequality *between* countries is not a big issue in the liberal theories.

The effect of economic liberalization on world inequality and its political implication should be viewed in two ways: inequality between countries and inequality *within* countries.[50] Although there is a controversy about an appropriate empirical method to test the relationship between inequality and political violence, many studies report that

[49] The meaning of 'absolute gains', a contrary concept to 'relative gains', used in international relations studies is different from the concept of 'absolute advantage', a contrary concept to 'comparative advantage', used in international trade theories. 'Absolute gains' indicate the net gains that a trading partner can get from trade, while 'absolute advantage' indicates the economic status where a country can produce a good or service using a smaller amount of resources than the one its trade partner uses.

[50] For example, Bourguignon and Morrisson (2002) show the trend of global inequality in terms of inequality between and within countries. Refer to Figure 7 and 8 in Appendix D for a graphical description of their report.

economic inequality within countries induces political violence such as revolution, rebellion, coups, or civil wars (e.g. Muller and Seligson 1987; Wang, Dixon, Muller, and Seligson 1993). Economic inequality within countries can induce political violence because 'relative deprivation' generates domestic discontent (Gurr 1970), or because inequality is often concomitant with social cleavages between classes, religions, or regions (Lichbach 1989). In this regard, high inequality within countries is a potential threat to political leadership especially in democracies, causing domestic discontent and political violence.

According to diversionary theory, political leaders have an incentive to take international military actions to remain in power by diverting attention from internal problems such as a weak economy to external issues (e.g. DeRouen 1995; Leeds and Davis 1997; Levy 1989; Morgan and Bickers 1992). In many cases, diversionary tactics are strongest vis-à-vis a shock to the economy such as a very low growth rate. Regarding the relationship between a shock to the economy and inequality, previous research reports that inequality within countries is negatively correlated with growth (Knack and Keeger 1997; Persson and Tabellini 1994). It implies that a high level of inequality within countries can provide an incentive of diversionary use of force to political leaders.[51] If trade or economic liberalization aggravates inequality within countries, political leaders' incentive of diversionary use of force against trading partner is intensified. As a result, the effect of trade on interstate conflict should be evaluated in two ways: a direct pacifying effect and an indirect precipitating effect through inequality within countries.

[51] A high level of inequality *between* countries also could be a crucial threat to political leadership. Since this research focuses on the linkage between trade and inequality within countries *and* the linkage between inequality and interstate conflict, the effect of inequality between countries on interstate conflict is not discussed here.

Directly, trade may mitigate the probability of interstate conflict onset, keeping trade partners holding onto the benefits from trade. Indirectly, trade may heighten the level of inequality within countries, domestic discontent, and thus the probability of interstate conflict onset. These two seemingly contradictory arguments indicate that the pacifying effect of trade can be offset by its negative effect on inequality within countries. Therefore, to account for the relationship between trade and interstate conflict, we should look at the duel aspects of trade.

The key questions in this research are as follows: Does trade alleviate or aggravate the level of inequality within countries? Does inequality within countries increase the probability of militarized interstate disputes? What is the overall effect of trade or economic interdependence on the probability of militarized disputes? Based on these research questions, this study ascertains the extent to which inequality within countries is a relevant factor for political leaders faced with the decision to use force. It tests a diversionary theory of the use of force that treats inequality within countries as an endogenous variable. That is, since the level of inequality within countries can be a function of other explanatory variables in the model of interstate conflict onset, inequality within countries should be treated as an endogenous variable. This design allows the author to assess the direct and the indirect effects of trade on the probability of interstate conflict onset. It will also help to solve theoretical and statistical problems in the previous studies of diversionary theory.

In what follows, first, I review diversionary theory and discuss theoretical and statistical problems in models of diversionary theory. Inequality within countries as a source of diversionary use of force is discussed. In the second section, the relationship

between trade and inequality within countries is examined. I argue that political leaders' winning coalition is important in accounting for inequality within countries. In the final section, a two-step estimation approach to the model of the diversionary theory is introduced, and the following test results are reported.

Diversionary Use of Interstate Conflict

Scholars of international relations have argued that political leaders have an incentive to use military force to divert attention away from domestic problems to foreign affairs (e.g. James and Hristoulas 1994; Leeds and Davis 1997; Levy 1989; Morgan and Bickers 1992; Smith 1996). This is the case when political leaders have serious political or economic problems at home. The rationale of the diversionary (or scapegoat) theory is based on 'the rally-around-the flag effect'. When the public face a threat from the outside, they tend to become more cohesive and supportive of their leader (Stein 1976). Since a political leader's popularity generally increases during an international conflict (Mueller 1970; MacKuen 1983), he or she faced with domestic discontent has an incentive to draw attention to international conflict issues.

The *sources* of domestic problems or discontent with respect to political leaders' diversionary use of force are various. A faltering economy, domestic turmoil, and a low public approval rate of political leaders are those examples. If political leaders fail to manage to make an economy grow, political leaders will face domestic criticism and challenges. If an economy declines with a high unemployment rate, high inflation, or a negative growth rate, few political leaders can maintain their positions in office. Domestic turmoil such as civil wars and riots also endangers political leaders' power

position. As the approval rate of political leaders comes down, it is likely that political leaders' incentive of using external conflict for diversionary purpose increases (MacKuen 1983; Russett 2000). For example, Kaiser (1983) argues that "German foreign policy after 1897 must be understood as a response to the internal threat of socialism and democracy" (1983, p.443).

A high level inequality within countries is also a source of social discontent. This is because psychologically the perception of 'relative deprivation' stirs social discontent. People feel relative deprivation when there is "a perceived discrepancy between men's value expectations and their value capabilities" (Gurr 1970, p.13). Income is the value that contributes directly to physical well-being and self-realization. Therefore, a high level of inequality in income distribution within countries can cause a strong feeling of relative deprivation in a society. Economic inequality within countries and relative deprivation spur social discontent and provide motivation for political instability and collective violence such as revolution, rebellion, coups, or civil wars. For example, Muller and Seligson (1987) report that income inequality strongly affects mass violence.[52] Midlarsky (1988) also argues that there is a strong systemic relationship between land inequality and deaths from political violence in Latin American and Eastern European countries. If income distribution is systematically associated with social cleavages between classes, religions, or regions, inequality within countries heightens the probability of political violence (Lichbach 1989). As a result, inequality within countries undermines political leadership. Accordingly, political leaders' incentive of diversionary use of force is intensified.

[52] In their research, income inequality is measured as the share of income going to the top 20% of all households.

To evaluate diversionary theory, we also need to consider the *opportunity* to use diversionary force abroad. Since political leaders' intention regarding the use of diversionary force is not always materialized in real politics, the opportunity to engage in international conflict should be controlled for in the model of the diversionary theory (Meernik 1994). Examples include studies about the relationship between the diversionary use of force and electoral cycles, rivalry relationships, and alliances. Since the rally effect lasts shortly but strongly, the incentive of a diversionary use of force gets bigger, as an election comes near. Incumbent political leaders often stimulate the economy for electoral gains (James and Hristoulas 1994; Morgan and Bickers 1992). When states have enduring rivals,[53] political leaders can easily divert domestic attention to rivalry conflict (Leeds and Davis 1997; Mitchell and Prins 2001). Also, the greater the threat to a nation's defense commitments to allies, political leaders can be led to use greater levels of military force (Meernik 1994). There are other opportunity-related variables. Since major powers are less constrained by international systemic factors, they are expected to be more prone to diversionary use of force than are minor power (Russett 1990). Democratic governments are more likely to show diversionary behavior because the governments are sensitive to public opinion and electoral outcomes (Morgan and Bickers 1992; Smith 1996).

Examining inequality within countries as a source of diversionary use of force abroad is especially interesting in regard to the effect of trade on the onset of interstate conflict. One of the limitations in the previous studies of the liberal peace is that they

[53] Enduring rivals are defined as "actors whose relations are characterized by disagreement or competition over some stakes that are viewed as important, where each perceives that the other poses a significant security threat, and where this competition and threat perception last for substantial periods of time" (Hensel 1998, p.163).

have only accounted for the effect of trade on inequality *between* countries. If a high level of trade is strongly associated with a high level of inequality *within* countries, inequality within countries as well as inequality between countries is an important factor that political leaders should consider when they make a decision to initiate interstate conflict. Therefore, by controlling the effect of trade on inequality within countries, we will be able to clearly evaluate the linkage between trade and interstate conflict.

This argument is relevant to the endogeneity problem. That is, inequality within countries can be a function of other explanatory variables such as the regime-type and trade variables. Since trade has a direct effect on the income distribution in an economy, trade is a theoretically important variable in explaining the level of inequality within countries (Agenor 2003; Dollar and Kraay 2001). The regime type of a state is also assumed to have a strong effect on inequality within countries (Rodrik. 1999; 2000). The existence of endogeneity in the model brings us biased estimates (Greene 2000). Therefore, when we investigate the effect of inequality on the onset of interstate conflict, the endogeneity problem should be controlled in an adequate way.

In addition to the endogeneity problem, studies of the diversionary theory face some criticisms (Levy 1989). Theoretically, the rationale of the diversionary theory is based on the in-group/out-group hypothesis (Coser 1956; Stein 1976). Therefore, extending this argument on small groups to relatively large organizations such as nation states can be problematic (Morgan and Bickers 1992). It implies that political leaders more seriously take domestic discontent into account when it comes from within their winning coalition than when it comes from other domestic groups. To clearly specify the

conditions under which political leaders use diversionary tactics, we should control for opportunity-related variables (Mitchell and Prins 2001).

Empirically, if we use pooled data to account for whether internal problems lead to external conflict, we can have incorrect empirical results. This is because states have different internal conflict thresholds for diversionary use of force (Morgan and Bickers 1992).[54] More seriously, the causal relationship between inequality within countries and the external use of force can be reversed (Blainey 1973; Levy 1989). That is, the onset of interstate conflict may contribute to domestic problems such as inequality within countries. To control this problem, we need time lags between domestic problems and interstate conflict.

The following section explores in detail the relationship between inequality within countries and economic liberalization. It also demonstrates how this study responds to the theoretical and statistical criticisms mentioned in the previous paragraph.

Trade and Inequality Within Countries

The impact of trade or economic globalization on world inequality can be examined in two ways: inequality between countries and inequality within countries. By ignoring inequality within countries, the empirical growth literature gives "a biased view of the evolution of world inequality over time, clearly underestimating it" (Bourguignon and Morrisson. 2002). In this regard, recent studies have focused on the effect of globalization or economic liberalization on inequality *within* countries (Agenor 2003; Dollar and Kraay 2001; Frieden 2001; Lindert and Williamson 2001).

[54] Since this research uses time-series-cross-section data, it can avoid or at least reduce this type of problem (Morgan and Bickers 1992).

Despite scholarly efforts to clarify the effect of trade or economic liberalization on inequality within countries, it seems that there is still no unanimous agreement on the relationship between globalization and inequality within countries. For example, Agenor (2003) argues that "trade liberalization leads to higher poverty by reducing the demand for unskilled labor and worsening income distribution." In contrast, Dollar and Kraay (2001) report that expanded trade has positive effect on the income distribution. The effect of globalization on inequality within countries "exhibits no ubiquitous trend" (Lindert and Williamson 2001), or the effect is "non-monotonic" (Agenor 2003). In effect, it seems that some countries have improved the level of equality within countries through trade, while others have not.

To explain why trade or economic liberalization has heterogeneous effects on inequality within countries, scholars suggest various reasoning. For example, Agenor (2003) argues that economic liberalization or globalization may hurt the poor not because it went too far, but rather because it did not go far enough. In this argument, trade or economic liberalization is expected to have a long-term positive effect on equality within countries.

A host of scholars suggest that there is a strong relationship between inequality within countries and domestic political factors (e.g. Gradstein, Milanovic, and Ying 2001; Knack and Keefer 1997; Milanovic 2000). According to these arguments, a certain forms of domestic political institutions favor equality within countries, and serve to intervene in the relationship between trade and inequality within countries. Specifically, in democracies, it is assumed that a more egalitarian distribution of political rights is accompanied by a more equal income distribution (Lipset 1959; Meltzer and Richard

1981). Their arguments imply that democratic leaders perform better in achieving policy goals than nondemocratic leaders.

In contrast to this theoretical expectation, the existing empirical evidence on the relationship between the regime type and inequality within countries often fail to detect a robust relationship between these two factors (Bollen and Jackman 1985; Levy 1989; Li, Squire and Zou 1998). This research suggests that this discrepancy occurs because we disregard the existence of various groups in domestic politics and their competing interests. Political leaders should take support from the winning coalition more seriously than the one from other domestic groups. A winning coalition is defined as: "those members whose support is essential to keep the incumbent leadership in office" (Bueno de Mesquita et al. 1999, p.148). Therefore, as the size of the winning coalition decreases, leaders are less likely to care about producing good public policies such as equal income distribution.[55] This is because they can easily maintain support from the winning coalition by supplying private goods (Bueno de Mesquita et al. 2000; 1999; Gelpi and Grieco 2001).

Finally, to properly evaluate the effect of trade or economic liberalization on inequality within countries, this study controls for a theoretically important variable, the winning coalition. The regime type variable may not efficiently capture the effect of domestic political institutions on inequality within countries. This is because the size of the winning coalition can explain inequality within countries more efficiently than the regime type variable. This is also because the size of the winning coalition can vary a lot even across the same regime type countries like democracies. Thus, the effect of the

[55] This paper assumes that members in the winning coalition mainly care for their own benefits. Thus, members in a relatively small size of the winning coalition are less likely to be concerned about policies for public goods.

regime type variable on inequality within countries can be conditional on the size of the winning coalition. This research uses an interaction term between the regime type variable and the winning coalition variable.[56] To resolve the potential simultaneous problem in the relationship between inequality within countries and the diversionary use of force, this study uses one year lagged variable for inequality within countries.

Hypotheses

The first hypothesis of this research tests the diversionary theory by treating inequality within countries as a source of a diversionary use of force.

Hypothesis 3.1: As the level of inequality within countries increases, the probability of initiating militarized interstate disputes increases, holding all else constant.

In the first hypothesis, we expect that there is a significant relationship between inequality within countries and the decision on initiating militarized interstate disputes. The second hypothesis is to test an indirect effect of trade on interstate conflict. Trade is assumed to indirectly increase the probability of militarized interstate disputes by increasing the level of inequality within countries.

Hypothesis 3.2: A marginal increase in the level of trade indirectly increases the probability of conflict by increasing inequality within country, holding all else constant.

[56] Gradstein et al.'s study (2003) is interesting in this sense. They report that democratization reduces inequality in societies where equality is not valued as much, while democratization has a negligible effect on inequality in societies where equality is highly valued. State penetration can also be related to redistribution.

Hypothesis 3.3: As the size of the winning coalition increases,

the level of inequality within countries is lowered.

The final hypothesis tests if the size of the winning coalition matters for political leaders' behavior in regard to producing good public policies such as equality within countries. Due to payable political costs from a high level of inequality within countries, political leaders are believed to put more efforts on producing public goods, as the size of the winning coalition increases.

Specification

We have a binary dependent variable and a continuous endogenous explanatory variable in the model. Therefore, the model is specified in the following form:

$$y_1^* = z_1\delta_1 + \alpha_1 y_2 + u_1, \tag{3.1}$$

$$y_2 = z_1\delta_{21} + z_2\delta_{22} + v_2 = z\delta_2 + v_2, \tag{3.2}$$

$$y_1 = 1 \ [y_1^* > 0], \tag{3.3}$$

where (u_1, v_2) has a zero mean, bivariate normal distribution and is independent of z. y_1^* is a latent variable of y_1, and y_1 represents either the initiation of militarized interstate dispute or not. Equation (3.1), along with Equation (3.2), is the structural equation. And, Equation (3.2) is a reduced form for y_2. In this specification, $y_1 = 1$ is observed if there is onset of a militarized dispute (Jones, Bremer and Singer 1996); otherwise $y_1 = 0$. z_1 is a matrix of covariates such as the regime type, trade, rivalry, major power status, power parity, the existence of alliance, and contiguity variables. y_2 indicates the continuous endogenous variable, inequality within countries. We are assuming that y_2 given z is normal. Inequality within countries is explained by some of the explanatory variables, z_1,

in Equation (3.1) such as the regime type and trade variables and also by new explanatory variables, z_2, such as growth rate and the winning coalition variables.

To estimate a probit model with an endogenous explanatory variable, we can use a two-step approach suggested by Rivers and Vuong (1988). Under the assumption of joint normality of (u_1, v_2) with $\mathrm{Var}(u_1) = 1$, we can write

$$u_1 = \theta_1 v_2 + e_1, \tag{3.4}$$

where $\theta_1 = \eta_1 / \tau_2^2$, $\eta_1 = \mathrm{Cov}(v_2, u_1)$, $\tau_2^2 = \mathrm{Var}(v_2)$. And, e_1 is independent of z and v_2. e_1 is normally distributed with $\mathrm{E}(e_1) = 0$ and $\mathrm{Var}(e_1) = \mathrm{Var}(u_1) - \eta_1^2 / \tau_2^2 = 1 - \rho_1^2$, where $\rho_1 = \mathrm{Corr}(v_2, u_1)$.

Finally, we can write a new equation:

$$y_1^* = z_1\delta_1 + \alpha_1 y_2 + \theta_1 v_2 + e_1, \tag{3.5}$$

where e_1 is normally distributed with zero mean and $(1 - \rho_1^2)$ variance. A standard calculation shows that

$$P(y_1 = 1 | z, y_2, v_2) = \Phi[\frac{z_1\delta_1 + \alpha_1 y_2 + \theta_1 v_2}{(1-\rho_1^2)^{1/2}}].$$

Assuming for the moment that we observe v_2, probit of y_1 on z_1, y_2, and v_2 consistently estimates $\delta_{\rho 1} \equiv \delta_1 / (1-\rho_1^2)^{1/2}$, $\alpha_{\rho 1} \equiv \alpha_1 / (1-\rho_1^2)^{1/2}$, and $\theta_{\rho 1} \equiv \theta_1 / (1-\rho_1^2)^{1/2}$ (refer to Wooldridge (2002) for details).

Variables and Measurement

The dependent variable is an initiation of militarized interstate dispute by the challenger state. This is coded as one if the challenger state initiated a militarized interstate dispute in that year, and zero otherwise. Zeev Maoz's (1999) revised data on

militarized interstate disputes is used. This data is expected to minimize the problem that individual states in a dyad may never have threatened or used force against particular states on the opposing side.

The endogenous variable is the inequality within countries variable. Challenger's inequality score in a dispute is used. Data for inequality within countries is from Galbraith and Kum's (2003) new data set, the Estimated Household Income Inequality (EHII). This data set is intended to correct the deficiencies in the World Bank's – Deininger and Squire – data set on household income inequality (Deininger and Squire 1996). According to Galbraith and Kum's argument, the World Bank's data set is problematic in that it includes "sparse coverage, problematic measurements, and the combination of diverse data types into a single data set" (Galbraith and Kum 2003, p.1). The Deininger and Squire data also has another problem, biased missingness. Certain types of countries (i.e. poor, authoritarian, and those with extremely high levels of inequalities) are less likely to report their data than other types of countries. Attempting to correct these problems in the World Bank's data set, Galbraith and Kum combine the information in the Deininger and Squire data with the information in the University of Texas Inequality Project (UTIP) data, along with additional information such as the ratio of manufacturing employment to population and the share of urban population. Finally, they provide estimated measures of household income inequality (the EHII Gini coefficients), based on the relationship between inequality of household incomes (Deininger and Squire's Gini coefficients), inequality of industrial pay (UTIP's Theil measures), and other variables (see Galbraith and Kum 2003 for details). The data set has approximately 3,200 observations for about 150 countries over 36 years (1963-1998).

The Trade variable is measured by the ratio of dyadic trade to the GDP of each partner, in constant US dollars. Low trade dependence value in a dyad is used for dyadic trade. Rivalry is defined by the frequency of militarized interstate disputes between the same pair of states. The existence of a militarized rivalry is indicated by the occurrence of militarized disputes as defined by the COW–MID data set. Disputes, which occur within 10–15 years of each other, are considered to be part of the same rivalry. A dispute is considered part of the same rivalry if it involves the same two states and occurs within 11 years of the first dispute of the sequence, 12 years after the second dispute, and up to 15 years after the fifth dispute.

For the Democracy variable, challenger's polity score is used (Polity IV). "Institutionalized democracy" score minus the "institutionalized autocracy" score for each state is used as a measure for the level of democracy (Jaggers and Gurr 1995). Following Oneal and Russet's suggestion (Oneal and Russett 1999, 2001), we do not include a measure of economic growth in the structural equation. This is because it is not robustly related to the likelihood of dyadic disputes. However, the reduced form equation includes the GDP growth rate variable, because previous studies argue for the theoretically strong relationship between inequality and growth rate (Perotti. 1992; Dollar and Kraay. 2002). Challenger's GDP per capita growth rate is used as a measure.

To measure the size of the winning coalition, we construct a composite index based on the variables "Xrcomp", "Xropen", "Parcomp", and "Regtype" in Polity III data set[57] (Jaggers and Gurr 1995). Xrcomp variable measures the competitiveness of executive recruitment. The value of this variable is 1, 2, or 3. A coded value of 1

[57] "Regtype" variable existed in only Polity II data set and was not updated in Polity III and beyond. A revised version of the data, Polity IIID, which more accurately dated political changes, was released in 2000.

indicates that the chief executive is selected by heredity or in unopposed elections. If this variable is larger than or equal to 2, one point is assigned to the winning coalition variable. Xropen variable measures the openness of executive recruitment. If the executive is not recruited by heredity, another point is given to the winning coalition variable. Parcomp variable measures competitiveness of political participation. If political participation is highly competitive, another point is added to the winning coalition variable. Regtype variable measures the regime type. If a political system is not a military or military/civilian regime, one more point is assigned to the winning coalition variable. With the base value of one, finally, this index varies one to five. The data for this variable is from Polity II data set. We have many control variables. Detailed explanation on data and its source is described in Table 9.

I include a smoothed function of elapsed time based on peace years. Peace years spline estimation is used to control time dependence. This method is recommended by Beck, Katz, and Tucker (1998). Although several studies show that electoral cycles also affect a government's decision of diversionary use of force, we do not include the electoral cycle variable in this research. This is because, unlike previous studies, this research deals with a lot of nondemocracies, where formal elections have not been held or elections are politically meaningless. Since not having elections is systematically related to the regime type variable, and observing elections in nondemocracies can bring biased results, we do not include the electoral cycle variable in this research. Actually, to investigate the relationship between electoral cycles and the external use of force, previous studies have limited objects only within democratic states (Smith 1996),

Table 9. Variable Descriptions

Variable	Description
MIDs	The onset of militarized dispute (1= onset). Zeev Maoz's (1999) revised data on militarized interstate disputes is used. Available in EuGene.
Trade	The ratio of dyadic trades to the GDP of each partner in constant US dollars. The trade dependence value for the least commercially engaged member of the dyad is used for the level of economic interdependence. The trade dependence value for the challenger state is used for the challenger. Available in EuGene.
Inequality within Countries	Galbraith and Kum's (2003) new data set, the Estimated Household Income Inequality (EHII). This data set is intended to correct the deficiencies in the World Bank's – Deininger and Squire – data set on household income inequality. The time period covered by this data set is 1963–1998.
Democracy	The regime score for the challenger state. This score come from the Polity IV "institutionalized democracy" score minus the "institutionalized autocracy" score for each state (Jaggers & Gurr 1995). Available in EuGene.
Rivalry	Data used in "War and Peace in International Rivalry" by Paul Diehl and Gary Goertz (2000). All the data used in all the analyses are available from this web site: http://wsi.cso.uiuc.edu/polisci/faculty/diehl.html.
Alliance	Whether or not the dyad members are allied (1=allied). Available in EuGene.
Parity	A continuous variable bounded between zero and one, indicating the ratio of the weaker dyad member's capabilities to those of the stronger dyad member. Capabilities are based on the COW project's Composite Capabilities Index. Available in EuGene.
Contiguity	It is coded as one when the dyad members are geographically contiguous by a land border. Available in EuGene.
Distance	The natural log of distances between capital cities. Available in EUGene.
Major Power	A dichotomous variable. Coded as one if the challenger is a major power. Available in EUGene.
Winning Coalition	A composite of four items: (1) "Xrcomp" (the competitiveness of executive recruitment), (2) "Xropen" (the openness of executive recruitment), (3) "Parcomp" (the competitiveness of political participation), and (4) "Regtype" (regime type) in Polity II and Polity III data (Jaggers and Gurr 1995). Available in EUGene and ICPSR (Inter-university Consortium for Political and Social Research) data archive in the university of Michigan.
GDP Growth	The growth rate of GDP per capita. The average score of GDP per capita in the last two years is used for comparing GDP growth rate. Virtually all the data are derived from *The World Economy: A Millennial Perspective* (Maddison 2001).
Population Growth	The growth rate of population [Population(t)/Population(t-1)]. Virtually all the data are derived from *The World Economy: A Millennial Perspective* (Maddison 2001).

advanced industrialized democracies (Leeds and Davis 1997), or the U.S. (Morgan and Bickers 1992).

Result

As discussed in the previous sections, the inequality within countries variable is endogenous to trade and democracy variables. The first column in Table 10 shows what happens if we disregard the endogeneity problem when actually we have.

The normal probit model in the first column assumes no endogeneity problem in it. It seems that all test results go along with theoretical expectation. As the trade relationship becomes strong, the likelihood of militarized disputes between trade partners decreases. As the level of inequality within countries increases, the probability of initiating militarized interstate disputes increases. Major powers are more prone to diversionary use of force than minor power. States with rivals are more easily engaged in militarized disputes than states without rivals.

In the mean time, contrary to the theoretical expectation, it reports that democratic governments are less likely to show diversionary behavior, and that this variable is not statistically significant. As discussed above, however, the normal probit model is very likely to have the endogeneity problem, providing biased estimates in the analysis. Accordingly, the first step in this model is to check the existence of the endogeneity problem. We can do this test by following Rivers and Vuong's (1988) suggestion (see also Wooldridge 2002). After running the OLS regression y_2 on z and saving the residuals $\hat{v}_2$, we run the probit y_1 on z_1, y_2, and $\hat{v}_2$ to get consistent estimators of interest. The usual probit t statistic on $\hat{v}_2$ is a valid test of the endogeneity. The

Table 10. Initiation of Militarized Interstate Disputes

MID Initiation (t)	Probit	Probit (a 2-step estimation)
Challenger Variable		
Inequality (t-1)	0.0057** (0.0025)	0.0752*** (0.0126)
Democracy (t)	-0.0050 (0.0031)	0.0203*** (0.0057)
Major power (t)	0.5442*** (0.0692)	0.8284*** (0.1067)
Dyadic Variable		
Rivalry (t)	0.9081*** (0.0534)	0.9725*** (0.0604)
Trade (t)	-12.7545** (5.9746)	-8.8498 (6.2004)
Parity (t)	-0.0468 (0.0780)	-0.0684 (0.1014)
Alliance (t)	-0.0471 (0.0571)	-0.2156*** (0.0776)
Distance (t)	-0.2301*** (0.0239)	-0.3197*** (0.0339)
Contiguity (t)	0.7175*** (0.0720)	0.4353*** (0.0860)
Constant	-1.1686*** (0.2201)	-3.2562*** (0.4892)
Inequality (t-1)		
Trade (t-2)		
GDP Growth (t-2)		0.8385** (0.4071)
Democracy (t-1)		1.8903 (2.4140)
Winning Coalition (t-1)		0.5951*** (0.0082)
Dem (t-1)*Winning Coalition (t-1)		-2.1189*** (0.0220)
Population Growth (t-1)		-0.2209*** (0.0024)
Constant		74.6835*** (7.8149)
		-27.5962*** (8.4761)
Log-Likelihood	-2087.49	-1173.43
Chi-squared (12)	2993.40	
Observations	291,568	150,767

Note: Standard errors are in parentheses. To correct the potential temporal dependence problem, I use peace year spline variables suggested by Beck et al. (1998). These variables are not reported here to save space.
* = $p < 0.1$, ** = $p < 0.05$, *** = $p < 0.01$

coefficient of $\hat{v}_2$ is about 0.01 with its standard error, 0.004 (t-value is 0.012). Finally, according to this test, we cannot say that there is no endogeneity problem in the normal probit model.

The second column reports the results from the probit model with a two-step estimation procedure, which corrects the endogeneity problem. In the probit model with a two-step approach, trade is perceived to have dual effects on interstate conflict. Trade has a direct effect on militarized interstate disputes. Since trade is assumed to affect the level of inequality within countries, it has also an indirect effect on militarized interstate disputes through inequality within countries. Without controlling the endogeneity problem in the probit model, the Trade variable is statistically significant, showing a pacifying effect on the initiation of interstate conflict. When we control the endogeneity problem in the probit model with a two-step approach, however, trade is not statistically significant anymore. But, in the reduced form equation, trade appears to increase the level of inequality within countries, and accordingly the likelihood of militarized interstate dispute onset. This result implies that the pacifying effect of trade on militarized disputes can be offset by it negative effect on equality within countries, controlling other theoretically significant variables.

Most of empirical evidence supports our theoretical expectation. As inequality within countries increases, the probability of a diversionary use of force also increases. And, the bigger the size of the winning coalition is, the less political leaders care for equality within countries. By correcting the endogeneity problem, the Democracy variable in the structural equation now suggests that democratic governments are more likely to show diversionary behavior than nondemocratic governments. This variable is

also statistically significant. However, the Democracy variable in the reduced form equation has a decreasing effect on inequality within countries, when the size of the winning coalition is big enough (bigger than 2.7 in the scale between 1 to 5, in our analysis). As a result, these results imply that the Democracy variable also has dual effects on the likelihood of militarized interstate disputes.

The probit model with a two-step approach has fewer observations than the normal probit model does, due to the limitation in obtaining data for some state level variables. To see if differences in the two models are originated from the difference in the total observations, I ran the same probit model with the same size of observations in the probit model with endogenous variable. The statistical results are almost same in the new test. It confirms that the statistical differences in the two models in Table 10 are not caused by the differences in the total number of observations.

Conclusion

Understanding the effect of trade or economic liberalization on interstate conflict is not simple, because trade has an impact on inequality within countries as well as on other various areas in an economy. According to the result in this study, trade aggravates the level of inequality within countries, holding other important variables constant. And, as the level of inequality within countries increases, political leaders are more likely to engage in international conflict as a way of diverting attention from domestic problems. Finally, these results imply that the pacifying effect of trade on interstate conflict can be offset by an increase in the level of inequality within countries. Accordingly, it warns us that we can overestimate the pacifying effect of trade on interstate conflict.

The diversionary theory assumes that democratic governments are more likely to show diversionary behavior than nondemocratic governments, because of their sensitivity to public opinion and electoral outcomes. However, the inequality within countries variable can be endogenous to the regime type variable. This study shows that we can get biased estimates by overlooking the endogeneity problem. As we analyze the effect of trade on interstate conflict, we should distinguish the direct effect of the regime type variable on diversionary use of force from its indirect effect through inequality within countries. Given domestic problems, democracies are more likely to have diversionary use of force. On the other hand, democracies are less likely to have domestic problems such as inequality within countries than nondemocracies.

There are some potential problems in this research. First, there could be an endogenous relationship between growth rate and trade in the reduced form equation, although there is no clear scholarly agreement on the relationship between trade and growth rate. Second, trade is not a sufficient and a necessary condition for inequality within countries. To get better understanding on the conditions under which the level of inequality within countries increases, we may need to include other interesting economic indicators such as financial integration, technology transfer, labor migration, etc. into the analysis. Finally, the probit model with continuous endogenous explanatory variable can also be estimated by conditional maximum likelihood. Maximum likelihood estimation (MLE) has some advantages over two-step procedures, which is used in this paper. Although MLE is computationally demanding, this method is efficient in estimating the parameters of interest for computing partial effects (Wooldridge 2002). Testing the probit model with conditional MLE will be desirable for future research.

Meanwhile, inequality within countries and domestic discontent may be more strongly relevant to the onset of civil wars than interstate conflict onsets. Arguing for the pacifying effects of globalization, analysts note that both the number and intensity of conflicts between countries declined after the Cold War. But, internal conflicts like civil wars have been proliferated in the early 1990s. Given a growing number of civil wars in recent history, this research can be extended to investigate the effect of globalization on inequality within countries and accordingly on civil wars.

CONCLUSION

Globalization, Political Costs, and Strategic Decisions

To make a generalized argument, theories in social science often have to make homogeneity assumptions even though they are dealing with heterogeneous units like nation-states. In a multilevel analysis such as a two-level game model (Putnam 1988), we often assume that there are no interactions between levels, or simply fail to specify a theoretical relationship between levels. By disregarding the heterogeneity problem, or by mis-specifying (or not-specifying) the relationship between multiple levels in a theoretical analysis, we are likely to obtain a misleading or incomplete conclusion. These seemingly unrealistic assumptions and mistakes are made partly because of empirical difficulties in specifying a multilevel structure.

In this regard, the first essay in this dissertation highlights the importance of the empirical evaluation of theoretical models. To properly test the systemic account of the democratic peace, this study employed multilevel modeling, showing how states interact with the structure of the international system. Modeling multilevel structure in the data of international politics is an issue of specification, not just another way of estimating a statistical model. Inappropriately specified models cannot properly account for a theory. Just as the results of an empirical test are baseless without support from a theory, a well-developed theoretical argument cannot be recognized to be 'scientific'[58] without well-defined empirical specification and test. The failure to set a bridge between a theory and a well-defined empirical method can cause an incorrect evaluation of a theoretical argument. Contrast, well-defined statistical models can make a theoretical argument sharp and distinct.

[58] Of course, not all theories are necessarily scientific. Descriptive and qualitative theories are also contributive to the improvement of our understanding of social phenomena. For detailed arguments of scientific research refer to Chalmer (1999).

The second essay shows how misspecification can bring a hasty judgment of the effect of trade on interstate conflict. The liberal peace is based on an assumption that policy costs from lost trade affect political costs for political leaders, forcing political leaders to stick to trade benefits. Sorting out monadic effects from dyadic effects in the strategic approach to the liberal peace, the second essay demonstrates that political leaders can take different courses of action even under the same dyadic relational conditions, depending on domestic institutional context and the expected amount of payable political costs.

The third essay views the effect of globalization on the world economy from the perspective of the poor. In countries with a high level of inequality, economic liberalization may be related with corruption, discontent, or violence in domestic politics. In non-democratic countries especially with a small size of the winning coalition, economic globalization has worsened the level of inequality within countries. The third essay shows that political leaders are more likely to engage in international conflict as a way of diverting attention from domestic issues, as the level of inequality within countries grows, and that the pacifying effect of trade on interstate conflict can be offset by its negative effect on equality within countries.

This study has broad implication on international politics. As the issues and actors in the arena of international politics are diversified and interconnected with each other, analyses on the relationship between countries becomes hard and complex. A political economy of international relations emphasizes the nexus between the economy and interstate conflict. In this regard, this study suggests a way of solving puzzles of economic theories by incorporating domestic political factors into analyses. For example,

according to the Stopler-Samuelson theorem, international economic integration raises inequality in the North (developed countries) but lowers it in the South (underdeveloped countries). The reasoning behind this theorem is that trade liberalization benefits all factors in the export industry but hurts all factors in the import-competing industry. Unfortunately, empirical evidence does not go with this theoretical expectation. The level of inequality has increased in both the North and the South. By incorporating domestic political factors into economic analyses and capturing a disaggregated picture of domestic politics, we may be able to improve the explanatory power of a theory and reconcile the discrepancy between theoretical reasoning and empirical evidence.

Answering various research questions in three essays, this dissertation shows the limitations in analyzing the effect of economic liberalization on international relations. Globalization or economic liberalization may have decreased the number and the intensity of interstate conflict. The increasing democracies in the international system may also contribute to peace in the world politics. But, to evaluate the net effect of economic liberalization on international politics, we should consider multilevel factors by incorporating domestic politics into our analyses on international politics. It warns us not to overestimate the effect of economic liberalization on interstate conflict, by disregarding the importance of inequality within countries, domestic institutions, and political leaders' strategic behavior. Political leaders' strategic consideration on payable political costs affects decision-making on interstate conflict.

The strategic approach is advantageous in that it accounts for the interaction between domestic politics and international politics. Due to the development of empirical methods, a theoretical model in strategic approach can properly be tested. And, new

theoretical refinement will follow. The issue of economic liberalization and inequality within countries may also seriously appeal to other areas as well as interstate conflict. The increasing number of civil wars and terrorist attacks are those examples. By relaxing unrealistic assumptions that states are equally affected by economic liberalization, and that international politics is isolated with domestic politics, we can make a significant improvement in scholarly understanding on international political events with logical consistency.

APPENDICES

APPENDIX A.

Table 6. Classification of the size of winning coalition based on Bueno de Mesquita et al. (2000).

Winning Coalition	*Non-democracy*	*Democracy**
1	16.26%	0.00%
2	34.64%	0.00%
3	39.66%	17.65%
4	9.01%	42.24%
5	0.43%	40.11%

* A country is defined as a democracy if the country has more than or equal to 6 value in "dem" variable in Polity III data set.

** In general, Table 6 shows that democracies have bigger sizes of winning coalitions than non-democracies do. However, it seems hard to explain variations in domestic context (especially in democracies) using this measure. With respect to the size of winning coalition, democracies are classified into only three categories, which may not be realistic.

Table 7. Classification of the size of winning coalition based on DPI 2000.

Winning Coalition	*Non-democracy*	*Democracy*	*All*
1	90.16%	15.89%	42.69%
2	3.92%	6.42%	5.52%
3	3.24%	17.53%	12.38%
4	1.54%	30.82%	20.26%
5	0.92%	20.74%	13.59%
6	0.22%	2.14%	1.45%
7	0.00%	1.78%	1.14%
8	0.00%	0.24%	0.15%
9	0.00%	2.22%	1.42%
10	0.00%	0.57%	0.36%
11	0.00%	0.58%	0.36%
12	0.00%	0.00%	0.00%
13	0.00%	0.00%	0.00%
14	0.00%	0.00%	0.00%
15	0.00%	0.07%	0.04%
16	0.00%	0.93%	0.60%
17	0.00%	0.04%	0.02%
18	0.00%	0.04%	0.02%

* "Checks" variable in DPI 2000 data set is used as a measure for winning coalition in this classification. This table shows that most of non-democracies have very small sizes of winning coalition. Theoretically, non-democracies have less variation in the size of winning coalition than democracies. Political leaders in non-democracies can usually maintain their political positions based on support from a relatively small group of people. On the other hand, the necessary size of supporting group for keeping political leaders' political positions in democracies varies a lot depending on domestic political situations. In this regard, Checks variable seems advantageous especially for explaining variations between democracies. The size of winning coalition in democracies varies a lot, specifically, between zero and eighteen.

APPENDIX B.

Table 8. The Onset of Militarized Interstate Disputes (All dyads)

Variable	Logit with splines model[a]	ANCOVA with Random Effects Model	The Slopes-as-outcomes Model 1	The Slopes-as-outcomes Model2
Democracies	–0.050** (0.004)	–0.035** (0.007)	–0.031** (0.007)	–0.033** (0.011)
Interdependence	–51.46** (7.321)	–22.598** (8.059)	61.806 (38.019)	14.206 (19.362)
Parity	1.26** (0.080)	0.969** (0.151)	0.979** (0.154)	0.955** (0.253)
Alliance	–0.138 (0.071)	–0.222** (0.088)	–0.207** (0.087)	–0.167 (0.176)
Distance	–0.640**(0.026)	–1.078** (0.059)	–1.073** (0.058)	–1.360** (0.082)
Contiguity	2.781**(0.071)	2.620** (0.154)	2.618** (0.148)	2.949** (0.209)
One power	2.271**(0.057)	2.309** (0.136)	2.306** (0.138)	3.086** (0.219)
Two powers	3.162**(0.117)	2.567** (0.203)	2.554** (0.204)	4.916** (0.637)
Interdep*WC			–15.454 (8.005)	
Interdep*S			– 9.725 (14.791)	
Interdep*Checks				–16.80** (6.021)
Constant	0.669** (0.209)	1.069** (0.465)	1.025** (0.438)	1.549** (0.582)
Variance Components				
State Level				
Constant		1.254** (0.225)	1.289** (0.236)	1.736** (0.379)
Interdependence			1.515 (3.881)	0.326 (0.546)
Covariance			0.060 (0.962)	-0.091 (0.370)
Dyad Level		[b]3.002** (0.184)	[b]2.978** (0.209)	[b]2.909** (0.339)
Deviance (-2LL)	19724.224	14382.62	14389.210	5241.254
DIC		15466.04	15466.71	5758.64

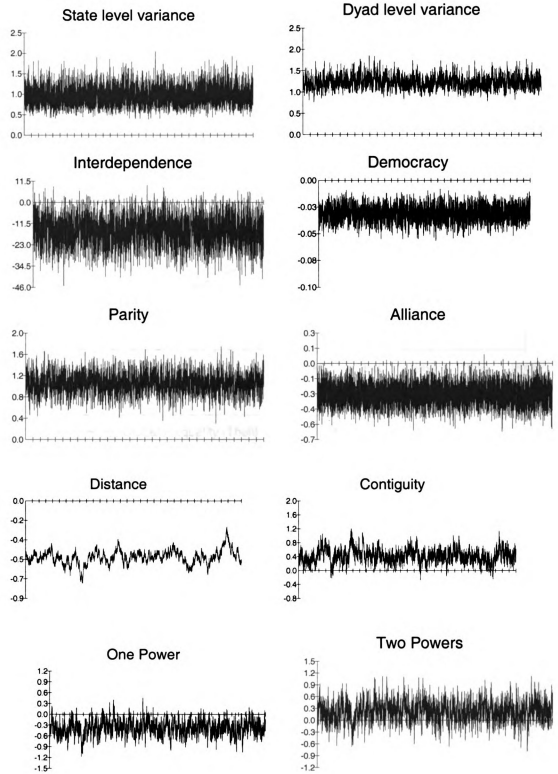
Note: Multilevel table entries are Bayesian estimates obtained from the Metropolis-Hastings (MH) sampling methods. Standard errors are in parentheses. Spline variables are not reported here to save space. (N= 466,626). * = $p < 0.05$, ** = $p < 0.01$

[a] Logit estimates are corrected for controlling the rare events problem.

[b] By a Binomial distributional assumption, the random coefficient at the first level was defined with a zero mean and a variance which was constrained to equal one. However, to test whether or not a Binomial assumption holds or whether the model exhibits 'extra Binomial' variation, I obtained a dyadic level variance based on the extra Binomial distributional assumption.

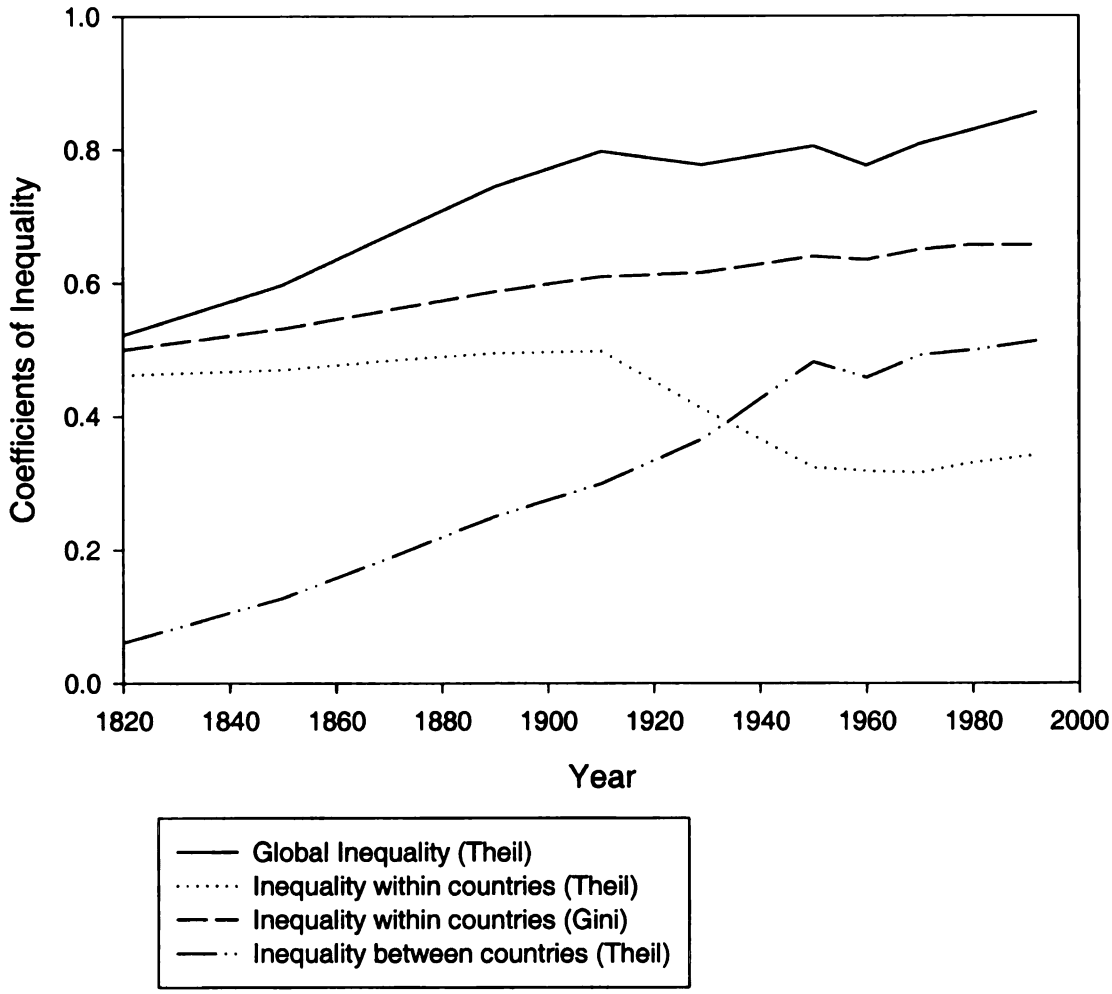
APPENDIX C.

Graphical inspection of convergence (politically relevant dyads)



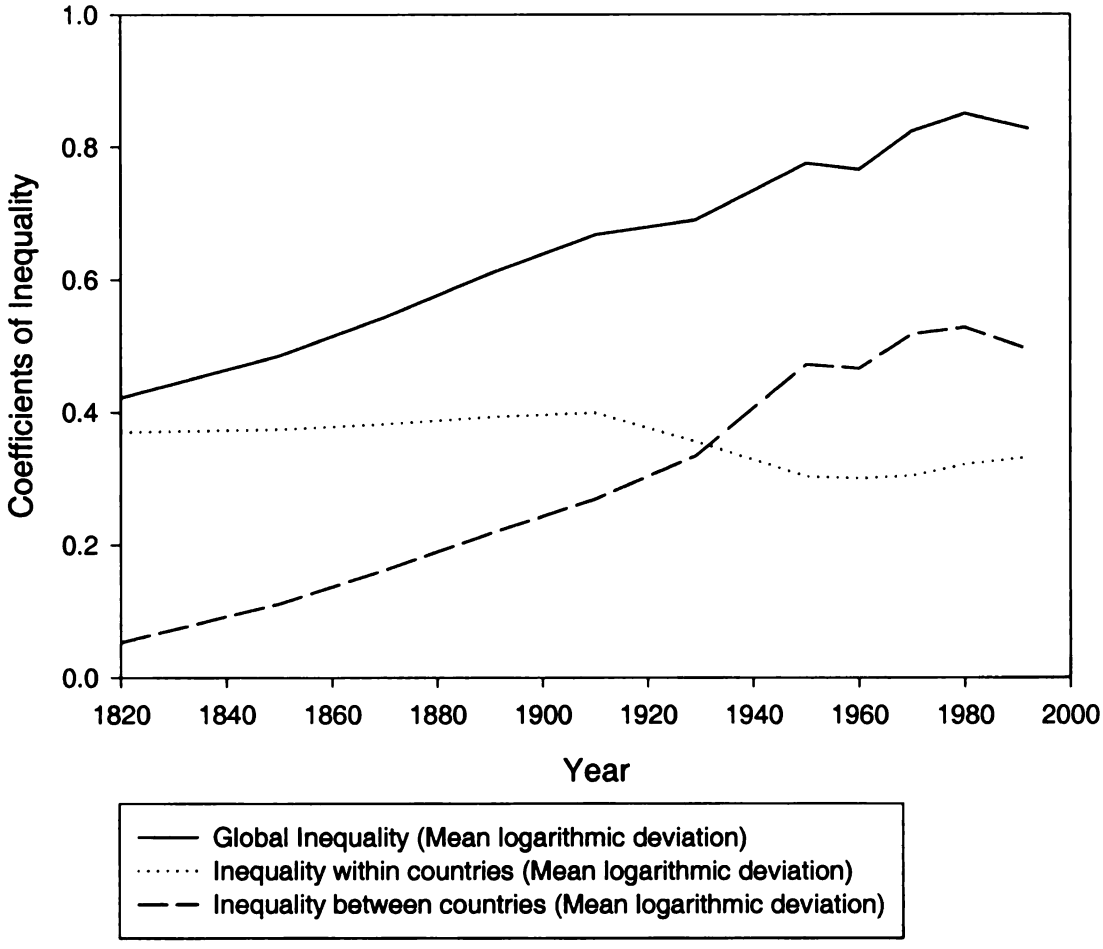
APPENDIX D.

Figure 7. Global Inequality of Individual Incomes, 1820-1992



* Source: Bourguignon and Morrisson (2002). The data consists of 15 single countries with abundant data and large populations and plus 18 groups of countries. The 18 groups of countries are aggregates of geographical neighbors having similar sizes of GDP per capita, as estimated by Maddison (1995).

Figure 8. Global Inequality of Individual Incomes, 1820-1992



* Source: Bourguignon and Morrisson (2002). The data consists of 15 single countries with abundant data and large populations and plus 18 groups of countries. The 18 groups of countries are aggregates of geographical neighbors having similar sizes of GDP per capita, as estimated by Maddison (1995).

BIBLIOGRAPHY

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Agnor, Pierre-Richard. 2003. "Does Globalization Hurt the Poor?" Forthcoming, World Bank PRE. Working paper.

Alt, James E. & Gary King & Curtis Signorio. 2000. "Aggregation Among Binary, Count, and Duration Models: Estimating the Same Quantities from Different Levels of Data." *Political Analysis* 9:1

Ames, Barry. 1987. *Political Survival: Politicians and Public Policy in Latin America.* Berkeley, California. University of California Press.

Baldwin, David. 1995. "Security Studies and the End of the Cold War." *World Politics* 48: 117-34.

Barbieri, Katherine & Gerald Schneider. 1999. "Globalization and Peace: Assessing New Directions in the Study of Trade and Conflict." *Journal of Peace Research.* Vol.36, No.4: 387-404.

Barro, Robert. 2000. "Democracy and The Rule of Law." In *Governing for Prosperity,* ed. Bruce Bueno de Mesquita and Hilton L. Root. New Haven, CT. Yale University Press: 209-231.

Beck, Nathaniel. 2001. "Time-series-cross-section data." *Statistica Neerlandica.* Vol.55, No.2:111-133.

Beck, Nathaniel. 2003. "Modeling Dynamics in the Study of Conflict: A Comment on Oneal & Russett." In Gerald Schneider Katherine Barbieri, Nils Petter Gleditsch. Eds. *Globalization and Armed Conflict.* Lanham: Rowman & Littlefield.

Beck, Nathaniel & Jonathan N. Katz. 2001a. "Random Coefficient Models for Time-Series-Cross-Section Data: The 2001 Version." Presented at the 2001 Annual Meeting of the Society for Political Methodology, Emory University.

Beck, Nathaniel & Jonathan N. Katz. 2001b. "Throwing Out the Baby with the Bath Water: A Comment on Green, Kim, and Yoon." *International Organization.* Vol.55, No.2:487-495.

Beck, Nathaniel & Jonathan N. Katz, & Richard Tucker. 1998. "Taking Time Seriously: Time-Series-Cross-Section Analysis with a Binary Dependent Variable." *American Journal of Political Science.* Vol.42, No.4:1260-1288.

Beck, Nathaniel, and Richard Tucker. 1997. Conflict in Time and Space. Center for International Affairs Working Paper, No. 97-8. Harvard University. [On line] Available http://wwwl.columbia.edu/sec/dlc/ciao/wpsfrm.html.

Beck, Thorsten, George Clarke, Alberto Groff, Philip Keefer, and Patrick Walsh, 2001. "New tools in comparative political economy: The Database of Political Institutions." *World Bank Economic Review*. 15 (1): 165-176.

Bennett, D. Scott, and Allan C. Stam, III. 1998. EUGene: Expected Utility Generation and Data Management Program. [On line] Available http://wizard.ucr.edu/cps/eugene/eugene.html.

Benson, Michelle and Jacek Kugler. 1998. "Power Parity, Democracy, and the Severity of Internal Violence." *Journal of Conflict Resolution.* Vol. 42, No. 2: 196-209.

Berry, William D., Michael B. Berkman. 2000. "Legislative Professionalism and incumbent Reelection: The Development of Institutional Boundaries." *American Political Science Review*. Vol. 94, No. 4: 859-874.

Blainey, G. 1973. *The Causes of War*. New York: Free Press.

Bollen, K. and R.W. Jackman. 1985. "Political democracy and the size distribution of income." *American Sociological Review* 50: 438-457.

Bourguignon, Francois. 1979. "Decomposable Income Inequality Measures." *Econometrica*. Vol.47, No.4:901-920.

Bourguignon, Francois & Christian Morrisson. 2002. "Inequality Among World Citizens: 1820 – 1992." *The American Economic Review*. Vol.92, No.4:727-744.

Box-Steffensmeier, Janet M., Dan Reiter, & Chistopher Zorn. 2003. "Temporal Dynamics and Heterogeneity in the Quantitative Study of International Conflict." In Edward D. Mansfield and Brian C. Pollins, eds. *New Perspectives on Economic Exchange and Armed Conflict*. Ann Arbor: University of Michigan Press:274-288.

Braumoeller, Bear F. 2003a. "A Dynamic Solution to the Agent-Structure Debate in International relations." Paper presented at the CEEISA/ISA International Convention, Budapest, Hungary, June 26-28.

Braumoeller, Bear F. 2003b. "Causal Complexity and the Study of Politics." *Political Analysis*. Vol.11, No.3: 209-233.

Bueno de Mesquita, Bruce. 1975. "Measuring Systemic Polarity." *Journal of Conflict Resolution* 19: 187-216.

Bueno de Mesquita, Bruce. 2000. *Principles of International Politics*. Washington, D.C., Congressional Quarterly Inc.

Bueno de Mesquita, Bruce and Hilton L. Root. 2000. "When bad economics is good politics." In *Governing for Prosperity,* ed. Bruce Bueno de Mesquita and Hilton L.Root. New Haven, CT. Yale University Press.

Bueno de Mesquita, Bruce, James D. Morrow, Randolph M. Siverson & Alastair Smith. 1999. Policy Failure and Political Survival. *Journal of Conflict Resolution.* Vol.43, No.2: 147-161.

Bueno de Mesquita, Bruce, James D. Morrow, Randolph M. Siverson, and Alastair Smith. 2000. "Political Institutions, Political Survival, and Policy success." In *Governing for Prosperity,* ed. Bruce Bueno de Mesquita and Hilton L. Root. New Haven,CT. Yale University Press:59-84.

Bueno de Mesquita, Bruce and Hilton L. Root. 2000. "When bad economics is good politics." In *Governing for Prosperity,* ed. Bruce Bueno de Mesquita and Hilton L.Root. New Haven, CT. Yale University Press.

Buzan, Barry. 1995. "The Level of Analysis Problem Reconsidered." In *International Relations Theory Today.* Eds. by Ken Booth & Steve Smith. The Pennsylvania State University Press. Pennsylvania: 198 – 216.

Buzan, Barry., Charles Jones, and Richard Little. 1993. *The Logic of Anarchy: Neorealism to Structural Realism.* New York: Columbia University Press.

Chalmers, A.F. 1999. *What is this thing called Science?* 3rd ed. Hackett Publishing Company, Inc. Indianapolis, Cambridge.

Congdon, Peter. 2003. *Applied Bayesian Modeling.* John Wiley & Sons Ltd, UK.

Coser, L. 1956. *The function of social conflict.* New York: Free Press.

Deininger, K. and L. Squire. 1996. "A New Data Set Measuring Income Inequality." *World Bank Economic Review* 10: 565-591. [On line] Available http://www.worldbank.org/research/growth.

DeRouen, Karl R. 1995. "The Indirect Link: Politics, The Economy, And The Use of Force." *Journal of Conflict Resolution* 39 (4): 671-695.

Dempster, A.P., D.B. Rubin, & R.K. Tsutakawa. 1981. "Estimation in Covariance components models." *Journal of the American Statistical Association,* 76: 341-353.

Dessler, David. 1989. "What's at Stake in the Agent-Structure Debate?" *International Organization,* 43: 441-74.

Deutsch, Karl W. and J. David Singer. 1964. "Multipolar Power Systems and International Stability." *World Politics* 16(2): 390 – 406.

Diehl, Paul F. 1991. "Geography and War: A Review and Assessment of the Empirical Literature." *International Interactions*, 17(1): 16-23.

Dixon, William J. 1993. "Democracy and the Management of International Conflict." *Journal of Conflict Resolutions* 37(1):42-68.

Dixon, William J. 1994. "Democracy and the Peaceful Settlement of International Conflict." *American Political Science Review* 88(1):14-32.

Dollar, David and Aart Kraay. 2002. "Growth Is Good for the Poor." *Journal of Economic Growth* 7(3): 195-225.

Dougherty, James E. Robert L. Pfaltzgraff, Jr. 1997. *Contending Theories of International Relations: A Comprehensive Survey*. 4th ed. Addison-Wesley Educational Publishers Inc. New York.

Fearon, James D. 1994. "Domestic Political Audiences and the Escalation of International Disputes." *American Political Science Review* 88:577-592.

Feng, Yi. 2000. "Political institutions, economic growth, and democratic evolution." In *Governing for Prosperity,* ed. Bruce Bueno de Mesquita and Hilton L. Root. New Haven, CT. Yale University Press.

Feng, Yi. 2001. "Political Freedom, Political Instability, and Policy Uncertainty: A Study of Political Institutions and Private Investment in Developing Countries." *International Studies Quarterly* 45: 271-294.

Feng, Yi & Paul J. Zak. 1999. "The Determinants of Democratic Transition." *Journal of Conflict Resolution* 43(2):162-177.

Finnermore, Martha, and Kathryn Sikkink.1998. "International Norm Dynamics and Political Change." *International Organization* 52 (4): 887-917.

Gartzke, Erik. 1998. "Kant We All Just Get Along? Opportunity, Willingness, and the Origins of the Democratic Peace." *American Journal of Political Science 42:1-27.*

Gartzke, Erik and Quan Li. 2001. "War, Peace, and the Invisible Hand: Positive Political Externalities of Economic Globalization." Paper presented at the 2001 APSA meetings, August 30 – September 2, San Francisco, CA.

Gates, Scott. 2001. "Empirically assessing the causes of civil war." Working paper. Michigan State University.

Gates, Scott, Haavard Hegre, Mark P. Jones, and Haavard Strand. 2001. "A Multidimensional Institutional Representation of Political Systems (MIRPS)." Paper presented at the Uppsala Conference on Data Collection, Uppsala, June 8-9.

Gelpi, Christopher & Joseph H. Grieco. 2001. "Attracting Trouble: Democracy, Leadership tenure, and the Targeting of militarized challenges, 1918-1992." *Journal of Conflict Resolution*, Vol 45, No.6:794-817.

Giddens, Anthony. 1979. *Central Problems in Social Theory: Action, Structure, and the Contradiction in Social Analysis*. Berkeley, University of California Press.

Gleditsch, Nils Petter & Kristian Skrede. 2002. "Expanded trade and GDP data Version 1." *Journal of Conflict Resolution* 46 (5): 712-724.

Gleditsch, Nils Petter, & Havard Hegre. 1997. "Peace and Democracy: Three Levels of Analysis." *Journal of Conflict Resolution* 41(2): 283-310.

Gleditsch, Nils Petter, Havard Strand, Mikael Eriksson, Margareta Sollenberg & Peter Wallensteen. 2001. "Armed Conflict 1946-99: A New Dataset." Paper presented at the 42nd Annual Convention of the ISA, 2001, Chicago.

Goertz, Gary. 1994. *Contexts of International Politics*. Cambridge University Press. New York.

Goldstein, Harvey. 1995. *Multilevel Statistical Models*. 2nd. The Americas by Halsted Press. New York.

Goldstein, Harvey, and Jon Rasbash. 1996."Improved Approximations for Multilevel Models with Binary Responses." *Journal of Royal Statistical Society. A,* 159(3): 505-513.

Gradstein, Mark, Branko Milanovic, & Yvonne Ying. 2003. "Democracy and Income Inequality: An Empirical Analysis." Working Paper.

Greene, William H. 2000. *Econometric Analysis*. 4th ed. Prentice-Hall, Inc. New Jersey.

Green, Donald P., Kim Soo Yeon, & Yoon David H. 2001. "Dirty Pool." *International Organization*. Vol.55, No.2: 441-468.

Gurr, T.R. 1970. *Why Men Rebel*? Princeton, N.J. Princeton University Press.

Hegre, Haavard. 2000. "Development and the Liberal Peace: What Does it Take to be a Trading State?" *Journal of Peace Research*, Vol.37, No.1:5-30.

Hegre, Haavard & Arvid Raknerud. 1997. "The Hazard of War:Reassessing the Evidence for the Democratic Peace." *Journal of Peace Research*, Vol.34, No.4:385-404.

Hensel, Paul R. 1999. "An Evolutional Approach to the Study of Interstate Rivalry." *Conflict Management and Peace Science* 17: 175-206.

Hensel, Paul R. 2001. "Contentious Issues and World Politics: The Management of Territorial Claims in the Americas, 1816-1992." *International Studies Quarterly* 45 (1):81-109.

Hox, J.J. 1995. *Applied Multilevel Analysis*. Amsterdam. TT-Publikaties.

Huntington, Samuel P. 1991. *The Third Wave: Democratization in the Late Twentieth Century*. Norman, OK and London: University of Oklahoma Press. .

Jackman, Simon. 2000. "Estimation and Inference via Bayesian Simulation: An introduction to Markov Chain Monte Carlo." *American Journal of Political Science* 44 (2): 369-98.

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

James, Patrick and Athanasios Hristoulas. 1994. "Domestic Politics and Foreign Policy: Evaluation a Model of Crisis Activity for the United States." *The Journal of Politics* 56: 327-348.

Jones, Daniel, Stuart A. Bremer and J. David Singer. 1996. "Militarized Interstate Disputes, 1816-1992: Rationale, Coding Rules, and Empirical Patterns." *Conflict Management and Peace Science* 15: 163-213.

Kaiser, D. E. 1983. "Germany and the Origins of the First World War." *Journal of Modern History* 55:442-74.

Kastner, Scott L., and Chad Rector. 2003. "International Regimes, Domestic Veto-Players, and Capital Control Policy Stability." *International Studies Quarterly* 47:1-22.

Katzenstein, Peter J., ed. 1996. *The Culture of National Security: Norms and Identity in World Politics*. New York:Columbia University Press.

Keefer, Philip. 2002. "DPI2000, Database of Political Institutions: Changes and Variable Definitions" Development Research Group, The World Bank. [On line] Available http://www.worldbank.org/research/bios/pkeefer.htm.

Keefer, Philip & Stephen Knack. 1997. "Why don't countries catch up? A cross-national test of an institutional explanation." *Economic Inquiry*. Vol. XXXV:590-602.

King, Gary. 2001. "Proper Nouns and Methodological Propriety: Pooling Dyads in International Relations Data." *International Organization*. Vol.55, No.2: 497-507.

King, Gary & Langche Zeng. 2001. "Explaining Rare Events in International Relations." *International Organization* Vol. 55, No.3, Summer:693-715.

King, Gary, Michael Tomz, and Jason Wittenberg. 2000. "Making the Most of Statistical Analyses: Improving Interpretation and Presentation." *American Journal of Political Science* 44, No.2, April:347-61.

Knack, Stephen & Philip Keefer. 1997. "Does Inequality Harm Growth Only in Democracies? A Replication and Extension." *American Journal of Political Science* Vol. 41, No.1, January:323-332.

Krasner, Stephen D. 1983. "Structual Causes and Regime Consequences: Regimes as Intervening Variables." In *International Regimes*, ed. Stephen D. Krasner. Ithaca, N.Y.: Cornell University Press.

Kugler, Jacek and Yi Feng. 1999. "Explaining and Modeling Democratic Transitions." *Journal of Conflict Resolution.* Vol. 43, No. 2: 139-146.

Lamborn, Alan C. 1991. *The Price of Power.* Boston: Unwin Hyman.

Leblang, David. 2002. "The Political Economy of Speculative Attacks in the Developing World." *International Studies Quarterly* 46: 69-91.

Leeds, B. Ashley. 1999. "Domestic Political Institutions, Credible Commitments, and International Cooperation." *American Journal of Political Science* 43(4):979-1002.

Leeds, Brett Ashley, & David R. Davis. 1997. "Domestic Political Vulnerability and International Disputes." *Journal of Conflict Resolution.* Vol.41, No.6: 814-834.

Levy, Jack. 1989. "The diversionary theory of war: A critique." In *Handbook of War Studies*, edited by Manus Midlarsky. Boston: Unwin Hyman: 259-288.

Li, Hongyi, Lyn. Squire, and Heng-fu Zou. 1998. "Explaining international and intertemporal variations in income inequality." *The Economic Journal* 108: 26-43.

Lieberman, Robert C. 2002. "Ideas, Institutions, and Political Order: Explaining Political Change." *American Political ScienceReview.* Vol.96, No.4, December: 697-712.

Lindert, Peter H. & Jeffrey G. Williamson. 2001. "Does Globalization Make the World More Unequal?" Working Paper.

Lipset, S.M. 1959. "Some social requisites of democracy: Economic development and political development." *America Political Science Review* 53: 69-105.

MacKuen, M. 1983. "Political drama, economic conditions, and the dynamics of presidential popularity." *American Journal of Political Science* 27: 165-192.

Maddison, Angus. 1995. *Monitoring the World Economy*, 1820-1992. Paris, OECD.

Maoz, Zeev. 1999. *Dyadic Militarized Interstate Disputes* Dataset version 1.1.

Maoz, Zeev & Bruce M. Russett. 1993. "Normative and Structural causes of democratic Peace." *American Political Science Review*. Vol.87, No.3, September: 624-638.

Marshall, Monty G. and Keith Jaggers. 2000. *POLITY IV PROJECT*. Intergrated Network for Societal Conflict Research (INSCR) Program Center for International Development and Conflict Management (CIDCM). University of Maryland. [Online] Available http://*www.bsos.umd.edu/cidcm/inscr/polity*.

Martin, Andrew D. 2002. "Congressional Decision Making and the Separation of Powers." *American Political Science Review*. Vol.95, No.2:361-378.

Meernik, James. 1994. "Presidential Decision Making and the Political Use of Force." *International Studies Quarterly* 38: 121-138.

Meltzer, A. and S. Richard. 1981. "A rational theory of the size of government." *Journal of Political Economy* 89:914-927.

Milanovic, Branko. 2000. "The median-voter hypothesis, income inequality, and income redistribution: an empirical test with the required data." *European Journal of Political Economy*. Vol. 16:367-410.

Mitchell, Sara McLaughlin. 2002. "A Kantian System? Democracy and Third-Party Conflict Resolution." *American Journal of Political Science*. Vol.46, No.4, October: 749-759.

Mitchell, Sara McLaughlin and Brandon C. Prins. 2001. "Rivalry and Diversionary Uses of Force." Presented at the Annual Meeting of the Peace Science Society (International), Atlanta, Georgia, October 26-28, 2001.

Mo, Jongryn.1994."Two-Level Games with Endogenous Domestic Coalitions." *Journal of Conflict Resolution* 42:397-426.

Mo, Jongryn.1995."Domestic Institutions and International Bargaining: The Role of Agent Veto in Two-Level Games." *American Political Science Review*. Vol.89, No.4:914-924.

Morgan, T. Clifton, and Kenneth N. Bickers. 1992. "Domestic Discontent and the External Use of Force." *Journal of Conflict Resolution* 36(1): 25-52.

Morrow, J.D.1991."Electoral and Congressional Incentives and Arms control." *Journal of Conflict Resolution* 35:245-65.

Most, Benjamin A., & Harvey Starr. 1989. "Opportunity and Willingness." *Inquiry, Logic and International Politics*. Columbia, SC: USC Press.

Mueller, J.1970."Presidential popularity from Truman to Johnson." *American Political Science Review* 64:18-34.

Newey, W. 1987. "Simultaneous estimation of limited dependent variable models with endogenous explanatory variables." *Journal of Econometrics* 36: 231-250.

Oneal, John R. & Bruce M. Russett. 1997. "The Classical Liberals Were Right: Democracy, Interdependence, and Conflict, 1959-1985." *International Studies Quarterly*. 41: 267-94.

Oneal, John R. & Bruce M. Russett. 1999. "Assessing the Liberal Peace with Alternative Specifications: Trade Still Reduces Conflict." *Journal of Peace Research.* Vol.36, No.4: 423-442.

Oneal, John R. & Bruce M. Russett. 2002. "Modeling Conflict While Studying Dynamics," in Gerald Schneider, Katherine Barbieri, and Nils Petter Gleditsch, eds., *Globalization and Armed Conflict.*

O'Rourke, Kevin H. and Jefferey G. Williamson. 2000. "When Did Globalization Begin?" NBER Working Paper 7632.

Ostrom, C.W., and B.L. Job. 1986. "The President and the Political Use of Force." *American Political Science Review* 80 (2): 541-566.

Perotti, Roberto. 1992. "Income Distribution, Politics, and Growth." *Political-Economic Equilibrium.* Vol.82,No.2:311-316.

Polachek, Solomon W., John Robst, & Yuan-Ching Chang. 1999. "Liberalism and Interdependence:Extending the Trade-Conflict Model." *Journal of Peace Research.* Vol.36, No.4: 405-422.

Prins, Brandon C. & Christopher Sprecher. 1999. "Institutional Constraints, Political Opposition, and Interstate Dispute Escalation: Evidence from Parliamentary Systems, 1946-89." *Journal of Peace Research* 36(3):271-87.

Przeworski, Adam and Fernando Limongi. 1993. "Political Regimes and Economic Growth." *Journal of Economic Perspectives* 7 (3): 51-69.

Putnam, Robert. 1988. "Diplomacy and Domestic Politics: The Logic of Two-Level games." *International Organization* 42:427-460.

Raftery, A. E. & S. M. Lewis. 1992. "How many iterations in the Gibbs sampler?" In *Bayesian Statistics 4*, eds. J.M. Bernardo, J.O. Berger, A.P. Dawid and A.F.M. Smith. Oxford, Oxford University Press: 765-76.

Rasbash, Jon, William Browne, Harvey Goldstein, Min Yang, Ian Plewis, Michael Healy, Geoff Woodhouse, David Draper, Ian Langford, and Toby Lewis. 2002. *A User's guide to MLwiN*. Centre for Multilevel Modelling, Institute of Education , University of London. London, England.

Raudenbush, Stephen W. and Anthony S. Bryk. 2002. *Hierarchical Linear Models: Applications and Data Analysis Method*s. 2nd . Sage Publications, Inc. Thousand Oaks, California.

Raymond, Gregory A. 1994. "Democracies, Disputes, and Third-Party Intermediaries." *Journal of Conflict Resolution* 38 (1): 24-42.

Reed, William & David R. Clark. 2000. "War Initiators and War Winners." *Journal of Conflict Resolution* 44(3):378-395.

Reither, Dan & Allan C. Stam.1998."Democracy, War Initiation, & Victory." *American Political Science Review* 92(2):377-390.

Reither, Dan.2003."Exploring the Bargaining Model of War." *Perspectives on Politics* 1(1):27-43.

Rivers, D., and Q. H. Vuong. 1988. "Limited Information Estimators and Exogeneity Tests for Simultaneous Probit Models." *Journal of Econometrics* 39: 347-366.

Rodríguez, German, and Noreen Goldman. 1995. "An Assessment of Estimation Procedures for Multilevel Models with Binary Responses." *Journal of Royal Statistical Society A,* 158 (1): 73-89.

Rodrik, Dani. 1999. "Democracies Pay Higher Wages." The Quarterly Journal of Economics. Vol. CXIV, Issue 3.

Rodrik, Dani. 2000. "Institutions for High-Quality Growth: What They Are and How to Acquire Them." *Studies in Comparative International Development.* Vol.35, No.3:3-31.

Russett, B. 1990. "Economic decline, electoral pressure, and the initiation of international conflict." In *Prisoners of war?* Edited by C. Gochman and A. Sabrosky: 123-140. Lexington, KY. Lexington Books.

Russett, Bruce. 1993. *Grasping the Democratic Peace: Principles for a Post-Cold War World.* Princeton: Princeton University Press.

Simon, Beth. 1999. "See You in 'Court'? The Appeal to Quasi-Judicial Legal Processes in the Settlement of Territorial Disputes." In A *Road Map to War: Territorial Dimensions of International Conflict*, ed. Paul F. Diehl. Nashville: Vanderbilt University Press.

Smith, Alastair. 1996. "Diversionary Foreign Policy in Democratic System." *International Studies Quarterly* 40(1):133-153.

Spiegelhalter, D., N. Best, B. Carlin, and A. van der Linde. 2002. "Bayesian measures of model complexity and fit." *Journal of Royal Statistical Society*, 64B: 1-34.

Steenbergen, Macro R., and Bradford S. Jones. 2002. "Modeling Multilevel Data Structures." *American Journal of Political Science*, Vol.46, No.1 January: 218-237.

Stein, Arthur A. 1976. "Conflict and cohesion: A review of the literature." *Journal of Conflict Resolution* 20:143-165.

Trumbore, Peter F. & Mark A. Boyer. 2000. "International Crisis Decision-making as a Two-Level Process." *Journal of Peace Research*, Vol.37, No.6: 679 – 697.

Tsbelis, George. 2002. *Veto Players: How Political Institutions Work.* Princeton University Press. Princeton, New Jersey.

Waltz, Kenneth N. 1979. *Theory of International Politics.* Addison-Wesley Publishing Company. California.

Wendt, Alexander. 1987. "The Agent-Structure Problem in International Relations Theory." *International* Organization 41(3):336-370.

Wendt, Alexander. 1999. *Social Theory of International Politics.* Cambridge: Cambridge University Press.

Western, Bruce. 1998. "Causal Heterogeneity in Comparative Research: A Bayesian Hierarchical Modeling Approach." *American Journal of Political Science* 41(4): 1233-1259.

Wooldridge, Jeffrey M. 2000. *Introductory Econometrics: A Modern Approach.* South-Western College Publishing, Thomson Learning.

Wooldridge, Jeffrey M. 2002. *Econometric Analysis of Cross Section and Panel Data.* The MIT Press, Cambridge, Massachusetts.

Zorn, Christopher. 2001. "Estimating Between- and Within-Cluster Covariate Effects, with an Application to Models of International Disputes." *International Interactions* 27(4): 433-445.