CIVIL-MILITARY DYNAMICS, DEMOCRACY, AND INTERNATIONAL CONFLICT, 1886-1992: A LOOK BEYOND THE TRIANGULAR PEACE

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by
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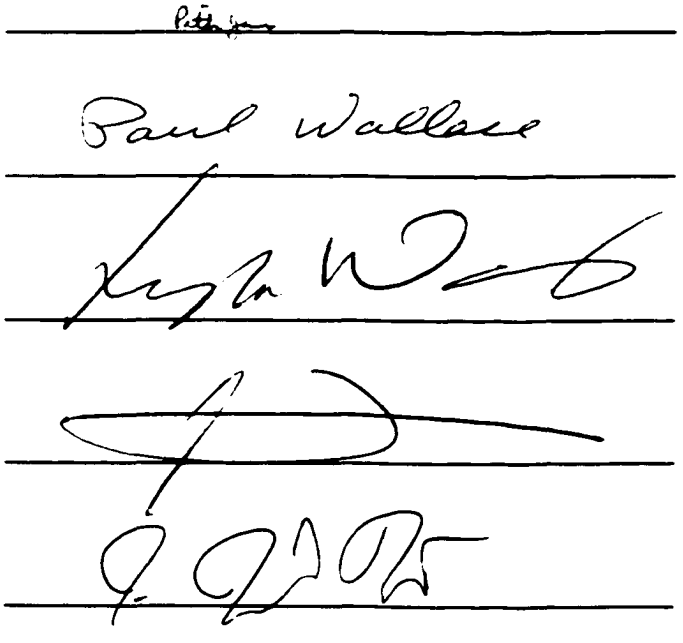

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ABSTRACT

In response to Russett and Oneal's (2001) "triangulation" of the peace, I have attempted to build an interactive foreign policy decision-making process model with a special emphasis on four additional factors – civil-military relations, conscription, diplomatic channels and media openness. This is what is meant by the 'look beyond' in the title of the dissertation. Empirical results from both logit and neural network models indicate that media openness, *not* democraticness (as measured primarily through the degree of constraint on the chief executive), is a key element in accounting for both MID involvement and MID-related casualties. Further, I have found that peace researchers need to 'quadrangulate' the peace in specific ways: (1) the more powerful military leadership within civil-military relations, the more likely dyads are to become involved in MIDs or experience MID-related casualties; (2) under a conscription system, dyads are more likely to engage in MIDs; and (3) more diplomatic channels in a dyad may unexpectedly indicate the potential for an increase in the occurrence of MIDs or MID-related casualties.

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"The [foreign policy] decision-making process can be equated with one or a few leaders, *with the roles of civil and military bureaucracies*, legislatures, interest groups, and, in democracies, *the media* and public opinion being inconsequential" (Brecher 1999: 231). (The emphases are mine.)

"A variety of arguments have been made about the disproportionate military influence on decisions about the use of force – whether to use force or how. Others are concerned about military influence in other policy areas such as force structure, budgeting, and personnel issues" (Avant 1998: 376).

CHAPTER ONE

INTRODUCTION: QUADRANGULATING THE PEACE

Since the massive volume of democratic peace studies appeared in full force during the 1990s,[1] several rounds of criticism have been directed toward their theoretical arguments and empirical findings. The present study seeks to contribute to that dialogue with a special emphasis on additional factors that may complement the synthesis achieved in Russett and Oneal's (2001) prominent new volume, *Triangulating Peace: Democracy, Interdependence, and International Organizations*. This work, which combines dyadic and systemic factors to create an overall vision of global peace, is a major step toward a theory that includes a full range of macro (i.e., systemic) and micro (i.e., unit) linkages, that is, macro-macro, macro-micro, micro-macro and micro-micro (Bunge 1996; James 2002). In this study it will be argued further that civil-military dynamics, like the degree of civilian control over the military and whether or not conscription exists, along with factors related to political communications, such as the openness of media and availability of diplomatic channels for conflict management, are

[1] Recently, democratic peace studies have extended to the Kantian and even liberal peace, which encompasses trade as well as international organizations. For the purposes of this study, the democratic peace includes the Kantian and liberal peace as well. Examples from the most recent wave of democratic peace studies, which incorporate an increasing range of political and economic variables, include Dixon (1993, 1994, 1998), Russett (1993, 1998), Hewitt and Wilkenfeld (1996), Chan (1997), Elman (1997), Oneal and Ray (1997), Oneal and Russett (1997, 1999a, 1999b, 1999c, 2000, 2001, *forthcoming*), Ray (1997, 1998), Enterline (1998a, 1998b), Russett, Oneal, and Davis (1998), Russett and Starr (2000), Russett and Oneal (2001) and Prins (2002).

essential to a more comprehensive explanation for international conflict, crisis and war. In this sense, *Triangulating Peace* provides a foundation for the work at hand.

More specifically, Militarized Interstate Disputes (MIDs), which provide the focal point for so much of the literature on conflict processes as related to the democratic peace, may be affected by some other factors not currently included in the most thorough dyadic or micro-micro specifications.[2] Hence the use of the word 'Quandrangulating' in the title of this chapter: It represents a commitment to identifying factors with high theoretical relevance to MIDs that remain outside of Russett and Oneal's (2001) triangular model of peace constructed so far.

Put differently, despite the seemingly impressive accumulation of findings about interstate dyads and conflict processes, an alternative to the emerging consensus can be summed up as follows: "even if there is a correlation between regime type and conflict or war proneness, the pattern might be produced by some third factor that has an impact on both war proneness and regime type" (Ray 1998: 36).[3] Although some recent studies on

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[2] A MID is defined as "a set of interactions between or among states involving threats to use military force, displays of military force, or actual uses of military force" (Gochman and Maoz 1984: 587). Although many disputes occur that are not brought on by crises (i.e., there are low-level MIDs), the focus here is on disputes linked to *crises*. See also Jones, Bremer, and Singer (1996) and Sarkees (2000) on concept formation and data as related to MIDs.

[3] Maoz and Russett (1992: 247), for example, adopt essentially the same reasoning as Ray (1998: 36) in a relatively early attempt to test the effects of five additional factors – wealth, economic growth, contiguity, common alliance bonds and political stability – on international disputes. They find that, except for political stability, the factors do not seem to be connected to the lack of conflict between democracies. The current project, which focuses on civil-military dynamics and political communications, should be seen as a logical continuation of that effort.

the democratic peace have taken that possibility into account,[4] this body of research still seems relatively 'thin' in the range of factors explored – both domestic and international – that could explain the most persistent and salient results. The present study introduces additional, potentially important factors from the realm of comparative politics, most notably civil-military dynamics such as *degree of civilian versus military control* and *military manpower system*.[5] It also focuses on political communication in terms of *diplomatic channels* and *media openness*.[6] In other words, this study bridges across subfields of political science in pursuit of a more complete sense of the democratic peace. As will become apparent, the preceding set of regime-oriented and interstate factors, which are not as yet represented in any systematic way within the vast literature already noted, can help to account for the path from peace to interstate dispute. Taken together, these additional factors permit a complete set of linkage, from micro-micro to macro-macro, to be postulated and tested.

Epigraphs from Brecher (1998: 376) and Avant (1999: 231), which appear at the outset of this study, provide the stimulus for my research. Taken together, these commentaries – from a generalist in international relations and a specialist in civil-

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[4] See, for example, Farber and Gowa (1995, 1997), Gartzke (1997, 1998, 2000, 2001), Wolfson, James and Solberg (1998), Gowa (1999), James, Solberg, and Wolfson (1999, 2000), Mousseau and Shi (1999), Cederman (2001) and Snyder (2002).

[5] Prominent literature in this context includes Lasswell (1941, 1997), Huntington (1957), Janowitz (1960), Snyder (1984), Van Evera (1984), Goertz and Diehl (1986), Diehl and Kingston (1987), White (1989), Ross (1994), Anderson, Halcoussis and Tollison (1996), Desch (1999), Duindam (1999), Feaver (1999), Gibson and Snider (1999), Looney and Frederiksen (2000) and Schofield (2000).

[6] Prominent literature in this context includes Singer and Small (1966), Small and Singer (1973), Graber (1986), Van Belle (1997, 2000) and Van Belle and Oneal (2000).

military relations, respectively – convey the importance of the factors under scrutiny. Brecher and Avant also draw attention to how little is known about the above-noted properties in interaction with each other as related to international conflict. This study is an attempt to build civil-military dynamics and political communications into the model of the democratic peace as it has developed so far, effectively quadrangulating the peace.

As a new look at the triangular peace, the presumed 'Rosetta Stone' for International Relations, this study includes five additional chapters. The second chapter reviews extant literature. Rather than to go through all of the literature in detail, this chapter tries to briefly point out major arguments of the democratic peace studies—to summarize various criticisms in four points: 1) paradigmatic debates, 2) neglected issues related to covert interventions and democratization, 3) methodological predicaments and 4) erroneous assertions from rational choice theory. The chapter assesses ten major articles from seven prominent democratic peace proponents—including Oneal and Russett in response to their critics—and then finishes by calling attention to important 'third factors' that have been missing in the democratic peace studies.

The third chapter presents theoretical ideas about how states initiate or become involved in MIDs through an interactive model of the foreign policy decision-making process.[7] The first section explains how the foreign policy decision-making process model building came about in the first place. The second section designs a flow chart of

[7] Although democratic peace scholarship debates the pros and cons of focusing on *onset* and *involvement* in international conflict, crisis, and war (e.g., the time dependence problem), both are explored here. Relevant works related to time dependence, the major theoretical issue underlying the choice between initiation versus involvement, include Bremer (1993), Beck and Katz (1995), Beck, Katz and Tucker (1998), Bennett (1999), Beck, King, and Zeng (2000), Beck (2001) and King and Zeng (2001).

the foreign policy decision-making process model to convey ideas in a potentially helpful and visual way. The four new variables—1) civil-military relations, 2) conscription, 3) diplomatic channels and 4) media openness—are portrayed as key components of the model. The third section provides two historical exemplars: 1) Israeli Response to Egyptian Military Actions, May 1967 and 2) the KAL 007 Shootdown, September 1983. The fourth and final section concludes the chapter.

The fourth chapter presents hypotheses, data and measurements, along with logistic regression and neural network models. This research design chapter, in greater detail, focuses on the introduction of the four new elements outlined in the interactive foreign policy decision-making process model. The four variables are intended to complete or at least complement Russett and Oneal's (2001) triangular peace model. For the empirical testing in the next chapter, both 'standard' logistic regression and 'pathbreaking' neural network models are constructed. The former technique is used to achieve consistency with the established literature, while the latter shows its limitations.

The fifth chapter discusses empirical results in terms of various model specifications, study periods and methods. The chapter evaluates how MID involvement can be explained and understood in terms of logit and neural network analysis. The sixth chapter discusses empirical results by limiting the data analysis to casualty occurrence in Militarized Interstate Disputes as the dependent variable.[8] The purpose of this chapter is to learn about the most intense and lethal MIDs.

[8] It should be noted that, as compared with their theoretical significance, MID-related casualties have, so far, been paid relatively little attention by students of the democratic peace.

The seventh and final chapter summarizes research findings, derives policy recommendations and suggests directions for future research.

CHAPTER TWO

DEMOCRACY, PEACE AND OTHER THINGS: A LITERATURE REVIEW

This chapter reviews extant literature on the democratic peace. After briefly summarizing the core propositions of the democratic peace, it presents four groups of criticism: (1) paradigmatic debates, (2) neglected issues related to covert interventions and democratization, (3) methodological predicaments and (4) erroneous assertions from rational choice theory. In response to its critics, the recent evolution and prospects of the democratic peace are followed. This chapter suggests the possibility that current scholarship on peace and international conflict can benefit from an interactive foreign policy decision-making process model that incorporates the four key elements noted at the outset of the dissertation: (1) civil-military relations, (2) conscription, (3) diplomatic channels and (4) media openness.

2.1 The Democratic Peace and Its Critics

Based loosely on Kant's *Perpetual Peace* (1795), the most prominent explanations in the democratic peace studies fall into the three categories: democraticness, economic interdependence and joint membership in international organizations. Democracies are less likely to go to war against each other because of cultural and structural constraints (Maoz and Russett 1993; Russett 1993); states are less

inclined to wage war due to high trade or financial interdependence (Pollins 1989a, 1989b; Oneal and Ray 1997; Oneal and Russett 1997, 1999a, 1999b, 2001); and states are less likely to fight owing to greater joint membership in international organizations (Russett 1998; Russett, Oneal and Davis 1998; Oneal and Russett 1999c; Russett and Starr 2000; Russett and Oneal 2001). The overwhelming majority of studies just noted in each area focus on interstate *dyads* in compiling evidence.[1]

Despite the outpouring of studies on the Kantian peace, a number of areas of criticism have appeared as follows: (1) paradigmatic debates, (2) neglected issues related to covert interventions and democratization, (3) methodological predicaments and (4) erroneous assertions from rational choice theory. Perhaps the most important criticism emerges from the 'paradigm war' between (neo)-realism and (neo)-liberalism (Brecher 1999). Rather than normative and structural constraints, national interests at stake (e.g., a common external threat) are said to have induced peaceful coexistence among democratic countries (Farber and Gowa 1995, 1997; Mousseau and Shi 1999). The democratic peace, in other words, is the consequence of shared policy preferences or affinities on security (or alliances) among democracies during the Cold War era (Gartzke 1997, 1998, 2000). Peaceful relations among democracies also are associated with the absence of war in the bipolar world (Wolfson, James and Solberg 1998; James, Solberg and Wolfson 1999, 2000)—so the democratic peace may merely have been an artifact of Cold War tension.

[1] To mention just a few excellent reviews of the democratic peace, Morgan (1993), Chan (1997), Maoz (1998), Ray (1998) and Russett and Starr (2000) are most representative.

Although realist inputs into the democratic peace studies have enriched the debates, they still pay little attention to other potentially crucial elements that have appeared frequently in expositions within comparative politics. As a result, an infusion of 'new blood' from fields that lie outside international relations, such as civil-military relations, is badly needed among students of international conflict, crisis and war. It is time to 'color outside the lines' of the would-be triangular peace.

Secondly, whether covert interventions should be confronted by the democratic peace studies is a still unanswered question (Cohen 1994; James and Mitchell 1995). According to James and Mitchell (1995: 85), "while violence among democratic states is scarce, these states *do* fight one another—just in ways that are more concealed." (The emphasis is in the original.) Thus democracies, in a clandestine way, become engaged in war against each other. This criticism, in a sense, also reflects realist perspectives in that covert interventions are often carried out in the name of national security. As Mansfield and Snyder (1995a, 1995b, 1996) point out, unlike democraticness, transition to democracy (i.e., democratization) is more likely to lead to war. Thus promoting democratization as a policy prescription may be normatively or culturally counterproductive and even harmful to the world peace. The democratic transition studies whose empirical results are seemingly contradictory to what the democratic peace advocates argue has invoked another controversy as to whether democratization diminishes benign democratic norms or culture.

Thirdly, methodological criticisms have arisen in terms of operationalization of variables and empirical models, which has hindered theoretical refinements of the

democratic peace. How to measure the key concept of democraticness, in particular, has created a controversial issue in that each different operationalization produces somewhat different results (Oneal and Ray 1997). For example, democraticness based on a joint regime score (i.e., democracy score minus autocracy score) for each dyad using the Polity data is different from one borrowed from Dixon's 'weakest link' assumption (i.e., choosing smaller score between democracy and autocracy scores) (Gurr, Jaggers and Moore 1989, 1990, 1991; Jaggers and Gurr 1995; James, Solberg and Wolfson 1999, 2000; Oneal and Russett 2000; Dixon 1993, 1994). More importantly, the credibility of the Polity data set, one of the most widely used sources on the authority characteristics of modern polities, has been questioned (Gleditsch and Ward 1997; Munck and Verkuilen 2002). Although the Polity data set is supposed to produce the standard "democracy", "autocracy", and "democracy minus autocracy" scores based on such five democratic attributes as (1) competitiveness of participation, (2) regulation of participation, (3) competitiveness of executive recruitment, (4) openness of executive recruitment and (5) constraints on executive, each score is determined mainly by the degree of constraint on the chief executive. As a result, "using the data summarily to classify modern polities as democracies directs attention away from the actual data that have been collected on authority patterns" (Gleditsch and Ward 1997: 381). In their recent and excellent review, Munck and Verkuilen (2002: 26) also observe that "not only is virtually no theoretical justification [offered for generating the democracy, autocracy and combined polity scores], but it also is open to criticism due to the index's problems of conceptual logic."

In addition to a simple logit model, several revised models, such as peace years correction (Beck and Katz 1995; Beck, Katz and Tucker 1998; Beck 2001; King and Zeng 2001), generalized estimating equation (GEE) (Diggle, Liang and Zeger 1994: 142-145 and 151-152; Zorn 2001), simultaneous equations (James, Solberg and Wolfson 1999, 2000), fixed effects (Green, Kim and Yoon 2001), distributed-lags (based on Granger-causality testing) (Oneal and Russett 2001, *forthcoming*), and neural network models (Zeng 1999, 2000; Beck, King and Zeng 2000; Lagazio and Russett *forthcoming*) have been used to deal with extremely rare events in various cross-sectional, time-series data sets. This type of data inadvertently produces enormous statistical concerns such as time dependence (i.e., autocorrelation) and heteroscedasticity in the error terms.

Although the methodological developments are very important to support empirical findings in a genuine statistical sense, they have diverted substantial attention from real issues into increasingly narrow and inaccessible methodological and measurement-related debates. Rather than to try to incorporate further plausible causes of international disputes (i.e., factors beyond the triangle), scholars have devoted their time and efforts to rather arcane methodological debates. For example, although Beck, King and Zeng (2000) introduced a highly sophisticated statistical model, neural network, into studies of international conflict two years ago, it has not been widely utilized due to its complexity and near-impracticability.

Finally, the introduction of rational choice theory to the democratic peace studies has been not as constructive as might have been expected. Bueno de Mesquita and his colleagues present a game-theoretic model of strategic interaction. The model assumes

that national leaders are rational, selective and unified on war-related decision-making (Bueno de Mesquita, Morrow, Siverson and Smith 1999). Although the model is well-developed in explaining efforts by democratic leaders to stay in office and select their adversaries in an optimal way (which ends up being consistent with the democratic peace), it does not address the most pressing concerns: dynamic interactions between civilian and military leaders in a real political stage. Bennett and Stam (2000a), as well, employ a game-theoretic model to deal with the democratic peace. Strategic behavior by rational states that pursue self-interest is assumed for interstate dyads. Expected-utility maximization therefore is anticipated. As known, international conflict, to a large extent, can not be explained purely by national actors' self-interest behavior based on cost and benefit analysis. For example, misperception and misunderstanding is prevalent in international conflict (Stoessinger 1985).

The triumph of rational choice theory can be sensed in Fearon's (1995: 382) 'bold' statement that "the main theoretical task facing students of war is not to add to the already long list of arguments and conjectures but instead to take apart and reassemble these diverse arguments into a coherent theory fit for guiding empirical research." Despite the fact that rational choice theory has made the democratic peace studies more elegant as well as parsimonious, it still misses what may turn out to be the key factors that ultimately provide better explanation and understanding of international disputes. Reassembling the 'old' may be Fearon's priority, but the emphasis here will be on the 'new.'

2.2 The Recent Evolvement and Prospect of the Democratic Peace

Among scholars of peace and security, Oneal and Russett consistently and eagerly have attempted to incorporate the by-products of criticism into their research. Oneal and Russett can be regarded as the 'core' democratic peace advocates because of the cumulative nature of their efforts. Thus it is worth reviewing their recent works to see how they have responded to critics. In doing so, we can assess how the democratic peace studies as a whole have evolved, because Oneal and Russett have been setting the agenda for some time. I choose to compare their latest five articles, which have been published during the period from 1999 to the present (i.e., *forthcoming*). Since the five articles are an evolutionary 'manifesto' of their cumulative learning about the democratic peace during the last decade, perusing their older works should be a redundant task.

The main focus of this review is to see if there is variation in their empirical findings. Table 2-2-1, which incorporates the year of publication, study period, table number, statistical method, democraticness, economic interdependence and joint membership in international organizations, should suffice for the preceding purpose.

(Table 2-2-1 about here)[2]

Table 2-2-1 reveals that there is some variation in the empirical findings (i.e., unrobust results) of Oneal and Russett. It shows that, with more extensive data collection, the study period has been extended; statistical methods have become more sophisticated from simple logit to distritubed-lags models than ever before. It seems obvious that availability of more extended data series has contributed to the evolution of

[2] Figures and Tables are placed at the end of each Chapter.

the democratic peace research. According to Oneal and Russett (2001: 475), "we find no evidence of the liberal peace if we restrict our analysis to the years 1951-92, but the greater variation that results from expanding the analysis to the years 1886-1992 allows the effects of democracy and interdependence to become apparent." Of course, the question then becomes which era to heed in developing theory and policy. The Cold War, after all, would seem inherently more relevant than the days of the Congress of Vienna or even the World Wars.

Democraticness (as measured in the Polity data) seems to be statistically significant on a consistent basis.[3] However, it should be noted that, as the 1999b article indicates, the results from the low democracy (on the left side of the slash) and from high democracy (on the right side) are not consistent so that the 'real' effect of democraticness is somewhat in doubt. Oneal and Russett (1999b: 223) report that, "holding DEM_L [lower democraticness score in a dyad] constant, the greater the democracy of the more democratic state (DEM_H, [higher democraticness score in a dyad]), the *more* likely the occurrence of a dispute." (The emphasis is mine.) The statistical significance of economic interdependence seems to vary depending on the statistical methods employed. Fixed effects and peace years correction models seems to make the impacts of economic interdependence to weaken or disappear its significance. For example, in their article based on the first peace years correction model, Oneal and Russett (1999a: 430)

[3] It should be noted that Oneal and Russett's democraticness variable does not necessarily reflect a 'true' meaning of democracy since its main determinant relies mainly on executive constraints out of the five institutional attributes of democracy defined in the Polity data. Oneal and Russett (1999: 12, footnote 30) acknowledge this drawback of the Polity III data set when observing that their "democracy minus autocracy" score does not reflect "the relative importance of its components [which are] unstable over time."

acknowledge that "we find no evidence with this specification and set of cases for interdependence reducing the likelihood of a militarized dispute." Joint membership in international organizations needs more rigorous testing since its results are as yet not supportive enough. In this regard, Oneal and Russett (*forthcoming*: 4) themselves acknowledge that "the contribution of international organizations has not been widely examined and the results are less consistent." Among the five articles, the empirical results of the latest one (*forthcoming*) appear very impressive: All the three Kantian peace hypotheses are strongly supported. It seems to me that one of reasons for the strong support for the three Kantian peace elements might attribute to an improved methodological technique, a distributed-lags model, which takes into account an endogenous issue among variables, that is, possible and important reciprocal relations between the three neo-Kantian peace factors (i.e., democraticness, economic interdependence and international organizations) (and some realist factors) and the probability of interstate disputes. If their methodological improvement is not a statistical artifact, it would seem that the distributed-lags model has been underutilized.

Table 2-2-2 presents the empirical results of five other democratic peace proponents, which, as compared with Oneal and Russett's works, show some other developments in the democratic peace literature. Employing logit regression during the period from 1816 to 1992, Mousseau (1998) ascertains that high democracies (i.e., higher democracy score in a democratic dyad) are about three times more likely than high autocracies (i.e., higher autocracy score in a autocratic dyad) to resolve their MIDs through compromise. Since compromise is one of the central defining attributes of

democratic political culture, Mousseau's findings strengthen the normative argument for the democratic peace. Focusing on interstate rivalries during the period from 1816 to 1992, Hensel, Goertz and Diehl (2000) confirm and extend the robust and pacifying effects of democracy on both rivalry onset and rivalries between democracies. In response to the criticism related to transition to democracy (i.e., democratization), Enterline (1998) employs spline logit regressions during the periods from 1816 to 1992 and from 1946 to 1992 and finds that new autocracies, not democracies, are more dispute- and war-prone. However, it is problematic to see that democratized dyads do not show statistical significance in these results. In other words, democratization does not appear to decrease the likelihood of international conflict in a noteworthy way.

(Table 2-2-2 about here)

Maoz (1998) and Ray (1997)'s pieces provide us with overall appraisal or review related to debates on the democratic peace. In response to realist- and culturally-oriented criticisms, Maoz's bivariate statistics show that the democratic peace proposition is supported. Ray's article, it should be noted, appears in one of the most prestigious journals on democracy, *Journal of Democracy*. After reviewing pros and cons about the democratic peace proposition, Ray (1997: 63) concludes that "the evidence is sufficiently robust to justify prudent efforts and policies designed to take advantage of the pacifying impact of democracy."

Since the five articles stress the impact of democraticness rather than the other two Kantian peace factors (i.e., economic interdependence and joint membership in international organizations), Table 2-2-2 does not provide a good point of comparison as

related to these other two. It should be noted, however, that most of the other democratic peace studies pay closer attention to the effect of democraticness than the other two factors on war and peace. Notable exceptions are Oneal and Russett's serial works as shown in Table 2-2-1, which attempt to incorporate all three Kantian peace factors into various models. In short, the empirical results from Tables 1 and 2 indicate that some variations still exist and the results are rather mixed and incomplete.

Debates surrounding the democratic peace obviously are not complete, so we may expect to find factors beyond theoretical and methodological reasoning of the studies so far that stand out as plausible causes of peace or war. Innovative, even revolutionary, ideas might come from comparative politics, a field which students of international relations need to communicate with in a more sustained way. If we want to learn more about international conflict, crisis and war, these two subfields must be joined together for scholarly innovation—this is the best and most promising path toward a "scientific revolution" (Kuhn 1962), if there is one to be had. In the next chapter I explore the possibility that current scholarship on peace and conflict can benefit from an interactive foreign policy decision-making process model that attempts to incorporate the four key elements noted at the outset: (1) civil-military relations, (2) conscription, (3) diplomatic channels and (4) media openness.

Table 2-2-1 Empirical Results of Oneal and Russett

Published Year	Study Period	Table	Method	Democraticness	Economic Interdependence	International Organizations
forthcoming	1885-1992	1	distributed-lags[a]	***	***	***
2001	1886-1992	1	GEE[a]	***	***	n/a
			fixed effects[a]	***	_	n/a
			fixed effects w/ distd-lags[a]	***	*	n/a
1999c	1886-1992	1	GEE[a]	***	***	_
	1886-1992		peace years correction[a]	***	**	^^^
	1886-1939		GEE[a]	***	**	_
	1886-1992		GEE[b]	***	**	*
1999b	1870-1989	1	peace years correction[a]	*** / ^^^	*	n/a
	1870-1989		GEE[a]	*** / _	*	n/a
	1870-1989		GEE[a]	*** / ***	**	n/a
	1870-1939		GEE[a]	*** / ***	**	n/a
	1950-1985	2	GEE[a]	** / _	**	n/a
	1950-1985		GEE[a]	* / _	*	n/a
1999a	1950-1992	1	peace years correction[a]	***	_	n/a
			peace years correction[b]	***	*	n/a
			GEE[b]	***	**	n/a

[a]: all dyads; [b]: politically relevant dyads

GEE: generalized estimation equation

*p<.05; **p<.01; ***p<.001; ^^^p<.001, wrong sign; _: not statistically significant; n/a: not applicable

Table 2-2-2 Empirical Results of Five Other Democratic Peace Proponents

Authors	Published Year	Study Period	Table	Method	Democraticness
Hensel, Goertz and Diehl	2000	1816-1992	1	descriptive statistics	low probability of rivalry onset
	Confirm the robust and pacifying effects of democraticness in terms of rivalry onset.				
			3	descriptive statistics	low frequency of democratized rivalries
	Confirm the robust and pacifying effects of democratized rivalries.				
Mousseau	1998	1816-1992	4	logit regression	statistically significant
	High democracies are about 3 times more likely than high autocracies to resolve their MIDs through compromise.				
Maoz	1998	Various		bivariate statistics	statistically significant
	The democratic peace propositions are re-evaluated and their results show statistical signicance.				
Enterline	1998b	1816-1992	2	spline logit regression	statistically insignificant
	New autocracies, not democracies, are more dispute prone.				
		1946-1992	3	spline logit regression	statistically insignificant
	New autocracies, not democracies, are more dispute prone.				
		1816-1992	4	splinelogit regression	statistically insignificant
	New autocracies, not democracies, are more war prone.				
Ray	1997			literature review	the pacifying impact of democraticness
	Most of the democratic peace-related literature support the democratic peace propositions.				

CHAPTER THREE

FOREIGN POLICY DECISION-MAKING: A PROCESS MODEL

This chapter provides a theoretical background by presenting a foreign policy decision-making process model, which traces how international conflict between two states occurs in terms of the following four important factors: (1) civil-military relations, (2) conscription, (3) diplomatic channels and (4) media openness. Conceptual model building will pay close attention to these four factors which, so far, democratic peace studies have neglected. The first section explains inspiration for (or intuition behind) the model. The second section depicts a flow chart as to how interstate conflict occurs in terms of the four factors. The third section provides two historical exemplars. And the fourth and final section concludes this chapter.

3.1 Intuition, or, How does It Work?

Democratic peace studies generally are put forward without an explicit model of the foreign policy decision-making process to guide empirical analysis.[1] Instead, the

[1] One recent exception is Bueno de Mesquita, Morrow, Siverson and Smith (1999). Bueno de Mesquita and his colleagues present a game-theoretic model of strategic interaction. The model assumes that national leaders are rational, selective and unified on war-related decision-making. Although the model is well-developed in explaining efforts by democratic leaders to stay in office and select their adversaries in an optimal way (which ends up being consistent with the democratic peace), it does not address the specific concerns of the present study, such as dynamic interactions between civilian and military leaders, which will be introduced momentarily.

"institutional" model appears in an implicit sense; it is inferred that democracies in conflict with each other are less likely to pursue escalation because decision-making takes significantly longer and therefore allows 'cooler heads to prevail' (Maoz and Russett 1993). This chapter attempts to fill the theoretical gap by presenting an interactive foreign policy decision-making process model that highlights the role of *leadership* in selecting war versus peace.

My model building is inspired by the substance and drama of international relations as depicted by films such as Hollywood's 'Thirteen Days' and the documentary 'Thirteen Days in October: Cuban Missile Crisis.' These films, to cite just two of many examples available in popular culture, vividly depict the dynamic interactions between civilian and military leaders at the brink of war. With some dramatic license, the two films show how civilian and military leaders in the Kennedy Administration interacted with one another in the process of coping with the Missile Crisis in October 1962. The following dialogue from 'Thirteen Days' exemplifies well these dynamic interactions: In his oval office on Thursday, October 18, President Kennedy asked, "General LeMay, do you truly believe [the air strike] is the best course of action?" General LeMay responded, "Mr. President, I believe it is the only course of option. America is in danger." (Interactions between the president and general continued.) General LeMay then remarked that "I think a blockade or a bunch of political talk would be considered by a lot of our friends and neutrals as a pretty weak response." Thus LeMay moved easily into a *military* frame of reference at or near the outset of the crisis.

Overall, while civilian leaders such as John F. Kennedy (President), Adlai E. Stevenson (American Ambassador to the United Nations) and Robert F. Kennedy (Attorney General) preferred diplomatic solutions to military ones, military leaders like General Maxwell D. Taylor (Chairman of the Joint Chiefs of Staff) and General Curtis LeMay (Air Force Joint of Chief) called for immediate military actions – including higher levels of mobilization. During the Missile Crisis, the likelihood of respective options seemed to oscillate as a function of the *power shifts* between the preceding two groups. For example, it is interesting to consider the possibility that, by intentionally increasing the military alert status from DEFCON (*Def*ense *Con*dition) III to DEFCON II, military leaders may have been attempting to provoke hostilities with Cuba or even the USSR to push through their agenda. The Missile Crisis deescalated through diplomatic channels when Robert Kennedy and Anatoliy F. Dobrynin (Soviet Ambassador to the United States) reached a secret diplomatic agreement.[2]

Given the intuition about the usual inclinations of military and civilian leaders with respect to their preferred means of conflict management, the model developed here recognizes the interactive nature of the foreign policy decision-making process and represents that within the vision offered by the democratic peace. A flow chart (i.e., Figure 3-2-1, to be introduced momentarily) will be utilized to represent the intuition from the films and scholarly record. In sum, there will be more to leaders' decision-making than what might be conveyed by variables restricted to national and international

[2] For scholarly analysis of the Cuban Missile Crisis, see Allison (1969), Kahan and Long (1972), Bendor and Hammond (1992) and McKeown (2001).

attributes such as democraticness, contiguity and other factors found in the increasingly paradigmatic research designs on interstate dyads over the last decade.

Since the leader of a state initiates (or makes a decision about involvement in) war, cause and effect should be established on that basis: "selection of war or peace is a choice that is initiated, conducted, and concluded by individual leaders. . . . The choice of war or peace depends on the choices of individuals and not on compulsion by circumstance" (Bueno de Mesquita 1981: 5). In the end, national leaders are the ones who make war or peace (Stoessinger 1985). For this reason, civil-military relations, as opposed to national attributes such as regime type, could turn out to be most important with regard to the process of conflict escalation or deescalation.

Since each foreign policy decision-making process includes civilian as well as military leaders, interactions between the two sets of officials are expected as a matter of course. It is essential, especially in times of crisis, to make decisions that include both political and military considerations.[3] All other things being equal, it is assumed that the conventional wisdom holds, namely, that 'where you stand depends on where you sit' (Gray 1975: 86): While civilian leaders are anticipated to be dovish, military leaders are expected to be hawkish, at least in relation to each other (Allison, Carnesale and Nye 1985).[4] Students of civil-military relations have put forward the idea that, as military

[3] Gochman and Maoz (1984: 587), in a study focusing on MIDs in particular, acknowledge the importance of decision-making in an indirect way: "Since our primary concern is with the evolution of conflict as *a product or consequence of government decision making*, we require that actions taken or threatened be attributable to responsible state authorities" (The emphasis is mine.)

[4] This difference is expected to hold in a relative sense *within* each state. The assertion is that for a given State A, civilian leaders will be less inclined than military leaders toward the use of

leaders increase their influence in the foreign policy decision-making process, the state becomes more likely to be aggressive and belligerent, which in turn may result in war (Schofield 2000: 132).[5] Since military leaders are what Lasswell (1941, 1997) called "specialists on violence," they have a lower aversion to interstate war than do civilian leaders. Thus military decision-makers who participate in foreign policy decision-making "are likely to urge or endorse the use of force and regard it as a proper and feasible step" (Morgan 1993: 246). According to Brecher (1996: 220), "[the military] in power are likely to employ violence or more severe violence, even if alternative techniques of crisis management are available."

Not all students of civil-military relations agree with the preceding arguments about 'hawkish' military leaders and 'dovish' civilian leaders in the foreign policy decision-making process. For example, based mainly on civil-military relations in the United States, Huntington (1957) and Janowitz (1960) argue the reverse. In particular, modernization of military technology, information and organization, and casualty concerns make the military decision-makers similar to civilian leaders, so that they tend to advise caution rather than adventurism (Perlmutter 1986). Furthermore, in some countries, the civilian leaders previously have served in the military. Secretary of State

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military options. Both sets of leaders in State A could be more (or less) hawkish than those in another State B. The point of comparison is between leaders within a given state.

[5] See also Vagts (1956, 1959), Benjamin and Edinger (1971) and Whitten and Bienen (1996) for additional historical material on the balance between civil and military influence on foreign policy.

Collin Powell and Israeli Prime Minster Ariel Sharon are good examples. The important question becomes this one: Are they military leaders or civilian leaders?[6]

Most of the available case studies in the context of civil-military relations and the propensity toward war focus on great powers. Through an examination of civil-military relations in Germany, France and Russia before World War I, Van Evera (1984) and Snyder (1984) uncover "the cult of the offensive" in those states, with military leaders being more inclined than civilian ones to use military force. Snyder (1984: 140) argues that the cult of offensive also was played out in Japan after World War I. Studies that focus on the US, the leading power over the last century, reach similar conclusions about the tendencies in military leadership with respect to strategy and tactics. Vietnam is a case in point: Donovan (1968: 100) argues that the military "participated in what may not have been exactly a conspiracy but was at least a well-organized readiness – indeed, an inclination – to get into the [Vietnam] war". In the same vein, Allison's (1969: 714) bureaucratic politics paradigm explains well the military leaders' hawkish position during the Cuban Missile Crisis as follows: "To the Joint Chiefs of Staff the issue was clear. *Now* was the time to do the job for which they had prepared contingency plan. . . . As the President recalled on the day the crisis ended, 'An invasion would have been a mistake –

[6] Recent prominent studies on civilian 'hawks' and military 'doves' in the *American* foreign policy decision-making process (i.e., US joint chiefs of staff are quite reticent to resort to force, perhaps because of the 'Vietnam' syndrome or other reasons) are Feaver and Gelpi (1999, *forthcoming*) and Hendrickson (2002). I am aware not only that civil-military relations in some advanced industrial countries (including the US) might show an attenuated connection at present, but also that there is a gray area in drawing the line between military and civilian leaders. Since my main research interest is civil-military relations across states using cross-sectional, time-series data, I emphasize the overall tendency toward 'hawkish' military leaders and 'dovish' civilian leaders as collectivities. Put differently, while most current works address a single case (e.g., *American* foreign policy), my dissertation, in a sense, attempts to broaden the temporal and spatial domain of those studies by including *all* states.

a wrong use of our power. But *the military are mad. They wanted to do this*'" (The second and third emphases are mine.) While hawkish military leaders should be inclined to emphasize the importance of military strength to deter war and are ready to use military forces, dovish civilian leaders are expected to prefer cooperation or negotiations through diplomatic channels (Russett 1990-91: 516). Thus, in terms of relative influence for political and military leaders, two possibilities must be assessed: political (military) stronger than military (political).

3.2 A Flow Chart of Foreign Policy Decision-Making Process Model

Figure 3-2-1 depicts the interactive foreign policy decision-making process as a model that incorporates four factors that so far have been exogenous in the democratic peace: (1a) civil-military relations at a general level, in terms of relative influence; (1b) military manpower system as a more specific manifestation of civil-military relations; (2a) diplomatic channels; and (2b) media openness. These factors, two of which focus on processes within states and two that pertain to dyadic communication, have the potential to affect initiation of, and involvement in, MIDs. While democratic peace scholarship has not as yet taken into account the collective theoretical significance of these elements, the same criticism, of course, could be leveled at all of the other leading research programs in international relations. At this point the model will be presented, with specific attention to the role of the preceding factors in relation to conflict initiation and involvement. This is the first, theoretical step toward quadrangulating the peace.

(Figure 3-2-1 about here)

Figure 3-2-1 illustrates how two States, A and B, interact each other through foreign policy decision-making processes. Whenever State A is engaged in a conflict with State B or vice versa, civilian and military leaders are convened to seek out plausible solutions. In the process, civilian leaders must interact with military ones to identify the best options. Interactions between military and civilian leaders are anticipated to lead to two possible courses of action, depending on which group's influence is stronger.

When the civilian elite's presumably dovish view prevails (i.e., if $M < C$ in Figure 3-2-1 for either State A or B) in a dispute, a state is presumed to be more willing to attempt to resolve a conflict through political communications such as diplomatic channels or the media to reach a peaceful settlement, that is, civilian leaders are more likely to prefer non-military solutions to military solutions. Various diplomatic contacts, through an ambassador, envoy or minister, chargé d'affaires, or mediators, etc., provide each state with at least some opportunities to negotiate or communicate peacefully with its adversaries (Singer and Small 1966; Small and Singer 1973). Since media openness refers to the ability to "exchange information swiftly enough and with enough volume to effect the news media coverage in [each] country and influence the decision-making context for the [concerned] leader[s]" (Van Belle and Oneal 2000: 55), it also can facilitate political communication between states. Peaceful settlement therefore becomes more likely. Failure of efforts to communicate, however, is expected to bring about a military approach instead – or even war as the time-honored pursuit of diplomacy by other means (Clausewitz 1976; Gochman and Maoz 1984: 587-589). This process is

depicted in Figure 3-2-1, where unsuccessful communication increases the degree of influence for military leaders and leads to military measures.

When, by contrast, the military elite's generally more hawkish standpoint becomes dominant (i.e., if M > C in Figure 3-2-1 for either State A or B) in a conflict, a state is considered more willing to resort to military measures. When the military is powerful enough to insist on flexing its 'muscle,' a higher likelihood of violence comes along with that posture. Military leaders, put simply, are more likely to prefer military solutions. Furthermore, if a state can be ready immediately to deploy its soldiers under some kind of a conscription system, it becomes even more likely to initiate or become involved in a militarized interstate dispute – hence the importance of *civil-military dynamics* along dual dimensions, including the degree of civilian control and the acquisition of military personnel. In this course of events, a MID is the subsequent result – a consequence of the process of the interactive foreign policy decision-making procedure from Figure 3-2-1.

The model focuses on the causes of MIDs in general, including wars. Interstate wars are uncommon and it is not easy to generalize regularities and patterns in why and how they break out (Russett and Oneal 2001: 94).[7] For example, James, Solberg and Wolfson (1999: 11-12) illustrate graphically how rarely international wars occur. Based on data from 1950 to 1986, they find a highly skewed distribution among the standard MID event categories: of the 16,322 dyad-year observations, 97 percent are at peace, 0.14 percent exhibit threat, 0.43 percent show a display of force, 2.05 percent include use of

[7] Exceptional studies that identify such patterns and develop generalizations are Bruce Bueno de Mesquita (1981), Vasquez (1993, 2000), Geller and Singer (1998), Powell (1999) and Midlarsky (2000).

force and 0.38 percent qualify as international wars. The relative and absolute scarcity of war makes any empirical generalization difficult. Yet, as Russett and Oneal (2001: 94) argue, "the influences and constraints that affect the occurrence of wars do not appear to differ much from those that are relevant to militarized disputes in general." Since the causes of war in particular also tend to be the causes of MIDs in general, I use the same more inclusive data of MIDs for the empirical analysis as Russett and Oneal (2001) did.

The model is parsimonious, so it does not catch all of the dynamics associated with each factor just noted; instead, it identifies highlights and patterns. For example, the failure of political communications such as diplomatic channels or media openness does not *guarantee* military measures in the real world – a point not yet conveyed. Yet the model does point toward a new direction in research on peace and war: It captures a simple but interactive foreign policy decision-making process between two states and is sufficient for present purposes, namely, to assess the importance of some neglected factors in explaining why leaders might decide in favor of military versus other options when foreign policy action is needed.

3.3 Two Historical Exemplars

3.3.1 Israeli Response to Egyptian Military Actions, May 1967: Greater Influence from Civilian Leaders

Greater civilian leaders' influence in a foreign policy decision-making process can be inferred from the Israeli decisions in response to external threats from Egypt and other Arab states in the spring of 1967. After demanding the withdrawal of U.N.

peacekeeping forces from the Sinai on May 16, Egyptian President Gamal Abdel Nasser moved Egyptian military forces into that desert area bordering Israel. On May 22, Egypt blockaded the Straits of Tiran, which prevented Israeli shipping access to the Straits.

This incident prompted an urgent meeting of Israeli foreign policy decision-makers on May 23. They met first as the Ministerial Committee on Defense and then as the cabinet. These foreign policy decision-makers had to deal with two critical issues: 1) the aggressive military actions from Egypt; and 2) a request from U.S. President Lyndon Johnson, who pressed Israel to defer any military action for 48 hours to pursue other possible diplomatic alternatives at the international community level.

From the beginning, Yitzak Rabin, then Military Chief of Staff, argued that immediate military action was necessary to maintain the credibility of Israel's deterrence policy. Abba Eban, then Foreign Minister, opposed that any military action must be put off in favor of diplomacy. He argued that Israel must consult with the United States before any action. More heated debates (or interactions) between civilian and military leaders centering on Eban and Robin were followed. At the final stage, Robin and other military leaders were persuaded that a delay of 48 hours in the initiation of military action would not be as critical as they had thought. As a result, the cabinet members unanimously agreed to the Eban position of diplomatic consultation with the U.S. In this case, along with the diplomatic efforts of the international mediator, U.S. President Lyndon Johnson, the civilian leaders' influence in the foreign policy decision-making process was greater than the military (Hermann, Stein, Sundelius and Walker 2001: 156).

3.3.2 The KAL 007 Shootdown, September 1983: Greater Influence from Military Leaders

A fighter jet from the former Soviet Union shot down the Korean Air Lines (KAL) 007 on September 1, 1983, which claimed 269 people's lives. After detecting the intrusion of an unidentifiable aircraft into its airspace, an air defense control base in Sakhalin sent six interceptors. But they could not find the aircraft for a while. One of the Soviet interceptors located the KAL 007 sometime later, which gave the ground base and fighter pilot less response time (Pearson 1987: 65-80). After detecting the KAL 007, there were two options: forcing it to land and shooting it down. Under the rigid Soviet system, the standard organizational procedure regarding airspace intrusion was that the Soviet air defense authorities were "inclined.... to shoot first and think about it later. No Soviet air defense officer [was] likely to be court-martialed for shooting at a foreign aircraft. He could even be shot for allowing a foreign plane to enter, and then make good its escape" (Harsch September 22, 1983: 23). The conventional practice was also ascertained by Soviet border law and internal instructions, which indicated that the Soviets would, "in the last resort, shoot down aircraft of any character overflying prohibited military zones if they fail to obey instructions or warning signals to land" (Maechling October 14, 1983: 16) regardless of civilian or military, deliberate or unintentional, presence. Since the fighter pilot could not force it to land, he was told to destroy KAL 007 before it escaped from Soviet airspace. More importantly, according to Dusko Doder (October 5, 1983: A1), "the Soviet Far East command had been in direct telephone contact with top military officials in Moscow on several occasions prior to the downing of the plane...[but] the political leadership had not been consulted." That is, the

Soviet defense leaders made the decision on the basis of information provided by local commanders who were anxious about losing the intruding airplane out of Soviet airspace. Although this case provides a little information on the interaction between civilian and military leaders at the time of the shootdown, it is evident that the KAL 007 tragedy occurred due to greater influence from Soviet military leaders who, quite notoriously, had louder voices in decision-making under the rigid Soviet political system during the Cold War era.

3.4 Where To?

The flow chart of the interactive foreign policy decision-making model in Figure 3-2-1, to sum up, depicts dynamic interactions between civilian and military elites who attempt to search for political or military solutions in response to an interstate conflict; states can interact in one of two ways: either political communications that produce a peaceful settlement or military measures that produces a militarized interstate dispute. It assumes that, all other things being equal, civilian leaders prefer political communications such as diplomatic channels or media openness to military measures and military leaders prefer things the other way around (e.g., military mobilization versus negotiations) in coping with an interstate conflict. The model predicts different outcomes that depend on which leadership group, if either, becomes dominant in the interactive foreign policy decision-making process. To be more precise, the model assigns a higher likelihood to one outcome versus another as a function of relative influence between

groups in decision making. The two historical cases provide good exemplars in line with the interactive foreign policy decision-making process model depicted in Figure 3-2-1.

Since the democratic peace studies do not take account into the decision-making process depicted above, they so far, collectively speaking, seem to have produced an outcome like 'the blind men and the elephant' (James 1988: 78-91). Democratic peace researchers touch an elephant's 'tail' (i.e., test the regime type factor) and then claim that an elephant is just like a snake – the dyadic democratic nature based largely on executive constraints is the essential cause of peace. Just as a blind man would need to touch the whole body of an elephant to understand its overall size and makeup, democratic peace scholarship should begin to incorporate considerations such as civil-military relations, military manpower system, diplomatic channels and media openness into the process of modeling. It is essential to investigate the politically important impact of intrastate factors beyond the type of government – otherwise, reductionism in terms of political structure will continue and ultimately serve to limit understanding of international conflict, crisis and war.[8]

In the next chapter, I present the research design to test the four factors (i.e., civil-military relations, conscription, diplomatic channels and media openness) described in the interactive foreign policy decision making process model depicted in Figure 3-2-1.

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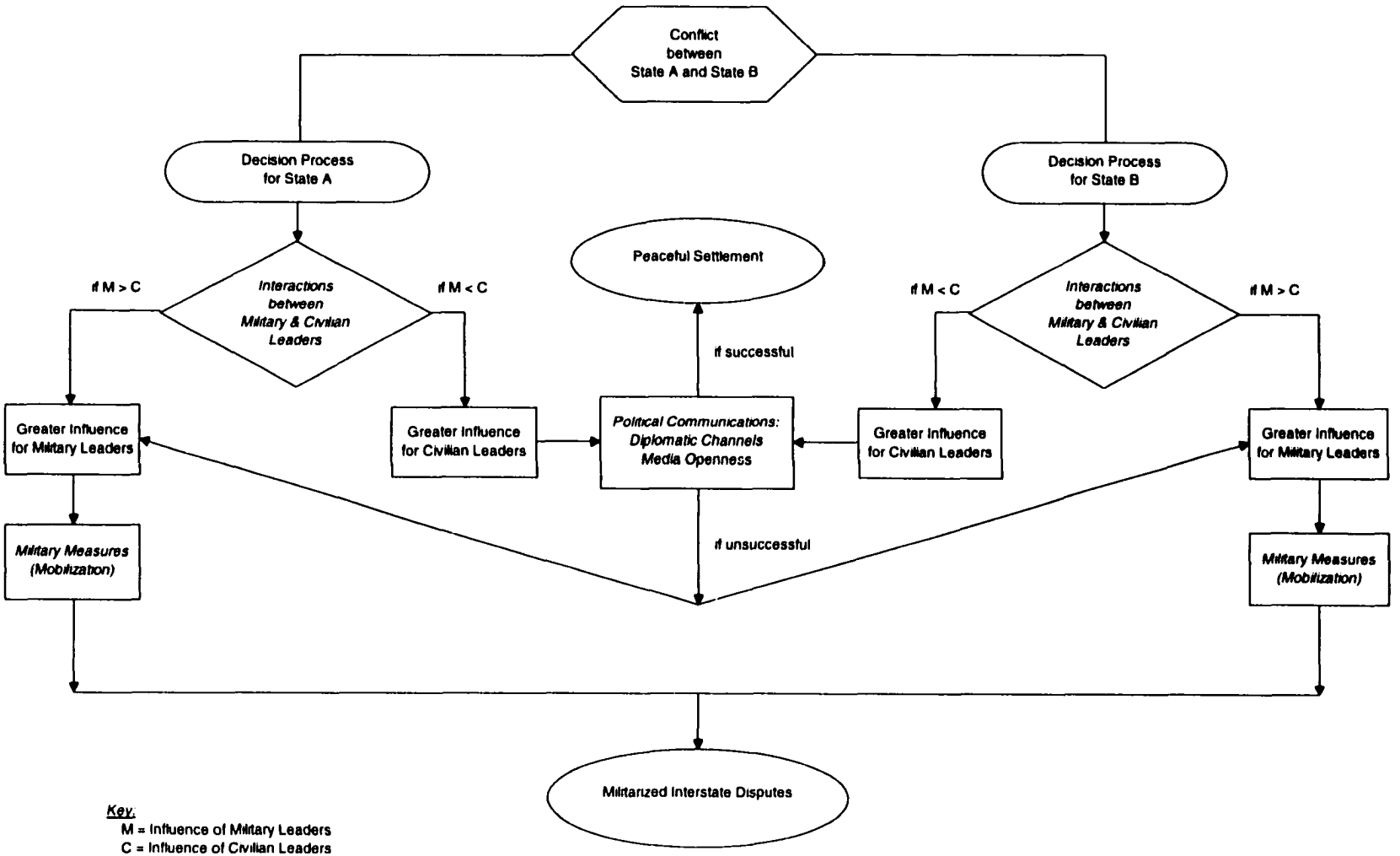
[8] As a reinforcement to the idea conveyed by the fable of the blind men and the elephant, consider this hypothetical situation: Suppose that you go to a dealership to buy a new car and a salesman claims that, if you drive one of the new 2003 models, you will be less likely to get involved in a car accident. This raises suspicion about the salesman's credibility because the chance of car accident is likely to depend much more on your driving skills or habits rather than on the model of car. The new model can enhance your safety, but the main cause of *accidents* is inferred to be careless or reckless driving. In this story the new car plays a role analogous to regime type in contemporary peace research, while driving skill would correspond to civil-military dynamics and political communications.

Figure 3-2-1 Interactive Foreign Policy Decision-Making Process Model



CHAPTER FOUR

RESEARCH DESIGN: A LOOK BEYOND THE TRIANGULAR PEACE

This chapter begins with a presentation of hypotheses. Measurement and data-related issues then are addressed. Logistic regression and neural network models provide the basis for empirical analysis in the next chapter.

4.1 Hypotheses

Based on the interactive foreign policy decision-making process model, as conceptualized in Figure 3-2-1, four hypotheses are derived below. Students of civil-military relations have put forward, but not as yet tested with aggregate data, the notion that an asymmetrical relationship between civilian and military elites may contribute to various military disputes or acts of aggression in international relations. That is, as military leaders increase their influence in decision-making processes, the state becomes more likely to be aggressive and belligerent, which in turn may result in war (Hill 1978; Zuk and Thompson 1982; Diehl and Kingston 1987). Morgan (1993: 246) argues that military decision-makers who participate in decision-making "are likely to urge or endorse the use of force and regard it as a proper and feasible step." Based on the International Crisis Behavior (ICB) Project data analysis, Brecher (1996: 220) reports that "[the military] in power are likely to employ violence or more severe violence, even

if alternative techniques of crisis management are available." Avant (1996/97) contends that civilian leaders seem less reluctant to use force than the military. Based on his cross-national statistical analysis of comparative foreign policy during the ten-year period between 1959 and 1968, Geller (1985: xviii) finds that "nations in which the military has substantial influence on the policy process exhibit foreign behaviors that are more conflictual and less cooperative than nations in which the military lacks this input." During the era of imperial Japan, to cite what is arguably the archetypal case, the weak power of civilian elites versus those of the military frequently facilitated international disputes (Rousseau 1996: 69). All other things being equal, as military influence rises, military means are expected to come to the fore. Thus the hypothesis about civil-military relations is as follows:[1]

H_1: As the relative influence of the military in civil-military relations increases for a dyad, the likelihood of involvement in militarized interstate disputes also increases for that dyad.

Students of civil-military relations also have argued that a state's system of military manpower may affect the likelihood of its involvement in international conflict. In particular, international disputes may be more likely to occur in the presence of conscripted forces because of their quicker and higher military readiness or preparedness

[1] It also should be noted that, as Diamond (1999: 11) points out, civilian supremacy in civil-military relations is one of the most important attributes of liberal democracy. So it is necessary to delve into civil-military relations in the context of the foreign policy decision-making process.

than all-volunteer forces (Ross 1994).[2] In this regard, Duindam (1999: 119) contends that, "if the members of the democratic community differ in their preferences for a war, a decision in favour of a war will be more probable in the case of a conscription force than in the case of an all-volunteer force." In the same vein, in *Triangulating Peace*, Russett and Oneal (2001: 19) point out that Napoleon's conscripted soldiers had the potential to overwhelm voluntary soldiers of other states so that France threatened to become a hegemon. On the basis of cross-sectional data for 1980, Anderson and his colleagues (1996: 199-200) ascertain as well that "warlike" states are more likely to employ conscription. From data on a sample of 143 countries for 1984, White (1989: 780) finds that "countries that use conscription may be more likely to become involved in wars because they maintain larger armed forces and the cost to the government of getting additional soldiers is reduced by conscription." In other words, conscription reduces the relative costs entailed by pursuit of a military option – the most basic means already are available. Thus the hypothesis about military manpower systems is as follows:

H_2: Dyads composed of states with (without) a conscription system are more (less) likely to become involved in militarized interstate disputes.

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[2] It should be noted that, in this dissertation, the presence of conscription refers to active duty soldiers who already have conscripted and trained for combat missions before international conflict begin. The reverse causal direction—that militarized disputes lead to conscription—also is highly plausible. It can be hypothesized that peace could lead to no conscription and more peace. Militarized disputes between two states lead one of them to call up the draft in expectation that they would soon be at war, making the initial dispute or crisis the causal agent. Yet I postulate H_2 alone in this dissertation since my main research interest is to look into international conflict with respect to the decision-making process model.

In passing, Kant argues that dispute propensity is increased by a standing volunteer army that is trained and primed for combat, as opposed to a "citizen army" that must be drafted, trained, and then sent into the field. Kant's (1957: 5-6) standing volunteer army, it should be noted, in all likelihood, refers to a collectivity of 'foreign' mercenary soldiers during the medieval period, which is different from a national army made up of volunteers these days.

Figure 3-2-1 also stressed the important role of diplomatic efforts in the unfolding of international disputes. Dougherty and Pfaltzgraff (2001: 79) summarize a wide range of research that confirms "a crucial role in the preservation of peace" for diplomacy.[3] When the opinion of the civilian elite prevails, various diplomatic channels, such as an ambassador, envoy or minister, chargé d'affairs or mediators, are more likely to be utilized to reach a peaceful solution without military action. As Singer and Small (1966), and Small and Singer (1973) point out – even before their now-classic findings on regime type and war (Small and Singer 1976) – when a state sends diplomatic representation to an adversary, this provides the foundation for peaceful negotiation and bargaining. (Exceptions, such as the notorious case of the Japanese before Pearl Harbor, are so visible precisely because they are quite rare.) If a leader seeks diplomatic assistance from a third-party state or an intermediary organization, all other things being equal, that may produce a better chance to resolve an international dispute without the use of military force.

More importantly, if numerous diplomatic channels already are present or open before a conflict arises, a state may utilize its diplomats or international mediators more readily toward a peaceful solution. Contrarily, fewer diplomatic channels not only mean more difficulties with respect to facilitating political or diplomatic communication in the quest for a peaceful resolution, but also suggest a degree of political or diplomatic

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[3] It should be noted that, unlike Dougherty and Pfaltzgraff, Morgenthau's (1985: 569-575) standard realist treatment downplays the importance of the diplomat's role. He argued that an increase in summit meetings, development of advanced communication technology, etc. have contributed to the decline of diplomacy in the modern era. The present study is perhaps closer to the position associated with the democratic peace in its assertion that channels of interstate communication can play a key role in conflict management and even resolution.

isolation in the diplomatic 'amphitheater'. Thus the hypothesis about diplomatic channels is as follows:

> H_3: Dyads composed of states with a lower (higher) number of diplomatic missions are more (less) likely to become involved in militarized interstate disputes.

Media openness is another principal indicator of the potential for effective political communication between states. Media openness, with freedom of the press and other news media, gives voice to public opinion and empowers the public's eyes and ears to detect governmental misconduct, most notably abuse of power (Graber 1986: 258). Thus media openness helps to prevent national leaders from exploiting international conflict for political gain, for example, in pursuit of a rally effect. Moreover, media openness may provide each state with an opportunity to reduce miscommunications and the attendant risk of escalation by providing open channels. In other words, open media structures the international flows of information that create or provide the means by which democracy works to reduce conflict.[4] Since a more unrestricted information flow

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[4] Few students of international conflict, crisis and war have investigated systematically the likely importance of media openness as a key attribute of democracy. Van Belle and Oneal's (2000) study is a pioneering effort to introduce media openness into the ongoing literature devoted to the democratic peace at the dyadic level. See also East and Gregg (1967), Babst (1972), Small and Singer (1976), Bollen (1980, 1991, 1993), Mueller (1992) and Van Belle (1997).

Ironically, the relative neglect of media openness, to a large extent, is associated with the evolution of the otherwise remarkably comprehensive Polity data set. Gleditsch and Ward (1997: 381) argue that "using the [Polity] data summarily to classify modern polities as democracies directs attention away from the actual data that have been collected on authority patterns." According to Diamond (1999: 9), the Polity data set "acknowledges [media openness] as a major component of democracy but, because of the paucity of data, does not incorporate [it]." In sum, in this dissertation, I distinguish structural elements of democracy (which are best captured by the

on preferences, capabilities, allies, etc. should reduce the chances of misperception and miscalculation, greater media openness may lead to a decrease in international disputes (Stoessinger 1985; Blainey 1988; Gerber and Green 1999). In this regard, Small and Singer (1976: 51) side with East and Gregg's (1967) findings that "states with more authoritarian regimes—as reflected in their practices of press censorship—appeared to exhibit more foreign-conflict behavior than "freer" nations." Along the same lines, on the basis of global press freedom data from 1950 to 1992, Van Belle and Oneal (2000: 72) find that, "when the media is independent of governmental control and able to report events objectively, national leaders are constrained in resorting to force, reducing the likelihood that a state will become engaged in a militarized interstate dispute." Thus the hypothesis about media openness is as follows: [5]

H_4: Dyads composed of states with (without) free or imperfectly free media openness are less (more) likely to become involved in militarized interstate disputes.

4.2 Measurement and Data

Polity data) from liberal elements of democracy (which would be captured by press freedom data, which will be introduced momentarily).

[5] Unlike the media openness hypothesis, Fearon's (1994, 1997) notion of audience costs and Schultz's (1998, 1999 and 2001) analysis of political opposition shed light on a somewhat different institutional constraint. From their point of view, it may not be the fact that states have open media that matter so much. Instead, that institutional feature allows opposition party's voices to be heard, which should make a leader a bit more cautious out of fear of political consequences. In this sense, the media might be a proxy for the leadership concern for the political costs of using military force. Although I do not disagree with the line of reasoning derived from Fearon and Schultz, the focus of my model is on the interactive foreign policy decision-making process as it might be affected by media openness rather than domestic constraints in general.

It should be noted that, to the best of my knowledge, there so far exists no readily available cross-sectional and time-series data collection that measures the *degree of influence* between military and civilian leaders in each state. Assessing each leader group's influence within a state is easier said than done (Whitten and Bienen 1996: 214). In his recent book, *Civilian Control of the Military: The Changing Security Environment*, Desch (1999: 3) points out that "civil-military relations is a very complicated issue. Analysts disagree about how to define and measure civil-military relations as the [in]dependent variable." Whatever limited agreement exists is with respect to the idea that the concept is multidimensional and difficult to quantify in a meaningful way at the cross-national level.

Given the fact that my research is a first attempt to test systematically the relationship between civil-military relations and MIDs, I utilize military expenditure to measure degrees of military versus civilian *influence* in each state. Rising military power vis-à-vis civilian power is likely to increase military expenditure, which in turn may cause more international disputes (Hill 1978; Zuk and Thompson 1982; Diehl and Kingston 1987).[6] According to Diehl and Kingston (1987: 803), "this is often an assumption of many scholars and analysts, without empirical documentation. Although the belief that military influence increases with military spending has yet to be adequately documented, it remains a part of many scholars' thinking." For example, Goertz and Diehl (1986: 554) argue as follows: "Military allocations are thought to play a prominent role in national decisions for war. . . . High military allocations are indicative of this

[6] Diehl and Kingston (1987) find no direct impact, however, for a state's military spending on its propensity to initiate conflict.

military preparation and perhaps also of the willingness to use military force. . . . High allocations could indicate the influence that military officials have in government decision making." Thus I argue that, since each nation's military expenditure fluctuates according to the military's influence, the civil-military relations variable reflects the dynamics of influence among civilian and military leaders.[7] The utility of the military expenditure measurement is supported by Benjamin and Edinger's 62 historical case studies in four states: France (1905-1954), Germany (1871-1938), Japan (1894-1945) and the US (1918-1954). According to Benjamin and Edinger (1971: 18), "military control is a function of specific patterns of interaction between civilian and military leaders involved in the [foreign policy] decision-making process *and* of the extent to which available resources [i.e., military expenditure] are committed to military purposes" (the

[7] Because of the unresolved and debatable issue of how to define and measure civil-military relations, there exist no well-documented studies. Based on overall impression from general literature on civil-military relations, I suggest that there may be at least four other viable ways to assess civil-military relations or degrees of military versus civilian influence in each state. It should be noted that, although few studies attempt to utilize some aspects of the following four measurements, they are basically tentative suggestions of mine for future research when their cross-sectional, time-series data collection becomes available: The first is to identify whether a state adopts a constitutional clause on civilian supremacy. A second means is to categorize each state's regime type based on the leader's military background. A third approach is to utilize survey questionnaire on civil-military relations. The fourth and final way is based on case studies about who prevails when civilian and military leaders' preferences diverge. Among these four, case studies (and survey) have been most in force among comparativists.

Although the preceding four methods have various merits, they are not as useful as the military expenditure proxy, which seeks to measure military leaders' *influence* on foreign policy decision-making. For example, since the statutory clause in a constitution does not necessarily guarantee civilian supremacy in less developed countries, it fails to capture degrees of military versus civilian influence within such states. Since the military regime type assumes strong leadership by a single ruler, it does not reflect what the model defines as the dynamic interactions between civilian and military leaders in each state. Lastly, survey and case studies are too costly and time-consuming at this moment. For some more useful comments about how to operationalize civil-military relations, see Desch (1999: 1-7).

emphasis is in the original.). Thus the degree of military versus civilian leaders' influence is assumed to be a function of change in military expenditure.[8]

Based on the shifting directions in change of military expenditure, three different measurements are designed and implemented for civil-military relations because each may be subject to a range of interpretations. First of all, military influence in civil-military relations is calculated as the combined annual growth rate for military expenditure in each dyad. Hereafter this simple version is referred as *combined annual growth rate for military expenditure (CAGRMEAB)*. For example, if State A's military expenditure shows a 20 percent *increase* and State B's shows a 5 percent *decrease* in 1990 as compared to in 1989, the dyad is recorded as a 15 overall percentage increase (i.e., the combined annual growth rate by percentage, or + 20 – 5 = 15) in 1990. The second measurement for military influence in civil-military relations is dichotomous. If both states in a dyad experience an annual growth rate increase in their military expenditure in a year *t* as compared to *t-1*, the dyad is recorded as '1'; if not, it is coded as '0'. Hereafter this dichotomous version is referred as *increased annual growth rate of military expenditure (IAGRMEAB)*. For example, if State A's military expenditure shows a 20 percent increase and State B's shows a 10 percent increase (i.e., both states have a positive annual growth rate increase) in 1990 as compared to in 1989, the dyad is recorded as '1' in 1990, indicating a relative increase in military over civilian influence.

[8] Two qualifications should be noted about this measurement: First, my research interest is military leaders' influence on the foreign policy decision-making process, *not* overall militarism. Although militarism might be represented more effectively by counting men under arms, this is not the focus of my conceptual model. Second, I acknowledge that changes in expenditure might be due to military adaptation of new technologies, retirement of obsolete weapons or new external threats. It is beyond the scope of this study to consider the preceding possibilities.

The third measurement for military influence in civil-military relations is dichotomous as well, with one more condition added – an average annual growth rate increase as a threshold for ascending military power. If both states in a dyad experience an annual growth rate increase in their military expenditure in a dyad-year greater than an average annual growth rate increase (*not* decrease) through their full range of dyad-years, the dyad is recorded as '1'; if not, the score is '0'. Hereafter this version is referred as *increased above-average military expenditure (IAAMEAB)*. For example, if the annual growth rate increase of military expenditure in a dyad is a 20 percent in 1990 and the average annual growth rate increase of military expenditure in a dyad is 15 percent for all dyad-years from 1886 to 1992 (i.e., the annual growth rate increase of a 20 percent is greater than the average annual growth rate increase of 15 percent in the data set as whole), the dyad is recorded as '1' in 1990.

Although the civil-military relations variable utilizes military expenditure as the *degree of influence*, it should be noted that the operationalization does not rely on the number of dollars of military expenditure, but instead uses its increase or decrease in annual rate or status (i.e., a dichotomy) to identify the direction of military leaders' relative influence. While the first and second measurements are relatively simple and take into account fluctuations or shifting directions in change of military expenditure, the third measurement introduces the threshold of an average annual growth rate to distinguish, in a more strict sense, relative change in military power from the simple degree of influence in each dyad-year. In other words, the *combined annual growth rate for military expenditure (CAGRMEAB)* is a one-dimensional measurement, using an

annual growth rate. The *increased annual growth rate of military expenditure (IAGRMEAB)* is a two-dimensional measurement, combining an annual growth rate with shifting directions. The *increased above-average military expenditure (IAAMEAB)* is a three-dimensional measurement, incorporating an annual growth rate, shifting directions and threshold. Since the third measurement for civil-military relations builds in an annual growth rate and more rigorously derived dichotomized values, it should set the highest and perhaps most appropriate bar for statistical testing in the next chapter.

Military expenditure data come from Bennett and Stam's (2000b) data set, *EUGene* (i.e., *Expected Utility Generation and Data Management Program*, version 2.10).[9] Bennett and Stam's military expenditure data originally come from the 1993 update to the Correlates of War (COW) National Capabilities data file, which is used widely in the study of international conflict. Since military expenditure is recorded as a nominal value (i.e., not inflation-adjusted), it is converted into a real value using Robert Sahr's Inflation Conversion Factors for 1700 to Estimated 2010.[10] Consumer Price Index (CPI) for 2000 is the base year.

Military manpower system is a dichotomous variable. The variable is coded as '1' if both states in each dyad-year adopt a conscription system for the active duty military personnel; it is '0' otherwise. Since students of international conflict, crisis and war have paid little attention to the impact of military manpower system on MIDs, there has been no manpower data collection over an extended spatial and temporal domain.

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[9] The webpage address is http://www.eugenesoftware.org/. For some thoughtful ideas about the range of application for the military expenditure data, see Diehl and Crescenzi (1998: 116).

[10] See http://www.orst.edu/dept/pol_sci/fac/sahr/sahr.htm for an explanation of this method.

Despite the data collection constraint, the following two sources, to my knowledge, are most comprehensive and representative with respect to each state's military manpower system: Horeman and Stolwijk (1998), *Refusing to bear Arms: A World Survey of Conscription and Conscientious Objection to Military Service*, and Prasad and Smythe (1968), *Conscription: A World Survey: Compulsory Military Service and Resistance to It*.[11]

Singer and Small (1966), and Small and Singer's (1973) diplomatic importance scores are used to assess diplomatic channels. Small and Singer measure the number and rank of the diplomatic missions accredited and dispatched to each capital city. A normalized score ranging from '1' to '100' is assigned once per half-decade on that basis. As Small and Singer (1973: 588) suggest, considering the generally slow rate of change in the normalized scores, the same score for each of the following years is used. In this study, each normalized score is rank-ordered from '1' to '4' by quartile to ameliorate the discrete dispersion between small and large normalized scores as well as to reduce statistical variations in model fitting. The dyad-year is recorded as a smaller value out of the two ranked-ordered values (i.e., Dixon's (1993, 1994) "weakest link" approach, which measures the impact of fewer diplomatic channels on interstate disputes).[12]

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[11] The following sources have been used for cross-checking and clarifying some ambiguities about military manpower data with respect to reliability and validity: International Institute for Strategic Studies (1970-1971 through 2000/01), Anderson (1976), Keegan (1979, 1983), Anderson and Honegger (1982), Stockholm International Peace Research Institute (1985), Pope (1987) and Schumacher, Sevrens, O'Donnell, Torrence and Carney (1989).

[12] See also the Inter-University Consortium for Political and Social Research (ICPSR) Study Number 5025 and the ICPSR Study Number 5026. The web addresses are http://www.icpsr.umich.edu:8080/ABSTRACTS/05025.xml?format=ICPSR and http://www.icpsr.umich.edu:8080/ABSTRACTS/05026.xml?format=ICPSR, respectively.

I utilize Van Belle's (2000: 137-148) global press freedom data collection. Van Belle provides a five-category coding scheme for the press freedom of states identified by the Polity III data set. The media openness variable is dichotomous. The variable is coded as '1' if both states in each dyad-year have free or imperfectly free press or news media is capable of functioning as an area of political competition or debate (i.e., categories 1 and 2); it is '0' otherwise (i.e., the press and news media are either restricted or controlled by the government, or no press and news media, categories 0, 3 and 4).[13]

4.3 Building Logit and Neural Network Models

I test the four hypotheses by replicating a standard and prominent research design from the democratic peace literature. Oneal and Russett (1999c) has emerged as one of the most frequently replicated studies, so it will be used to provide the foundation for analysis here.[14] This also will establish the significance of the empirical findings relative to those of Oneal and Russett's (2001) overall program of research, most notably *Triangulating Peace: Democracy, Interdependence, and International Organization*,[15] as

[13] The data are available from 1948 to 1994. For more details about this data, see Van Belle (2000: 137-148). I am so grateful to Van Belle who kindly provided me with the data.

[14] It should be noted that Oneal and Russett's (1999c) article is, in turn, a replication and extension of their earlier prominent article on democracy, independence and peace (Oneal and Russett 1997). Oneal and Russett (1999c), however, adds another important Kantian peace element: international organizations. Furthermore, Oneal and Russett extend the study period and examine what neorealists might call system-level effects on militarized interstate disputes. While Oneal and Russett's studies are not the only ones available, their clarity and prominence combine to make this a reasonable choice in providing a basis for further research.

[15] While Oneal and Russett (1999c) include all dyads in their analyses, Russett and Oneal's (2001) recent book limits to the political relevant dyads only. Thus, for broader theoretical and empirical application, I choose to replicate Oneal and Russett (1999c).

well as reduce bias that might inadvertently appear in the research program (Gartzke 1997: 13, 51).

Oneal and Russett's (1999c) research design is familiar to students of international conflict, so I briefly summarize only the three Kantian factors: democraticness, economic interdependence and joint membership in international organizations. Democraticness assumes the "weakest link" (Dixon 1993, 1994): the score for the less democratic state in a dyad is taken to be the stronger determinant of how interactions will proceed. Hence, the more democratic that state is, the more constrained it will be from engaging in a dispute and therefore the more peaceful the dyad.[16] Economic interdependence also assumes the "weakest link": the score for the less interdependent state in a dyad is taken to be the stronger determinant of interstate disputes. Hence, the more interdependent that state is, the more constrained it will be from engaging in a dispute and therefore the more peaceful the dyad. The international organization variable is measured by the number of joint memberships. Hence, the more joint memberships in intergovernmental organizations, the more constrained two states will be from engaging in a dispute and therefore the more peaceful the dyad.

The other five variables in the neo-Kantian or democratic peace model from Oneal and Russett (1999c) are 1) national capability ratio (i.e., to control for power preponderance); 2) whether the members of each dyad are allied; 3) non-contiguity; 4)

[16] It should be re-emphasized that Oneal and Russett's version of democraticness treats the degree of constraint on the chief executive as a main determinant of the conventional 'democracy minus autocracy' scores. In footnote 30, Oneal and Russett (1999c: 12) acknowledge this measurement drawback of the democrticness variable from the Polity III data set when observing that their democracy minus autocracy score does not reflect "the relative importance of its components [which are] unstable over time". For more detailed discussion, see Gleditsch and Ward (1997) and Munck and Verkuilen (2002).

geographical proximity; and 5) whether each member of the dyad is a minor power. These five variables are expected to decrease the likelihood of MID involvement and generally have obtained statistical significance in previous studies.

Since Oneal and Russett (1999c) present MID involvement rather than initiation as their dependent variable,[17] I choose MID involvement as the dependent variable for purposes of comparison. All independent variables are lagged by one year, so they are not affected by a dispute to be explained.

The following equation is based on the interactive foreign policy decision-making process model in Figure 3-2-1 and Oneal and Russett's (1999c) democratic peace model:

$$Y_t=\alpha+\beta_1X_{1t-1}+\beta_2X_{2t-1}+\beta_3X_{3t-1}+\beta_4X_{4t-1}+\beta_5X_{5t-1}+\beta_6X_{6t-1}+\beta_7X_{7t-1}+\beta_8X_{8t-1}+\beta_9X_{9t-1}+\beta_{10}X_{10t-1}+\beta_{11}X_{11t-1}+\beta_{12}X_{12t-1}+\varepsilon$$

Here,

Y_t: interstate disputes involvement

X_{1t-1}: civil-military relations

X_{2t-1}: conscription

X_{3t-1}: diplomatic channels

X_{4t-1}: media openness

X_{5t-1}: democraticness

X_{6t-1}: economic interdependence

X_{7t-1}: international organizations

[17] According to Oneal and Russett (1999c: 23), after having tested both MID involvement and initiation, they find that both dependent variable measurements have "produced nearly identical results." Oneal and Russett (1999c) report the MID involvement results only in their article.

X_{8t-1}: capability ratio

X_{9t-1}: allied states

X_{10t-1}: non-contiguous states

X_{11t-1}: distance

X_{12t-1}: only minor powers presence

ε: error term

The equation combines the two civil-military dynamic variables (i.e., civil-military relations and conscription) and the two political communication variables (i.e., diplomatic channels and media openness) with the eight variables from Oneal and Russett (1999c: 21)'s first equation.

Table 4-3-1 presents the twelve hypotheses that appear in the equation. With a special emphasis on civil-military dynamics and political communications, this study purports to test the twelve preceding hypotheses about international disputes during the period from 1886 to 1992 at the dyadic level. Data-related constraints limit empirical testing of (a) the civil-military relations hypothesis, plus Oneal and Russett's (1999c) eight hypotheses, to the period from 1886 to 1992; (b) the civil-military relations and conscription hypotheses to the period from 1886 to 1992; (c) the civil-military relations, conscription and diplomatic channels hypotheses to the period from 1886 to 1974; and (d) the civil-military relations, conscription, diplomatic channels and media openness hypotheses to the period from 1950 to 1974.[18]

[18] The data-related constraints are due to diplomatic channels, whose data are available only up to 1974 at this moment, and to media openness, whose data exist from 1948 to 1994 only. I have

(Table 4-3-1 about here)

Table 4-3-2 summarizes the operationalization rule for all of the variables. As in Oneal and Russett's (1999c: 22) results, the logistic regression model is tested in four different ways during the various periods in the next section: (1) all dyads, using the generalized estimating equation (GEE) method;[19] (2) all dyads, using the logistic model with peace years correction;[20] (3) all dyads during the pre-Cold War period, using the GEE method; and (4) politically relevant dyads, using the GEE method.

(Table 4-3-2 about here)

Finally, to better uncover structural features of causality in militarized interstate disputes, neural network modeling is utilized. Beck, King and Zeng (2000)'s Bayesian neural network model applies to the politically relevant dyads during the period from 1951 to 1974.[21] Although this dissertation is not a methodological probe, some explanations about neural network modeling are in order, to help facilitate the following data analysis in the next chapter. Figure 4-3-1 compares simple model fittings among

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searched for an updated version by accessing the Scientific Study of International Politics (SSIP) e-list, ssip@list.vanderbilt.edu, but have not found any work in progress on diplomatic channels.

[19] See Diggle, Liang and Zeger (1994: 142-145 and 151-152) and Zorn (2001) for explanation of this technique.

[20] On use of peace years correction, see Beck and Katz (1995), Beck, Katz and Tucker (1998) and Beck (2001).

[21] Beck, King and Zeng (2000) have introduced Bayesian neural network model to improve quantitative studies of international conflict, crisis and war where the logistic regression model has been prevailed despite its analytical limitations. On neural network model and its applications in political science, see Cimbala (1987), Hertz, Krogh and Palmer (1991), Hudson (1991), Huntley (1991), Kimber (1991), Schrodt (1991, 2000), MacKay (1992a, 1992b, 1992c, 1992d), Neal (1992, 1993, 1996), Fausett (1994), Werbos (1994), Bishop (1995), Domany, Hemmen and Schulten (1996), Ripley (1996), Zeng (1999, 2000), Bearce (2000), Pinto and Neal (2001) and NeuroBook II in http://www.spss.com/neuro/.

linear regression, logistic regression and neural network, which shows the statistical relation between two variables, X and Y. Given the randomly scattered observations (i.e., the star marks), each line attempts to represent a different model fitting: 1) the solid line for linear regression, 2) the dotted line for logistic regression and 3) the bold solid line for neural network. It is apparent that the linear regression model fitting does not properly represent statistical relationship between X and Y in the scatter plot since the scattered marks show a non-linear pattern. The logistic regression model fitting using a S-shaped curve is closer to the seemingly non-linear relationship between X and Y than the linear, but not accurate enough. The neural network model fitting reflects the very close, non-linear relationship between X and Y in the scatter plot. That is, neural network model is designed to fit or find non-linear casual structure regardless of the fact that the value of dependent variable is continuous or discrete (e.g., dichotomous).

(Figure 4-3-1 about here)

As in Beck, King and Zeng (2000: 24-26)'s formal presentation, the three simple model fittings can be extended to complex muliti-dimensional expressions in the following three hierarchical steps for π_i, the probability of an international conflict, and $X_i = \{1, X_{1i}, X_{2i}, ..., X_{ki}\}$, a vector of a constant term and k independent variables, where i = 1, 2,..., N. The linear relationship between π_i and X_i in a matrix expression can be written in $\pi_i = linear(X_i)$; the logistic relationship in $\pi_i = logit(linear(X_i))$; and the neural network relationship in $\pi_i = logit(linear(logit(linear(X_i))))$. The only difference between logit and neural network model is to fit in the 'closer' shape of the non-linear curve as depicted in Figure 4-3-1. In this sense, as Beck, King and Zeng (2000) claim,

neural network model is a methodological improvement over linear and logit models in terms of model fitting.

Based on the interactive foreign policy decision-making process model depicted in Figure 3-2-1, this chapter has described the research design by presenting hypotheses, measurement and data, and logit and neural network models, which provides the basis for empirical analysis in the next chapter.

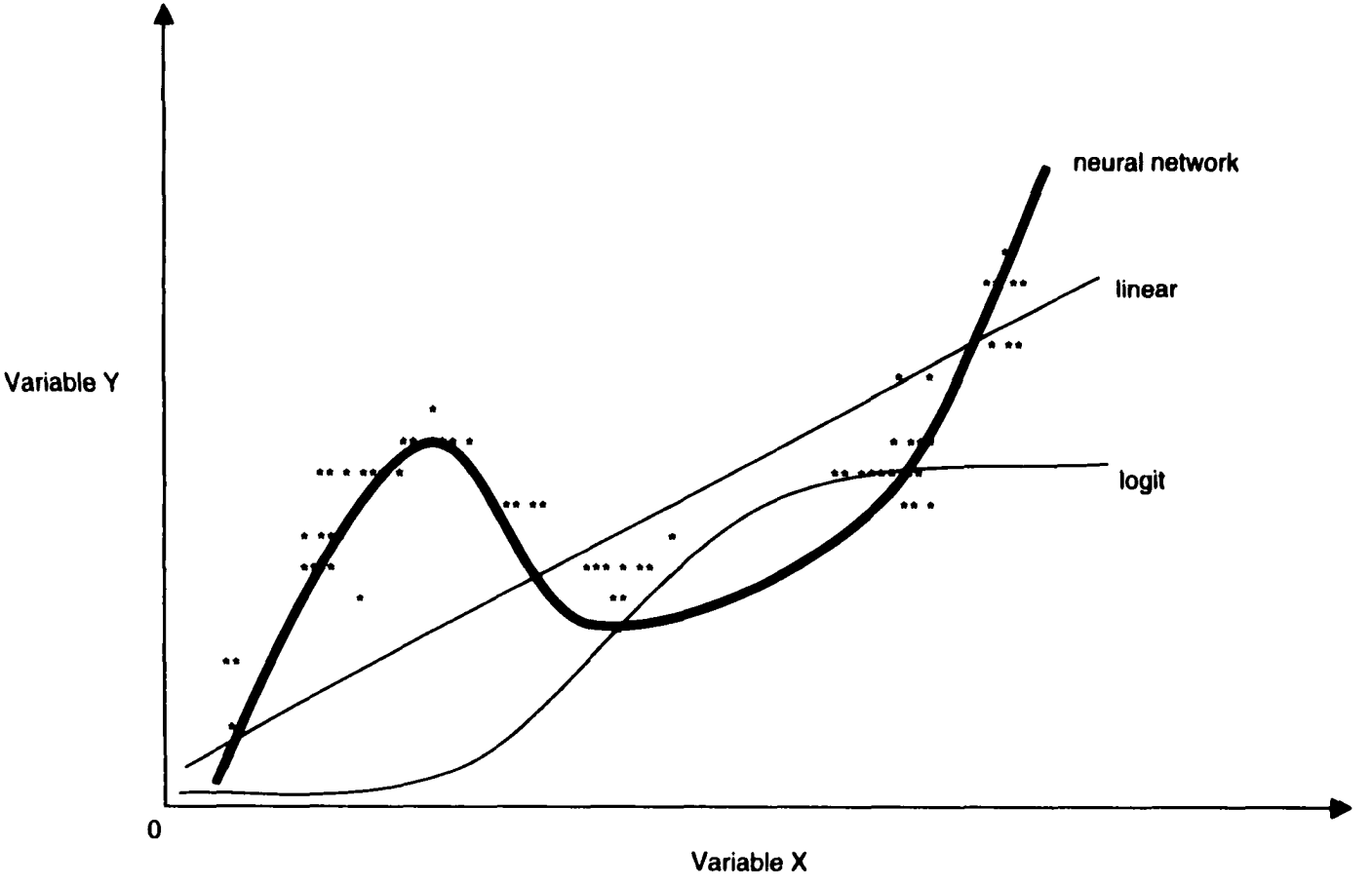
Table 4-3-1 Four New and Eight Replicating Hypotheses

	Variable	Hypothesis
New Hypotheses	Civil-military relations (H_1)	As the relative influence of the military in civil-military relations increases for a dyad, the likelihood of involvement in militarized interstate disputes also increases for that dyad.
	Conscription system (H_2)	Dyads composed of states with (without) a conscription system are more (less) likely to become involved in militarized interstate disputes.
	Diplomatic channels (H_3)	Dyads composed of states with a lower (higher) number of diplomatic missions are more (less) likely to become involved in militarized interstate disputes.
	Media openness (H_4)	Dyads composed of states with (without) free or imperfectly free media openness are less (more) likely to become involved in militarized interstate disputes.
Replicating Hypotheses from Oneal and Russett (1999c)	Democraticness	The more democratic the less democratic state, the more constrained it will be from engaging in a dispute and the more peaceful the dyad.
	Economic interdependence	The more interdependent the less economically dependent state, the more constrained it will be from engaging in a dispute and the more peaceful the dyad.
	International organizations	The more joint memberships in intergovernmental organizations, the more constrained two nation-states will be from engaging in a dispute and the more peaceful the dyad.
	Capability ratio	The more preponderent the military capabilities, the more constrained two states will be from engaging in a dispute and the more peaceful the dyad.
	Allied states	If two states are militarily allied, they are less likely to engaging in a dispute.
	Non-contiguous states	If two states are not contiguous, they are less likely to engaging in a dispute.
	Distance	The farther apart two states are, the less the militarized disputes.
	Only minor powers presence	If there is no major power involvement, the less the militarized disputes.

Table 4-3-2 Operationalization Rules for Variables

	Variable	Operationalization Rules
New Hypotheses	1st Civil-military relations (H_1)	Recording the *combined annual growth rate for military expenditure (CAGRMEAB)* in a dyad-year (e.g., 15 %)
	2nd Civil-military relations (H_1)	1 if state in a dyad-year have the *increased annual growth rate of military expenditure (IAGRMEAB)*, 0 otherwise
	3rd Civil-military relations (H_1)	1 if state in a dyad-year have the *increased above-average military expenditure (IAAMEAB)*, 0 otherwise
	Conscription system (H_2)	1 if states in a dyad-year have conscripted soldiers, 0 otherwise
	Diplomatic channels (H_3)	Recording a smaller score between two scores from 1 to 4 in a dyad-year
	Media openness (H_4)	1 if states in a dyad-year have open media, 0 otherwise
Replicating Hypotheses from Oneal and Russett (1999c)	Democraticness	Recording a smaller score from -10 to 10 in a dyad-year
	Economic interdependence	Recording a smaller score in percentage in a dyad-year
	International organizations	Recording the total number of a joint membership in international organizations in a dyad-year
	Capability ratio	Recording the natural logarithm of the ratio of the stronger state's military capability to that of the weaker in a dyad-year
	Allied states	1 if states in a dyad-year are allied, 0 otherwise
	Non-contiguous states	1 if states in a dyad-year are non-contiguous, 0 otherwise
	Distance	Recording the natural logarithm of the distance between states in a dyad-year
	Only minor powers presence	1 if states in a dyad-year are minor powers, 0 otherwise

Figure 4-3-1 Linear, Logit and Neural Network Model Fitting



CHAPTER FIVE

EMPIRICAL RESULTS I: ACCOUNTING FOR MILITARIZED INTERSTATE DISPUTES (MIDs)

This chapter consists of two sections, each of which conveys the results of data analysis in accounting for MID involvement. The first section has three subsections, which present a series of logistic regression models that preserve continuity with the general approach taken in the field: 1) the civil-military relations variable is measured in the *increased above-average military expenditure (IAAMEAB)*; 2) the civil-military relations variable is measured in the *increased annual growth rate of military expenditure (IAGRMEAB)*; and 3) the civil-military relations variable is measured in the *combined annual growth rate for military expenditure (CAGRMEAB)*. The second section of the analysis follows up on the potentially pathbreaking approach put forward by Beck, King and Zeng (2000) with respect to the application of neural networks to the study of international conflict, crisis, and war. Taken together, the empirical results from the two sections of the analysis should provide a good sense of whether civil-military dynamics and political communications are relevant in terms of quadrangulating the peace.

5.1 Logistic Regression Analysis

5.1.1 *Increased Above-Average Military Expenditure (IAGRMEAB)*[1]

Tables 5-1-1-1 through 5-1-1-4 present the empirical results based on the logistic regression model in the previous chapter.[2] Given the data availability discussed earlier, each table consists of a somewhat different arrangement of variables and time period. Oneal and Russett's (1999c) eight variables appear as a 'standard menu' in each table. Table 5-1-1-1 shows the effect of civil-military relations during the period from 1886 to 1992; Table 5-1-1-2 focuses on the civil-military dynamics (i.e., civil-military relations and conscription) during the period from 1886 to 1992; Table 5-1-1-3 conveys the civil-military dynamics and diplomatic channels during the period from 1886 to 1974; and Table 5-1-1-4 includes civil-military relations and political communications (i.e., diplomatic channels and media openness) during the period from 1950 to 1974. Each table reveals theoretically stimulating results: *each of the four additional variables, to one extent or another, is associated with the likelihood of MID involvement.* The following data analysis focuses mainly on the four new variables and the three Kantian peace variables – the main theoretical interests of this research.

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[1] As a preliminary check on the results, bivariate analysis using Spearman's rank-order correlations shows positive relationships for civil-military relations (i.e., $\rho = 0.011$ at $p < 0.001$, N = 134,634), conscription (i.e., $\rho = 0.0205$ at $p < 0.001$, N = 122,137) and diplomatic channels (i.e., $\rho = 0.0508$ at $p < 0.001$, N = 57,221) with involvement in MIDs. A negative relationship appears for media openness (i.e., $\rho = -0.0435$ at $p < 0.001$, N = 37,452) with involvement in MIDs. It should be noted that, since each number of observations is large, the correlation coefficients are small, but still statistically significant. The p-levels are at best advisory, of course, since the results are based on a population rather than a sample of cases.

[2] *Stata Statistical Software* (version 7.0) is used for the replications and empirical tests. All of the replications are very close to Oneal and Russett's (1999c: 22) results and are shown in Table 5-0A in APPENDIX.

Table 5-1-1-1 presents the empirical results with a special emphasis on the civil-military relations hypothesis for 1886 to 1992. As shown for GEE in the second column, the civil-military relations variable (as measured in the *increased above-average military expenditure (IAAMEAB)*) is statistically significant at the 0.001 level, indicating that, with greater military spending (and, by implication, the more powerful the military leadership), the greater is the likelihood of MID involvement. While statistically significant at the 0.001 level, the coefficient (-0.0675) of the democraticness variable turns out to be a little smaller than the replicated one (-0.0681),[3] as does the coefficient of the economic interdependence variable (-59.895 versus -61.511). The coefficient of the international organizations variable is not statistically significant.

(Table 5-1-1-1 about here)

The third column shows the results based on Beck, Katz and Tucker's (1998) peace years correction model, which are very similar to those of the GEE model except for the joint membership in international organizations. The result for the international organizations hypothesis turns out to be *counterintuitive* and significant at the 0.001 level; joint membership in international organizations seems to *increase* the likelihood of MID involvement.[4] The peace years correction model reports a pseudo-R^2 that tells how well the model performs in an overall sense – 28.6 percent for MID involvement, which is very slightly higher than the replicated version, at 28.5 percent.

The fourth column presents the results for the multipolar period after 1886 and before the Cold War, which are similar to those of the GEE model. While the civil-

[3] For the replicated results, see Tables 5-1A through 5-3A in APPENDIX.

[4] This result concurs with that reported by Oneal and Russett (1999c: 22).

military relations, democraticness and economic interdependence hypotheses are supported, the international organizations hypothesis is not.

The results in the fifth and final column of Table 5-1-1-1, for politically relevant dyads, are similar to those of the GEE model. It is intriguing that the civil-military relations variable is statistically significant at the 0.05 level, but its significance level is weaker than those (i.e., at the 0.001 level) in columns 2, 3, and 4. Overall, the empirical results show that the civil-military relations variable is a good candidate for complementing Oneal and Russett's (1999c) triangular peace.

Table 5-1-1-2 presents the empirical results with a special emphasis on civil-military dynamics (i.e., civil-military relations and conscription) during the period from 1886 to 1992. As shown in the GEE results from the second column, the civil-military relations variable is statistically significant at the 0.001 level, indicating that, with the military ascendant, the likelihood of MID involvement becomes greater. The conscription variable is not supported. Both the democraticness and economic interdependence variables are statistically significant at the 0.001 level. It should be noted that the coefficient of the international organizations variable turns out to be statistically insignificant.

(Table 5-1-1-2 about here)

The third column shows the results based on Beck, Katz and Tucker's (1998) peace years correction model. Both civil-military relations and conscription variables are statistically significant at the 0.001 level. It can be inferred that the increased influence of military leaders over civilian ones as well as adopting a conscription system lead to the

likelihood of MID involvement. The democraticness and economic interdependence variables are supported. The international organizations variable turns out to be counterintuitive and statistically significant at the 0.001 level; joint membership of international organizations seems to *increase* the likelihood of MID involvement. The peace years correction model reports a slightly higher pseudo-R^2 values: 29.2 percent versus 28.9 percent for the replicated version.

The fourth column shows results from the multipolar period after 1886 and before the Cold War, which are similar to those of the GEE model. While the civil-military relations, democraticness and economic interdependence hypotheses are supported, the conscription and international organization hypotheses are not.

The politically relevant dyads in the fifth and final column of Table 5-1-1-2 produce interesting results. Both civil-military relations and conscription turn out to be statistically insignificant. It can be speculated that the behavior of politically relevant dyads is somewhat different from that of dyads in general. One likely explanation for the lack of a connection with civil-military relations is that the hypothesis about hawkish military and dovish civilian leaders and MID involvement may not be applicable when restricted to this domain. As Huntington (1957) and Janowitz (1960) point out, the hypothesized roles for civilian and military leaders within major powers (i.e., advanced industrial countries) might have been switched or fused alongside with political institutionalization and development. In addition, due to high military preparedness and responsiveness, major powers might easily become involved in MIDs regardless of the type of military manpower system. Thus it seems that civil-military dynamics (i.e.,

degree of civilian versus military influence and conscription) may not affect the likelihood of MID involvement for politically relevant states. Yet it should be noted that the civil-military relations variable of the politically relevant dyads in Table 5-1-1-1 indicated a statistical significance at the 0.05 level. The three Kantian peace hypotheses are supported at the 0.001, 0.05 and 0.05 level, respectively. Overall, the empirical results show that both civil-military relations and conscription variables are good candidates for complementing Oneal and Russett's (1999c) triangular peace.

Table 5-1-1-3 presents the empirical results with a special focus on both civil-military dynamics (i.e., relative civil versus military influence and conscription) and diplomatic channels for 1886 to 1974. As shown for the GEE in the second column, the civil-military relations variable is statistically significant at the 0.001 level, indicating that, with a more powerful military, the likelihood of MID involvement becomes greater. The conscription variable fails to be statistically significant. Although the diplomatic channels variable is statistically significant at the 0.01 level, it turns out to be *counterintuitive*, indicating that greater diplomatic channels mean a *greater* likelihood of MID involvement. It seems that political talks through diplomatic channels, such as an ambassador, envoy or minister, chargé d'affairs or mediators, may be inclined toward 'cheapness.' Or, instead, the presence of numerous diplomatic channels might lead members of a dyad toward overconfidence about their power status in the international system, making involvement in MIDs more likely. Another possibility is that, as some students of international conflict point out, Small and Singer's (1966, 1973) diplomatic importance scores might not be fully accurate. Democraticness and economic

interdependence as well as international organizations are statistically significant at the 0.001, 0.001 and 0.01 level, respectively. It is worth noting that, in the two previous GEE models in the second column in Tables 5-1-1-1 and 5-1-1-2, the coefficient of the international organizations variable shows no consistent connection, so empirical results seem to vary with model specification.

(Table 5-1-1-3 about here)

The third column shows the results based on Beck, Katz and Tucker's (1998) peace years correction model, which are very similar to those of the GEE model except for the conscription variable. Since the conscription variable turns out to be statistically significant at the 0.01 level, it appears that, when a conscription exists in both states in a dyad, the likelihood of MID involvement increases. The pseudo-R^2 shows that the model explains 26.8 percent of the variation in MID involvement, which is a little better than the replicated version, at 25.7 percent.

The fourth column shows the results during the multipolar period after 1886 and before the Cold War. While the civil-military relations, democraticness and economic interdependence hypotheses are supported, the conscription, diplomatic channels and international organizations hypotheses are not.

Results for politically relevant dyads in the fifth and final column of Table 5-1-1-3 are very similar to those of the GEE model. While the civil-military relations, diplomatic channels, democraticness, economic interdependence and international organizations variables are supported in one way or another, the conscription variable is not. Overall, however, the empirical results show that both civil-military relations and

conscription as well as diplomatic channels variables are good candidates for complementing Oneal and Russett's (1999c) triangular peace.

Table 5-1-1-4 presents very stimulating empirical results with respect to both civil-military dynamics and political communications as well as the three Kantian peace variables for 1950 to 1974. This data analysis reflects the complete interactive foreign policy decision-making process model in Figure 3-2-1. Based on the empirical testing during the period from 1950 to 1974, Table 5-1-1-4 shows the importance of media openness, *not* democraticness (as measured in the Polity data), in accounting for the likelihood of MID involvement.

(Table 5-1-1-4 about here)

As shown in the third column, where the GEE results appear, both the civil-military relations and conscription variables turn out to be statistically insignificant; the diplomatic channels is statistically significant at the 0.05 level, but *counterintuitive*; media openness is statistically significant at the 0.01 level. It seems that, as hypothesized, dyads composed of states with free or imperfectly free media openness are less likely to become involved in MIDs. While both democraticness and economic interdependence are not statistically significant, the international organization variable is statistically significant at the 0.001 level. It should be emphasized that, while democraticness fades away, media openness comes to the forefront in explaining the likelihood of MID involvement. It should be emphasized that these findings do not falsify the democratic peace; instead, the results direct our attention to the necessity of sharpening (or refining) the research program because media openness rather than other

structural and cultural aspects of democracy has the most pacific effect on international conflict.[5]

The fifth column shows the results based on Beck, Katz and Tucker's (1998) peace years correction model. Among the most theoretically interesting variables, both conscription and media openness variables are statistically significant at the 0.05 and 0.01 level, respectively. The diplomatic channels variable is statistically significant at the 0.05 level, but *counterintuitive*. None of the three Kantian peace hypotheses is empirically supported. The peace years correction model reports a pseudo-R^2, with the model explaining 43 percent of MID involvement, once again a bit better than the replicated version, at 41.4 percent.

The politically relevant dyads in the last column reveal interesting results. Civil-military dynamics (i.e., civil-military relations and conscription) turn out to be statistically insignificant. Political communications (i.e., diplomatic channels and media openness) are statistically significant, but the diplomatic channels variable is *counterintuitive*. Among the three Kantian peace hypotheses, the one about international organizations is supported. Overall, the empirical results show that, irrespective of model specification and methods, the media openness variable is very consistent in accounting for the likelihood of MID involvement.

After looking into the impact of media openness on MID involvement in the logistic regression model, some diagnostic tests for muliticollinearity are in order. The

[5] Students of comparative politics have argued that liberal democracy based on civil liberties including media openness is superior to electoral democracy based on voting rights and chief executive constraints. This line of reasoning already is well-developed in Mueller's (1992) qualitative analysis of the development of democracy.

independent variables must be evaluated carefully in this context because muliticollinearity might have 'washed out' the effects of the other important variables, including democraticness. For example, it could be argued that, because media openness and civilian supremacy are associated with democracy (i.e., democracies tend to have a more open media and maintain civilian control over the military), they are just derivatives of democraticness. I do not agree with that view on two grounds.

First of all, they do not 'steal' much variance from one another, for each observed value of democraticness (i.e., choosing only one state's information in a dyad by the weakest link assumption) is *not* the same as that of media openness or civilian supremacy (i.e., choosing both states' information). More importantly, while Oneal and Russett's (1999c) democraticness is based on structural factors, especially on the degree of constraint on the chief executive from the Polity III data (see Gleditsch and Ward 1997; Munck and Verkuilen 2002), media openness is conceptualized on the basis of freedom of mass media and civilian supremacy is derived from the degree of influence of civilian leaders' input into military expenditure allocation. In a word, each variable, in a different way, is conceptualized, measured and aggregated, and then put into the model.

Secondly, two standard diagnostic tests below show no indication of severe multicollinearity (see Gujarati 1995; *SAS/STAT® User's Guide, Version 7-1* 1999; Stata Reference Manual Set 2001). The first test is based on the R^2 statistic. According to Menard (1995: 65-67), when multicollinearity is suspected, the independent variable of concern should be regressed on all other independent variables in a standard ordinary least squares (OLS) regression to obtain R^2 values. The R^2 will tell us how much of the

variance in that independent variable is explained by the others. If the R^2 values reach the 0.80 benchmark, problematic multicollinearity exists. As shown in Table 5-1-1-5, however, none of R^2 values – for both simplest, all dyads and peace years correction as well as politically relevant dyads – reaches beyond the 0.80 benchmark. Thus no serious multicollinearity problem exists between independent variables. The highest R^2 value for the simplest instance, all dyads, is 0.62 when joint membership in international organizations is regressed on the other eleven independent variables (including democraticness and media openness) in a standard OLS regression. The highest R^2 value for peaceyears correction is 0.64 when joint membership in international organizations is regressed on the other eleven independent variables in a standard OLS regression. The highest R^2 value for politically relevant dyads is 0.73 when joint membership in international organizations is regressed on the other eleven independent variables in a standard OLS regression.

(Table 5-1-1-5 about here)

The second diagnostic test is based on eigenvalues and the condition index. (I will not discuss the meaning of eigenvalues here, for that would take us into topics in matrix algebra that are beyond the scope of this chapter.) The condition index is derived from the eigenvalues. The condition index is the square root of the ratio of the largest eigenvalue to each individual eigenvalue. If the condition index exceeds 30, there is severe multicollinearity. Some believe that the condition index is the best available multicollinearity diagnostic (see Belsley, Kuh and Welsch 1980). As shown in Table 5-1-1-5, none of the condition indices – for both simplest, all dyads and peace years

correction as well as politically relevant dyads – is close to 30, indicating that multicollinearity should not be problem.

5.1.2 *Increased Annual Growth Rate of Military Expenditure (IAGRMEAB)*

Table 5-1-2-1 presents the empirical results with a special emphasis on the civil-military relations hypothesis for 1886 to 1992. As shown for GEE in the second column, the civil-military relations variable (as measured in the *increased annual growth rate of military expenditure (IAGRMEAB)*) is statistically significant at the 0.001 level, indicating that, with greater military spending (and, by implication, the more powerful the military leader), the greater is the likelihood of MID involvement. The democraticness variable turns out to be statistically significant at the 0.001 level,[6] as does the economic interdependence variable. The coefficient of the international organizations variable is not statistically significant.

(Table 5-1-2-1 about here)

The third column shows the results based on Beck, Katz and Tucker's (1998) peace years correction model, which are very similar to those of the GEE model except for the joint membership in international organizations. The result for the international organizations hypothesis turns out to be *counterintuitive* and significant at the 0.001 level; joint membership in international organizations seems to *increase* the likelihood of MIDs.[7] The peace years correction model reports a pseudo-R^2 that tells how well the

[6] For the replicated results, see Tables 5-1A through 5-3A in APPENDIX.

[7] This result concurs with that reported by Oneal and Russett (1999c: 22).

model performs in an overall sense – 28.6 percent for MID involvement, which is very slightly higher than the replicated version, at 28.5 percent.

The fourth column presents the results for the multipolar period after 1886 and before the Cold War, which are similar to those of the peace years correction model. The civil-military relations, democraticness and economic interdependence hypotheses are supported, and the international organizations hypothesis is supported, but *counterintuitive*.

The results in the fifth and final column of Table 5-1-2-1, for politically relevant dyads, are similar to those of the GEE model. It is intriguing that the civil-military relations variable is statistically significant at the 0.05 level, but its significance level is weaker than those (i.e., at the 0.001 or 0.01 level) in columns 2, 3, and 4. Overall, the empirical results show that the civil-military relations variable is a good candidate for complementing Oneal and Russett's (1999c) triangular peace.

Table 5-1-2-2 presents the empirical results with a special emphasis on civil-military dynamics (i.e., civil-military relations and conscription) during the period from 1886 to 1992. As shown in the GEE results from the second column, the civil-military relations variable is statistically significant at the 0.001 level, indicating that, with the military ascendant, the likelihood of MID involvement becomes greater. The conscription variable is not supported. Both the democraticness and economic interdependence variables are statistically significant at the 0.001 level. It should be noted that the coefficient of the international organizations variable turns out to be statistically insignificant.

(Table 5-1-2-2 about here)

The third column shows the results based on Beck, Katz and Tucker's (1998) peace years correction model. Both civil-military relations and conscription variables are statistically significant at the 0.05 and 0.001 level, respectively. It can be inferred that the increased influence of military leaders over civilian ones as well as adopting a conscription system lead to the likelihood of MID involvement. The democraticness and economic interdependence variables are supported. The international organizations variable turns out to be counterintuitive and statistically significant at the 0.001 level; joint membership in international organizations seems to *increase* the likelihood of MIDs. The peace years correction model reports a slightly higher pseudo-R^2 values: 29.2 percent versus 28.9 percent for the replicated version.

The fourth column shows results from the multipolar period after 1886 and before the Cold War, which are similar to those of the GEE model. While the civil-military relations, democraticness and economic interdependence hypotheses are supported, the conscription and international organization hypotheses are not.

The politically relevant dyads in the fifth and final column of Table 5-1-2-2 produce interesting results. While civil-military relations is statistically significant at the 0.05 level, conscription turn out to be statistically insignificant. The three Kantian peace hypotheses are supported at the 0.001, 0.05 and 0.05 level, respectively. Overall, the empirical results show that both civil-military relations and conscription variables are good candidates for complementing Oneal and Russett's (1999c) triangular peace.

Table 5-1-2-3 presents the empirical results with a special focus on both civil-military dynamics (i.e., relative civil versus military influence and conscription) and diplomatic channels for 1886 to 1974. As shown for the GEE in the second column, the civil-military relations variable is statistically significant at the 0.001 level, indicating that, with a more powerful military, the likelihood of MID involvement becomes greater. The conscription variable fails to be statistically significant. Although the diplomatic channels variable is statistically significant at the 0.01 level, it turns out to be *counterintuitive*, indicating that greater diplomatic channels mean a *greater* likelihood of MID involvement. Democraticness and economic interdependence as well as international organizations are statistically significant at the 0.001, 0.001 and 0.01 level, respectively. It is worth noting that, in the two previous GEE models in the second column in Tables 5-1-2-1 and 5-1-2-2, the coefficient of the international organizations variable shows no consistent connection, so empirical results seem to vary with model specification.

(Table 5-1-2-3 about here)

The third column shows the results based on Beck, Katz and Tucker's (1998) peace years correction model, which are very similar to those of the GEE model except for the conscription variable. Since the conscription variable turns out to be statistically significant at the 0.01 level, it appears that, when a conscription exists in both states in a dyad, the likelihood of MID involvement increases. The pseudo-R^2 shows that the model explains 26.8 percent of the variation in MID involvement, which is a little better than the replicated version, at 25.7 percent.

The fourth column shows the results during the multipolar period after 1886 and before the Cold War. While the civil-military relations, democraticness and economic interdependence hypotheses are supported, the conscription, diplomatic channels and international organizations hypotheses are not.

Results for politically relevant dyads in the fifth and final column of Table 5-1-2-3 are very similar to those of the GEE model. While the civil-military relations, diplomatic channels, democraticness, economic interdependence and international organizations variables are supported in one way or another, the conscription variable is not. Overall, however, the empirical results show that both civil-military relations and conscription as well as diplomatic channels variables are good candidates for complementing Oneal and Russett's (1999c) triangular peace.

Table 5-1-2-4 presents very stimulating empirical results with respect to both civil-military dynamics and political communications as well as the three Kantian peace variables for 1950 to 1974. This data analysis reflects the complete interactive foreign policy decision-making process model in Figure 3-2-1. Based on the empirical testing during the period from 1950 to 1974, Table 5-1-2-4 shows the importance of media openness, *not* democraticness (as measured in the Polity data), in accounting for the likelihood of MID involvement.

(Table 5-1-2-4 about here)

As shown in the third column, where the GEE results appear, both the civil-military relations and conscription variables turn out to be statistically insignificant; the diplomatic channels is statistically significant at the 0.05 level, but *counterintuitive*;

media openness is statistically significant at the 0.01 level. It seems that, as hypothesized, dyads composed of states with free or imperfectly free media openness are less likely to become involved in MIDs. While both democraticness and economic interdependence are not statistically significant, the international organization variable is statistically significant at the 0.001 level. It should be emphasized that, while democraticness fades away, media openness comes to the forefront in explaining the likelihood of MID involvement.

The third column shows the results based on Beck, Katz and Tucker's (1998) peace years correction model. Among the most theoretically interesting variables, both conscription and media openness variables are statistically significant at the 0.05 and 0.01 level, respectively. The diplomatic channels variable is statistically significant at the 0.05 level, but *counterintuitive*. None of the three Kantian peace hypotheses is empirically supported. The peace years correction model reports a pseudo-R^2, with the model explaining 43 percent of MID involvement, once again a bit better than the replicated version, at 41.4 percent.

The politically relevant dyads in the last column reveal interesting results. Civil-military dynamics (i.e., civil-military relations and conscription) turn out to be statistically insignificant. Political communications (i.e., diplomatic channels and media openness) are statistically significant, but the diplomatic channels variable is *counterintuitive*. Among the three Kantian peace hypotheses, the one about international organizations is supported. Overall, the empirical results show that, irrespective of model

specification and methods, the media openness variable is very consistent in accounting for the likelihood of MID involvement.

5.1.3 *Combined Annual Growth Rate for Military Expenditure (CAGRMEAB)*

Table 5-1-3-1 presents the empirical results with a special emphasis on the civil-military relations hypothesis for 1886 to 1992. As shown for GEE in the second column, the civil-military relations variable (as measured in the *combined annual growth rate for military expenditure (CAGRMEAB)*) is statistically significant at the 0.001 level, indicating that, with greater military spending (and, by implication, the more powerful the military leader), the greater is the likelihood of MID involvement. The democraticness variable turns out to be statistically significant at the 0.001 level,[8] as does the economic interdependence variable. The coefficient of the international organizations variable is not statistically significant.

(Table 5-1-3-1 about here)

The third column shows the results based on Beck, Katz and Tucker's (1998) peace years correction model. While the civil-military relations hypothesis is not supported, the hypotheses about both democraticness and economic interdependence are. The result for the international organizations hypothesis turns out to be *counterintuitive* and significant at the 0.001 level; joint membership in international organizations seems to *increase* the likelihood of MID involvement.[9] The peace years correction model

[8] For the replicated results, see Tables 5-1A through 5-3A in APPENDIX.

[9] This result concurs with that reported by Oneal and Russett (1999c: 22).

reports a pseudo-R^2 that tells how well the model performs in an overall sense – 28.5 percent for MID involvement, which indicates a moderate degree of explanatory power.

The fourth column presents the results for the multipolar period after 1886 and before the Cold War, which are similar to those of the GEE model except for the international organizations variable. While the civil-military relations, democraticness and economic interdependence hypotheses are supported, the international organizations hypothesis is supported, but *counterintuitive*.

The results in the fifth and final column of Table 5-1-3-1, for politically relevant dyads, are similar to those of the GEE model. It is intriguing that the civil-military relations variable is statistically significant at the 0.01 level, but its significance level is weaker than those (i.e., at the 0.001 level) in columns 2 and 4. Overall, the empirical results show that the civil-military relations variable is a good candidate for complementing Oneal and Russett's (1999c) triangular peace.

Table 5-1-3-2 presents the empirical results with a special emphasis on civil-military dynamics (i.e., civil-military relations and conscription) during the period from 1886 to 1992. As shown in the GEE results from the second column, the civil-military relations variable is statistically significant at the 0.01 level, indicating that, with the military ascendant, the likelihood of MID involvement becomes greater. The conscription variable is not supported. Both the democraticness and economic interdependence variables are statistically significant at the 0.001 level. It should be noted that the coefficient of the international organizations variable turns out to be statistically insignificant.

(Table 5-1-3-2 about here)

The third column shows the results based on Beck, Katz and Tucker's (1998) peace years correction model. While the civil-military relations variable is not statistically significant, the conscription variable is statistically significant at the 0.001 level. It can be inferred that adopting a conscription system leads to the likelihood of MID involvement. The democraticness and economic interdependence variables are supported. The international organizations variable turns out to be *counterintuitive* and statistically significant at the 0.001 level; joint membership in international organizations seems to *increase* the likelihood of MIDs. The peace years correction model reports a slightly higher pseudo-R^2 values: 29.1 percent versus 28.9 percent for the replicated version.

The fourth column shows results from the multipolar period after 1886 and before the Cold War, which are similar to those of the GEE model. While the civil-military relations, democraticness and economic interdependence hypotheses are supported, the conscription and international organization hypotheses are not.

The results for the politically relevant dyads are reported in the fifth and final column of Table 5-1-3-2. While the civil-military relations variable is statistically significant at the 0.05 level, the conscription variable turns out to be statistically insignificant. The three Kantian peace hypotheses are supported at the 0.001, 0.05 and 0.05 level, respectively. Overall, the empirical results show that both civil-military relations and conscription variables are good candidates for complementing Oneal and Russett's (1999c) triangular peace.

Table 5-1-3-3 presents the empirical results with a special focus on both civil-military dynamics (i.e., relative civil versus military influence and conscription) and diplomatic channels for 1886 to 1974. As shown for the GEE in the second column, the civil-military relations variable is statistically significant at the 0.001 level, indicating that, with a more powerful military, the likelihood of MID involvement becomes greater. The conscription variable fails to be statistically significant. Although the diplomatic channels variable is statistically significant at the 0.01 level, it turns out to be *counterintuitive*, indicating that greater diplomatic channels mean a *greater* likelihood of MID involvement. Democraticness and economic interdependence as well as international organizations are statistically significant at the 0.001, 0.001 and 0.01 level, respectively. It is worth noting that, in the two previous GEE models in the second column in Tables 5-1-3-1 and 5-1-3-2, the coefficient of the international organizations variable shows no consistent connection, so empirical results seem to vary with model specification.

(Table 5-1-3-3 about here)

The third column shows the results based on Beck, Katz and Tucker's (1998) peace years correction model, which are very similar to those of the GEE model except for the conscription variable. Since the conscription variable turns out to be statistically significant at the 0.01 level, it appears that, when a conscription exists in both states in a dyad, the likelihood of MID involvement increases. The pseudo-R^2 shows that the model explains 26.8 percent of the variation in MID involvement, which is a little better than the replicated version, at 25.7 percent.

The fourth column shows the results during the multipolar period after 1886 and before the Cold War. While the civil-military relations, democraticness and economic interdependence hypotheses are supported, the conscription, diplomatic channels and international organizations hypotheses are not.

Results for politically relevant dyads in the fifth and final column of Table 5-1-3-3 are very similar to those of the GEE model. While the civil-military relations, diplomatic channels, democraticness, economic interdependence and international organizations variables are supported in one way or another, the conscription variable is not. Overall, however, the empirical results show that both civil-military relations and conscription as well as diplomatic channels variables are good candidates for complementing Oneal and Russett's (1999c) triangular peace.

Table 5-1-3-4 presents very stimulating empirical results with respect to both civil-military dynamics and political communications as well as the three Kantian peace variables for 1950 to 1974. This data analysis reflects the complete interactive foreign policy decision-making process model in Figure 3-2-1. Based on the empirical testing during the period from 1950 to 1974, Table 5-1-3-4 shows the importance of media openness, *not* democraticness (as measured in the Polity data), in accounting for the likelihood of MID involvement.

(Table 5-1-3-4 about here)

As shown in the third column, where the GEE results appear, both the civil-military relations and conscription variables turn out to be statistically insignificant; the diplomatic channels is statistically significant at the 0.05 level, but *counterintuitive*;

media openness is statistically significant at the 0.01 level. It seems that, as hypothesized, dyads composed of states with free or imperfectly free media openness are less likely to become involved in MIDs. While both democraticness and economic interdependence are not statistically significant, the international organization variable is statistically significant at the 0.001 level. It should be emphasized that, while democraticness fades away, media openness comes to the forefront in explaining the likelihood of MID involvement.

The third column shows the results based on Beck, Katz and Tucker's (1998) peace years correction model. Among the most theoretically interesting variables, both conscription and media openness variables are statistically significant at the 0.05 and 0.01 level, respectively. The diplomatic channels variable is statistically significant at the 0.05 level, but *counterintuitive*. None of the three Kantian peace hypotheses is empirically supported. The peace years correction model reports a pseudo-R^2, with the model explaining 43 percent of MID involvement, once again a bit better than the replicated version, at 41.4 percent.

The politically relevant dyads in the last column reveal interesting results. Civil-military dynamics (i.e., civil-military relations and conscription) turn out to be statistically insignificant. Political communications (i.e., diplomatic channels and media openness) are statistically significant, but the diplomatic channels variable is *counterintuitive*. Among the three Kantian peace hypotheses, the one about international organizations is supported. Overall, the empirical results show that, irrespective of model

specification and methods, the media openness variable is very consistent in accounting for the likelihood of MID involvement.

5.2 Neural Network Analysis

Neural network modeling is utilized to better identify evidence of magnitude (by slope) as well as causal structure (by shape) of the occurrence of MID involvement in a graphic presentation. Neural network analysis more effectively represents nonlinear relations among variables and can deal with correlations (i.e., interaction effects) between variables. As Russett and Oneal (2001: 39) point out, militarized disputes result from complex interactions. Individual causal relationships can not be figured out well in isolation. Peace may results from various liberal factors' interactions or overlap among civil-military relations, media openness, democracy, interdependence, etc. which also are influenced by several realist factors such as power preponderance. A neural network model is capable of fully embracing the interactive and non-linear relationships among variables (see Lagazio and Russett *forthcoming*).[10] Moreover, neural network models are designed to help when there is an extremely unequal distribution of response values, such as hundreds of thousands of times more '0's (no dispute) than '1's (dispute). While logit models 'wash out' many small effects with a few large ones, neural network models are "well suited to [such] data with complex, nonlinear, and contingent relationship[s]" (Beck, King and Zeng 2000: 22), as with international conflict, crisis and war.

[10] Thus the multicollinearity issue among independent variables including democraticness, media openness and civil-military relations in the previous logistic regression models is not applicable to neural network models by definition.

As in Beck, King and Zeng's (2000) presentation, Bayesian "backpropagation" selects 12 nodes in the input layer, 4 nodes in the hidden layer and 1 node in the output layer, and is applied to politically relevant dyads only during the period from 1950 to 1974.[11] The model produces the optimum value of root mean square (RMS) error of 0.1974 in the training data set. Increasing the number of nodes in the hidden layer (i.e., what Beck, King and Zeng (2000) called "M") does not improve the model's performance.[12] It should be noted that, unlike the logistic regression model, the neural network model does not provide a statistical significance test for each independent variable.[13] As with logistic regression analysis, the neural network analysis focuses mainly on the civil-military dynamics, political communications and three Kantian peace

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[11] *Neural Connection® 2.1* is the software used for the neural network modeling; its application is explained at greater length in Beck, King and Zeng (2000). *Neural Connection® 2.1* is a window version developed by *SPSS Inc.* Despite its superb performance, one drawback should be mentioned: the upper limit on data is 15,000 observations. This limits the neural network modeling to the politically relevant dyads (N = 8,386) only. For more detailed information about the neural network analysis, see *Neural Connection® 2.0: User's Guide* (1997), *Neural Connection® 2.0: Applications Guide* (1997), and *Neural Connection® 2.1: Update* (1999).

[12] As in Beck, King and Zeng (2000), I have experimented with the issue of in-sample and out-of-sample. For example, I randomly divided the data into a training set (80%) to fit the model, and a validation set (10%) as well as a test set (10%) to confirm the performance (i.e., goodness of fit) of the trained model. The results, where the RMS error is 0.1972 in the training set, 0.1939 in the validation set, and 0.2028 in the testing set, are very similar to those reported in this study and is shown in Figures 5-1-1A and 5-1-2A in APPENDIX. In this research, I choose to report the results based on the training data during the period from 1950 to 1974 as a replacement for that from the randomized one to facilitate comparison with those from the previous logistic regression models, which cover 1950 to 1974.

[13] The lack of statistical significance tests in neural network model is not addressed by Beck, King and Zeng (2000). Given the usual focus in international conflict research on a population rather than a sample, this should not be viewed as an important issue. For a more detailed discussion, see Zeng (1999, 2000).

variables.[14] It should be kept in mind that only three variables (i.e., media openness, diplomatic channels and international organizations) among the seven theoretically interesting ones show statistical significance in the last column in Table 5-1-1-4, based on the logistic regression model for the politically relevant dyads during the period from 1950 to 1974.

Figure 5-2-1 shows three-dimensional plots of the neural network model output (i.e., the quantitative effect of MID involvement) against two of the inputs (i.e., independent variables) during the period from 1950 to 1974. That is, the surface plots show how the predicted value of MID involvement varies in terms of two independent variables.

(Figure 5-2-1 about here)

The first three-dimensional plot shows that both civil-military relations (i.e., CMR) and conscription (i.e., CONSCRT) variables have a complex causal structure. The plot portrays a nonlinear, positive relationship between military leaders' influence and MID involvement; and seemingly negative relationship between employing conscription and MID involvement. It should be noted that, while the results in the final column in Table 5-1-1-4 from the logistic regression model indicated no relationship with civil-military relations, neural networks seem to be closer to the intuitive causal structure (i.e., military influence leads to a increase of the likelihood of MID involvement) based on the interactive foreign policy decision-making process model in Figure 3-2-1.

[14] As Beck, King and Zeng (2000) point out, interpretation and inference in neural network models are so complex and complicated, so the coefficients are almost impossible to interpret directly, which creates the need to employ graphical presentations.

The second plot shows that both diplomatic channels (i.e., DIPCHAN) and media openness (i.e., MEDOPEN) variables are connected to the occurrence of MID involvement. The plot portrays a nonlinear relationship between political channels (i.e., media openness and diplomatic channels) and MID involvement. It is evident that media openness has a noteworthy negative impact on the occurrence of MID involvement. The relationship between diplomatic channels and MID involvement is nonlinear. As with the logistic regression model, which produced a counterintuitive result, neural networks suggest that an increase in diplomatic channels may contribute to MID involvement.

The third plot shows that, while the democraticness variable (i.e., DEMO) seems to have a very trivial effect on MID involvement, the economic interdependence variable (i.e., ECOINT) leads to the greater decrease of MID involvement. A seemingly linear relationship between democraticness and MID involvement as well as a nonlinear, negative relationship between economic interdependence and MID involvement are portrayed.

The fourth plot shows that, while the international organizations variable (i.e., JMIO) contributes to lessening the MID involvement, the contiguity variable (i.e., CONTIGUITY) is associated with MID involvement. A nonlinear, negative relationship between international organizations and MID involvement as well as a seemingly linear, positive relationship between contiguous dyads and MID involvement are portrayed.

Figure 5-2-2 shows sensitivity plots (i.e., marginal effects) for each independent variable during the period from 1950 to 1974.[15] Each sensitivity plot offers a visual representation of a nonlinear relationship for an independent variable.

(Figure 5-2-2 about here)

As shown by the first three-dimensional plot in Figure 5-2-1, the ascendance of military leaders' power features a non-linear, positive relationship. It appears that greater military influence on the foreign policy decision-making process contributes to an increase in MID involvement. Conscription seems to be nonlinear as well. It appears that, unlike the hypothesis, employing conscripted soldiers contributes to a decrease in MID involvement, but the effect seems very weak. Diplomatic channels turn out to be nonlinear and positive. A 27.3 percent increase in diplomatic channels (from 2.176 to 2.77), for example, increases MID involvement by 36.95 percent (from 0.098629 to 0.135073).[16] The plot is counterintuitive, meaning that an increase in diplomatic channels contributes to an *increase* in MID involvement.

These results are very similar to (or consistent with) those from the logit models. Despite the various model specifications, methods and time period, the consistent results produce two conjectures, assuming that the data are accurate: (1) political talk through diplomatic channels tends to be cheap; and (2) the presence of numerous diplomatic channels might lead states toward aggressive foreign policy as a by-produce of status,

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[15] Following Oneal and Russett's (1999c) baseline probability, I assume not only that each dyad has military leaders' influence, a conscription system, no media openness, no major power involvement, is contiguous, and is not allied, but also that each continuous variable is equal to its mean value except that economic interdependence variable is set at its median value.

[16] The interpretation is based on the difference between the left-hand vertical line and the right-hand vertical line along the predicted line in the cross section of the sensitivity plot.

i.e., an unfortunate interaction effect between military prowess and overconfidence. If my speculation is on target, diplomatic channels could be used as a positive indicator of the likelihood of MID involvement. The media openness variable once again confirms a seemingly nonlinear, negative relationship, where a 50 percent increase in media openness from 0.0 to 0.5, for example, decreases the predicted value of MIDs by 29.79 percent (from 0.098629 to 0.069244). In other words, as shown in the results from the logit model, if media openness in a dyad is high enough, MID involvement becomes less likely.

It appears counterintuitive that democraticness seems to have a positive impact on the occurrence of MID involvement. Economic interdependence seems to show a complex causal structure: It starts to dramatically decrease MID involvement and then to very slightly increase MID involvement. Joint membership in international organizations reveals a nonlinear, negative relationship. An increase in joint membership in international organizations seems to decrease MID involvement where a 60.75 percent increase in international organizations (from 33.282001 to 53.5), for example, decreases the occurrence of MIDs by 38.97 percent (from 0.095155 to 0.058077). The contiguity variable reveals a seemingly linear, positive relationship. It is apparent that, if two states are contiguous, they are more likely to engage in MIDs.

Table 5-2-3, with respect to statistical significance, summarizes the across-the-board results from both logit and neural network models from Sections 5.1.1 and 5.2. Both civil-military dynamics and political communications, in one way or another, show

consistent statistical significance across the different model specifications, methods and time periods.

(Table 5-2-3 about here)

This chapter has presented the empirical results, which, one way or another, show the importance of the neglected four factors in studies of international conflict: (1) civil-military relations, (2) conscription, (3) diplomatic channels and (4) media openness. Empirical results from both logit and neural network models indicate that media openness, *not* democraticness that is based mainly on the degree of constraint on the chief executive in the Polity data, appears a most defining attribute of democracy in accounting for MID involvement. The next chapter narrows down the analysis from MID involvement to MID-related casualties.

Table 5-1-1-1 Civil-Military Relations and Predicting MID Involvement, 1886-1992

Variable	1886-1992 *Simplest, All Dyads*	1886-1992 *Peaceyears Correction*	1886-1939 *All Dyads*	1886-1992 *Politically Relevant Dyads*
Civil-military relations	0.2396***	0.2710***	0.5508***	0.1147*
(IAAMEAB[1])	0.0657	0.0731	0.1101	0.0695
Lower democracy	-0.0675***	-0.0609***	-0.0484***	-0.0633***
(DEM_L)	0.0111	0.0095	0.0110	0.0115
Trade/GDP	-59.8950***	-32.0792**	-42.8286*	-37.3735**
($DEPEND_L$)	17.7647	11.9300	18.7344	14.6988
International organizations	0.0003	0.0169^^^	0.0094	-0.0053
(IGO)	0.0040	0.0042	0.0068	0.0041
Capability ratio	-0.2489***	-0.2003***	-0.4212***	-0.2930***
(CAPRATIO)	0.0533	0.0424	0.0664	0.0533
Alliances	-0.2852*	-0.4341**	-0.1556	-0.3183*
(ALLIANCES)	0.1724	0.1604	0.1985	0.1764
Noncontiguity	-2.0287***	-1.5661***	-1.2235***	-1.1381***
(NONCONTIG)	0.1910	0.1576	0.1922	0.1819
Log distance	-0.4362***	-0.3303***	-0.3087***	-0.2282***
(DISTANCE)	0.0602	0.0512	0.0616	0.0645
Only minor powers	-1.8348***	-1.6854***	-1.8544***	-0.6550**
(MINORPWRS)	0.1755	0.1353	0.1969	0.2169
Constant	-2.2173***	-1.7708***	-2.6175***	-1.8608***
	0.5031	0.4270	0.5125	0.5378
Chi^2	1271.32	1825.25	454.53	173.79
P of Chi^2	0.0000	0.0000	0.0000	0.0000
Log Likelihood		-5163.145		
Pseudo R^2		0.286		
N	134,556	134,634	26,622	30,505

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^^^p<.001, one-tailed test but wrong sign

[1] increased above-average military expenditure

Table 5-1-1-2 Civil-Military Dynamics and Predicting MID Involvement, 1886-1992

Variable	1886-1992 *Simplest, All Dyads*	1886-1992 *Peaceyears Correction*	1886-1939 *All Dyads*	1886-1992 *Politically Relevant Dyads*
Civil-military relations	0.2358***	0.2464***	0.5941***	0.1045
(IAAMEAB[1])	0.0683	0.0769	0.1199	0.0716
Conscription	0.0971	0.3674***	0.0565	0.0597
(CONSCRAB)	0.1277	0.1181	0.1545	0.1338
Lower democracy	-0.0695***	-0.0599***	-0.0599***	-0.0671***
(DEM_L)	0.0114	0.0095	0.0121	0.0119
Trade/GDP	-59.1483***	-31.2549**	-34.4351*	-35.4453*
($DEPEND_L$)	19.0377	13.1821	20.4320	15.8753
International organizations	-0.0026	0.0145^^^	0.0071	-0.0074*
(IGO)	0.0042	0.0044	0.0070	0.0043
Capability ratio	-0.2356***	-0.1821***	-0.4361***	-0.2872***
(CAPRATIO)	0.0571	0.0479	0.0727	0.0564
Alliances	-0.2978	-0.4350**	-0.2637	-0.3784*
(ALLIANCES)	0.1814	0.1682	0.2110	0.1851
Noncontiguity	-2.0556***	-1.5491***	-1.1551***	-1.1640***
(NONCONTIG)	0.1936	0.1640	0.2059	0.1844
Log distance	-0.4450***	-0.3258***	-0.2721***	-0.2370***
(DISTANCE)	0.0622	0.0556	0.0654	0.0671
Only minor powers	-1.7910***	-1.5973***	-1.6438***	-0.6076**
(MINORPWRS)	0.1745	0.1341	0.2016	0.2183
Constant	-2.0883***	-1.8226***	-2.6433***	-1.7183**
	0.5369	0.4767	0.5577	0.5788
Chi^2	1215.51	1600.49	344.03	175.35
P of Chi^2	0.0000	0.0000	0.0000	0.0000
Log Likelihood		-4821.882		
Pseudo R^2		0.292		
N	122,071	122,137	18,452	27,658

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^^^p<.001, one-tailed test but wrong sign

[1] increased above-average military expenditure

Table 5-1-1-3 Civil-Military Dynamics, Diplomatic Channels and Predicting MID Involvement, 1886-1974

Variable	1886-1974 *Simplest, All Dyads*	1886-1974 *Peaceyears Correction*	1886-1939 *All Dyads*	1886-1974 *Politically Relevant Dyads*
Civil-military relations	0.3021***	0.4320***	0.6291***	0.1507*
(IAAMEAB[1])	0.0883	0.0969	0.1204	0.0886
Conscription	0.0690	0.3929**	0.0464	0.0756
(CONSCRAB)	0.1560	0.1517	0.1540	0.1536
Diplomatic channels	0.2637^^	0.3878^^	0.1583	0.4057^^
(SANSDC)	0.0998	0.0985	0.1069	0.0977
Lower democracy	-0.0749***	-0.0636***	-0.0617***	-0.0856***
(DEM_L)	0.0129	0.0111	0.0125	0.0130
Trade/GDP	-80.0811***	-54.9760**	-38.4309*	-53.3533**
($DEPEND_L$)	24.7603	19.9008	20.5667	20.7934
International organizations	-0.0174**	-0.0105*	0.0024	-0.0188***
(IGO)	0.0057	0.0059	0.0073	0.0055
Capability ratio	-0.2242***	-0.1316*	-0.4018***	-0.2125***
(CAPRATIO)	0.0714	0.0639	0.0800	0.0689
Alliances	-0.2181	-0.3075*	-0.2450	-0.3672*
(ALLIANCES)	0.1876	0.1869	0.2068	0.1839
Noncontiguity	-1.6815***	-1.3743***	-1.1141***	-0.8865***
(NONCONTIG)	0.2184	0.2091	0.2097	0.1979
Log distance	-0.3911***	-0.2802***	-0.2497***	-0.2089**
(DISTANCE)	0.0722	0.0728	0.0669	0.0751
Only minor powers	-1.7866***	-1.5438***	-1.5308***	-0.2964
(MINORPWRS)	0.2159	0.1852	0.2421	0.2691
Constant	-2.4871***	-2.5854***	-3.0517***	-2.3397***
	0.6332	0.6377	0.6328	0.6470
Chi^2	812.79	1048.98	306.74	156.07
P of Chi^2	0.0000	0.0000	0.0000	0.0000
Log Likelihood		-3027.736		
Pseudo R^2		0.268		
N	57,185	57,221	17,697	16,431

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^p<.01; ^^p<.001, one-tailed test but wrong sign

[1] increased above-average military expenditure

Table 5-1-1-4 Civil-Military Dynamics, Political Communications and Predicting MID Involvement, 1950-1974

Variable	*Replicated*	*Simplest, All Dyads*	*Replicated*	*Peaceyears Correction*	*Replicated*	*Politically Relevant Dyads*
Civil-military relations		0.1147		0.1359		0.0522
(IAAMEAB[1])		0.1210		0.1473		0.1201
Conscription		0.2020		0.5263*		0.1384
(CONSCRAB)		0.2848		0.2391		0.2635
Diplomatic channels		0.5103^		0.4961^		0.6602^^
(SANSDC)		0.2407		0.2277		0.2274
Media Openness		-1.7215**		-1.3337**		-1.4570**
(AMOAB)		0.5848		0.4853		0.5405
Lower democracy	-0.0702**	-0.0135	-0.0573***	-0.0049	-0.0548**	-0.0077
(DEM_L)	0.0247	0.0316	0.0187	0.0253	0.0215	0.0279
Trade/GDP	-50.2864	-31.3038	-14.2924	-0.6085	-42.5348	-37.0212
($DEPEND_L$)	53.2811	46.1728	32.6656	26.4551	40.4653	41.8110
International organizations	-0.0382***	-0.0505***	-0.0031	-0.0211	-0.0338**	-0.0519***
(IGO)	0.0118	0.0140	0.0134	0.0142	0.0116	0.0132
Capability ratio	-0.2303*	-0.1752	-0.1153	-0.0680	-0.3054**	-0.2512*
(CAPRATIO)	0.1257	0.1294	0.0936	0.1020	0.1216	0.1224
Alliances	-0.3545	-0.2055	-0.3913	-0.1658	-0.6222*	-0.4420
(ALLIANCES)	0.3631	0.3589	0.3340	0.3077	0.3248	0.3010
Noncontiguity	-2.2651***	-2.3332***	-1.6113***	-1.6713***	-1.0356**	-1.0850**
(NONCONTIG)	0.3784	0.3719	0.3017	0.3112	0.3646	0.3643
Log distance	-0.6288***	-0.6126***	-0.3648**	-0.3051**	-0.3305**	-0.3272**
(DISTANCE)	0.1353	0.1352	0.1285	0.1259	0.1310	0.1366
Only minor powers	-2.4494***	-2.2666***	-1.9112***	-1.5919***	-0.6779	-0.4340
(MINORPWRS)	0.4396	0.4312	0.3022	0.2988	0.4932	0.4757
Constant	0.0852	-0.5202	-0.3055	-1.2432	0.2761	-0.3673
	1.1911	1.1509	1.1405	1.0776	1.1539	1.1535
Chi^2	529.36	439.82	510.11	474.67	69.71	78.96
P of Chi^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Log Likelihood			-1244.585	-1209.663		
Pseudo R^2			0.414	0.430		
N	37,423	37,423	37,452	37,452	8,379	8,379

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^p<.05; ^^p<.01, one-tailed test but wrong sign

[1] increased above-average military expenditure

Table 5-1-1-5 Muliticollinearity Diagonostics, 1950-1974

	Simplest, All Dyads			*Peaceyears Correction*			*Politically Relevant Dyads*		
	R^2	Eigenvalue	Condition Index	R^2	Eigenvalue	Condition Index	R^2	Eigenvalue	Condition Index
Civil-military relations	0.0243	2.9146	1.0000	0.0250	3.8644	1.0000	0.0410	3.8067	1.0000
Conscription	0.1019	1.6979	1.3102	0.1799	2.4241	1.2626	0.0977	2.3329	1.2774
Diplomatic channels	0.3970	1.5619	1.3660	0.4109	1.7008	1.5074	0.4806	1.1412	1.8264
Media openness	0.5268	1.1931	1.5630	0.5320	1.5250	1.5919	0.6459	0.9706	1.9804
Lower democracy	0.5482	0.9577	1.7445	0.5511	1.0721	1.8986	0.6646	0.8648	2.0981
Trade/GDP	0.2146	0.8190	1.8865	0.2198	0.9484	2.0186	0.2923	0.7294	2.2845
International organizations	*0.6245*	0.7370	1.9886	*0.6380*	0.8291	2.1589	*0.7286*	0.6878	2.3526
Capability ratio	0.3434	0.6855	2.0620	0.3504	0.7645	2.2483	0.4842	0.4691	2.8488
Alliances	0.2882	0.5033	2.4065	0.2997	0.6897	2.3671	0.2966	0.3621	3.2423
Noncontiguity	0.2234	0.3876	2.7420	0.2307	0.6430	2.4516	0.5882	0.2495	3.9061
Log distance	0.4038	0.2914	3.1628	0.4297	0.4571	2.9077	0.5508	0.2097	4.2603
Only minor powers	0.3430	0.2510	*3.4077*	0.3476	0.3771	*3.2010*	0.6584	0.1762	*4.6475*

Table 5-1-2-1 Civil-Military Relations and Predicting MID Involvement, 1886-1992

Variable	1886-1992 *Simplest, All Dyads*	1886-1992 *Peaceyears Correction*	1886-1939 *All Dyads*	1886-1992 *Politically Relevant Dyads*
Civil-military relations	0.1739***	0.1668**	0.4343***	0.1056*
(IAGRMEAB[1])	0.0536	0.0605	0.0864	0.0560
Lower democracy	-0.0676***	-0.0612***	-0.0507***	-0.0630***
(DEM_L)	0.0112	0.0096	0.0112	0.0115
Trade/GDP	-61.7854***	-33.3853**	-47.3182**	-38.2495**
($DEPEND_L$)	17.9670	11.9457	19.7459	14.8054
International organizations	0.0003	0.0166^^^	0.0119^	-0.0053
(IGO)	0.0040	0.0042	0.0068	0.0041
Capability ratio	-0.2492***	-0.2017***	-0.4123***	-0.2939***
(CAPRATIO)	0.0530	0.0422	0.0672	0.0533
Alliances	-0.2771	-0.4258**	-0.1461	-0.3136*
(ALLIANCES)	0.1724	0.1607	0.2013	0.1761
Noncontiguity	-2.0308***	-1.5716***	-1.2310***	-1.1345***
(NONCONTIG)	0.1905	0.1574	0.1936	0.1816
Log distance	-0.4374***	-0.3321***	-0.3045***	-0.2288***
(DISTANCE)	0.0599	0.0510	0.0626	0.0644
Only minor powers	-1.8181***	-1.6631***	-1.8087***	0.6445**
(MINORPWRS)	0.1752	0.1347	0.1947	0.2163
Constant	-2.2219***	-1.7543***	-2.7358***	-1.8652***
	0.5006	0.4233	0.5252	0.5365
Chi^2	1261.07	1843.35	458.42	172.90
P of Chi^2	0.0000	0.0000	0.0000	0.0000
Log Likelihood		-5166.739		
Pseudo R^2		0.286		
N	134,556	134,634	26,622	30,505

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^p<.05; ^^^p<.001, one-tailed test but wrong sign

[1] increased annual growth rate of military expenditure

Table 5-1-2-2 Civil-Military Dynamics and Predicting MID Involvement, 1886-1992

Variable	1886-1992 *Simplest, All Dyads*	1886-1992 *Peaceyears Correction*	1886-1939 *All Dyads*	1886-1992 *Politically Relevant Dyads*
Civil-military relations	0.1793***	0.1390*	0.4825***	0.1137*
(IAGRMEAB[1])	0.0554	0.0630	0.0947	0.0575
Conscription	0.0958	0.3672***	0.0628	0.0578
(CONSCRAB)	0.1277	0.1179	0.1578	0.1338
Lower democracy	-0.0695***	-0.0602***	-0.0621***	-0.0668***
(DEM_L)	0.0114	0.0096	0.0122	0.0119
Trade/GDP	-60.9460***	-32.3896**	-38.6542*	-36.2465*
($DEPEND_L$)	19.2504	13.2092	21.6593	15.9671
International organizations	-0.0025	0.0143^^^	0.0099	-0.0074*
(IGO)	0.0042	0.0044	0.0071	0.0043
Capability ratio	-0.2368***	-0.1839***	-0.4279***	-0.2888***
(CAPRATIO)	0.0568	0.0477	0.0732	0.0563
Alliances	-0.2903	-0.4260**	-0.2603	-0.3752*
(ALLIANCES)	0.1811	0.1683	0.2135	0.1846
Noncontiguity	-2.0577***	-1.5534***	-1.1630***	-1.1614***
(NONCONTIG)	0.1930	0.1638	0.2089	0.1838
Log distance	-0.4457***	-0.3268***	-0.2654***	-0.2371***
(DISTANCE)	0.0618	0.0552	0.0667	0.0669
Only minor powers	-1.7761***	-1.5776***	-1.6052***	-0.5990**
(MINORPWRS)	0.1742	0.1336	0.1996	0.2175
Constant	-2.0995***	-1.8068***	-2.8050***	-1.7316**
	0.5340	0.4736	0.5737	0.5776
Chi^2	1204.87	1608.61	349.85	174.49
P of Chi^2	0.0000	0.0000	0.0000	0.0000
Log Likelihood		-4825.141		
Pseudo R^2		0.292		
N	122,071	122,137	18,452	27,658

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^^^p<.001, one-tailed test but wrong sign

[1] increased annual growth rate of military expenditure

Table 5-1-2-3 Civil-Military Dynamics, Diplomatic Channels and Predicting MID Involvement, 1886-1974

Variable	1886-1974 *Simplest, All Dyads*	1886-1974 *Peaceyears Correction*	1886-1939 *All Dyads*	1886-1974 *Politically Relevant Dyads*
Civil-military relations	0.2598***	0.3682***	0.4974***	0.1671**
(IAGRMEAB[1])	0.0726	0.0822	0.0961	0.0703
Conscription	0.0686	0.3919**	0.0550	0.0778
(CONSCRAB)	0.1565	0.1511	0.1576	0.1536
Diplomatic channels	0.2613^^	0.3889^^	0.1452	0.4028^^
(SANSDC)	0.1001	0.0986	0.1083	0.0978
Lower democracy	-0.0749***	-0.0643***	-0.0640***	-0.0848***
(DEM_L)	0.0129	0.0112	0.0127	0.0130
Trade/GDP	-83.0681***	-58.4495**	-42.2943*	-54.6328**
($DEPEND_L$)	25.1814	20.1006	21.7329	20.8848
International organizations	-0.0173**	-0.0110*	0.0059	-0.0189***
(IGO)	0.0057	0.0058	0.0074	0.0055
Capability ratio	-0.2262***	-0.1348*	-0.3951***	-0.2158***
(CAPRATIO)	0.0712	0.0635	0.0808	0.0687
Alliances	-0.2097	-0.2933	-0.2404	-0.3638*
(ALLIANCES)	0.1873	0.1870	0.2096	0.1832
Noncontiguity	-1.6854***	-1.3874***	-1.1227***	-0.8854***
(NONCONTIG)	0.2176	0.2077	0.2128	0.1979
Log distance	-0.3932***	-0.2835***	-0.2431***	-0.2095**
(DISTANCE)	0.0715	0.0716	0.0684	0.0747
Only minor powers	-1.7746***	-1.5176***	-1.4998***	-0.2915
(MINORPWRS)	0.2163	0.1854	0.2415	0.2681
Constant	-2.5089***	-2.6101***	-3.1968***	-2.3567***
	0.6291	0.6274	0.6495	0.6462
Chi^2	793.03	1036.62	361.54	154.63
P of Chi^2	0.0000	0.0000	0.0000	0.0000
Log Likelihood		-3028.643		
Pseudo R^2		0.268		
N	57,185	57,221	17,697	16,431

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^p<.01; ^^p<.001, one-tailed test but wrong sign

[1] increased annual growth rate of military expenditure

Table 5-1-2-4 Civil-Military Dynamics, Political Communications and Predicting MID Involvement, 1950-1974

Variable	*Simplest, All Dyads*	*Peaceyears Correction*	*Politically Relevant Dyads*
Civil-military relations	0.0332	0.1018	0.0095
(IAGRMEAB[1])	0.1022	0.1231	0.0993
Conscription	0.2129	0.5226*	0.1434
(CONSCRAB)	0.2849	0.2394	0.2637
Diplomatic channels	0.5082^	0.4971^	0.6592^^
(SANSDC)	0.2410	0.2281	0.2272
Media Openness	-1.7324**	-1.3352**	-1.4622**
(AMOAB)	0.5783	0.4838	0.5374
Lower democracy	-0.0131	-0.0046	-0.0076
(DEM_L)	0.0314	0.0252	0.0278
Trade/GDP	-33.1618	-1.7197	-37.7235
($DEPEND_L$)	46.9521	26.5826	42.0575
International organizations	-0.0503***	-0.0209	-0.0519***
(IGO)	0.0140	0.0142	0.0132
Capability ratio	-0.1732	-0.0666	-0.2508*
(CAPRATIO)	0.1290	0.1017	0.1220
Alliances	-0.1985	-0.1575	-0.4379
(ALLIANCES)	0.3578	0.3076	0.3003
Noncontiguity	-2.3360***	-1.6779***	-1.0841**
(NONCONTIG)	0.3711	0.3101	0.3641
Log distance	-0.6116***	-0.3024**	-0.3260**
(DISTANCE)	0.1351	0.1256	0.1364
Only minor powers	-2.2494***	-1.5733***	-0.4243
(MINORPWRS)	0.4323	0.2979	0.4759
Constant	-0.5178	-1.2856	-0.3645
	1.1521	1.0762	1.1528
Chi^2	440.72	478.07	80.60
P of Chi^2	0.0000	0.0000	0.0000
Log Likelihood		-1209.779	
Pseudo R^2		0.430	
N	37,423	37,452	8,379

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^p<.05; ^^p<.01, one-tailed test but wrong sign

[1] increased annual growth rate of military expenditure

Table 5-1-3-1 Civil-Military Relations and Predicting MID Involvement, 1886-1992

Variable	1886-1992 *Simplest, All Dyads*	1886-1992 *Peaceyears Correction*	1886-1939 *All Dyads*	1886-1992 *Politically Relevant Dyads*
Civil-military relations	0.2391***	0.1192	0.5931***	0.2218**
(CAGRMEAB[1])	0.0739	0.0757	0.0933	0.0748
Lower democracy	-0.0681***	-0.0614***	-0.0506***	-0.0641***
(DEM_L)	0.0111	0.0096	0.0109	0.0115
Trade/GDP	-60.8969***	-33.3107**	-44.0353*	-37.2018**
($DEPEND_L$)	17.9445	11.9088	19.4116	14.7577
International organizations	0.0007	0.0168^^^	0.0120^	-0.0050
(IGO)	0.0040	0.0042	0.0067	0.0041
Capability ratio	-0.2480***	-0.2011***	-0.4056***	-0.2916***
(CAPRATIO)	0.0530	0.0422	0.0651	0.0531
Alliances	-0.2772	-0.4286**	-0.1281	-0.3090*
(ALLIANCES)	0.1727	0.1605	0.2009	0.1765
Noncontiguity	-2.0215***	-1.5700***	-1.2118***	-1.1214***
(NONCONTIG)	0.1909	0.1575	0.1898	0.1825
Log distance	-0.4381***	-0.3326***	-0.3077***	-0.2326***
(DISTANCE)	0.0600	0.0511	0.0614	0.0643
Only minor powers	-1.8276***	-1.6670***	-1.8242***	-0.6589***
(MINORPWRS)	0.1754	0.1353	0.1928	0.2168
Constant	-2.1833***	-1.6993***	-2.6395***	-1.8416***
	0.5008	0.4238	0.5142	0.5368
Chi^2	1263.88	1835.03	489.44	181.29
P of Chi^2	0.0000	0.0000	0.0000	0.0000
Log Likelihood		-5169.093		
Pseudo R^2		0.285		
N	134,556	134,634	26,622	30,505

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^p<.05; ^^^p<.001, one-tailed test but wrong sign

[1] combined annual growth rate of military expenditure

Table 5-1-3-2 Civil-Military Dynamics and Predicting MID Involvement, 1886-1992

Variable	1886-1992 *Simplest, All Dyads*	1886-1992 *Peaceyears Correction*	1886-1939 *All Dyads*	1886-1992 *Politically Relevant Dyads*
Civil-military relations	0.1882**	0.0589	0.5410***	0.1660*
(CAGRMEAB[1])	0.0740	0.0794	0.0960	0.0740
Conscription	0.1063	0.3728***	0.0941	0.0659
(CONSCRAB)	0.1274	0.1177	0.1556	0.1334
Lower democracy	-0.0698***	-0.0602***	-0.0613***	-0.0675***
(DEM_L)	0.0114	0.0095	0.0121	0.0119
Trade/GDP	-60.3133***	-32.2936**	-35.8689*	-35.4448*
($DEPEND_L$)	19.2582	13.1621	21.3321	15.9419
International organizations	-0.0022	0.0145^^^	0.0106	-0.0072*
(IGO)	0.0042	0.0044	0.0069	0.0043
Capability ratio	-0.2352***	-0.1829***	-0.4231***	-0.2867***
(CAPRATIO)	0.0569	0.0476	0.0710	0.0563
Alliances	-0.2898	-0.4280**	-0.2462	-0.3710*
(ALLIANCES)	0.1816	0.1680	0.2130	0.1852
Noncontiguity	-2.0519***	-1.5507***	-1.1494***	-1.1521***
(NONCONTIG)	0.1937	0.1637	0.2046	0.1849
Log distance	-0.4452***	-0.3274***	-0.2664***	-0.2383***
(DISTANCE)	0.0620	0.0552	0.0652	0.0669
Only minor powers	-1.7821***	-1.5779***	-1.6283***	-0.6074**
(MINORPWRS)	0.1746	0.1341	0.1991	0.2183
Constant	-2.0645***	-1.7511***	-2.7226***	-1.7143**
	0.5353	0.4726	0.5610	0.5786
Chi^2	1206.98	1606.23	357.80	180.28
P of Chi^2	0.0000	0.0000	0.0000	0.0000
Log Likelihood		-4827.340		
Pseudo R^2		0.291		
N	122,071	122,137	18,452	27,658

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^^^p<.001, one-tailed test but wrong sign

[1] combined annual growth rate of military expenditure

Table 5-1-3-3 Civil-Military Dynamics, Diplomatic Channels and Predicting MID Involvement, 1886-1974

	1886-1974	1886-1974	1886-1939	1886-1974
Variable	*Simplest, All Dyads*	*Peaceyears Correction*	*All Dyads*	*Politically Relevant Dyads*
Civil-military relations	0.3231***	0.4050***	0.5398***	0.2638**
(CAGRMEAB[1])	0.1003	0.1004	0.0970	0.0953
Conscription	0.0827	0.4066**	0.0863	0.0896
(CONSCRAB)	0.1557	0.1510	0.1553	0.1528
Diplomatic channels	0.2586^^	0.3886^^^	0.1426	0.4048^^^
(SANSDC)	0.0998	0.0981	0.1065	0.0971
Lower democracy	-0.0754***	-0.0650***	-0.0631***	-0.0857***
(DEM_L)	0.0128	0.0112	0.0125	0.0130
Trade/GDP	-81.3531***	-57.6110**	-39.5059*	-53.3893**
($DEPEND_L$)	25.2117	20.3011	21.4108	20.9343
International organizations	-0.0165**	-0.0097*	0.0066	-0.0185***
(IGO)	0.0057	0.0058	0.0073	0.0055
Capability ratio	-0.2215***	-0.1311*	-0.3913***	-0.2094***
(CAPRATIO)	0.0711	0.0635	0.0781	0.0684
Alliances	-0.2135	-0.2989	-0.2257	-0.3621*
(ALLIANCES)	0.1886	0.1869	0.2091	0.1841
Noncontiguity	-1.6761***	-1.3806***	-1.1085***	-0.8770***
(NONCONTIG)	0.2180	0.2085	0.2086	0.1983
Log distance	-0.3906***	-0.2794***	-0.2451***	-0.2097**
(DISTANCE)	0.0720	0.0715	0.0671	0.0748
Only minor powers	-1.7765***	-1.5157***	-1.5234***	-0.2970
(MINORPWRS)	0.2162	0.1858	0.2390	0.2682
Constant	-2.4803***	-2.5629***	-3.0897***	-2.3560***
	0.6314	0.6257	0.6400	0.6467
Chi^2	801.90	1041.51	360.57	165.51
P of Chi^2	0.0000	0.0000	0.0000	0.0000
Log Likelihood		-3030.505		
Pseudo R^2		0.268		
N	57,185	57,221	17,697	16,431

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^p<.01; ^^p<.001, one-tailed test but wrong sign

[1] combined annual growth rate of military expenditure

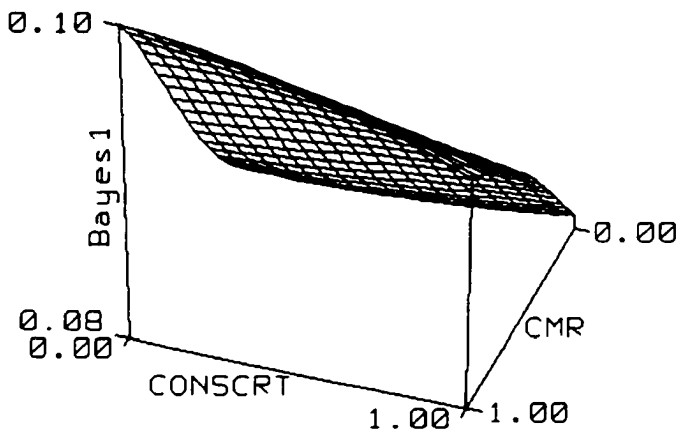
Table 5-1-3-4 Civil-Military Dynamics, Political Communications and Predicting MID Involvement, 1950-1974

Variable	*Simplest, All Dyads*	*Peaceyears Correction*	*Politically Relevant Dyads*
Civil-military relations	-0.1120	-0.3391	-0.2255
(CAGRMEAB[1])	0.2142	0.2677	0.1904
Conscription	0.2229	0.5239*	0.1494
(CONSCRAB)	0.2828	0.2374	0.2599
Diplomatic channels	0.5028^	0.4859^	0.6525^^
(SANSDC)	0.2410	0.2271	0.2264
Media Openness	-1.7203**	-1.3420**	-1.4421**
(AMOAB)	0.5724	0.4725	0.5289
Lower democracy	-0.0131	-0.0035	-0.0080
(DEM_L)	0.0310	0.0246	0.0273
Trade/GDP	-33.4959	-0.0100	-37.2227
($DEPEND_L$)	47.2209	25.8553	41.8795
International organizations	-0.0505***	-0.0212	-0.0520***
(IGO)	0.0139	0.0142	0.0131
Capability ratio	-0.1726	-0.0684	-0.2496*
(CAPRATIO)	0.1288	0.1010	0.1215
Alliances	-0.1980	-0.1671	-0.4252
(ALLIANCES)	0.3571	0.3065	0.2996
Noncontiguity	-2.3396***	-1.6774***	-1.0857**
(NONCONTIG)	0.3699	0.3096	0.3627
Log distance	-0.6132***	-0.3063**	-0.3249**
(DISTANCE)	0.1348	0.1260	0.1361
Only minor powers	-2.2478***	-1.5657***	-0.4185
(MINORPWRS)	0.4302	0.2956	0.4717
Constant	-0.4640	-1.1036	-0.3304
	1.1496	1.0798	1.1506
Chi^2	441.37	470.81	85.82
P of Chi^2	0.0000	0.0000	0.0000
Log Likelihood		-1208.938	
Pseudo R^2		0.430	
N	37,423	37,452	8,379

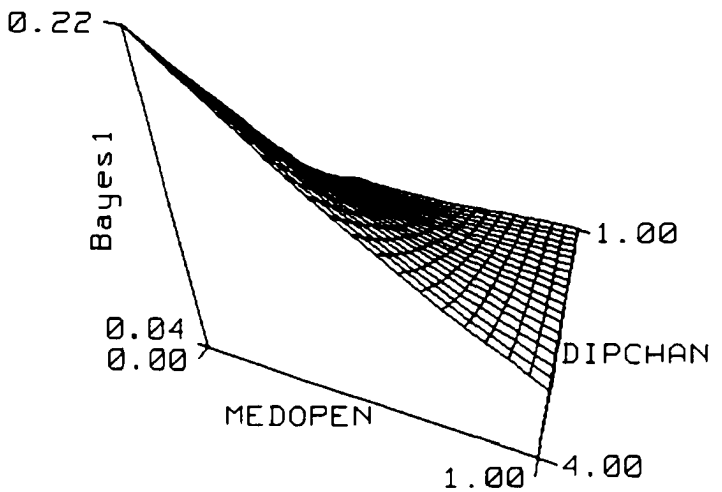
*p<.05; **p<.01; ***p<.001, one-tailed tests; ^p<.05; ^^p<.01, one-tailed test but wrong sign

[1] combined annual growth rate of military expenditure

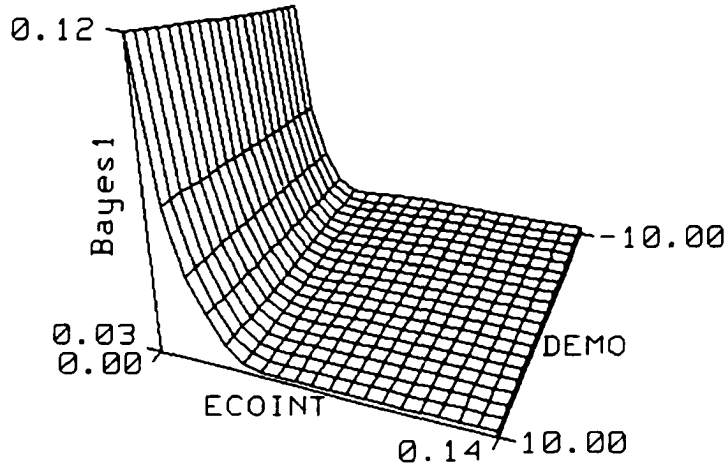
Figure 5-2-1
Three-Dimensional Plots of the Network Output against Two Inputs, 1950-1974



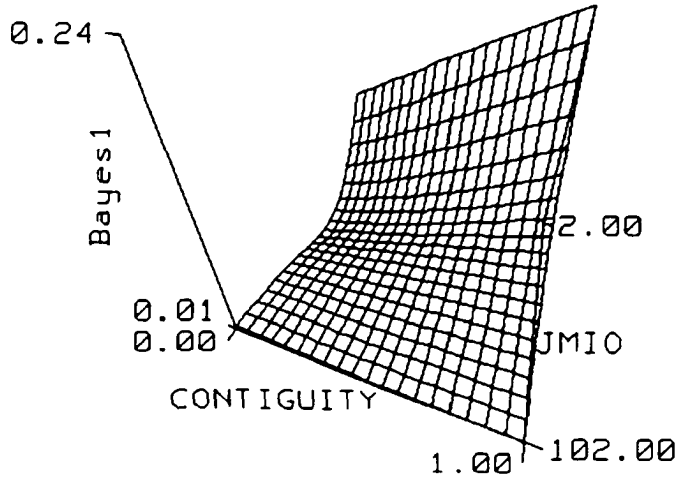
(a) The likelihood of MID involvement against civil-military relations and conscription



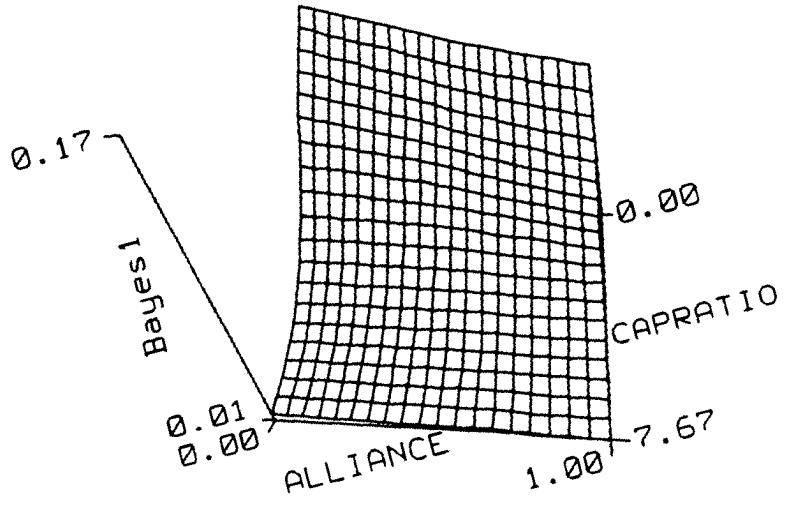
(b) The likelihood of MID involvement against diplomatic channels and media openness



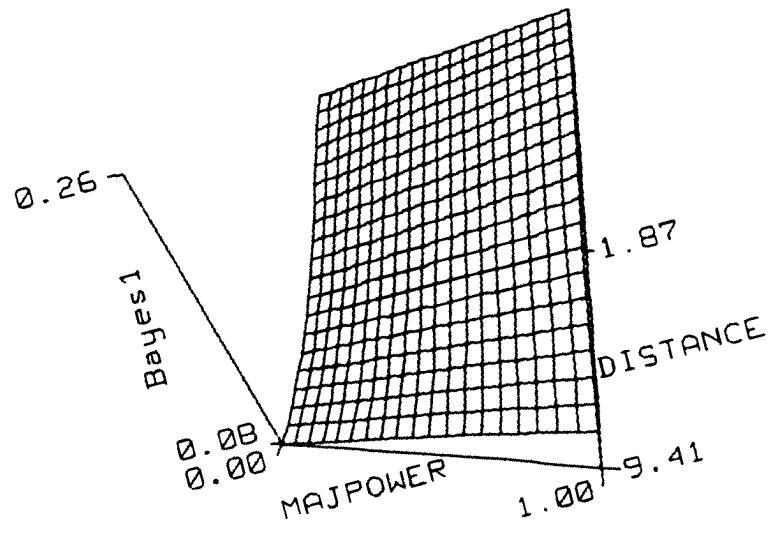
(c) The likelihood of MID involvement against democraticness and economic interdependence



(d) The likelihood of MID involvement against international organizations and contiguity

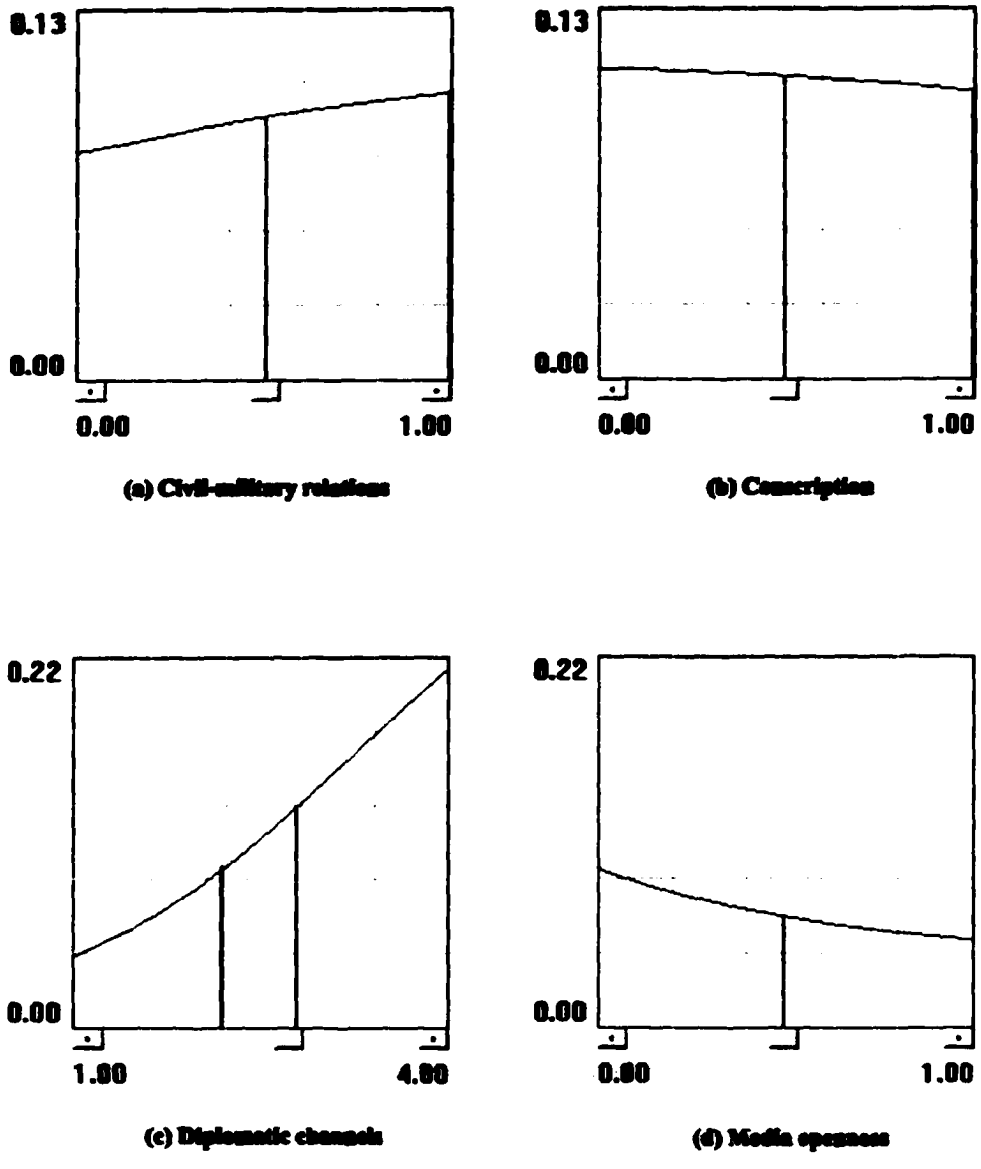


(e) The likelihood of MID involvement against capability ratio and alliance



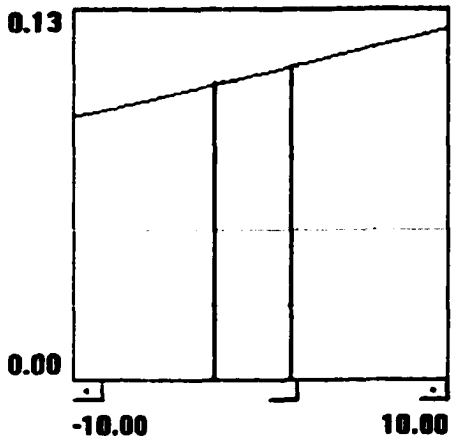
(f) The likelihood of MID involvement against distance and major power

Figure 5-2-2
Marginal Effects of Each Independent Variable, 1950-1974

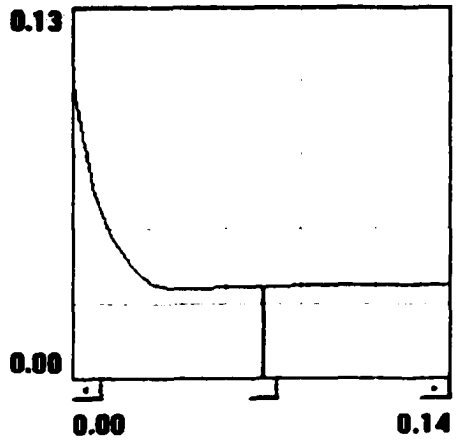


(a) Civil-military relations (b) Conscription

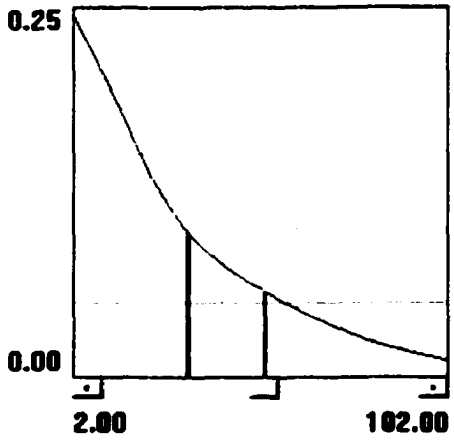
(c) Diplomatic channels (d) Media openness



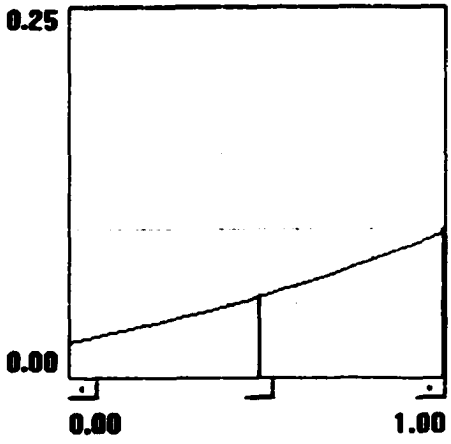
(e) Democraticness



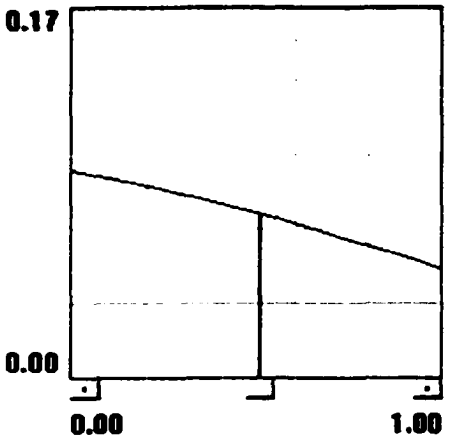
(f) Economic interdependence



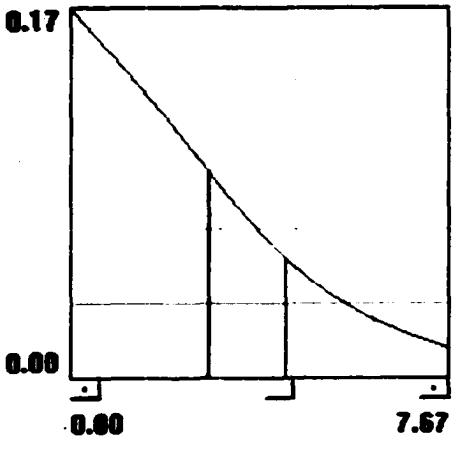
(g) International organizations



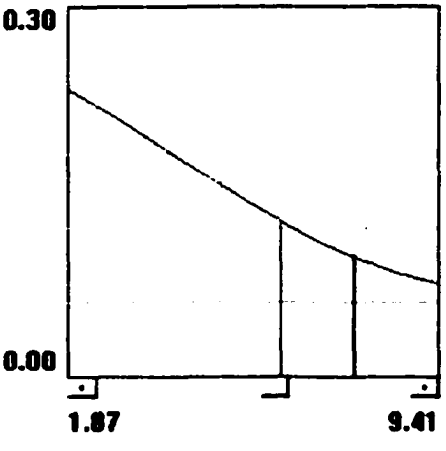
(h) Contiguity



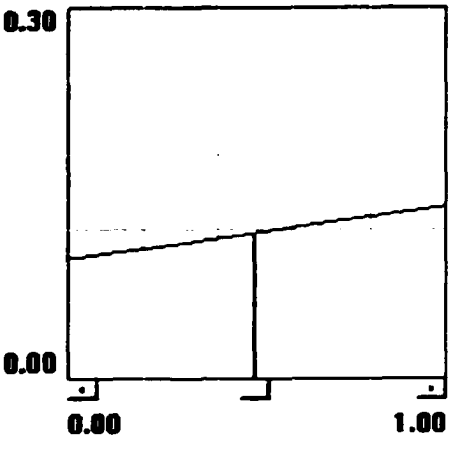
(i) Alliance



(j) Capability ratio



(k) Distance



(l) Major powers

Table 5-2-3 'Quadrangulating' the Peace?: A Summary of Statistical Significance in MID Involvement

	Variable	Logistic Regression																Neural Network
		1886-1992				1886-1992				1886-1974				1950-1974				1950-1974
		[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]	[4]
New	Civil-military relations (H_1)	***	***	***	*	***	***	***	_	***	***	***	*	_	_	n/a	_	intuitive
	Conscription system (H_2)	n/a	n/a	n/a	n/a	_	***	_	_	_	**	_	_	_	*	n/a	_	somewhat counterintuitive
	Diplomatic channels (H_3)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	^^^	^^^	_	^^^	^	^	n/a	^^	counterintuitive
	Media openness (H_4)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	**	**	n/a	**	intuitive
Kantian Peace	Democraticness	***	***	***	***	***	***	***	***	***	***	***	***	_	_	n/a	_	counterintuitive
	Economic interdependence	***	**	*	**	***	**	*	*	***	**	*	**	_	_	n/a	_	somewhat intuitive
	International organizations	_	^^^	_	_	_	^^^	_	*	**	*	_	***	***	_	n/a	***	intuitive

*p<.05; **p<.01; ***p<.001, one-tailed tests; $^{\wedge}$p<.05; $^{\wedge\wedge}$p<.01; $^{\wedge\wedge\wedge}$p<.001, one-tailed test but wrong sign

_: Not statistically significant

n/a: Not applicable

[1]: Simplest, All Dyads

[2]: Peaceyears Correction

[3]: All Dyads

[4]: Politically Revelant Dyads

CHAPTER SIX

EMPIRICAL RESULTS II: ACCOUNTING FOR MILITARIZED INTERSTATE DISPUTE (MID)-RELATED CASUALTIES[1]

This chapter consists of two sections, each of which conveys the results of data analysis in accounting for MID-related casualties. The first section has three subsections, which are a series of logistic regression models that preserve continuity with the general approach taken in the field: 1) the civil-military relations variable is measured in the *increased above-average military expenditure (IAAMEAB)*; 2) the civil-military relations variable is measured in the *increased annual growth rate of military expenditure (IAGRMEAB)*; and 3) the civil-military relations variable is measured in the *combined annual growth rate for military expenditure (CAGRMEAB)*. The second section of the analysis follows up on the potentially pathbreaking approach put forward by Beck, King and Zeng (2000) with respect to the application of neural networks to the study of international conflict, crisis, and war. Taken together, the empirical results from the two

[1] MID-related casualties are defined as militarized interstate disputes with at least one solider killed in a dyad. Maoz's dyadic MID dataset version 1.1 (updated January 2001)from ftp://spirit.tau.ac.il/zeevmaoz/dyadmid.html is used to identify casualty (i.e., fatality) level of each dyad. The missing and duplicated observations per dyad are deleted.

It should be noted that the research on MID-related casualties has been not spotlighted as with that on the highest level of hostility in dyadic dispute. This may be because of missing observations. Maoz (1999: 3) warns that, "due to considerable missing information, this [casualty level] variable should be used with great deal of caution."

sections of the analysis should provide a good sense of whether civil-military dynamics and political communications are relevant in terms of quadrangulating the peace.

6.1 Logistic Regression Analysis

Whether military casualties inhibit states' belligerent foreign policy is a theoretically interesting issue. The public, vigilant about potential loss of precious life, may be expected to raise its voice against military actions (Gartner and Segura 1998). According to Luttwak (1996: 36), "the prospect of high casualties, which can rapidly undermine domestic support for any military operation, is the key political constraint when decisions must be made on which forces to deploy in a crisis, and at what levels." More importantly, how democracies respond to casualties has captivated many scholars' thinking (e.g., Gartzke 2001). Using distributed-lag models, Oneal and Russett (*forthcoming*) find that the three Kantian peace elements of democraticness, economic interdependence and international organizations decrease the likelihood of MID-related casualties.

In this section, adopting the research design in Chapter 4, I explore MID-related casualties. Thus, in stead of MID involvement, MID-related casualties serve as the dependent variable. Since public opinion is channeled through mass media to a large extent, I expect that media openness, among the theoretically interesting variables in this research project, will play an important role to predict a decrease of the likelihood of MID-related casualties. As in Section 5.1 from Chapter 5, the empirical results will unfold in two stages: logistic regression and then neural network. In doing so, this section serves to alleviate bias in dealing with less severe military incidents, which may

be not captured in the international dispute data set currently available—to ensure that this empirical analysis directly addresses the violent militarized disputes of greatest concern to foreign policy decision-makers and scholars alike (Oneal and Russett *forthcoming*: 12).

6.1.1 *Increased Above-Average Military Expenditure (IAAMEAB)*[2]

Tables 6-1-1-1 and 6-1-1-2 present the empirical results based on the GEE logistic regression model from Chapter 4.[3] Each table consists of four different models based on data availability and time period. Oneal and Russett's (1999c) eight variables appear as a 'standard menu' in each column. Table 6-1-1-1 shows the effects of civil-military dynamics (i.e., civil-military relations and conscription) and political communications (i.e., diplomatic channels and media openness) based on all dyads; Table 6-1-1-2 focuses on the civil-military dynamics and political communications based on politically relevant dyads only. Each table reveals theoretically stimulating results: the additional variables, except for conscription, are associated, to one extent or another, with the likelihood of MID-related casualties. The following data analysis focuses mainly on the four new

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[2] As a preliminary check on the results, bivariate analysis using Spearman's rank-order correlations shows positive relationships for civil-military relations (i.e., $\rho = 0.0049$ at $p < 0.0697$, N = 134,583), conscription (i.e., $\rho = 0.0063$ at $p < 0.0273$, N = 122,092) and diplomatic channels (i.e., $\rho = 0.0104$ at $p < 0.0127$, N = 57,191) with MID-related casualties. A negative relationship appears for media openness (i.e., $\rho = -0.0150$ at $p < 0.0036$, N = 37,435) with MID-related casualties. It should be noted that, since each number of observations is large, the correlation coefficients are small, but still statistically significant. The p-levels are at best advisory, of course, since the results are based on a population rather than a sample of cases.

[3] *Stata Statistical Software* (version 7.0) is used for the replications and empirical tests. All of the replications are shown in Tables 6-1A and 6-2A in APPENDIX. Surprising enough, regardless of model specifications and time period, the democraticness variable never comes close to a statistically significant level.

variables and the three Kantian peace variables – the main theoretical interests of this research.

Table 6-1-1-1 reports the empirical results during the period from 1886 to 1992, using all dyads. As shown for GEE in the second column, the civil-military relations variable (as measured in the *increased above-average military expenditure (IAAMEAB)*) is not statistically significant. While the economic interdependence hypothesis is supported, the democraticness and international organizations are not. It seems that, among the three Kantian peace variables, economic interdependence alone decreases the likelihood of MID-related casualties.

(Table 6-1-1-1 about here)

The third column focuses on the effects of the civil-military dynamics (i.e., civil-military relations and conscription) during the period from 1886 to 1992, using all dyads. While the civil-military relations hypothesis is supported, the conscription hypothesis is not. When military influence increases, MID-related casualties are greater in the likelihood. The democraticness hypothesis is not supported, the economic interdependence is supported at the 0.01 level of statistical significance, and the international organizations is not supported.

The fourth column presents the results for the civil-military dynamics and diplomatic channels during the period from 1886 to 1974, using all dyads. The civil-military relations coefficient is statistically significant at the 0.05 level; conscription is not statistically significant; and diplomatic channels is statistically significant at the 0.05 level, but *counterintuitive*. It appears that, the more the diplomatic channels, the *more* the

MID-related casualties. This counterintuitive result is consistent with those in Chapter 5. While the democraticness and international organizations hypothesis are not supported, the economic interdependence hypotheses are supported.

The results in the last column of Table 6-1-1-1 reflect the complete foreign policy decision-making process model portrayed in Figure 3-2-1. The study period spans a relatively shorter period, from 1950 to 1974, owing to data availability. All dyads are analyzed. The civil-military relations is statistically significant at the 0.05 level, conscription is not statistically significant, the diplomatic channels is statistically significant at the 0.05 level, but *counterintuitive*, and media openness is statistically significant at the 0.001 level. It seems that, as expected, the more open the mass media, the less is the likelihood of MID-related casualties. It should be noted that the conscription hypothesis never comes close to statistical significance, regardless of the four different model specifications. It seems that fatal, bloody disputes, most of which may involve high-level national security interests could not be constrained by different manpower systems. Despite the different manpower structure, states must respond to international crisis by deploying their available soldiers.

It is intriguing that the democraticness variable shows statistical significance at the 0.001 level, but a *counterintuitive* connection. It appears that, the more democratic the less democratic state in a dyad happens to be, the *more* the casualties occur in a MID. Indeed, this finding, to some extent, is similar to those of democratization studies, which report that transition to democracy seems to bring about the likelihood of international conflict (Mansfield and Snyder 1995a, 1995b, 1996). Since the study period, from 1950

to 1974, coincides with the second wave of democratization after World War II (Huntington 1991, 1997; Shin 1994), the transition to democracy might lead to an increase in MID-related casualties. It can be argued that, since the four different model specifications and time periods do not support the prominent democratic peace hypothesis, regime type (as measured in the Polity data) has nothing to do with the decrease observed in MID-related casualties. Economic interdependence is statistically significant at the 0.001 level and the international organization is statistically significant at the 0.05 level, but once again *counterintuitive*. It seems that joint membership in international organizations *increases* the MID-related casualties—a baffling result.[4] Overall, the empirical results show that the civil-military relations, diplomatic channels and media openness variables are good candidates for complementing Oneal and Russett's (1999c) triangular peace.

Table 6-1-1-2 reports the empirical results during the period from 1886 to 1992, using politically relevant dyads only, which turns out to be very similar to those using all dyads in Table 6-1-1-1. As a matter of fact, the statistical significance levels of the theoretically interesting variables in Table 6-1-1-2 concur with those in Table 6-1-1-1. Given the fact that the results from MID involvement as the dependent variable have shown a discrepancy between all dyads and politically relevant dyads in various studies, those from MID-related casualties shed a new light on peace studies. It seems to me that,

[4] There may be alternative way of look at the results in the last column. One may suspect endogeneity problems among independent variables to some extent in that, besides conscription, there are two more unanticipated, reversed coefficient signs. Both democraticness and international organizations show positive signs, indicating an *increase* of MID-related casualties. The generalized estimating equation (GEE) logistic regression model is somewhat vulnerable to endogeneity problems. This issue will be better dealt with through neural network models in Section 6.2.

when bloody battles occur, every international dispute becomes politically relevant even in the absence of major power involvement or geographical contiguity.

As shown for GEE in the second column, the civil-military relations variable is not statistically significant. While the economic interdependence hypothesis is supported, the democraticness and international organizations variables do not come out as expected. It seems that, once again, only economic interdependence among the three Kantian peace variables seems to play a role in constraining MID-related casualties.

(Table 6-1-1-2 about here)

The third column focuses on the impact of civil-military dynamics (i.e., civil-military relations and conscription) during the period from 1886 to 1992, using politically relevant dyads. While the civil-military relations hypothesis is supported, conscription is not. When military power prevails in decision-making, the likelihood of MID-related casualties becomes greater. The democraticness hypothesis is not supported, economic interdependence is supported at the 0.01 level of statistical significance, and international organizations is not supported.

The fourth column presents the results for civil-military dynamics and diplomatic channels during the period from 1886 to 1974, using politically relevant dyads. The civil-military relations is statistically significant at the 0.05 level, conscription is not statistically significant, and diplomatic channels is statistically significant at the 0.05 level, but *counterintuitive*. It appears that, the more diplomatic channels there are, the *more* casualties a MID will produce. Political talks using an ambassador, envoy or minister, etc. may turn out to be 'cheap' and not even helpful—a normatively

disappointing result. Thus it seems that diplomatic channels in a world of anarchy may be used in preparation for more aggressive, belligerent actions in the future—a result friendly to realism but also discouraging in a more general sense. While the democraticness and international organizations hypotheses are not supported, the economic interdependence hypothesis is supported. This is worth noting because two of the three Kantian peace factors including democraticness seem to disappear.

The results in the last column of Table 6-1-1-2 reflect the complete foreign policy decision-making process model in Figure 3-2-1, using politically relevant dyads. The civil-military relations coefficient is statistically significant at the 0.05 level, the conscription is not statistically significant, diplomatic channels is statistically significant at the 0.05 level, but *counterintuitive*, and media openness is statistically significant at the 0.001 level. An increase in media openness clearly decreases the likelihood of MID-related casualties. It is worth noting that the democraticness variable does not hold up even with politically relevant dyads, indicating a statistical significance at the 0.001 level, but *counterintuitive*. It seems that the more democratic the less democratic state in a dyad happens to be, the *more* MID-related casualties we can expect. Economic interdependence is statistically significant at the 0.001 level and the international organization is not statistically significant. It should be noted that, while the democraticness hypothesis loses its centrality as a product of *counterintuitive* statistical findings, media openness, once again, gains a strong foothold. Overall, the empirical results show that the civil-military relations, diplomatic channels and media openness

variables are good candidates for complementing Oneal and Russett's (1999c) triangular peace.

6.1.2 *Increased Annual Growth Rate of Military Expenditure (IAGRMEAB)*

Table 6-1-2-1 reports the empirical results during the period from 1886 to 1992, using all dyads. As shown for GEE in the second column, the civil-military relations variable (as measured in the *increased annual growth rate of military expenditure (IAGRMEAB)*) is statistically significant at the 0.05 level, indicating that, when military influence increases, the likelihood of MID-related casualties is greater. While the economic interdependence hypothesis is supported, the democraticness and international organizations are not. It seems that, except for economic interdependence, democraticness and international organizations have nothing to do with the likelihood of MID-related casualties.

(Table 6-1-2-1 about here)

The third column focuses on the effects of the civil-military dynamics (i.e., civil-military relations and conscription) during the period from 1886 to 1992, using all dyads. While the civil-military relations hypothesis is supported, the conscription hypothesis is not. When military influence increases, MID-related casualties are greater in the likelihood. The democraticness hypothesis is not supported, the economic interdependence is supported at the 0.01 level of statistical significance, and the international organizations is not supported.

The fourth column presents the results for the civil-military dynamics and diplomatic channels during the period from 1886 to 1974, using all dyads. The civil-military relations coefficient is statistically significant at the 0.01 level; conscription is not statistically significant; and diplomatic channels is statistically significant at the 0.05 level, but *counterintuitive*. It appears that, the more the diplomatic channels, the *more* the MID-related casualties. This counterintuitive result is consistent with those in Chapter 5. While the democraticness and international organizations hypothesis are not supported, the economic interdependence hypothesis is supported.

The results in the last column of Table 6-1-2-1 reflect the complete foreign policy decision-making process model portrayed in Figure 3-2-1. The study period spans a relatively shorter period, from 1950 to 1974, owing to data availability. All dyads are analyzed. The civil-military relations is statistically significant at the 0.01 level, conscription is not statistically significant, the diplomatic channels is statistically significant at the 0.05 level, but *counterintuitive*, and media openness is statistically significant at the 0.001 level. It seems that, as expected, the more open the mass media, the less is the likelihood of MID-related casualties. It should be noted that the conscription hypothesis never comes close to statistical significance, regardless of the four different model specifications. It seems that fatal, bloody disputes, most of which may involve high-level national security interests, could not be constrained by different manpower systems. Despite the different manpower structure, states must respond to an international crisis by deploying their available soldiers.

It is intriguing that the democraticness variable shows statistical significance at the 0.001 level, but a *counterintuitive* connection. It appears that, the more democratic the less democratic state in a dyad happens to be, the *more* the casualties occur in a MID. Indeed, this finding, to some extent, is similar to those of democratization studies, which report that a transition to democracy seems to bring about the likelihood of international conflict (Mansfield and Snyder 1995a, 1995b, 1996). Since the study period, from 1950 to 1974, coincides with the second wave of democratization after World War II (Huntington 1991, 1997; Shin 1994), the transition to democracy might lead to the increase of MID-related casualties. It can be argued that, since the four different model specifications and time periods do not support the prominent democratic peace hypothesis, regime type (as measured in the Polity data) has nothing to do with the decrease observed in MID-related casualties. Economic interdependence is statistically significant at the 0.001 level and international organization is statistically significant at the 0.05 level, but once again *counterintuitive*. It seems that joint membership in international organizations *increases* the MID-related casualties—once again a baffling result. Overall, the empirical results show that the civil-military relations, diplomatic channels and media openness variables are good candidates for complementing Oneal and Russett's (1999c) triangular peace.

Table 6-1-2-2 reports the empirical results during the period from 1886 to 1992, using politically relevant dyads only, which turns out to be very similar to those using all dyads in Table 6-1-2-1. As shown for GEE in the second column, the civil-military relations variable is statistically significant at the 0.05 level. While the economic

interdependence hypothesis is supported, the democraticness and international organizations variables do not come out as expected. It seems that, once again, only economic interdependence among the three Kantian peace variables seems to play a role in constraining MID-related casualties.

(Table 6-1-2-2 about here)

The third column focuses on the impact of civil-military dynamics (i.e., civil-military relations and conscription) during the period from 1886 to 1992, using politically relevant dyads. While the civil-military relations hypothesis is supported, conscription is not. When military power prevails in decision-making, the likelihood of MID-related casualties becomes greater. The democraticness hypothesis is not supported, economic interdependence is supported at the 0.01 level of statistical significance, and international organizations is not supported.

The fourth column presents the results for civil-military dynamics and diplomatic channels during the period from 1886 to 1974, using politically relevant dyads. The civil-military relations is statistically significant at the 0.01 level, conscription is not statistically significant, and diplomatic channels is statistically significant at the 0.05 level, but *counterintuitive*. It appears that, the more diplomatic channels there are, the *more* casualties a MID will produce. While the democraticness and international organizations hypotheses are not supported, the economic interdependence hypothesis is supported. This is worth noting because two of the three Kantian peace factors including democraticness seem to fade away.

The results in the last column of Table 6-1-2-2 reflect the complete foreign policy decision-making process model in Figure 3-2-1, using politically relevant dyads. The civil-military relations coefficient is statistically significant at the 0.001 level, conscription is not statistically significant, diplomatic channels is statistically significant at the 0.05 level, but *counterintuitive*, and media openness is statistically significant at the 0.001 level. An increase in media openness clearly decreases the likelihood of MID-related casualties. It is worth noting that the democraticness variable does not hold up even with politically relevant dyads, indicating a statistical significance at the 0.001 level, but *counterintuitive*. It seems that the more democratic the less democratic state in a dyad happens to be, the *more* MID-related casualties we can expect. Economic interdependence is statistically significant at the 0.001 level and international organization is not statistically significant. It should be noted that, while the democraticness hypothesis loses its centrality as a product of *counterintuitive* statistical findings, media openness, once again, gains a strong foothold. Overall, the empirical results show that the civil-military relations, diplomatic channels and media openness variables are good candidates for complementing Oneal and Russett's (1999c) triangular peace.

6.1.3 *Combined Annual Growth Rate for Military Expenditure (CAGRMEAB)*

Table 6-1-3-1 reports the empirical results during the period from 1886 to 1992, using all dyads. As shown for GEE in the second column, the civil-military relations variable (as measured in the *combined annual growth rate for military expenditure*

(CAGRMEAB)) is statistically significant at the 0.05 level. While the economic interdependence hypothesis is supported, the democraticness and international organizations are not supported. It seems that, among the three Kantian peace variables, economic interdependence alone decreases the likelihood of MID-related casualties.

(Table 6-1-3-1 about here)

The third column focuses on the effects of the civil-military dynamics (i.e., civil-military relations and conscription) during the period from 1886 to 1992, using all dyads. While the civil-military relations hypothesis is supported, the conscription hypothesis is not. When military influence increases, the likelihood of MID-related casualties is greater. The democraticness hypothesis is not supported, economic interdependence is supported at the 0.01 level of statistical significance, and international organizations is not supported.

The fourth column presents the results for the civil-military dynamics and diplomatic channels during the period from 1886 to 1974, using all dyads. The civil-military relations coefficient is statistically significant at the 0.05 level; conscription is not statistically significant; and the diplomatic channels is statistically significant at the 0.05 level, but *counterintuitive*. It appears that, the more diplomatic channels, the *more* the MID-related casualties. This counterintuitive result is consistent with those in Chapter 5. While the democraticness and international organizations hypotheses are not supported, the economic interdependence hypothesis is supported.

The results in the last column of Table 6-1-3-1 reflect the complete foreign policy decision-making process model portrayed in Figure 3-2-1. The study period spans a

relatively shorter period, from 1950 to 1974, owing to data availability. All dyads are analyzed. The civil-military relations is statistically significant at the 0.01 level, conscription is not statistically significant, diplomatic channels is statistically significant at the 0.05 level, but *counterintuitive*, and media openness is statistically significant at the 0.001 level. It seems that, as expected, the more open the mass media, the less is the likelihood of MID-related casualties. It should be noted that the conscription hypothesis never comes close to statistical significance, regardless of the four different model specifications. It seems that fatal, bloody disputes, most of which may involve high-level national security interests, can not be constrained by different manpower systems. Despite the different manpower structure, states must respond to international crisis by deploying their available soldiers.

It is intriguing that the democraticness variable shows a statistical significance at the 0.001 level, but a *counterintuitive* connection. It appears that, the more democratic the less democratic state in a dyad happens to be, the *more* the casualties occur in a MID. Indeed, this finding, to some extent, is similar to those of democratization studies, which report that transition to democracy seems to bring about the likelihood of international conflict (Mansfield and Snyder 1995a, 1995b, 1996). Since the study period, from 1950 to 1974, coincides with the second wave of democratization after World War II (Huntington 1991, 1997; Shin 1994), the transition to democracy might lead to the increase of MID-related casualties. It can be argued that, since the four different model specifications and time periods do not support the prominent democratic peace hypothesis, regime type (as measured in the Polity data) has nothing to do with the

decrease observed in MID-related casualties. Economic interdependence is statistically significant at the 0.001 level and international organization is statistically significant at the 0.05 level, but once again *counterintuitive*. It seems that joint membership in international organizations *increases* the MID-related casualties—a baffling result. Overall, the empirical results show that the civil-military relations, diplomatic channels and media openness variables are good candidates for complementing Oneal and Russett's (1999c) triangular peace.

Table 6-1-3-2 reports the empirical results during the period from 1886 to 1992, using politically relevant dyads only, which turns out to be very similar to those using all dyads in Table 6-1-3-1. As a matter of fact, the statistical significance levels of the theoretically interesting variables in Table 6-1-3-2 concur with those in Table 6-1-3-1. As shown for GEE in the second column, the civil-military relations variable is statistically significant at the 0.05 level. While the economic interdependence hypothesis is supported, the democraticness and international organizations variables do not come out as expected. It seems that, once again, only economic interdependence among the three Kantian peace variables seems to play a role in constraining MID-related casualties.

(Table 6-1-3-2 about here)

The third column focuses on the impact of civil-military dynamics (i.e., civil-military relations and conscription) during the period from 1886 to 1992, using politically relevant dyads. While the civil-military relations hypothesis is supported, conscription is not. When military power prevails in decision-making, the likelihood of MID-related casualties becomes greater. The democraticness hypothesis is not supported, economic

interdependence is supported at the 0.01 level of statistical significance, and international organizations is not supported.

The fourth column presents the results for civil-military dynamics and diplomatic channels during the period from 1886 to 1974, using politically relevant dyads. The civil-military relations is statistically significant at the 0.05 level, conscription is not statistically significant, and diplomatic channels is statistically significant at the 0.05 level, but *counterintuitive*. It appears that, the more diplomatic channels there are, the *more* casualties a MID will produce. While the democraticness and international organizations hypotheses are not supported, the economic interdependence hypothesis is supported. This is worth noting because two of the three Kantian peace factors including democraticness seem to fade away.

The results in the last column of Table 6-1-3-2 reflect the complete foreign policy decision-making process model in Figure 3-2-1, using politically relevant dyads. The civil-military relations coefficient is statistically significant at the 0.01 level, conscription is not statistically significant, diplomatic channels is statistically significant at the 0.05 level, but *counterintuitive*, and media openness is statistically significant at the 0.001 level. An increase in media openness clearly decreases the likelihood of MID-related casualties. It is worth noting that the democraticness variable does not hold up even with politically relevant dyads, indicating a statistical significance at the 0.001 level, but *counterintuitive* in direction. It seems that the more democratic the less democratic state in a dyad happens to be, the *more* MID-related casualties we can expect. Economic interdependence is statistically significant at the 0.001 level and international

organization is not statistically significant. It should be noted that, while the democraticness hypothesis loses its centrality as a product of weak statistical findings, media openness, once again, gains a strong foothold. Overall, the empirical results show that the civil-military relations, diplomatic channels and media openness variables are good candidates for complementing Oneal and Russett's (1999c) triangular peace.

6.2 Neural Network Analysis

As in Section 5.2 in Chapter 5, neural network modeling is utilized to better identify evidence of causal structure of the occurrence of MID-related casualties. The suspicious causality arisen from the logit analysis in Section 6.1.1 (see footnote 4) should be assuaged in this neural network analysis in that it more effectively represents nonlinear relations among variables and can deal with correlations (i.e., interaction effects) between variables.

As in Beck, King and Zeng's (2000) presentation, Bayesian "backpropagation" selects 12 nodes in the input layer, 4 nodes in the hidden layer and 1 node in the output layer, and is applied to politically relevant dyads only during the period from 1950 to 1974.[5] The model produces the optimum value of root mean square (RMS) error of 0.0563 in the training data set. Increasing the number of nodes in the hidden layer (i.e., what Beck, King and Zeng (2000) called "M") does not improve the model's

[5] As discussed earlier, the upper cap on total observations limits the neural network modeling to the politically relevant dyads (N = 8,369) only.

performance.[6] As with logistic regression analysis, the neural network analysis focuses mainly on the civil-military dynamics, political communications and three Kantian peace variables. It should be kept in mind that only five variables (i.e., civil-military relations, diplomatic channels, media openness, democraticness and international organizations) among the seven theoretically interesting ones show statistical significance in the last column in Table 6-1-1-2, based on the logistic regression model for politically relevant dyads during the period from 1950 to 1974.

Figure 6-2-1 shows three-dimensional plots of the neural network model output (i.e., the quantitative effect of MID involvement) against two of the inputs (i.e., independent variables) during the period from 1950 to 1974. That is, the surface plots show how the predicted value of MID involvement varies in terms of two independent variables.

(Figure 6-2-1 about here)

The first three-dimensional plot shows that the casual structure of the civil-military relations (i.e., CMR) and conscription (i.e., CONSCRT) variables. The plot portrays a positive relationship between military leaders' influence and MID-related casualties, and a seemingly positive relationship between employing conscription and MID-related casualties.

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[6] As in Beck, King and Zeng (2000), I have experimented with the issue of in-sample and out-of-sample for MID-related casualties. For example, I randomly divided the data into a training set (80%) to fit the model, and a validation set (10%) as well as a test set (10%) to confirm the performance (i.e., goodness of fit) of the trained model. The results, where the RMS error is 0.0528 in the training set, 0.0762 in the validation set, and 0.0599 in the testing set, are very similar to those reported in this study and is shown in Figures 6-1-1A and 6-1-2A in APPENDIX. In this research, I choose to report the results based on the training data during the period from 1950 to 1974 as a replacement for that from the randomized one to facilitate comparison with those from the previous logistic regression models, which cover 1950 to 1974.

The second plot shows that both diplomatic channels (i.e., DIPCHAN) and media openness (i.e., MEDOPEN) variables are associated with the occurrence of MID-related casualties. The plot portrays a complex, nonlinear relationship between political channels (i.e., media openness and diplomatic channels) and MID-related casualties. It seems that media openness has a mixed impact on the occurrence of MID-related casualties. The relationship between diplomatic channels and MID involvement is nonlinear as well. As with the logistic regression model, which produced a counterintuitive result, neural networks suggest that an increase in diplomatic channels may contribute to MID-related casualties.

The third plot shows that, while the democraticness variable (i.e., DEMO) seems to have a very trivial effect on MID-related casualties, the economic interdependence variable (i.e., ECOINT) leads to a great *increase* in casualties from MIDs. A seemingly linear relationship between democraticness and MID-related casualties, as well as a *positive* relationship between economic interdependence and MID involvement, are portrayed. Unlike the results of the logistic regression model, economic interdependence seems to heighten MID-related casualties.

The fourth plot shows that, while the international organizations variable (i.e., JMIO) contributes to increasing, and then lessening, MID-related casualties, the contiguity variable (i.e., CONTIGUITY) is connected to an increase of MID-related casualties. A complicated, nonlinear, mixed relationship between international organizations and MID-related casualties, as well as a seemingly linear, positive relationship between contiguous dyads and MID-related casualties, are portrayed.

Figure 6-2-2 shows sensitivity plots (i.e., marginal effects) for each independent variable during the period from 1950 to 1974.[7] Each sensitivity plot offers a visual representation of a nonlinear relationship for an independent variable.

(Figure 6-2-2 about here)

As shown by the first three-dimensional plot in Figure 6-2-1, the ascendance of military leaders' power features a seemingly linear, positive relationship. It appears that greater military influence on a foreign policy decision-making process contributes to an increase in MID-related casualties. Conscription seems to have a positive impact on MID-related casualties, but its effect seems to be statistically meaningless. Diplomatic channels turn out to be linear and positive. A 26.67 percent increase in diplomatic channels (from 2.175 to 2.755), for example, increases MID involvement by 13.79 percent (from 0.021637 to 0.02462).[8] The plot is counterintuitive, meaning that an increase in diplomatic channels contributes to an *increase* in MID-related casualties. This results are very similar to (or consistent with) those from the logit models. The media openness variable once again confirms a seemingly nonlinear, somewhat mixed relationship. In other words, when media openness in a dyad increases, MID-related casualties becomes more likely, and then less likely in the end.

It appears *counterintuitive* that democraticness should have even a slightly positive impact on the occurrence of MID-related casualties. Economic interdependence

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[7] Following Oneal and Russett's (1999c) baseline probability, I assume not only that each dyad has military leaders' influence, a conscription system, no media openness, no major power involvement, is contiguous, and is not allied, but also that each continuous variable is equal to its mean value except that economic interdependence variable is set at its median value.

[8] The interpretation is based on the difference between the left-hand vertical line and the right-hand vertical line along the predicted line in the cross section of the sensitivity plot.

also seems to show a generally *positive* causal structure: It starts to dramatically *increase* MID-related casualties and then becomes static toward the end. Joint membership in international organizations reveals a complicated, nonlinear, negative relationship. An increase in joint membership in international organizations seems to increase, and then to decrease, the chance of MID-related casualties. The contiguity variable, as hypothesized, reveals a seemingly linear, positive relationship. It is apparent that, if two states are contiguous, they are more likely to produce MID-related casualties.

Table 6-2-3, with respect to statistical significance, summarizes the across-the-board results from both logit and neural network models from Sections 6.1.1 and 6.2. Although civil-military relations and political communications (and media openness), in one way or another, show consistent statistical significance across the different model specifications, methods and time periods, two important and unresolved issues have arisen about the Kantian peace elements related to MID-related casualties. First, according to these findings, the democratic peace falls apart. Neither statistically insignificant nor significant, but *counterintuitive*—that is the story of the Kantian peace coefficients. This results arguably contradict those of Oneal and Russett (*forthcoming*).[9] Second, according to the neural network models, economic interdependence is likely to *increase* MID-related casualties, which is not congruent with the earlier logit results.

(Table 6-2-3 about here)

This chapter has presented the empirical results, which, one way or another, show the importance of the neglected four factors in studies of international

[9] It should be noted that, while Oneal and Russett's (*forthcoming*) ran distributed-lags models, I employed logit and neural network models. Given the methodological discrepancy, further research is in order to assess the sensitivity of each respective set of results.

conflict: (1) civil-military relations, (2) diplomatic channels and (3) media openness. Empirical results from both logit and neural network models indicate that media openness, *not* democraticness that is based mainly on the degree of constraint on the chief executive in the Polity data, appears a most defining attribute of democracy in accounting for MID-related casualties. This most fascinating findings about media openness throughout this project demands a further investigation. The next chapter attempts to serve the purpose.

Table 6-1-1-1 Civil-Military Dynamics, Political Communications and Predicting MID-related Casualties

		Simplest, All Dyads		
Variable	1886-1992	1886-1992	1886-1974	1950-1974
Civil-military relations	0.4072	0.5089*	0.6239*	0.9393*
(IAAMEAB[1])	0.2982	0.2979	0.3304	0.4244
Conscription		0.0374	0.1786	-0.5103
(CONSCRAB)		0.4186	0.6679	0.5962
Diplomatic channels			0.8846^	1.1775^
(SANSDC)			0.4466	0.6326
Media Openness				-22.7126***
(AMOAB)				0.4789
Lower democracy	-0.0074	-0.0113	-0.0178	0.0890^^^
(DEM_L)	0.0340	0.0371	0.0289	0.0248
Trade/GDP	-548.5289**	-613.3767**	-942.8616**	-1116.7450***
($DEPEND_L$)	188.4627	203.4084	317.6998	361.1004
International organizations	0.0202	0.0209	0.0203	0.0309^
(IGO)	0.0208	0.0219	0.0254	0.0168
Capability ratio	-0.4615***	-0.4571***	-0.6120***	-0.3602
(CAPRATIO)	0.1421	0.1418	0.2011	0.2211
Alliances	-0.6833	-0.7955	-1.4976*	-1.5240**
(ALLIANCES)	0.7009	0.7280	0.7205	0.5691
Noncontiguity	-4.1397***	-4.0551***	-3.9783***	-4.1862***
(NONCONTIG)	0.5948	0.6076	0.7271	0.7736
Log distance	-0.3899***	-0.4469***	-0.6176***	-0.5527**
(DISTANCE)	0.1185	0.1235	0.1268	0.1979
Only minor powers	-1.2755*	-1.3463**	-1.0526	-1.0895
(MINORPWRS)	0.5540	0.5498	0.6853	0.7289
Constant	-5.9645***	-5.5015***	-5.5274***	-6.5481***
	1.0504	1.0804	1.5838	1.8910
Chi^2	369.89	369.44	228.18	7730.76
P of Chi^2	0.0000	0.0000	0.0000	0.0000
N	134,505	122,026	57,155	37,405

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^p<.05; ^^^p<.001, one-tailed test but wrong sign

[1] increased above-average military expenditure

Table 6-1-1-2 Civil-Military Dynamics, Political Communications and Predicting MID-related Casualties

		Politically Relevant Dyads		
Variable	1886-1992	1886-1992	1886-1974	1950-1974
Civil-military relations	0.4078	0.5105*	0.6708*	0.9897*
(IAAMEAB[1])	0.2983	0.2988	0.3297	0.4430
Conscription		0.0160	0.1887	-0.4113
(CONSCRAB)		0.4166	0.6384	0.5485
Diplomatic channels			0.9057^	1.3209^
(SANSDC)			0.4139	0.5901
Media Openness				-19.9836***
(AMOAB)				0.5204
Lower democracy	-0.0063	-0.0093	-0.0169	0.0970^^^
(DEM_L)	0.0348	0.0383	0.0298	0.0264
Trade/GDP	-520.6034**	-586.7418**	-897.0855**	-1020.9320***
($DEPEND_L$)	192.1641	209.846	302.4596	330.8902
International organizations	0.0161	0.0161	0.0154	0.0167
(IGO)	0.0206	0.0213	0.0242	0.0157
Capability ratio	-0.4981***	-0.5005***	-0.6408***	-0.4526*
(CAPRATIO)	0.1462	0.1439	0.1980	0.2240
Alliances	-0.7745	-0.9132	-1.5481*	-1.6204***
(ALLIANCES)	0.6765	0.6898	0.6796	0.5106
Noncontiguity	-2.2492***	-2.2063***	-2.2806***	-1.8516**
(NONCONTIG)	0.4354	0.4326	0.5294	0.7325
Log distance	-0.2592*	-0.3189**	-0.5033***	-0.3868*
(DISTANCE)	0.1152	0.1218	0.1303	0.2024
Only minor powers	-0.4744	-0.5045	-0.3116	0.0662
(MINORPWRS)	0.5623	0.5634	0.6935	0.8116
Constant	-4.4773***	-3.9576***	-4.1992**	-4.7507***
	0.9383	1.0366	1.3925	1.7980
Chi^2	107.87	115.48	80.42	4254.74
P of Chi^2	0.0000	0.0000	0.0000	0.0000
N	30,453	27,612	16,400	8,360

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^p<.05; ^^^p<.001, one-tailed test but wrong sign

[1] increased above-average military expenditure

Table 6-1-2-1 Civil-Military Dynamics, Political Communications and Predicting MID-related Casualties

	Simplest, All Dyads			
Variable	1886-1992	1886-1992	1886-1974	1950-1974
Civil-military relations	0.4754*	0.6239**	0.6849**	1.1794**
(IAGRMEAB[1])	0.2496	0.2609	0.2861	0.3918
Conscription		0.0233	0.1807	-0.5661
(CONSCRAB)		0.4228	0.6781	0.6049
Diplomatic channels			0.8800^	1.1634^
(SANSDC)			0.4579	0.6674
Media Openness				-21.7974***
(AMOAB)				0.5338
Lower democracy	-0.0074	-0.0114	-0.0171	0.0853^^^
(DEM_L)	0.0340	0.0371	0.0292	0.0275
Trade/GDP	-556.5734**	-623.0406***	-950.0083**	-1121.7500***
($DEPEND_L$)	191.0754	205.4374	319.7761	359.1444
International organizations	0.0202	0.0210	0.0193	0.0329^
(IGO)	0.0209	0.0222	0.0253	0.0185
Capability ratio	-0.4639***	-0.4631***	-0.6158**	-0.3474
(CAPRATIO)	0.1425	0.1425	0.2038	0.2155
Alliances	-0.6776	-0.7851	-1.4928*	-1.5299**
(ALLIANCES)	0.7025	0.7283	0.7288	0.5680
Noncontiguity	-4.1482***	-4.0626***	-3.9890***	-4.2162***
(NONCONTIG)	0.5982	0.6111	0.7291	0.7802
Log distance	-0.3933***	-0.4516***	-0.6348***	-0.5430**
(DISTANCE)	0.1196	0.1249	0.1291	0.2014
Only minor powers	-1.2449*	-1.3149**	-1.0262	-0.9326
(MINORPWRS)	0.5595	0.5582	0.7093	0.7529
Constant	-6.0450***	-5.6140***	-5.5388***	-7.0655**
	1.0714	1.1098	1.5819	1.9685
Chi^2	365.64	372.17	197.48	6416.81
P of Chi^2	0.0000	0.0000	0.0000	0.0000
N	134,505	122,026	57,155	37,405

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^p<.05; ^^^p<.001, one-tailed test but wrong sign

[1] increased annual growth rate of military expenditure

Table 6-1-2-2 Civil-Military Dynamics, Political Communications and Predicting MID-related Casualties

	Politically Relevant Dyads			
Variable	1886-1992	1886-1992	1886-1974	1950-1974
Civil-military relations	0.4900*	0.6395**	0.7286**	1.2417***
(IAGRMEAB[1])	0.2510	0.2624	0.2875	0.3954
Conscription		0.0013	0.1921	-0.4756
(CONSCRAB)		0.4190	0.6440	0.5531
Diplomatic channels			0.9059^	1.3113^
(SANSDC)			0.4230	0.6279
Media Openness				-19.4472***
(AMOAB)				0.5956
Lower democracy	-0.0066	-0.0097	-0.0165	0.0952^^
(DEM_L)	0.0347	0.0382	0.0301	0.0304
Trade/GDP	-527.1415**	-593.4164**	-904.2420**	-1012.8830***
($DEPEND_L$)	194.1103	210.7224	303.8697	324.2009
International organizations	0.0163	0.0164	0.0141	0.0176
(IGO)	0.0207	0.0215	0.0240	0.0179
Capability ratio	-0.5011***	-0.5066***	-0.6423***	-0.4397*
(CAPRATIO)	0.1466	0.1443	0.2002	0.2165
Alliances	-0.7705	-0.9038	-1.5445*	-1.6365***
(ALLIANCES)	0.6772	0.6876	0.6863	0.5145
Noncontiguity	-2.2443***	-2.2004***	-2.2882***	-1.8473**
(NONCONTIG)	0.4373	0.4345	0.5401	0.7413
Log distance	-0.2600*	-0.3190**	-0.5152***	-0.3606*
(DISTANCE)	0.1157	0.1227	0.1333	0.2069
Only minor powers	-0.4375	-0.4642	-0.2657	0.2731
(MINORPWRS)	0.5655	0.5705	0.7149	0.8046
Constant	-4.5732***	-4.1023***	-4.2549***	-5.3249**
	0.9570	1.0625	1.4020	1.9411
Chi^2	111.00	124.10	91.23	3768.36
P of Chi^2	0.0000	0.0000	0.0000	0.0000
N	30,453	27,612	16,400	8,360

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^^p<.001, one-tailed test but wrong sign

[1] increased annual growth rate of military expenditure

Table 6-1-3-1 Civil-Military Dynamics, Political Communications and Predicting MID-related Casualties

	Simplest, All Dyads			
Variable	1886-1992	1886-1992	1886-1974	1950-1974
Civil-military relations	0.4318*	0.5126**	0.7491*	1.5903**
(CAGRMEAB[1])	0.1943	0.1908	0.3371	0.5621
Conscription		0.0655	0.2067	-0.4958
(CONSCRAB)		0.4174	0.6813	0.5921
Diplomatic channels			0.8971^	1.2924^
(SANSDC)			0.4570	0.6775
Media Openness				-21.0166***
(AMOAB)				0.5678
Lower democracy	-0.0084	-0.0123	-0.0171	0.0885^^^
(DEM_L)	0.0340	0.0374	0.0288	0.0246
Trade/GDP	-551.6207**	-619.9148***	-959.6222**	-1150.0010***
($DEPEND_L$)	186.7537	202.4140	323.3980	367.3547
International organizations	0.0211	0.0219	0.0229	0.0333^
(IGO)	0.0206	0.0215	0.0262	0.0158
Capability ratio	-0.4627***	-0.4599***	-0.6070**	-0.3411
(CAPRATIO)	0.1410	0.1403	0.2012	0.2153
Alliances	-0.6794	-0.7910	-1.5079*	-1.5351**
(ALLIANCES)	0.6991	0.7257	0.7335	0.5763
Noncontiguity	-4.1476***	-4.0678***	-3.9980***	-4.2484***
(NONCONTIG)	0.5972	0.6108	0.7294	0.7724
Log distance	-0.3833***	-0.4371***	-0.6066***	-0.5361**
(DISTANCE)	0.1184	0.1237	0.1252	0.1935
Only minor powers	-1.2639*	-1.3356**	-1.0209	-1.0109
(MINORPWRS)	0.5575	0.5534	0.6922	0.7395
Constant	-5.9877***	-5.5509***	-5.6492***	-7.0185***
	1.0519	1.0837	1.5623	1.8781
Chi^2	361.38	365.46	203.10	6098.98
P of Chi^2	0.0000	0.0000	0.0000	0.0000
N	134,505	122,026	57,155	37,405

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^p<.05; ^^^p<.001, one-tailed test but wrong sign

[1] combined annual growth rate of military expenditure

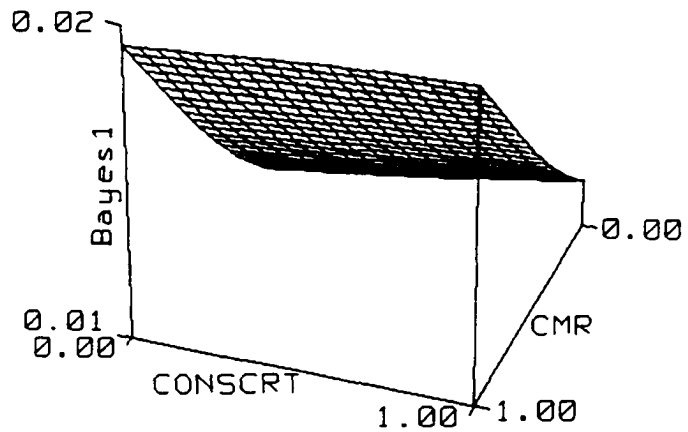
Table 6-1-3-2 Civil-Military Dynamics, Political Communications and Predicting MID-related Casualties

	Politically Relevant Dyads			
Variable	1886-1992	1886-1992	1886-1974	1950-1974
Civil-military relations	0.4164*	0.4971**	0.7547*	1.6223**
(CAGRMEAB[1])	0.1943	0.1911	0.3281	0.6116
Conscription		0.0431	0.2175	-0.3906
(CONSCRAB)		0.4151	0.6505	0.5410
Diplomatic channels			0.9140^	1.4261^
(SANSDC)			0.4232	0.6373
Media Openness				-18.3711***
(AMOAB)				0.6323
Lower democracy	-0.0078	-0.0111	-0.0176	0.0949^^^
(DEM_L)	0.0348	0.0388	0.0299	0.0258
Trade/GDP	-521.4316**	-589.9591**	-910.3559**	-1032.0960***
($DEPEND_L$)	189.8265	208.2498	306.4754	326.9151
International organizations	0.0170	0.0172	0.0184	0.0198
(IGO)	0.0204	0.0208	0.0250	0.0144
Capability ratio	-0.4999***	-0.5039***	-0.6350***	-0.4240*
(CAPRATIO)	0.1451	0.1423	0.1982	0.2173
Alliances	-0.7706	-0.9082	-1.5586*	-1.6260***
(ALLIANCES)	0.6737	0.6863	0.6896	0.5179
Noncontiguity	-2.2609***	-2.2253***	-2.3222***	-1.9350**
(NONCONTIG)	0.4397	0.4374	0.5494	0.7450
Log distance	-0.2515*	-0.3077**	-0.4944***	-0.3828*
(DISTANCE)	0.1142	0.1210	0.1281	0.1993
Only minor powers	-0.4591	-0.4895	-0.2828	0.1402
(MINORPWRS)	0.5652	0.5674	0.6997	0.8037
Constant	-4.5124***	-4.0236***	-4.3266***	-5.1807**
	0.9382	1.0379	1.3586	1.7713
Chi^2	110.29	119.16	80.90	3327.61
P of Chi^2	0.0000	0.0000	0.0000	0.0000
N	30,453	27,612	16,400	8,360

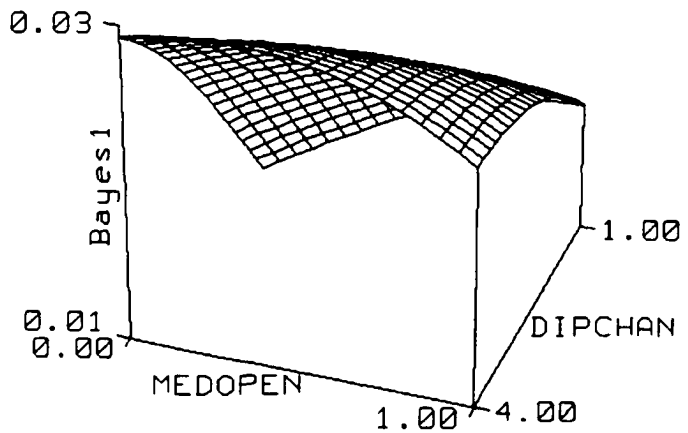
*p<.05; **p<.01; ***p<.001, one-tailed tests; ^^^p<.001, one-tailed test but wrong sign

[1] combined annual growth rate of military expenditure

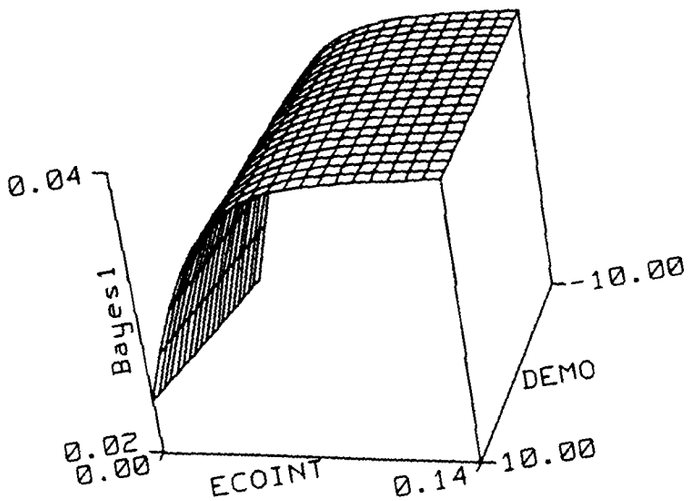
Figure 6-2-1
Three-Dimensional Plots of the Network Output against Two Inputs, 1950-1974



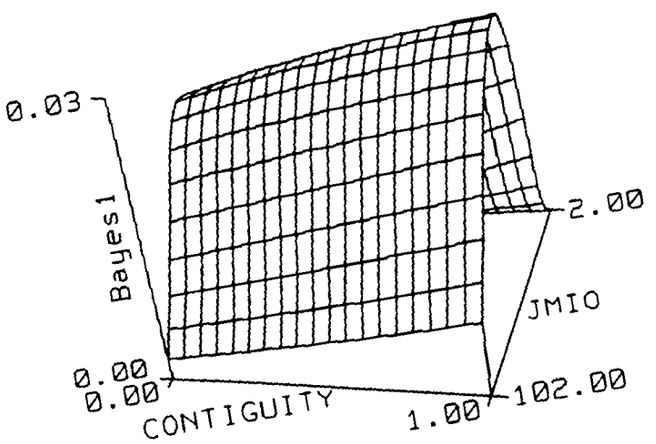
(a) The likelihood of MID-related casualties against civil-military relations and conscription



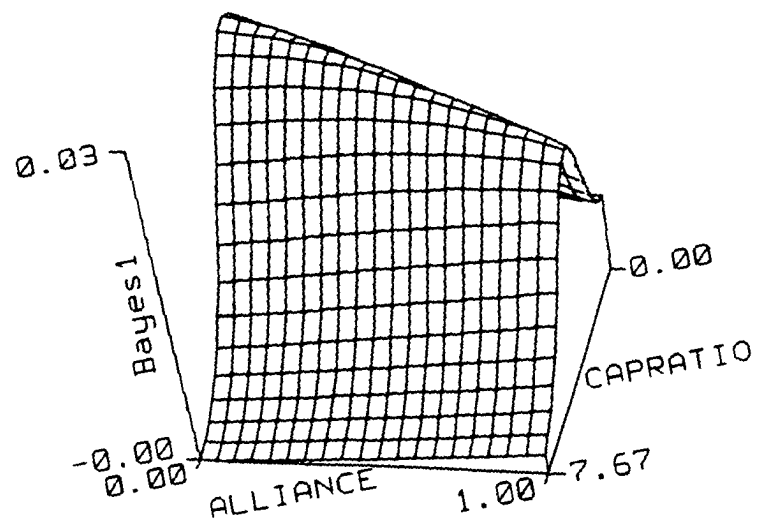
(b) The likelihood of MID-related casualties against diplomatic channels and media openness



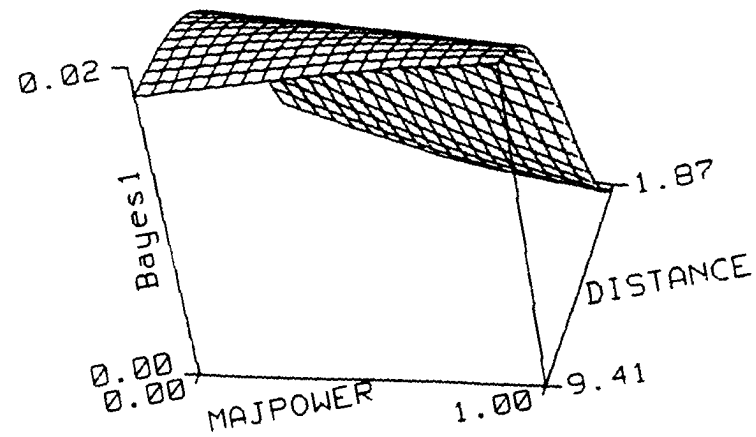
(c) The likelihood of MID casualties against democraticness and economic interdependence



(d) The likelihood of MID-related casualties against international organizations and contiguity

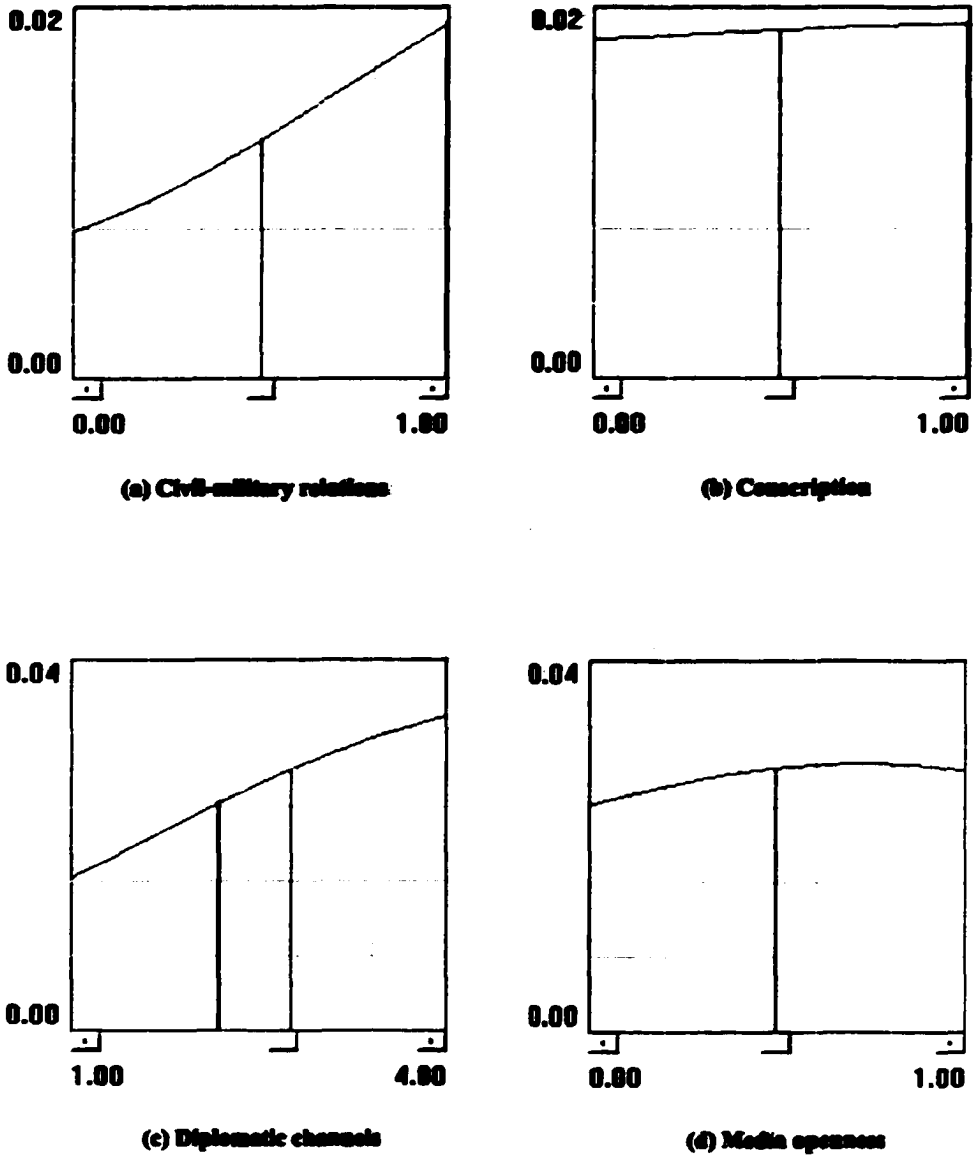


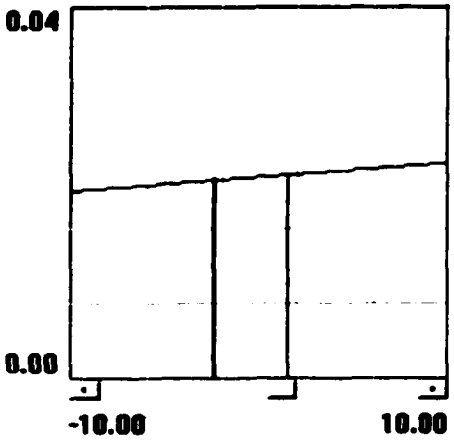
(e) The likelihood of MID-related casualties against capability ratio and alliance



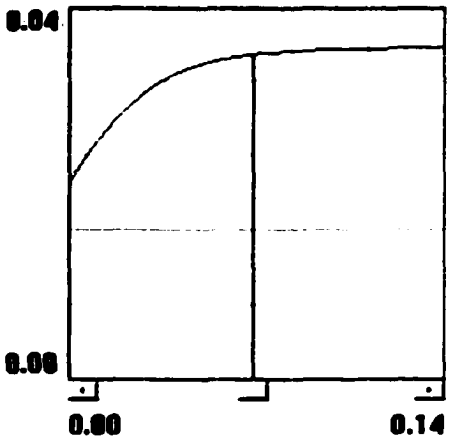
(f) The likelihood of MID-related casualties against distance and major power

Figure 6-2-2
Marginal Effects of Each Independent Variable, 1950-1974

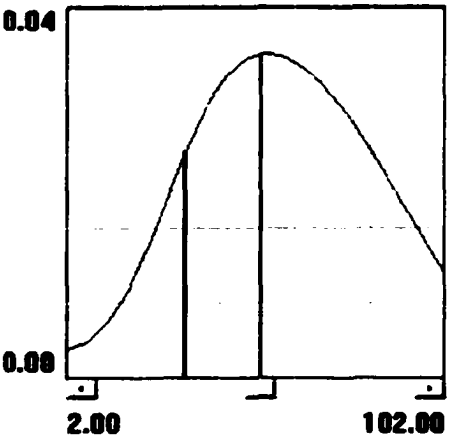




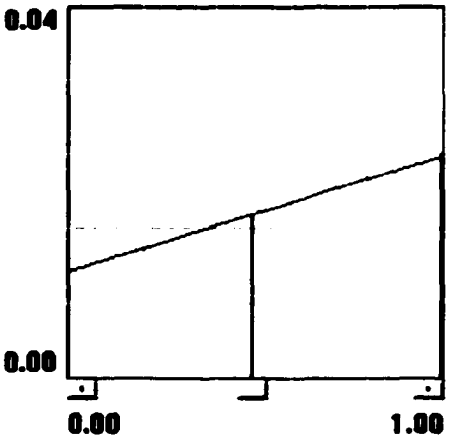
(e) Democraticness



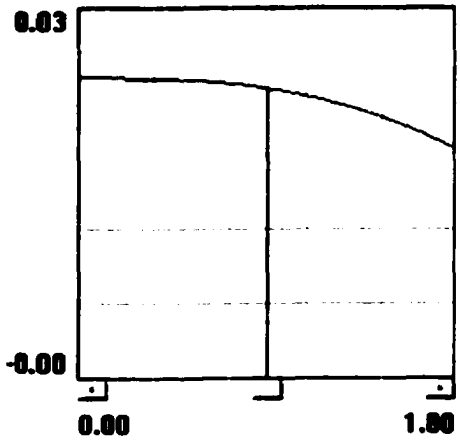
(f) Economic interdependence



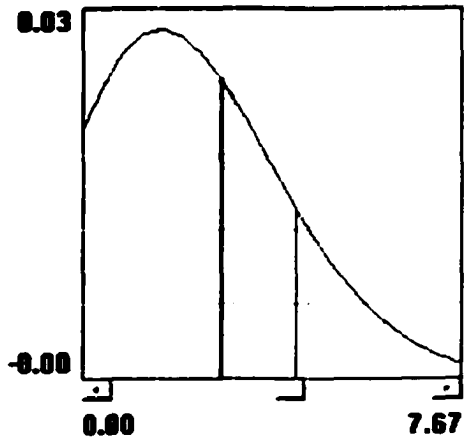
(g) International organizations



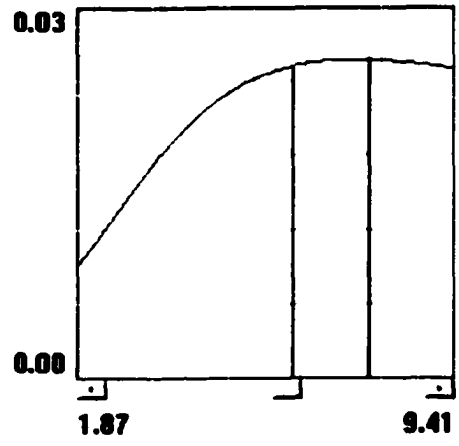
(h) Contiguity



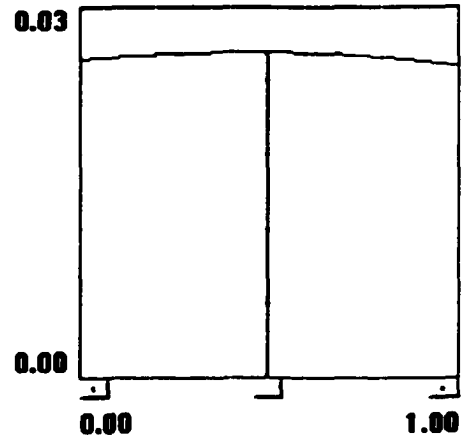
(i) Alliance



(j) Capability ratio



(k) Distance



(l) Major powers

Table 6-2-3 'Quadrangulating' the Peace?: A Summary of Statistical Significance in MID-related Casualties

	Variable	Logistic Regression								Neural Network
		Simplest, All Dyads				*Politically Relevant Dyads*				*Politically Relevant Dyads*
		[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]	[4]
New	Civil-military relations (H_1)		*	*	*	_	*	*	*	intuitive
	Conscription system (H_2)	n/a	_	_	_	n/a	_	_	_	intuitive
	Diplomatic channels (H_3)	n/a	n/a	^	^	n/a	n/a	^	^	counterintuitive
	Media openness (H_4)	n/a	n/a	n/a/	***	n/a	n/a	n/a	***	mixed
Kantian Peace	Democraticness	_	_	_	^^^	_	_	_	^^^	counterintuitive
	Economic interdependence	**	**	**	***	**	**	**	***	counterintuitive
	International organizations	_	_	_	^	_	_	_	_	mixed

$^{\cdot}$p<.05; $^{\cdot\cdot}$p<.01; $^{\cdot\cdot\cdot}$p<.001, one-tailed tests; $^{\wedge}$p<.05; $^{\wedge\wedge}$p<.001, one-tailed test but wrong sign

_: Not statistically significant

n/a: Not applicable

[1]: 1886-1992

[2]: 1886-1992

[3]: 1886-1974

[4]: 1950-1974

CHAPTER SEVEN[1]

IS THE PEN MIGHTIER THAN THE SWORD, 1950-1992?

7.1 Media and International Politics

Mass media plays a central role in politics. In the context of checks and balances, mass media often is portrayed as the fourth branch of government in a federal system such as the US. Newspapers, television in general, cable news in particular (e.g., CNN) and the Internet, through which public opinion flows in and out, are essential components of political life. Media not only transfers information; it also facilitates communication. These two functions may ameliorate conflict, crisis and war in world politics. The Tiananmen Square incident in the spring of 1989 provides a good example: The image of a single Chinese man blocking the movement of tanks sent a stunning and dramatic message to the Chinese Communist Government as well as to the world. Yielding to public pressure, China had to back down, at least for some time, from use of military force. Thus the pen proves mightier than the sword – or, in this case, the television camera relative to the armored vehicle. A theoretically important question therefore arises: Can the positive roles of mass media with respect to information and

[1] This chapter is a spin-off from this dissertation project. Given the importance of the empirical findings about media openness in the previous chapters, 5 and 6, this chapter is in order. This chapter is presented in a formal journal article format. This chapter very much was inspired by J. Joseph Hewitt whose comments on the short version of the draft were so insightful and grateful. A special thank must go to him.

communication be externalized in response to international conflict? This question is addressed in the context of one of the most prominent research programs in international relations – the democratic or neo-Kantian peace.[2]

Based on a cross-sectional, time-series data set for the period from 1950 to 1992, logistic regression analysis will show that media openness has a strong dampening effect on Militarized Interstate Disputes (MIDs) and MID-related casualties.[3] Moreover, this connection outweighs the contribution of democraticness (as measured in the Polity Data set (see Gurr, Jaggers and Moore 1989, 1990, 1991; Jaggers and Gurr 1995; Gleditsch and Ward 1997; Munch and Veruilen 2002)), which suggests that the increasing conventional neo-Kantian triad – democracy, economic interdependence and intentional organizations – needs further consideration.

Four additional sections appear below. The second section discusses the role of media openness with respect to democracy and interstate disputes. Hypotheses, measurement, data and model-building appear in the third section. The fourth section reports the empirical results that assess the significance of media openness in inhibiting MIDs and MIDs-related casualties. The fifth and last section summarizes the implications of the empirical findings and considers alternative foreign policy options.

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[2] For representative studies, see Starr (1992a, 1992b, 1997), Russett (1993), Maoz and Russett (1993), Hewitt and Wilkenfeld (1996), Chan (1997), Ray (1998), Oneal and Russett (1999), Russett and Starr (2000), Russett and Oneal (2001) and Prins (2002).

[3] A MID is defined as "a set of interactions between or among states involving threats to use military force, displays of military force, or actual uses of military force" (Gochman and Maoz 1984: 587). Although many disputes occur that are not brought on by crises (i.e., there are low-level MIDs), the focus here is on disputes linked to *crises*. MID-related casualties are counted for cases with at least one solider killed in a dyad-year. See also Jones, Bremer and Singer (1996), Maoz (1999) and Sarkees (2000) on concept formation and data as related to MIDs and MID-related casualties.

7.2 Media Openness, Democracy and Interstate Disputes

Since students of international conflict, crisis and war have paid little attention to the role of media openness, relatively few studies exist in the democratic or neo-Kantian peace literature. In his now-classic article, "A Force for Peace," which contains the very first empirical research on the democratic peace, Babst (1972: 55) argues that freedom of speech in general and of the press in particular are essential characteristics of freely elected governments in independent states. Small and Singer's (1976: 51) study of regime types and war-proneness acknowledges the benign impact of media openness by citing East and Gregg's (1967) findings that "states with more authoritarian regimes – as reflected in their practice of press censorship – appeared to exhibit more foreign-conflict behavior than 'freer' nations." In the context of presenting his revised index of political democracy, Bollen (1980, 1991, 1993) emphasizes that press freedom is one of the key elements of democracy. Seeing transparency of information flow as a key component of the democratic nature of a polity, Starr (1992a, 1992b, 1997) argues that freedom of speech and the press are essential elements that inhibit liberal democracies from fighting each other. Data analysis by Van Belle (1997) and Van Belle and Oneal (2000) produces a causal connection between media openness and international conflict. These studies suggest that enhancing media openness could be a neglected idea (and policy goal) in the quest for a more peaceful world.

Despite the apparent importance of media openness, research on the democratic or neo-Kantian peace generally has paid closer and more sustained attention to other structural and cultural aspects of democracy (see Starr 1992a, 1992b, 1997; Russett 1993;

Maoz and Russett 1993). Ironically, this relative neglect of media openness, to a large extent, is associated with the evolution of the otherwise remarkably comprehensive Polity data sets (see Gurr, Jaggers and Moore 1989, 1990, 1991; Jaggers and Gurr 1995; Gleditsch and Ward 1997). Since the 1970s the Polity data sets have become a widely used source of cross-national, time-series data on the authority characteristics of modern polities. They are prominent especially in assessments of the degree of democracy and autocracy in the political structures of modern states.

The centrality of the Polity data sets, however, has caused democratic peace studies to measure democracy along some dimensions while not incorporating others. Put differently, while Polity clearly is the best data set on national attributes, some aspects of politics may have been downplayed as a result of its use in research on the democratic peace. The Polity data sets include five attributes of democracy – competitiveness of participation, regulation of participation, competitiveness of executive recruitment, openness of executive recruitment and constraints on executive – but do not take into account any aspects of media openness. In this regard, Starr (1992b: 52) provides a useful insight: "while constraints are important, they do not give us the whole story. There is still something about being a democracy that affects the war relationship between states." In other words, students of the democratic peace do not yet have a firm grasp of what exactly it is about democracies that keep them from engaging in serious armed conflicts with each other.

More importantly, among the five democratic attributes, the degree of constraint on the chief executive, at the aggregate level, emerges as the main determinant of the

standard "democracy", "autocracy", and "democracy minus autocracy" scores (Gleditsch and Ward 1997).[4] As a result, "using the data summarily to classify modern polities as democracies directs attention away from the actual data that have been collected on authority patterns" (Gleditsch and Ward 1997: 381). In their recent and excellent review, Munck and Verkuilen (2002: 26) also observe that "not only is virtually no theoretical justification [offered for generating the democracy, autocracy and combined polity scores], but it also is open to criticism due to the index's problems of conceptual logic." While other efforts have been made to measure democracy, and it is understood that "the careful development of measures constitutes the foundation for efforts at drawing causal inferences and is a critical task in itself" (Munch and Verkuilen 2002: 31),[5] development of a compelling index for democracy remains a great challenge.

One aspect of that challenge is especially salient for this project: Do all of the plausible attributes of democracy contribute equally to decreasing the likelihood of international conflict, crisis and war? The answer implicit within the democratic peace studies would seem to be 'yes', with an emphasis on synergy among these attributes. Perhaps, however, some elements of democraticness are more important than others and it is worth trying to pinpoint the main driving force. To paraphrase, what is the most defining attribute of democracy that stands out in reducing the tendency toward war? Based on the Polity data sets, democratic peace studies have emphasized various

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[4] Oneal and Russett (1999: 12, footnote 30) acknowledge this drawback of the Polity III data set when observing that their "democracy minus autocracy" score does not reflect "the relative importance of its components [which are] unstable over time."

[5] For examples see Bollen (1980, 1991, 1993), Arat (1991), Coppedge and Reinicke (1991), Hadenius (1992), Alvarez, Cheibub, Limongi and Przeworski (1996), Gasiorowski (1996), Freedom House (2000) and Vanhanen (2000).

structural and cultural factors, especially the degree of constraint imposed on the chief executive, in identifying the main determinants of democracy. Although I am not necessarily in dispute with the conventional approaches, I turn my attention to another crucial aspect of democracy, media openness, in this paper.

Conceptualizing and operationalizing democracy only on the basis of structural and cultural factors that do not include media openness, especially in relation to the degree of constraint on the chief executive, may be like trying to shoot a bull's-eye on the wrong target. As the experience of the French Revolution shows, a valid and complete treatment of democracy should focus more on the liberties of ordinary people, from the right to vote all the way through to civil rights. As Lincoln said, democracy is "the government of the people, by the people and for the people." More is involved here than the mechanics of voting. Although the two issues are not unconnected, ensuring citizens' rights would seem like a more central concern with respect to placing inhibitions on interstate disputes than simply constraining the chief executive's authority in democracies. A discussion about how to define and measure democracy, which includes these and other components, will provide theoretical reasoning in favor of an emphasis on civil liberties, especially media openness.

Although democracy's meaning can vary in terms of kinds, levels and degrees, two basic categories stand out: (1) electoral (or minimalist) democracy and (2) liberal (or procedural) democracy (Huntington 1991; Shin 1994; Diamond 1996, 1999; Collier and Levitsky 1997).[6] Electoral democracy embraces Dahl's (1971) concept of polyarchy and

[6] According to Collier and Levitsky (1997), there are hundreds of subtypes of democracy.

requires a minimal level of political rights so that political competition and participation are guaranteed. These traits, in turn, allow the opposition to have some realistic chance of winning an election and taking office. Thus electoral democracy takes the form of regular, free and fair elections to some kind of national legislature (Diamond 1996).

Liberal democracy goes further. It guarantees not only the political rights of electoral competition and participation but also civil liberties. It does not allow privileged social classes, perhaps based on membership in the military establishment or some other group, to determine political outcomes. Instead, liberal democracy entails a self-constrained executive power through constitutional checks and balances. It thereby ensures individual freedom and pluralism. More importantly, liberal democracy means that the mass public can influence public policy through multiple and effective political channels. The public, free from authoritarian rule, becomes involved actively in the political process. Students of comparative politics argue that a liberal (procedural) definition of democracy is superior to an electoral (minimal) democracy (Huntington 1991; Shin 1994, 1999: 47-49; Diamond 1996, 1999; Collier and Levitsky 1997).

Civil liberties, in sum, are crucial in defining liberal democracy. Civil liberties include not only the right to vote and contest for office, but also to speak and publish dissenting views, form and join organizations and obtain access to alternative sources of information. Diamond (1999: 8) emphatically stresses that, without civil liberties, no kind of democracy can be truly meaningful. Media openness – the modern meaning, in practice, of freedom of expression – is one of the most important elements of civil liberties. Moreover, media openness emerges as the crucial characteristic of liberal

democracy that can contribute to dampening the likelihood of international conflict. According to Diamond (1999: 9), the Polity data set "acknowledges civil liberties as a major component of democracy but, because of the paucity of data, does not incorporate them."[7] Studies of international conflict need to include aspects of liberal democracy beyond the electoral or minimal level. Thus my paper introduces media openness as one of the most important features of liberal (i.e., procedural) democracy.

Empirical research on media openness in relation to democracy is high in quality but low in quantity. Bollen (1980, 1991, 1993) incorporated media openness into an index of political democracy. Press freedom is one of three indicators used by Bollen to represent civil liberties in liberal democracy. Starr (1992a, 1992b, 1997) observes that transparency in the form of freedom of speech and of the press contributes to free movement of information in liberal democracies, which discourages democracies from fighting each other. Van Belle (1997, 2000) and Van Belle and Oneal (2000) introduce the salience of media openness into the ongoing literature devoted to the democratic or Neo-Kantian peace. Van Belle (1997, 2000) created a cross-national, time-series data set on media openness for the period from 1948 to 1996. Van Belle's (1997: 405) data set helps to introduce liberal (or procedural) democracy into empirical research on regime type and international conflict; he sums up the anticipated importance of media openness very effectively:

> When a democracy faces a non-democracy in international conflict, the democratic leader can expect to be the dominant source of 'legitimate' information for the domestic news media. As the dominant source of

[7] Despite the absence of civil liberties as an indicator, the Polity data sets should be commended for going beyond, at least to some extent, the definition of electoral (i.e., minimal) democracy by incorporating institutional constraints on the exercise of executive power.

> information, the leader can use the resources of his or her office to influence the news content to his or her domestic political benefits. Information reported from the government controlled media of non-democratic regimes is reported as propaganda and dismissed as such. In contrast, when two democracies come into conflict, the domestic news media on both sides accept each other as legitimate sources of information and neither leader can expect to have an overwhelming influence on the content of the news media. As a result, neither leader can expect to have an overwhelming influence on the content of the news media, and the domestic political costs of war, upon which Kant based on his model of a perpetual peace, will far outweigh any potential domestic political benefits received from engaging in conflict.

For such reasons, media openness is an important factor that may provide new and powerful insight when incorporated into contemporary research on the democratic peace.

7.3 Research Design

7.3.1 A Hypothesis about Media Openness

Media openness is a principal indicator of the potential for effective political information and communication between states. Freedom of the press and other news media gives voice to public opinion and empowers the public's eyes and ears to detect governmental misconduct, most notably abuse of power (Graber 1986: 258). Thus media openness helps to prevent national leaders from exploiting international conflict for political gain, for example, in pursuit of a rally effect. Moreover, media openness may give each state an opportunity to reduce misinformation and miscommunication and the attendant risk of escalation by providing more open channels. Since a less restricted information flow on preferences, capabilities, allies, etc. should reduce the chances of misperception and miscalculation, greater media openness may lead to a decrease in international disputes (Stoessinger 1985; Blainey 1988; Gerber and Green 1999). In this

regard, Small and Singer (1976: 51) credit East and Gregg's (1967) findings that "states with more authoritarian regimes – as reflected in their practices of press censorship – appeared to exhibit more foreign-conflict behavior than 'freer' nations." Along the same lines, on the basis of data analysis for global press freedom data from 1950 to 1992, Van Belle and Oneal (2000: 72) conclude that, "when the media is independent of governmental control and able to report events objectively, national leaders are constrained in resorting to force, reducing the likelihood that a state will become engaged in a militarized interstate dispute." Thus the hypothesis about media openness is as follows:[8]

H_1: Dyads composed of states with (without) free or imperfectly free media openness are less (more) likely to become involved in Militarized Interstate Disputes.

7.3.2 Measurement and Data

I utilize Van Belle's (2000: 137-148) global press freedom data collection. Van Belle provides a five-category coding scheme for the press freedom of states included in the Polity III data set. The media openness variable is dichotomous. The variable is coded as '1' if both states in each dyad-year have free or imperfectly free press or news media is capable of functioning as an area of political competition or debate (i.e.,

[8] Unlike the media openness hypothesis, Fearon's (1994) notion of audience costs and Schultz's (1998) analysis of political opposition shed light on a somewhat different institutional constraint. From their point of view, it may not be the fact that states have an open media that matters so much. Instead, that institutional feature allows opposition voices to be heard, which should make a leader a bit more cautious out of fear of political consequences. In this sense, the media might be a proxy for the leadership's concerns about political costs of using military force. Although I do not disagree with the line of reasoning derived from Fearon and Schultz, the focus of my paper is on a decision-making process as it might be affected by media openness rather than domestic constraints in general.

categories 1 and 2); it is '0' otherwise (i.e., the press and news media are either restricted or controlled by the government, or no press and news media, categories 0, 3 and 4).

7.3.3 Building a Logistic Regression Model

I choose to test the media openness hypothesis by replicating a standard and prominent research design from the neo-Kantian or democratic peace literature. Use of Oneal and Russett's (1999) data and model as the foundation for this analysis should reduce bias that might inadvertently appear, not only because their research design provides the frame of reference for comparison, but also because it has emerged as one of the most frequently replicated in the field of international relations.[9]

Oneal and Russett's (1999) overall research design is familiar to students of international conflict, so I briefly summarize only the three Kantian peace factors contained within it: democraticness, economic interdependence and joint membership in international organizations. Democraticness assumes the "weakest link" (Dixon 1993, 1994): the score for the less democratic state in a dyad is taken to be the stronger determinant of how interactions will proceed. Hence, the more democratic that state is, the more constrained it will be from engaging in MIDs and therefore the more peaceful the dyad. Economic interdependence also assumes the "weakest link": the score for the less interdependent state in a dyad is taken to be the stronger determinant of interstate disputes. Hence, the more interdependent that state is, the more constrained it will be from engaging in MIDs and therefore the more peaceful the dyad. The variable

[9] Gartzke (1997: 13, 51), in fact, made this observation about even earlier iterations of the Oneal and Russett research design.

corresponding to joint membership in international organizations is measured by the number shared in the dyad. Hence, the more joint memberships in intergovernmental organizations, the more constrained the two states will be from engaging in MIDs and therefore the more peaceful the dyad.

The other five variables in the neo-Kantian or democratic peace model from Oneal and Russett (1999) are (1) national capability ratio (i.e., to control for power preponderance); (2) whether the members of each dyad are allied; (3) non-contiguity; (4) geographical proximity; and (5) whether each member of the dyad is a minor power. These five variables are expected to decrease the likelihood of MIDs and generally have obtained statistical significance in previous studies.

With a special emphasis on media openness, this paper purports to test the nine preceding hypotheses about MIDs during the period from 1950 to 1992 at the dyadic level.[10] The generalized estimating equation (GEE) logistic regression is implemented, which preserves continuity with the general approach taken in the study of international conflict processes over the last few years.[11]

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[10] It should be noted that, unlike the democraticness hypothesis, the media openness hypothesis does not adopt the weakest link assumption, which requires at least an ordinal level measurement. Although it is tempting to treat the media openness variable as a scale, Van Belle (2000: 140) notes that "categorical coding used for this analysis *does not* produce a five-point interval scale and the degree to which it can be used as a ordinal scale is unclear."

[11] The GEE is one of the most commonly employed statistical methods among students of international conflict, crisis and war. It estimates population-averaged panel-data (i.e., time-series and cross-sectional data) models. In particular, it estimates general linear models and allows us to specify the within-group correlation structure (i.e., autocorrelation) for the panels. *Stata Statistical Software* (version 7.0) is used for empirical tests. See Diggle, Liang, and Zeger (1994: 142-145, 151-152) and Zorn (2001) for explanations of GEE in practice.

Since Oneal and Russett (1999) present MID involvement rather than initiation as the dependent variable, I choose MID involvement as my dependent variable for purposes of comparison.[12] For the GEE logistic regression model, all independent variables are lagged by one year, so they are not affected by a dispute to be explained. The revised model in Equation 1 is a combination of the media openness variable and the eight variables from Oneal and Russett's (1999: 21) democratic peace model:

$$(1)\quad Y_t = \alpha + \beta_1 X_{1t-1} + \beta_2 X_{2t-1} + \beta_3 X_{3t-1} + \beta_4 X_{4t-1} + \beta_5 X_{5t-1} + \beta_6 X_{6t-1} + \beta_7 X_{7t-1} + \beta_8 X_{8t-1} + \beta_9 X_{9t-1} + \varepsilon$$

Here,

Y_t: MID involvement

X_{1t-1}: media openness

X_{2t-1}: democraticness

X_{3t-1}: economic interdependence

X_{4t-1}: joint membership in international organizations

X_{5t-1}: capability ratio

X_{6t-1}: allied states

X_{7t-1}: non-contiguous states

X_{8t-1}: distance

X_{9t-1}: only minor power presence

ε: error term

This research design is distinguished from Oneal and Russett (1999) and many other treatments by the presence of X_{1t-1}: media openness.

One might raise a concern about multicollinearity between variables, especially media openness and democraticness. It should be noted that, with respect to

[12] Oneal and Russett (1999) report only the MID involvement results in their article. According to Oneal and Russett (1999: 23), after testing both MID involvement and initiation, they find that each dependent variable measurement produces "nearly identical results."

conceptualization, measurement and aggregation, Van Belle (2000)'s media openness is quite different from Oneal and Russett's (1999) democraticness (as measured in the Polity III data). While Van Belle introduces media openness as one of the most prominent attributes of democracy, Oneal and Russett use the Polity III data set, which is built on five other structural attributes of democracy: (1) competitiveness of participation, (2) regulation of participation, (3) competitiveness of executive recruitment, (4) openness of executive recruitment and (5) constraints on the executive. Polity III's coding decisions are not explicitly based on the extent of media openness (see Gurr, Jaggers and Moore 1989, 1990, 1991; Jaggers and Gurr 1995). At the aggregate level, Oneal and Russett's version of democraticness treats the degree of constraint on the chief executive as a main determinant of the conventional "democracy minus autocracy" score.[13] The 'bottom line' is that Van Belle's concepts, measurements and data for media openness are not the same as Oneal and Russett's version of democraticness based on Polity III. Van Belle's data set represents another key element of liberal democracy, while the emphasis of Polity (as used by Oneal and Russett) is on something closer to checks and balances on chief executive power. Since each index is defined, measured and aggregated differently, it can be incorporated into a model without immediate, theoretically-based concerns

[13] Some may argue that media openness is embedded indirectly in the Polity coding. A plausible question would be this one: How could a state coded as undemocratic (i.e., with very little in the way of institutionalized regulation of political participation, where political groups do not compete regularly for influence) still be found to have freedom of the press? Although this question is legitimate, it should be noted that some highly autocratic states *do* have a free press. My data reveal that, while Nigeria, Uganda, Swaziland, etc. fall below –6 on the conventional democracy minus autocracy score, their media openness is reported as free or imperfectly free and therefore capable of functioning as an area of political competition or debate.

about multicollinearity.[14] It will be interesting to compare the performance of media openness and democraticness (as measured by the Polity III index) in a combined statistical model.[15] Van Belle and Oneal (2000) offer a pioneering effort along those lines and find that media openness matters – and to a notable extent. The current model, which includes nine variables, all told, also is in step with the neo-Kantian direction of the democratic peace as a program of research in the last few years.

Since military casualties are one of the most salient issues in democracies, I choose to report the effect of media openness on MID-related casualties as well. The public can be expected to express its concerns about military actions that entail casualties (Gartner and Segura 1998). According to Luttwak (1996: 36), "the prospect of high casualties, which can rapidly undermine domestic support for any military operation, is the key political constraint when decisions must be made on which forces to deploy in a crisis, and at what levels." In particular, how democracies – which now make up a significant percentage of the world polity – respond to military casualties continues to stimulate scholarship (e.g., Gartzke 2001). Oneal and Russett (*forthcoming*) suggest that, since democracies are more sensitive to public opinion than non-democracies, they are less likely to engage in disputes that become lethal. In a sense, Oneal and Russett's statistical results, which show that democratic dyads are less disposed toward MID-

[14] As a precautionary measure, several diagnostic tests on multicollinearity are presented in the next section.

[15] This strategy is suggested in Starr's (1992b: 46) seminal work from a decade ago: "There is varying empirical support for any of the possible explanations for peace in democratic-democratic dyads. Which of these would seem to be the most promising? One way to deal with alternative explanations would be to engage in empirical analysis of the possible alternatives."

related casualties, would seem to justify a continuing focus on democratization as the potential solution to international disharmonies and disputes.[16]

Since Oneal and Russett (1999) rely on MID involvement rather than MID-related casualties as their dependent variable, I use Maoz's dyadic MID dataset version 1.1 (updated January 2001) to identify the casualty (i.e., fatality) level for each dyad in a given year.[17] 'MID-related casualties' are a dichotomous dependent variable, i.e., '1' (with at least one solider killed) versus '0' (no soldiers killed). This practice follows Oneal and Russett's (*forthcoming*) approach: The causal mechanism for MIDs is applied also to MID-related casualties in this paper. After testing their model with MID involvement as the dependent variable, Oneal and Russett replaced it with MID-related casualties for the second part of the analysis.[18]

In sum, with a special emphasis on media openness, this paper purports to test the preceding model of both MID involvement and MID-related casualties during the period from 1950 to 1992 at the dyadic level.

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[16] It should be noted that research on MID-related casualties has been not been in the spotlight of neo-Kantian or democratic peace research, at least in comparison to the highest level of hostility in dyadic disputes. Oneal and Russett's (*forthcoming*) article appears to be a first, provocative introduction of lethal dispute analysis into the democratic peace literature. This relatively recent turn of interest may be because of missing observations; Maoz (1999: 3) warns that, "due to considerable missing information, this [casualty level] variable should be used with great deal of caution."

[17] Maoz's dyadic MID dataset version 1.1 (updated January 2001) can be found in ftp://spirit.tau.ac.il/zeevmaoz/dyadmid.html.

[18] Oneal and Russett's (*forthcoming*) data set is not as yet available for use.

7.4 Empirical Results: The Power of Media Openness

Data analysis will unfold in three stages. The first stage replicates Oneal and Russett's (1999: 22) neo-Kantian peace model for the period from 1950 to 1992. Since Oneal and Russett report the empirical results from 1886 to 1992 only (and during the multipolar period after 1886 and before the Cold War), it becomes interesting to find out whether their model holds up during the Cold War era. The second stage presents the empirical results based on my revised model, with a special focus on the impact of media openness on interstate disputes. The third and final stage is to diagnose my revised model for multicollinearity between independent variables, especially for media openness and democraticness, and then to present my final empirical results.

Replications of Oneal and Russett (1999: 22) during the period from 1950 to 1992 are presented in Table 7-4-1. While the second column reports the results for all dyads, the third column shows the results for politically relevant dyads only (i.e., when either major power becomes involved in dyadic disputes or where members of the dyad are geographically contiguous). As shown in the second column, both the democraticness and economic interdependence hypotheses are supported, but joint membership in international organizations is not. As expected, all of the other five, realist-oriented (i.e., control) variables are statistically significant. The results for politically relevant dyads in the third column come as something of a surprise. Among the three neo-Kantian peace variables, only the democraticness hypothesis is supported. Given the fact that politically relevant dyads make up most of the dispute-prone pairs, to which students of security relations denote importance for the stability of the international system, the statistical

insignificance of the interdependence and international organizations variables is a disappointment for neo-Kantianism. While the minor power hypothesis is not supported, the other four realist-oriented hypotheses are confirmed.

(Table 7-4-1 about here)

Replicated results in columns four and five are produced *without* the democraticness variables in Oneal and Russett's neo-Kantian peace model. (When Table 7-4-5 is introduced at the end of this section, the purpose of omitting the democraticness variable will be revealed.) As shown in the results for all dyads in the fourth column, the economic interdependence hypothesis is supported, but the joint membership in international organizations is not. As expected, the other five, realist-oriented hypotheses are supported. The results for politically relevant dyads, in the fifth and last column, support the economic interdependence hypothesis but not the one for international organizations. While the hypothesis about minor powers is not supported, the other four controls are confirmed.

In sum, the replications offer somewhat weaker support for neo-Kantianism than might have been expected.

Table 7-4-2 shows the empirical results based on my revised logistic regression model from Equation 1. (As with Oneal and Russett (1999), this paper employs a one-tailed test for each variable.) Table 7-4-2 is composed of nine columns. Column 1 lists the nine variables. Columns 2, 3, 4 and 5 report the results when the dependent variable is MID involvement and 6, 7, 8 and 9 when it is MID-related casualties. The shaded columns show the empirical results for Equation 1 during the period from 1950 to 1992

and the unshaded columns (except for the first one) are replications of Oneal and Russett's (1999: 22) neo-Kantian peace model.[19] The replicated results (except for the economic interdependence variable for all dyads)[20] in the unshaded columns 2 and 4 concur with my replications in Table 7-4-1 of Oneal and Russett with respect to direction of signs and statistical significance. The replicated results in the unshaded columns 6 and 8, however, are at some distance from my replications in Table 7-4-1 of Oneal and Russett with respect to direction of signs and statistical significance. In fact, when the dependent variable is MID-related casualties, all of the three neo-Kantian variables, surprisingly enough, turn out to be statistically insignificant.

(Table 7-4-2 about here)

The third, shaded column presents the empirical results for all dyads when the dependent variable is MID involvement. As hypothesized, the coefficient for the media openness variable turns out to be statistically significant at the 0.001 level, indicating that dyads composed of states with free or imperfectly free media openness are less likely to become involved in MIDs. Surprisingly, none of the three neo-Kantian peace variables is statistically significant.[21] It appears that, once the media openness variable is

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[19] Due to missing observations for the media openness variable, the replicated results in Table 2 are not identical to those in Table 1.

[20] The economic interdependence variable barely misses statistical significance at the 0.05 level; the *p*-value is 0.101.

[21] Multicollinearity, especially between media openness and democraticness, might be the suspected reason for the statistical insignificance of the three neo-Kantian peace variables. The presence of multicollinearity causes greater standard errors which, in turn, encroach on statistical significance tests. As Table 2 makes clear, inflation of standard error is not a concern. The standard error for democraticness is slightly inflated, while somewhat deflated for economic interdependence and slightly inflated for international organizations. By contrast, the magnitude

incorporated, the three neo-Kantian peace variables (including democraticness (as measured by Polity III)) immediately lose their effect on the likelihood of MID involvement. In other words, media openness seems to win out over the three neo-Kantian peace factors. By contrast, the five realist-oriented variables remain statistically significant. As expected by the power preponderance literature (i.e., power transition theory (Kugler and Lemke 2000)), the coefficient for the capability ratio is statistically significant at the 0.05 level, which means that, with greater disparity in national capabilities, MID involvement becomes less likely. The alliance variable is statistically significant at the 0.05 level – allied states are less likely to become involved in MIDs. The coefficient for noncontiguity is statistically significant at the 0.001 level, indicating that noncontiguous states are less likely to engage in MIDs. Distance between states is statistically significant at the 0.001 level; as expected, geographical separation would seem to discourage the states in a dyad from engaging in MIDs. The coefficient for the minor powers variable is statistically significant at the 0.001 level; dyads without major powers are less likely to become involved in MIDs.

The fifth, shaded column presents the empirical results for politically relevant dyads only, which are similar to those for all dyads in column three (except for the minor power variable). Once again, the media openness hypothesis is supported. None of the three neo-Kantian peace variables is statistically significant. It seems that, once the

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of each coefficient turn out to be much smaller than before introduction of media openness into the model. The statistical significance tests for the three neo-Kantian peace variables fail not because of multicollinearity, but due to their relative magnitude. Given the fact that multicollinearity has nothing to do with deflating coefficient magnitude, these results suggest that muliticollinearity poses no problem. More detailed discussion and diagnostic tests will follow at the end of this section.

media openness variable is incorporated, the effects of the three neo-Kantian peace variables on MID involvement become negligible. While the minor power variable is not statistically significant, the other four control hypotheses are confirmed.

The seventh, shaded column presents empirical results for all dyads when the dependent variable is MID-related casualties. As expected, the coefficient of the media openness variable turns out to be statistically significant at the 0.001 level. This result indicates that, when media openness is high enough, MID-related casualties are less likely. In another surprise, the coefficient for democraticness is statistically significant at 0.001 level, but *counterintuitive*. It seems that states in a democratic dyad are *more* likely to become involved in MID-related casualties. In addition, both economic interdependence and joint membership in international organizations are not statistically significant. While the coefficients for noncontiguity, distance and minor power turn out to be statistically significant, those for capability ratio and alliance are not. The noncontiguity and distance hypotheses are supported; geographical separation would seem to discourage the states in a dyad from producing MID-related casualties. The minor powers hypothesis is supported, as dyads without major powers are less likely to become involved in MID-related casualties.

The ninth, shaded column presents empirical results for politically relevant dyads only. The media openness hypothesis is supported. By contrast, the democraticness hypothesis must confront *counterintuitive* results and the other two neo-Kantian variables, interdependence and international organizations, are not statistically

significant. The capability ratio and noncontiguity variables are statistically significant, while the other three control variables show no statistical significance.[22]

After looking into the impact of media openness on both MID involvement and MID-related casualties in the revised logistic regression model of Equation 1, some diagnostic tests for muliticollinearity are in order. The independent variables must be evaluated carefully in this context because muliticollinearity might have 'washed out' the effects of the three neo-Kantian peace (and possibly other realist-oriented) variables.

Table 7-4-3 shows three standard tests for multicollinearity that have been applied to the MID involvement model (see Gujarati 1995; *SAS/STAT® User's Guide, Version 7-1* 1999; Stata Reference Manual Set 2001). The first test is based on the R^2 statistic. According to Menard (1995: 65-67), when multicollinearity is suspected, the independent variable of concern should be regressed on all other independent variables in a standard ordinary least squares (OLS) regression to obtain R^2 values. The R^2 will tell us how much of the variance in that independent variable is explained by the others. If the R^2 values reach the 0.80 benchmark, problematic multicollinearity exists. As shown in Table 7-4-3, however, none of R^2 values – for both all dyads and politically relevant dyads – is close to the 0.80 benchmark. Thus no serious multicollinearity problem exists between independent variables. The highest R^2 value for all dyads is 0.52 when

[22] It may be argued that including the minor power presence variable in the models that look at politically relevant dyads alone is problematic. Presumably the only minor power dyads in this restricted data set would be geographically contiguous. Thus the presence of minor power dyads is correlated with non-contiguity in the politically relevant dyads. I re-ran my models without the only minor power presence variable to see if there is any differences between new and old runs. The statitistical significance of the theoretically interesting variables (i.e., media openness, democraticness, economic interdependence, and international organizations) in the new runs is pretty similar to that in the old runs.

democraticness is regressed on the other eight independent variables (including media openness) in a standard OLS regression. The highest R^2 value for politically relevant dyads is 0.68 when minor powers are regressed on the other eight independent variables (including media openness and democraticness) in a standard OLS regression.

(Table 7-4-3 about here)

The second test is based on the Variance Inflation Factor (VIF) (also tolerance (i.e., 1/VIF)), which shows how the variance of an estimator is inflated by the presence of multicollinearity. If there is no multicollinearity between variables, the VIF or tolerance will be 1. A general rule of thumb is that a VIF in excess of 10, or a tolerance of 0.1 or less, may indicate multicollinearity. The highest VIF value for all dyads is 2.07 for democraticness and the highest VIF value for politically relevant dyads is 3.17 for minor powers. These results indicate no problems with multicollinearity. None of the tolerance values for both all dyads and politically relevant dyads is close to 0.1, once again meaning that multicollinearity should not be a problem.

The third test is based on eigenvalues and the condition index. (I will not discuss the meaning of eigenvalues here, for that would take us into topics in matrix algebra that are beyond the scope of this paper.) The condition index is derived from the eigenvalues. The condition index is the square root of the ratio of the largest eigenvalue to each individual eigenvalue. If the condition index exceeds 30, there is severe multicollinearity. Some believe that the condition index is the best available multicollinearity diagnostic (see Belsley, Kuh and Welsch 1980). As shown in Table 7-

4-3, none of the condition indexes – for both all dyads and politically relevant dyads – reaches 30, indicating that multicollinearity should not be problematic.

Table 7-4-4 shows the same three test sets for multicollinearity on the MID-related casualties model. First, according to the R^2 test, the highest R^2 value for all dyads is 0.51 when democraticness is regressed on the other eight independent variables (including media openness) in a standard OLS regression. The highest R^2 value for politically relevant dyads is 0.69 when minor powers are regressed on the other eight independent variables (including media openness and democraticness) in a standard OLS regression. In other words, none of the R^2 values, for both all dyads and politically relevant dyads, is close to the 0.80 benchmark. Thus multicollinearity between independent variables is not severe.

(Table 7-4-4 about here)

Since none of the VIF values, for either all dyads or politically relevant dyads, is larger than 10, multicollinearity is not a problem. The highest VIF value for all dyads is 2.05 for democraticness, while the highest VIF value for politically relevant dyads is 3.18 for minor powers. In addition, none of the tolerance values, for either all dyads or politically relevant dyads, is close to or beneath 0.1, indicating that multicollinearity should not be a problem.

Table 7-4-4 also shows that none of the condition indexes, for both all dyads and politically relevant dyads, is close to 30, Thus multicollinearity should not be a problem.

In sum, the revised logistic regression model passes the three sets of tests imposed by the multicollinearity diagnostics. Put differently, it is very unlikely that multicollinearity could have escaped detection here.

My results are likely to be controversial, so I institute one more precautionary measure. Empirical results based on a reduced form of the revised model, in which democraticness is omitted from Equation 1 on grounds of possibly suspected multicollinearity, appear in Table 7-4-5. The reduced model includes the media openness variable, two neo-Kantian peace variables (i.e., economic interdependence and international organizations only) and the other five realist-oriented variables (i.e., capability ratio, alliance, noncontiguity, distance and minor powers). As conveyed by Table 7-4-5, media openness once again shows a strong dampening impact on the likelihood of both MID involvement and MID-related casualties.

The shaded columns show the empirical results for the reduced model during the period from 1950 to 1992 and the unshaded columns (except for the first one) replicate Oneal and Russett's (1999: 22) neo-Kantian peace model.[23] The replicated results (except for international organizations for politically relevant dyads) in the unshaded columns two and four are similar to my replications in Table 7-4-1 of Oneal and Russett with respect to direction of signs and statistical significance. But the replicated results in the unshaded columns six and eight tell a different story. In fact, when the dependent variable is MID-related casualties, the international organizations variable turns out to be statistically insignificant.

[23] As a reminder, note that the democraticness variable is not included in the run.

(Table 7-4-5 about here)

The third, shaded column presents empirical results for all dyads when the dependent variable is MID involvement. As hypothesized, the coefficient for the media openness variable turns out to be statistically significant at the 0.001 level, indicating that dyads composed of states with free or imperfectly free media openness are less likely to become involved in MIDs. It is interesting to note that both of the neo-Kantian peace variables are statistically insignificant. It appears that, once the media openness variable is incorporated, the effects of two neo-Kantian peace variables diminish with respect to the likelihood of MID involvement. By contrast, the five realist-oriented variables still show statistical significance. The coefficient for the capability ratio is statistically significant at the 0.05 level, meaning that, with greater disparity in national capabilities, MID involvement becomes less likely. The alliance variable is statistically significant at the 0.05 level – allied states are less likely to become involved in MIDs. The coefficient for noncontiguity is statistically significant at the 0.001 level, indicating that noncontiguous states are less likely to engage in MIDs. Distance between states is statistically significant at the 0.001 level; as expected, geographical separation would seem to discourage the states in a dyad from engaging in MIDs. The coefficient for the minor powers variable is statistically significant at the 0.001 level, indicating that dyads without major powers are less likely to become involved in MIDs.

The fifth, shaded column presents the empirical results for politically relevant dyads only, which are similar to those for all dyads in column three except for minor powers. The media openness hypothesis is supported. Neither of the two neo-Kantian

peace variables is statistically significant. It seems that, once again, when the media openness variable is incorporated, the effects of the two neo-Kantian peace variables on MID involvement become negligible. While the minor power variable is not statistically significant, the other four control variables show statistical significance.

The seventh, shaded column presents the empirical results for all dyads when the dependent variable is MID-related casualties. As expected, the coefficient of the media openness variable turns out to be statistically significant at the 0.001 level, indicating that, when media openness is high enough, MID-related casualties are less likely. Neither economic interdependence nor joint membership in international organizations is statistically significant. While the coefficients for noncontiguity, distance and minor power turn out to be statistically significant, those for capability ratio and alliances are not. The capability ratio hypothesis is not supported, so the power preponderance literature is not confirmed in this context. The alliance variable is not supported, either. The noncontiguity and distance hypotheses are supported, meaning that geographical separation would seem to discourage the states in a dyad from engaging in MID-related casualties. The minor powers hypothesis is supported, indicating that dyads without major powers are less likely to become involved in MID-related casualties.

The ninth, shaded column presents the empirical results for politically relevant dyads alone. The media openness hypothesis, as on other occasions, is supported. Both of the neo-Kantian variables (i.e., interdependence and international organizations) are statistically insignificant. While the noncontiguity variable is statistically significant, the other four control variables show no statistical significance.

This completes the statistical analysis.

7.5 Conclusion

I have attempted to learn about one of the most potentially significant aspects of democratic governance, media openness, with respect to decreasing the likelihood of international conflict. My cross-sectional, time-series data analysis shows that media openness is the most defining element of democracy with respect to MID involvement and MID-related casualties during the period from 1950 to 1992. In fact, media openness seems to outweigh the three neo-Kantian peace factors – democraticness (as measured in the Polity III data), economic interdependence and joint membership in international organizations – in the context of making a more peaceful world. My findings do not necessarily falsify neo-Kantianism, but they do sharpen the democratic peace debates by suggesting that media openness, rather than other structural, economical and institutional aspects of democracy, has the most pacifying effect on international conflict. In a word, the pen is more important than many other things in restraining the sword within democratic dyads.

If my findings are on target, American foreign policy should focus on enhancing the degree of media openness in non-democracies for a more peaceful world at the millennium and beyond. Put differently, democratization, especially in isolation from other kinds of changes, may not be the best public (or foreign) policy for the US to emphasize. Instead, the US should redirect its attention toward supporting media openness. While transforming regimes – the most straightforward goal that might be derived from the neo-Kantian or democratic peace – is a challenging task, promoting and

utilizing media openness may turn out to be a more feasible, less expensive and more promising option.

Table 7-4-1 Replications of the Neo-Kantian Peace, 1950-1992: Predicting Involvement in Militarized Disputes

	With Democraticness		Without Democraticness	
Variable	All Dyads	Politically Relevant Dyads	All Dyads	Politically Relevant Dyads
Media openness (AMOAB)				
Lower democracy (DEM_L)	-0.0678*** 0.0162	-0.0496*** 0.0157		
Trade/GDP ($DEPEND_L$)	-52.6774* 28.7546	-35.3535 23.3664	-108.2071** 37.4581	-85.3716* 36.9267
International organizations (IGO)	-0.0033 0.0059	-0.0070 0.0058	0.0090 0.0069	-0.0110 0.0070
Capability ratio (CAPRATIO)	-0.1485* 0.0736	-0.2193** 0.0798	-0.1782** 0.0758	-0.2342** 0.0831
Alliances (ALLIANCES)	-0.4482* 0.2385	-0.4592* 0.2358	-0.4891* 0.2380	-0.5230* 0.2380
Noncontiguity (NONCONTIG)	-2.4410*** 0.2643	-1.2940*** 0.3158	-2.5185*** 0.2678	-1.3665*** 0.3202
Log distance (DISTANCE)	-0.5437*** 0.0951	-0.2546** 0.1005	-0.5976*** 0.0916	-0.3056*** 0.0954
Only minor powers (MINORPWRS)	-1.8192*** 0.2727	-0.4394 0.3658	-1.7826*** 0.2718	-0.4213 0.3594
Constant	-1.6221* 0.7958	-1.5784* 0.8495	-0.5800 0.7620	-0.7336 0.7769
Chi^2	920.91	109.47	837.99	92.70
P of Chi^2	0.0000	0.0000	0.0000	0.0000
Log Likelihood				
Pseudo R^2				
N	115,969	21,521	115,969	21,521

*p<.05; **p<.01; ***p<.001, one-tailed tests.

Table 7-4-2 Media Openness or Neo-Kantian Peace, 1950-1992?

	Militarized Interstate Dispute Involvement				Militarized Interstate Dispute-related Casualties			
Variable	All Dyads		Politically Relevant Dyads		All Dyads		Politically Relevant Dyads	
Media openness		-1.5579***		-1.1794***		-2.7337***		-2.5898***
(AMOAB)		0.3271		0.3163		0.5216		0.4851
Lower democracy	-0.0633***	-0.0153	-0.0439**	-0.0075	-0.0110	0.0550^	0.0033	0.0682^^
(DEM_L)	0.0163	0.0166	0.0156	0.0169	0.0317	0.0266	0.0299	0.0258
Trade/GDP	-46.7964	-31.5443	-32.8056	-26.9002	-263.3825	-207.1352	-252.2876	-211.4247
($DEPEND_L$)	28.5656	22.5118	22.8697	19.7082	163.8017	145.7483	157.4701	139.0917
International organizations	-0.0052	-0.0017	-0.0082	-0.0056	0.0064	0.0072	0.0068	0.0073
(IGO)	0.0059	0.0060	0.0059	0.0060	0.0182	0.0159	0.0165	0.0147
Capability ratio	-0.1544*	-0.1526*	-0.2180**	-0.2198**	-0.0984	-0.0869	-0.1809	-0.1934*
(CAPRATIO)	0.0770	0.0759	0.0833	0.0816	0.1058	0.1050	0.1136	0.1094
Alliances	-0.4496*	-0.4066*	-0.4732*	-0.4460*	-0.3500	-0.2387	-0.6697	-0.5873
(ALLIANCES)	0.2455	0.2389	0.2432	0.2376	0.6205	0.5923	0.5757	0.5516
Noncontiguity	-2.4255***	-2.4481***	-1.3110***	-1.4173***	-3.3832***	-3.3933***	-1.6954***	-1.8363***
(NONCONTIG)	0.2703	0.2641	0.3178	0.3125	0.4861	0.4732	0.4810	0.4712
Log distance	-0.5472***	-0.5224***	-0.2583**	-0.2374*	-0.4444***	-0.4076***	-0.2459*	-0.1842
(DISTANCE)	0.0962	0.0957	0.1016	0.1051	0.1285	0.1304	0.1311	0.1375
Only minor powers	-1.8332***	-1.9275***	-0.4454	-0.5875	0.9009*	-1.0669*	-0.3055	-0.1154
(MINORPWRS)	0.2831	0.2689	0.3776	0.3648	0.5415	0.4926	0.6196	0.5776
Constant	-1.5205*	-1.4888*	-1.5073*	-1.5829*	-4.5574***	-4.4845***	-3.5339**	-3.6940***
	0.8012	0.7874	0.8541	0.8634	1.1031	1.1069	1.1724	1.2091
Chi^2	882.63	869.66	100.57	101.84	524.7500	514.16	91.55	96.63
P of Chi^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Log Likelihood								
Pseudo R^2								
N	109,710	109,710	20,666	20,666	102,228	102,228	19,594	19,594

*p<.05; **p<.01; ***p<.001, one-tailed tests.

^p<.05; ^^p<.01, one-tailed tests but wrong sign.

Table 7-4-3 Muliticollinearity Diagnostics on MID Involvement, 1950-1992

	R-Squared		VIF[1]		Tolerance		Eigenvalue		Condition Index	
	All Dyads	PRDs[2]	All Dyads	PRDs	All Dyads	PRDs	All Dyads	PRDs	All Dyads	PRDs
Media openness	0.5104	0.6453	2.04	2.82	0.4896	0.3547	2.4163	3.5868	1.0000	1.0000
Lower democracy	0.5175	0.6536	2.07	2.89	0.4825	0.3464	1.7602	2.1211	1.1716	1.3004
Trade/GDP	0.1702	0.2359	1.21	1.31	0.8298	0.7641	1.3998	0.8602	1.3138	2.0419
International organizations	0.3299	0.4978	1.49	1.99	0.6701	0.5022	0.8656	0.6744	1.6708	2.3061
Capability ratio	0.2467	0.4143	1.33	1.71	0.7533	0.5857	0.7273	0.6524	1.8228	2.3447
Alliances	0.2357	0.3044	1.31	1.44	0.7643	0.6956	0.6226	0.3970	1.9700	3.0058
Noncontiguity	0.2298	0.6572	1.30	2.92	0.7702	0.3428	0.4877	0.3004	2.2259	3.4552
Log distance	0.3862	0.5813	1.63	2.39	0.6138	0.4187	0.4312	0.2162	2.3671	4.0735
Only minor powers	0.2213	0.6841	1.28	3.17	0.7787	0.3159	0.2892	0.1915	2.8905	4.3276

[1] Variance Inflation Factors

[2] Politically Relevant Dyads

Table 7-4-4 Multicollinearity Diagnostics on MID-related Casualties, 1950-1992

	R-Squared		VIF[1]		Tolerance		Eigenvalue		Condition Index	
	All Dyads	PRDs[2]	All Dyads	PRDs	All Dyads	PRDs	All Dyads	PRDs	All Dyads	PRDs
Media openness	0.5022	0.6411	2.01	2.79	0.4978	0.3589	2.4471	3.6233	1.0000	1.0000
Lower democracy	0.5122	0.6512	2.05	2.87	0.4878	0.3488	1.7429	2.1087	1.1849	1.3108
Trade/GDP	0.1738	0.2389	1.21	1.31	0.8262	0.7611	1.4298	0.8422	1.3082	2.0742
International organizations	0.3392	0.4998	1.51	2.00	0.6608	0.5002	0.8575	0.6640	1.6893	2.3360
Capability ratio	0.2594	0.4095	1.35	1.69	0.7406	0.5905	0.7184	0.6491	1.8456	2.3627
Alliances	0.2311	0.2984	1.30	1.43	0.7689	0.7016	0.5931	0.4058	2.0313	2.9880
Noncontiguity	0.2346	0.6641	1.31	2.98	0.7654	0.3358	0.4848	0.2991	2.2466	3.4808
Log distance	0.3905	0.5830	1.64	2.40	0.6095	0.4170	0.4313	0.2177	2.3820	4.0794
Only minor powers	0.2388	0.6857	1.31	3.18	0.7612	0.3143	0.2952	0.1902	2.8789	4.3646

[1] Variance Inflation Factors

[2] Politically Relevant Dyads

Table 7-4-5 Media Openness or Neo-Kantian Peace without the Presence of Democraticness, 1950-1992?

Variable	Militarized Interstate Dispute Involvement				Militarized Interstate Dispute-related Casualties			
	All Dyads		Politically Relevant Dyads		All Dyads		Politically Relevant Dyads	
Media openness		-1.7327***		-1.2623***		-2.1024***		-1.7885***
(AMOAB)		0.2966		0.2713		0.6298		0.5790
Lower democracy (DEM_L)								
Trade/GDP	-101.8457**	-33.4850	-53.3617*	-27.8355	-273.1742*	-195.0053	-249.7618*	-197.2614
($DEPEND_L$)	38.6462	22.4630	26.8435	19.6302	147.6478	141.9202	142.7178	136.7134
International organizations	-0.0107	-0.0022	-0.0119*	-0.0058	0.0054	0.0106	0.0071	0.0119
(IGO)	0.0070	0.0061	0.0061	0.0061	0.0203	0.0184	0.0188	0.0173
Capability ratio	-0.1802*	-0.1551*	-0.2282**	-0.2210**	-0.1064	-0.0650	-0.1787	-0.1563
(CAPRATIO)	0.0793	0.0760	0.0843	0.0816	0.1116	0.1139	0.1198	0.1183
Alliances	-0.4964*	-0.4090*	-0.5061*	-0.4475*	-0.3499	-0.2676	-0.6699	-0.6153
(ALLIANCES)	0.2454	0.2363	0.2350	0.2358	0.6179	0.6258	0.5792	0.5878
Noncontiguity	-2.5235***	-2.4477***	-1.2641***	-1.4176***	-3.3854***	-3.3779***	-1.6986***	-1.8307***
(NONCONTIG)	0.2734	0.2631	0.3177	0.3125	0.4825	0.4741	0.4831	0.4738
Log distance	-0.5960***	-0.5284***	-0.2893**	-0.2388*	-0.4554***	-0.3816***	-0.2425*	-0.1687
(DISTANCE)	0.0924	0.0949	0.0975	0.1049	0.1176	0.1240	0.1165	0.1333
Only minor powers	-1.7968***	-1.9302***	-0.3454	-0.5856	-0.8971*	-1.0280*	-0.3024	-0.1345
(MINORPWRS)	0.2816	0.2669	0.3667	0.3616	0.5312	0.5319	0.6047	0.6033
Constant	-0.5604	-1.3284*	-0.8098	-1.5145*	-4.3702***	-5.1212***	-3.5945***	-4.4210***
	0.7673	0.7755	0.7833	0.8492	1.0709	1.0635	0.9753	0.1118
Chi^2	804.49	843.67	83.52	97.91	469.87	501.59	65.76	96.16
P of Chi^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Log Likelihood								
Pseudo R^2								
N	109,710	109,710	20,666	20,666	102,228	102,228	102,228	19,594

*p<.05; **p<.01; ***p<.001, one-tailed tests.

CHAPTER EIGHT

CONCLUSIONS AND POLICY IMPLICATIONS

Based loosely on Kant's *Perpetual Peace* (1795), democratic peace studies have made a significant contribution to the quest for world peace during the last two decades. Built both on a theoretical model and on state-of-the-art statistical techniques, this dissertation attempted to delve into some other potentially important aspects of political systems to provide a better theoretical and practical suggestion for a more peaceful world. The interactive foreign policy decision-making process model introduced in Chapter 3 provides a most highly theoretical foundation on international conflict, crisis and war, which have ever shown in the democratic peace literature. Various empirical methods were employed to test the decision-making model. In particular, utilizing the most sophisticated statistical technique available for the kind of data at issue, neural network analysis (i.e., artificial intelligence) strengthens to a large extent the empirical results reported in Chapters 5 and 6.

Empirical findings from both logit and neural network models, which are based on the interactive foreign policy decision-making process model with a special emphasis on the four new factors – civil-military relative influence, conscription, diplomatic channels and media openness – reveal that media openness is a key element in accounting

for MIDs.[1] Thus media openness should be incorporated into Russett and Oneal's (2001) triangulation of the peace. In doing so, we further build upon the 'truth and beauty' within the welter of findings about the democratic peace. Peace researchers need to quadrangulate the peace in other ways as well: Based on the preceding data analysis, it can be concluded that (1) the more powerful military leaders are in civil-military relations, the more likely dyads are to become involved in MIDs; (2) under a conscription system, dyads are more likely to engage in MIDs; and (3) an increase in diplomatic channels for a dyad may increase involvement in MIDs.

This dissertation addresses an important question: do all of the plausible attributes of democracy contribute equally to dampening the likelihood of international conflict, crisis and war? The answer implicit within democratic peace studies so far would seem to be either 'yes' or 'probably'. However, this study shows that some elements of democraticness are more important than others. It appears that, rather than other institutional and cultural attributes such as Oneal and Russett's (1999c, 2001) democraticness centering on executive constraints, media openness is the most compelling one to consider in relation to a more peaceful world, at least during the period from 1950 to 1974. The pacifying effect of media openness on international conflict also is confirmed during the extended period from 1950 to 1992. Moreover, this connection outweighs the contribution of democraticness (as measured in the Polity data). It should

[1] In the early stage of this dissertation project, the theoretical focus was primarily on civil-military relations among the four new factors of democracy. It turned out, however, that empirical results for media openness superseded those related to civil-military relative influence. The results demand that future research should focus on other aspects of democracy, especially those from the quasi-standard Polity Index, trying them one by one to see how they stand up in comparison to media openness.

be emphasized that this finding does not necessarily falsify neo-Kantianism, but it does sharpen the democratic peace debates by suggesting that media openness, rather than other structural, economical and institutional aspects of democracy, has the most benign pacifying effect on international conflict.

The diplomatic channels hypothesis has produced an unanticipated result.[2] Counterintuitively, political communications through diplomatic channels tend to indicate a greater likelihood of MID involvement or MID-related casualties. On the one hand, this result seems to reflect the realist perspective: Since distrust, greed and betrayal are ubiquitous in an anarchical international system, each state can be expected to pursue its national interests with broken promises and cheap talk; today's friends may be tomorrow's enemies. On the other hand, the results seem to call for a more trustworthy diplomacy in the quest for world peace.

This study has not addressed an important question: how to explicitly know when the military side is dominant or becoming dominant in decision making, especially in a democracy. Democracies, by definition, might be better in maintaining civilian control over the military than non-democracies (such as military regimes). An interaction term between civil-military relations and 'dichotomous' democraticness that may detect

[2] Such unexpected results in quantitative research should not be treated as a total surprise. Since the research design and analysis are coherent and rigorous, the counterintuitive results have provided me with an opportunity to think about the causal inference like a social scientist, that is, "with skepticism and a concern for alternative explanations that may have been overlooked. Casual inference thus becomes a *process* whereby each conclusion becomes the occasion for further research to refine and test it. Through successive approximations [researchers] try to come closer and closer to accurate causal inference" (King, Keohane and Verba, 1994: 32-33, the emphasis is in the original.). I leave this task to myself as well as others.

civilian supremacy in democracies may be considered.[3] Since power changes in civil-military relations can be expected to cause lagged effects on military expenditure, measurements should take this into account.[4] The other possible measures of relative civil-military influence, such as statutory factors (as identified in footnote 7 in Chapter 4), should be explored. Since conscripted soldiers may not need to be deployed during peace time, peace also can lead to non-conscription. Simultaneous equations should be utilized for mutual causality between conscription and MIDs (or peace). It also would be interesting to test the interactive foreign policy decision-making process model using other data, such as that offered by the International Crisis Behavior (ICB) Project data collection (Brecher and Wilkenfield 1997). Given the fact that data availability has limited the research scope, collecting more data and conducting a more extensive analysis is needed for purposes of generalization as well.

Important policy implications may be derived from the empirical findings. Most notably, democratization centering on institutional aspects such as executive constraints, especially in isolation from other kinds of changes, may not be the best public (or foreign) policy for the US to emphasize. Instead, the US should redirect its public (or foreign) policy toward internal civil-military dynamics, such as civil-military relations and military manpower systems, and political communications, like diplomatic channels and media openness, in the quest for a more peaceful world. As civilian influence

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[3] Since Oneal and Russett's (1999c) democraticness is continuous, my replication is not able to address this important issue for the time being.

[4] It also should be noted that each state's national economy dictates its military spending. That is, there is not a level playing field in terms of opportunity to engage in military spending, which should be addressed in a future study.

increases, MID involvement or MID-related casualties becomes less likely. Adopting a voluntary manpower system also may contribute to lessening MID involvement. As both logit and neural network analyses demonstrate, a greater number of diplomatic channels seems to increase MID involvement or MID-related casualties, which demands a more honorable diplomacy. Increasing media openness can facilitate political communication and also decrease mistrust and misperception between states in conflict. Thus the role of the four factors should be emphasized in the quest for a more peaceful world. In sum, civil-military dynamics and political communications have been neglected for too long among students of international conflict, crisis, and war – they combine to quadrangulate (or upgrade) the peace.

Transforming regimes – the most straightforward goal derived from the democratic peace – is a challenging task. Making changes in civil-military relations, redirecting military manpower systems, cultivating more honorable diplomacy, and utilizing media openness, by comparison, look like more feasible options. Put differently, overturning non-democratic regimes by (covert) force is hard to carry out, but promoting those four factors is relatively easy to do. While providing non-democratic regimes with military and economic aid, the US also might concentrate on encouraging these states to restructure civil-military dynamics and engage in more sustained political communications, which ultimately bring about a more peaceful world.

In passing, efforts to eliminate non-democratic regime types might prove harmful to world peace because that could result in unexpected repercussions. Since human history always has witnessed destructive aspects of monopoly in the economic world, one

can imagine less than constructive aspects of a 'political monopoly' in the international system. The process of making all states democratic might prove more problematic than simply persisting with a mixture of political systems in the world. In other words, perhaps it is best that the worldwide political system should continue to evolve and facilitate potentially valuable competition among a range of regime types. It is worth noting that, if non-democratic regimes had never existed, we might not have witnessed the development of very mature democratic regimes, such as the US over the last century. To cite a specific example, American democracy evolved significantly in competition with Soviet communism during the Cold War era. Thus it might be premature to say that all of the effects from the persistence of a mixture of regime types in the international system must necessarily be harmful.

Given the empirical findings and associated historical lessons, it is necessary to reconsider contemporary American foreign policy. Both scholars and foreign policy decision-makers should keep in mind that, two years after *Perpetual Peace* (1795), Kant also pointed out in *The Metaphysics of Morals* (1797) that "his league of peace would grow to the point where it was 'ungovernable'. . . . would return to the original state of war, rational institutions notwithstanding" (Quoted in Owen 2001: 968). If the prediction is believable, it is imperative to search for additional factors that either can prevent the demise of the would-be perpetual peace or at least complement Oneal and Russett's (1999c) triangulation of the peace. The four newly introduced factors – civil-military relations, conscription, diplomatic channels and media openness, as represented in the

interactive foreign policy decision-making process model – are good candidates for engineering or maintaining a more peaceful world at the millennium and beyond.

APPENDIX

Table 5-0A
Models of the Kantian Peace, 1886-1992: Predicting Involvement in Militarized Dispute

	1886-1992		1886-1992		1886-1939		1886-1992	
	Simplest, All Dyads		*Peaceyears Correction*		*All Dyads*		*Politically Relevant Dyads*	
Variable	Oneal & Russ	Replicated	Oneal & Russ	Replicated	Oneal & Russ	Replicated	Oneal & Russ	Replicated
Lower democracy	-0.0658***	**-0.0656*** **	-0.0628***	**-0.0628*** **	-0.0568***	**-0.0568*** **	-0.0595***	**-0.0594*** **
(DEM_L)	0.0106	**0.0105**	0.0093	**0.0093**	0.0106	**0.0106**	0.0106	**0.0105**
Trade/GDP	-57.8650***	**-57.5163*** **	-31.0726**	**-31.0725** **	-43.2490**	**-43.1932** **	-35.2394**	**-35.0463** **
($DEPEND_L$)	15.4901	**15.3898**	10.6036	**10.6036**	16.2861	**16.2276**	12.3044	**12.2552**
International organizations	-0.0010	**-0.0012**	0.0160^^^	**0.0160^^^**	0.0068	**0.0071**	-0.0068*	**-0.0069* **
(IGO)	0.0379	**0.0038**	0.0042	**0.0041**	0.0068	**0.0068**	0.0039	**0.0039**
Capability ratio	-0.2337***	**-0.2337*** **	-0.1913***	**-0.1913*** **	-0.3638***	**-0.3617*** **	-0.2747***	**-0.2745*** **
(CAPRATIO)	0.0502	**0.0501**	0.0401	**0.0401**	0.0664	**0.0661**	0.0516	**0.0516**
Alliances	-0.2511	**-0.2487**	-0.3691**	**-0.3691** **	-0.1727	**-0.1708**	-0.2822*	**-0.2815* **
(ALLIANCES)	0.1659	**0.1655**	0.1574	**0.1574**	0.1905	**0.1900**	0.1677	**0.1676**
Noncontiguity	-2.0038***	**-1.9975*** **	-1.5864***	**-1.5864*** **	-1.3357***	**-1.3282*** **	-1.1180***	**-1.1165*** **
(NONCONTIG)	0.1836	**0.1831**	0.1532	**0.1532**	0.1844	**0.1835**	0.1724	**0.1721**
Log distance	-0.4647***	**-0.4659*** **	-0.3615***	**-0.3615*** **	-0.3536***	**-0.3525*** **	-0.2610***	**-0.2613*** **
(DISTANCE)	0.0571	**0.0571**	0.0498	**0.0498**	0.0620	**0.0619**	0.0605	**0.0605**
Only minor powers	-1.8392***	**-1.8427*** **	-1.7208***	**-1.7108*** **	-1.8342***	**-1.8342*** **	-0.6754***	**-0.6757*** **
(MINORPWRS)	0.1706	**0.1703**	0.1351	**0.1351**	0.1904	**0.1895**	0.2082	**0.2079**
Constant	-1.9349***	**-1.9174*** **	-1.6174***	**-1.6174*** **	-2.2235***	**-2.2398*** **	-1.5765***	**-1.5715*** **
	0.4731	**0.4726**	0.4060	**0.4060**	0.5316	**0.5305**	0.4992	**0.4989**
Chi^2	1354.80	**1358.40**	1920.45	**1883.08**	494.98	**495.36**	194.43	**193.49**
P of Chi^2	0.0000	**0.0000**	0.0000	**0.0000**	0.0000	**0.0000**	0.0000	**0.0000**
Log Likelihood			-5732.426	**-5732.426**				
Pseudo R^2			0.284	**0.284**				
N	149,373	**149,373**	149,404	**149,404**	33,346	**33,346**	33,334	**33,334**

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^^^p<.001, one-tailed test but wrong sign

Table 5-1A Civil-Military Relations and Predicting MID Involvement, 1886-1992

Variable	1886-1992 *Simplest, All Dyads*	1886-1992 *Peaceyears Correction*	1886-1939 *All Dyads*	1886-1992 *Politically Relevant Dyads*
Civil-military relations (IAAMEAB[1])				
Lower democracy (DEM_L)	-0.0681***	-0.0614***	-0.0541***	-0.0634***
	0.0112	0.0096	0.0112	0.0115
Trade/GDP ($DEPEND_L$)	-61.5110***	-33.1142**	-46.3728**	-37.9510**
	17.9365	11.8349	19.6459	14.7792
International organizations (IGO)	0.0003	0.0166^^^	0.0133^	-0.0053
	0.0039	0.0042	0.0068	0.0041
Capability ratio (CAPRATIO)	-0.2475***	-0.2003***	-0.4024***	-0.2926***
	0.0528	0.0420	0.0667	0.0530
Alliances (ALLIANCES)	-0.2762	-0.4272**	-0.1323	-0.3115*
	0.1728	0.1604	0.2007	0.1766
Noncontiguity (NONCONTIG)	-2.0342***	-1.5662***	-1.2239***	-1.1355***
	0.1910	0.1573	0.1937	0.1816
Log distance (DISTANCE)	-0.4378***	-0.3337***	-0.3096***	-0.2280***
	0.0598	0.0511	0.0628	0.0643
Only minor powers (MINORPWRS)	-1.8213***	-1.6625***	-1.8040***	-0.6444**
	0.1758	0.1344	0.1933	0.2166
Constant	-2.1505***	-1.6647***	-2.5353***	-1.8284***
	0.4991	0.4232	0.5214	0.5339
Chi^2	1265.84	1839.46	428.22	173.56
P of Chi^2	0.0000	0.0000	0.0000	0.0000
Log Likelihood		-5170.636		
Pseudo R^2		0.285		
N	134,556	134,634	26,622	30,505

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^p<.05; ^^^p<.001, one-tailed test but wrong sign

[1] increased above-average military expenditure

Table 5-2A Civil-Military Dynamics and Predicting MID Involvement, 1886-1992

Variable	1886-1992 *Simplest, All Dyads*	1886-1992 *Peaceyears Correction*	1886-1939 *All Dyads*	1886-1992 *Politically Relevant Dyads*
Civil-military relations (IAAMEAB[1]) Conscription (CONSCRAB)				
Lower democracy	-0.0707***	-0.0632***	-0.0664***	-0.0676***
(DEM_L)	0.0114	0.0097	0.0117	0.0119
Trade/GDP	-60.0110***	-33.1138**	-37.6773*	-35.6581*
($DEPEND_L$)	18.7910	12.1438	21.1902	15.7055
International organizations	-0.0024	0.0153^^^	0.0116^	-0.0074*
(IGO)	0.0042	0.0043	0.0070	0.0043
Capability ratio	-0.2377***	-0.1898***	-0.4174***	-0.2887***
(CAPRATIO)	0.0553	0.0452	0.0722	0.0549
Alliances	-0.2931	-0.4174**	-0.2369	-0.3743*
(ALLIANCES)	0.1803	0.1655	0.2134	0.1847
Noncontiguity	-2.0566***	-1.5519***	-1.1528***	-1.1610***
(NONCONTIG)	0.1935	0.1596	0.2070	0.1832
Log distance	-0.4509***	-0.3437***	-0.2723***	-0.2382***
(DISTANCE)	0.0612	0.0543	0.0676	0.0663
Only minor powers	-1.7891***	-1.6253***	-1.6011***	-0.6025**
(MINORPWRS)	0.1755	0.1334	0.1997	0.2181
Constant	-1.9455***	-1.5001***	-2.5366***	-1.6510**
	0.5203	0.4582	0.5815	0.5630
Chi^2	1222.36	1744.08	317.60	168.49
P of Chi^2	0.0000	0.0000	0.0000	0.0000
Log Likelihood		-4844.849		
Pseudo R^2		0.289		
N	122,071	122,137	18,452	27,658

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^p<.05; ^^^p<.001, one-tailed test but wrong sign

[1] increased above-average military expenditure

Table 5-3A Civil-Military Dynamics, Diplomatic Channels and Predicting MID Involvement, 1886-1974

Variable	1886-1974 *Simplest, All Dyads*	1886-1974 *Peaceyears Correction*	1886-1939 *All Dyads*	1886-1974 *Politically Relevant Dyads*
Civil-military relations (IAAMEAB[1])				
Conscription (CONSCRAB)				
Diplomatic channels (SANSDC)				
Lower democracy	-0.0739***	-0.0679***	-0.0656***	-0.0794***
(DEM_L)	0.0131	0.0118	0.0118	0.0134
Trade/GDP	-70.1221***	-40.3814**	-35.8845*	-38.5810*
($DEPEND_L$)	23.0152	15.2828	21.0444	18.8450
International organizations	-0.0118*	-0.0010	0.0109	-0.0116*
(IGO)	0.0054	0.0058	0.0071	0.0053
Capability ratio	-0.2672***	-0.1985***	-0.4135***	-0.2808***
(CAPRATIO)	0.0689	0.0611	0.0721	0.0655
Alliances	-0.2494	-0.3473*	-0.2181	-0.4179*
(ALLIANCES)	0.1929	0.1935	0.2129	0.1957
Noncontiguity	-1.6668***	-1.3782***	-1.1071***	-0.8926***
(NONCONTIG)	0.2164	0.2017	0.2088	0.1891
Log distance	-0.4069***	-0.3243***	-0.2595***	-0.2326***
(DISTANCE)	0.0693	0.0646	0.0680	0.0724
Only minor powers	-1.9483***	-1.8238***	-1.6027***	-0.6044**
(MINORPWRS)	0.1950	0.1704	0.2023	0.2394
Constant	-1.8079**	-1.4306**	-2.6032***	-1.4018*
	0.5995	0.5619	0.5906	0.6157
Chi^2	804.22	1249.37	293.69	134.20
P of Chi^2	0.0000	0.0000	0.0000	0.0000
Log Likelihood		-3074.558		
Pseudo R^2		0.257		
N	57,185	57,221	17,697	16,431

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^p<.01; ^^p<.001, one-tailed test but wrong sign

[1] increased above-average military expenditure

Table 6-1A Civil-Military Dynamics, Political Communications and Predicting MID Casualties

		Simplest, All Dyads		
Variable	1886-1992	1886-1992	1886-1974	195-1974
Civil-military relations (IAAMEAB[1])				
Conscription (CONSCRAB)				
Diplomatic channels (SANSDC)				
Media Openness (AMOAB)				
Lower democracy	-0.0082	-0.0120	-0.0066	0.0399
(DEM_L)	0.0344	0.0393	0.0408	0.0376
Trade/GDP	-547.9779**	-609.3138**	-799.0693**	-1439.4290***
($DEPEND_L$)	187.1755	212.5961	294.8045	367.998
International organizations	0.0194	0.0197	0.0392	0.0757^^^
(IGO)	0.0203	0.0208	0.0324	0.0178
Capability ratio	-0.4598***	-0.4568***	-0.6482***	-0.3789*
(CAPRATIO)	0.1403	0.1417	0.1820	0.1896
Alliances	-0.6782	-0.7874	-1.6880*	-2.3559**
(ALLIANCES)	0.7032	0.7314	0.8769	0.8063
Noncontiguity	-4.1512***	-4.0712***	-3.8592***	-4.2533***
(NONCONTIG)	0.6001	0.6172	0.7405	0.7513
Log distance	-0.3910***	-0.4475***	-0.5849***	-0.6446***
(DISTANCE)	0.1204	0.1263	0.1201	0.1715
Only minor powers	-1.2506*	-1.3176**	-1.4409*	-1.1384*
(MINORPWRS)	0.5584	0.5658	0.6466	0.6578
Constant	-5.8343***	-5.3166***	-4.0121***	-4.7996***
	1.0595	1.1263	1.1857	1.4635
Chi^2	360.95	363.77	182.41	287.66
P of Chi^2	0.0000	0.0000	0.0000	0.0000
N	134,505	122,026	57,155	37,405

*p<.05; **p<.01; ***p<.001, one-tailed tests; ^^^p<.001, one-tailed test but wrong sign

[1] increased above-average military expenditure

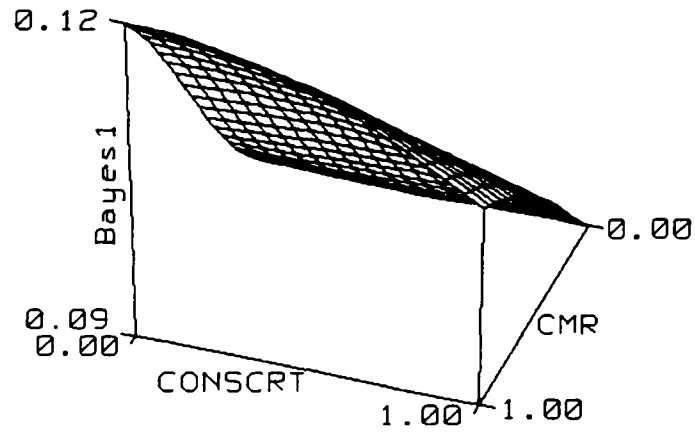
Table 6-2A Civil-Military Dynamics, Political Communications and Predicting MID Casualties

		Politically Relevant Dyads		
Variable	1886-1992	1886-1992	1886-1974	1950-1974
Civil-military relations (IAAMEAB[1])				
Conscription (CONSCRAB)				
Diplomatic channels (SANSDC)				
Media Openness (AMOAB)				
Lower democracy	-0.0074	-0.0103	-0.0066	0.0338
(DEM_L)	0.0351	0.0401	0.0404	0.0380
Trade/GDP	-519.7971**	-584.0651**	-746.7530**	-1309.8730***
($DEPEND_L$)	190.8801	219.9885	279.5959	363.9533
International organizations	0.0152	0.0149	0.0350	0.0677^^
(IGO)	0.0202	0.0204	0.0310	0.0180
Capability ratio	-0.4976***	-0.5010***	-0.6738***	-0.4042*
(CAPRATIO)	0.1445	0.1446	0.1786	0.1891
Alliances	-0.7672	-0.9023	-1.7616*	-2.3435***
(ALLIANCES)	0.6771	0.6929	0.8289	0.7641
Noncontiguity	-2.2645***	-2.2268***	-2.2489***	-2.2177**
(NONCONTIG)	0.4381	0.4368	0.5439	0.7948
Log distance	-0.2580*	-0.3168**	-0.4737***	-0.4545**
(DISTANCE)	0.1161	0.1232	0.1247	0.1836
Only minor powers	-0.4454	-0.4690	-0.7189	0.0685
(MINORPWRS)	0.5631	0.5648	0.6281	0.7710
Constant	-4.3646***	-3.8006***	-2.7163**	-3.5242**
	0.9428	1.0552	1.0441	1.4811
Chi^2	109.53	113.73	82.06	75.42
P of Chi^2	0.0000	0.0000	0.0000	0.0000
N	30,453	27,612	16,400	8,360

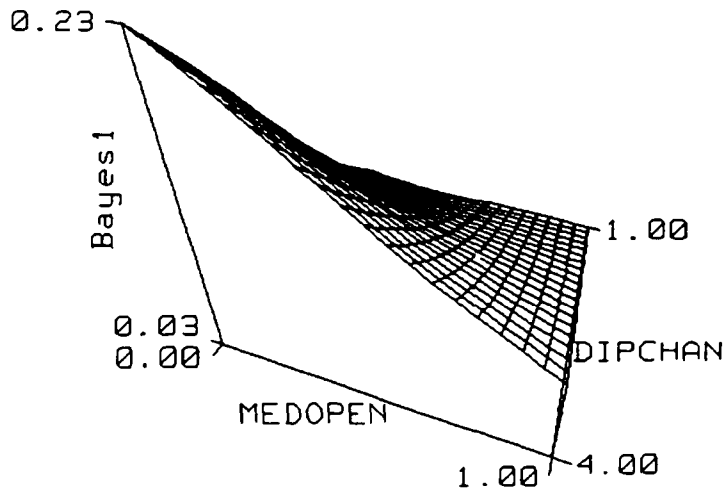
*p<.05; **p<.01; ***p<.001, one-tailed tests; ^^p<.001, one-tailed test but wrong sign

[1] increased above-average military expenditure

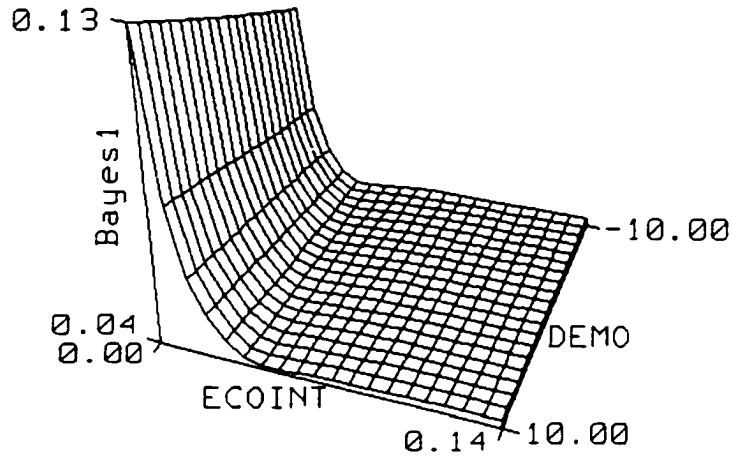
Figure 5-1-1A
Three-Dimensional Plots of the Network Output against Two Inputs, 1950-1974



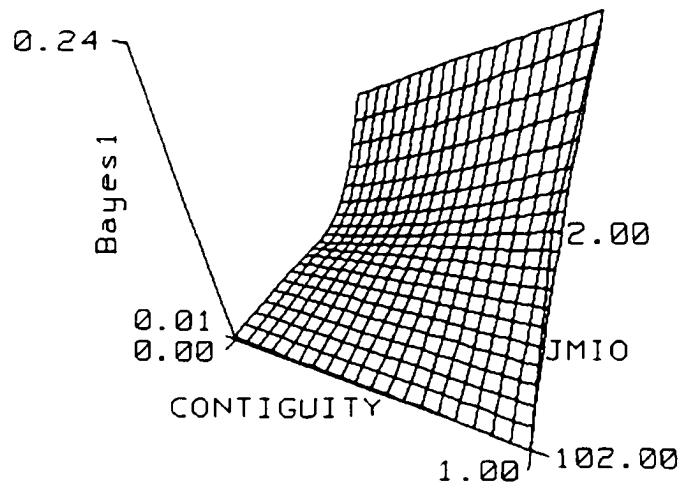
(a) The likelihood of MID involvement against civil-military relations and conscription



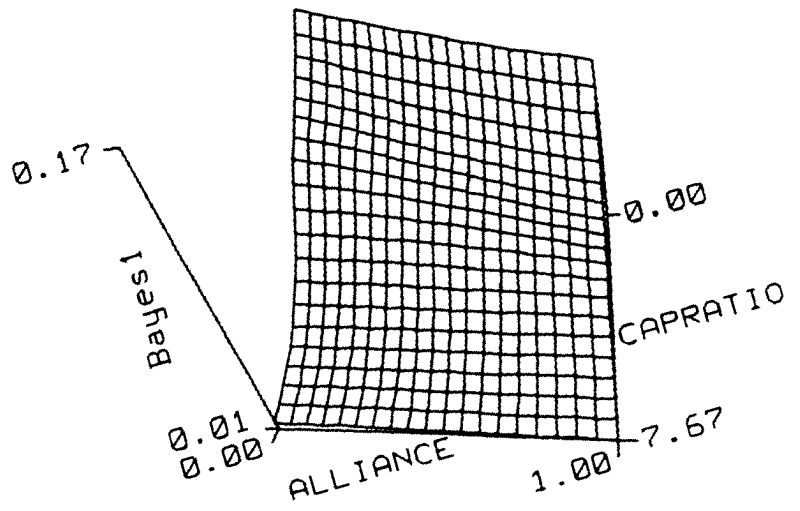
(b) The likelihood of MID involvement against diplomatic channels and media openness



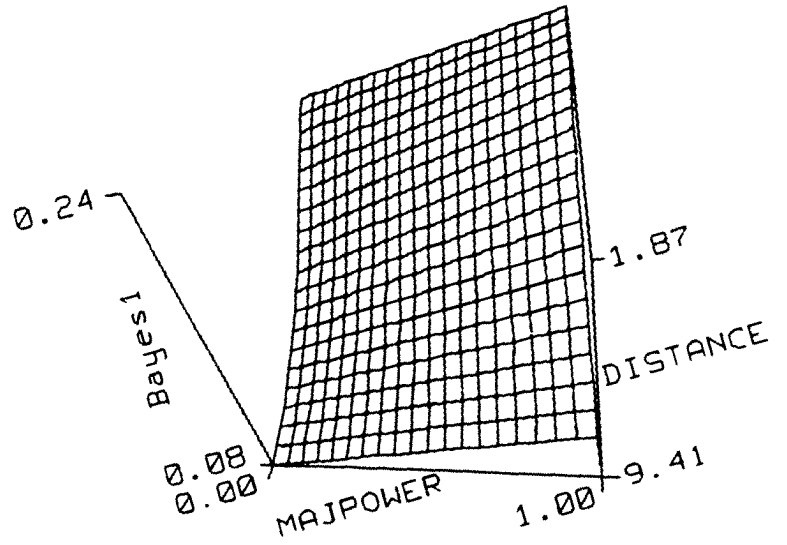
(c) The likelihood of MID involvement against democraticness and economic interdependence



(d) The likelihood of MID involvement against international organizations and contiguity

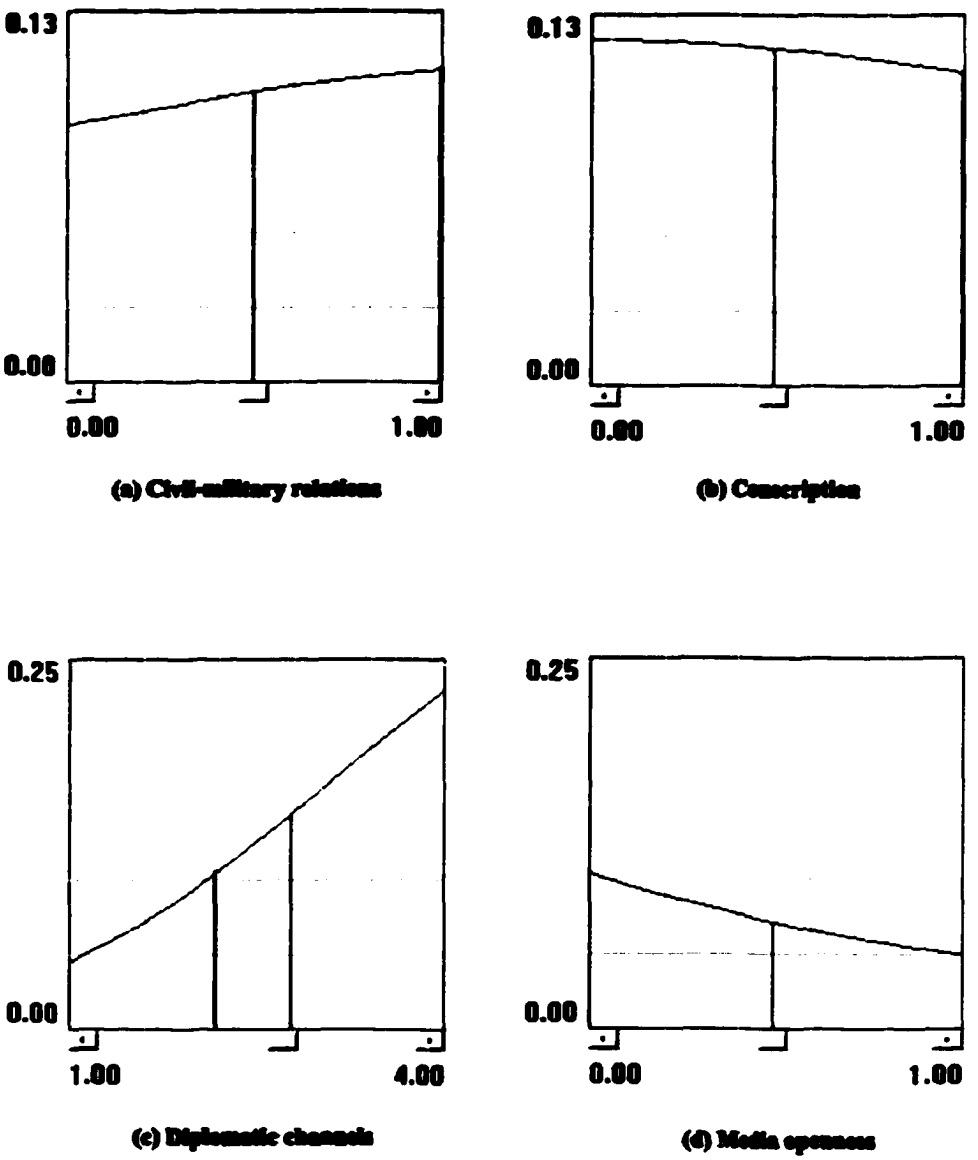


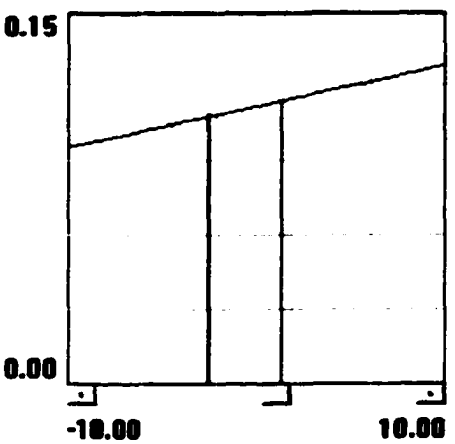
(e) The likelihood of MID involvement against capability ratio and alliance



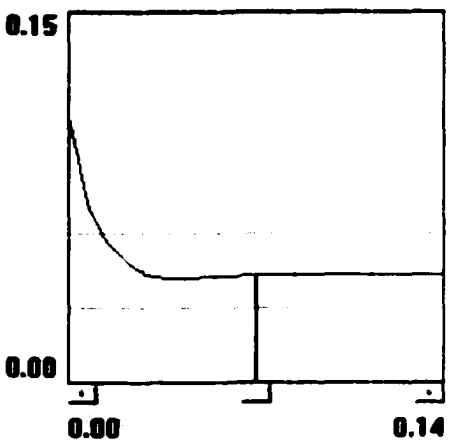
(f) The likelihood of MID involvement against distance and major power

Figure 5-1-2A
Marginal Effects of Each Independent Variable, 1950-1974

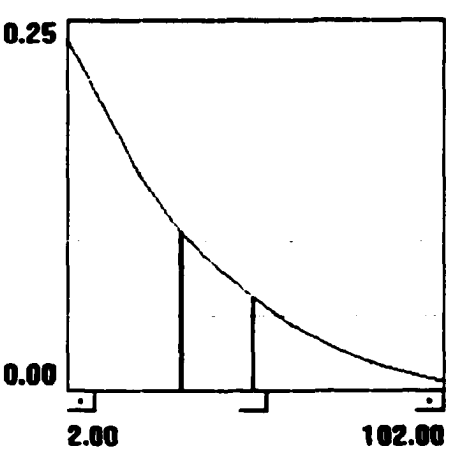




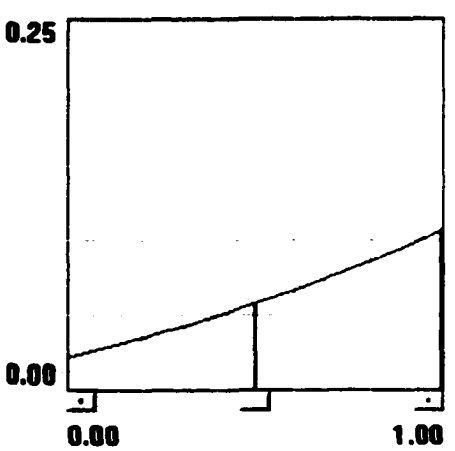
(e) Democraticness



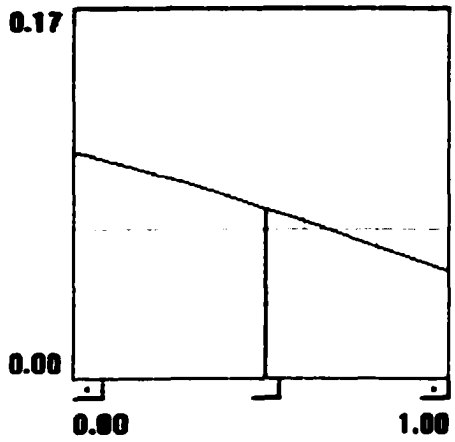
(f) Economic interdependence



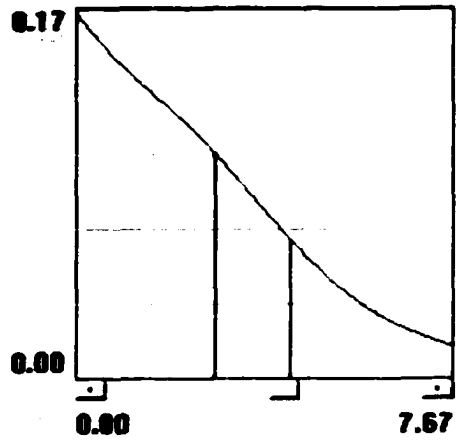
(g) International organizations



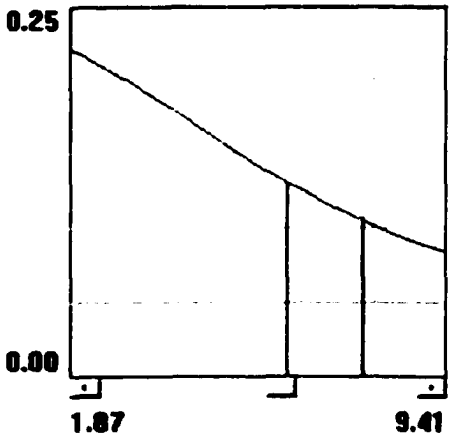
(h) Contiguity



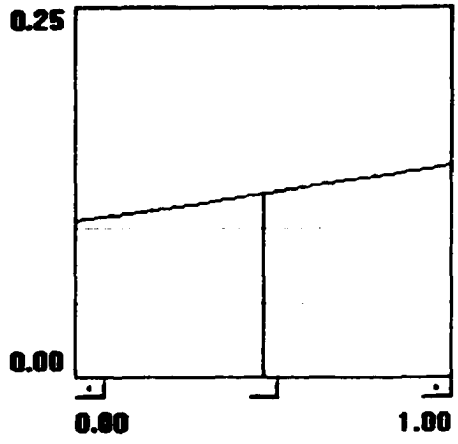
(i) Alliance



(j) Capability ratio

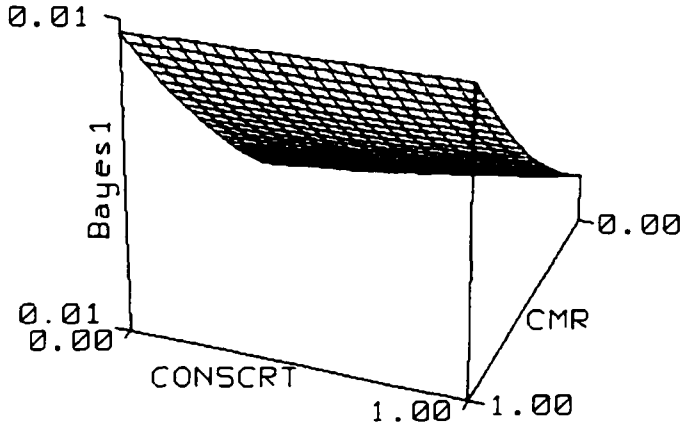


(k) Distance

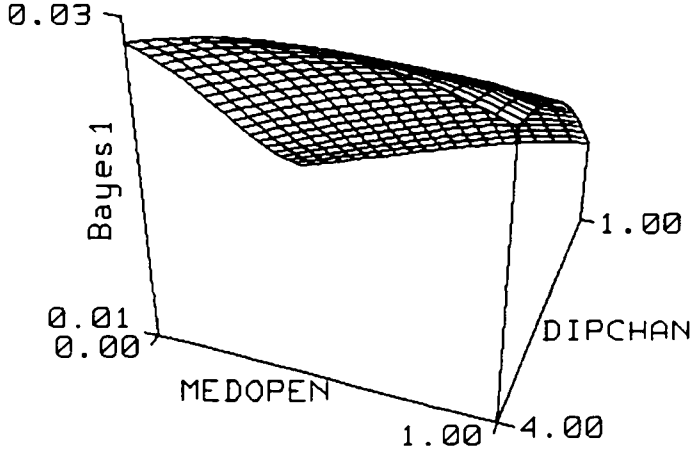


(l) Major powers

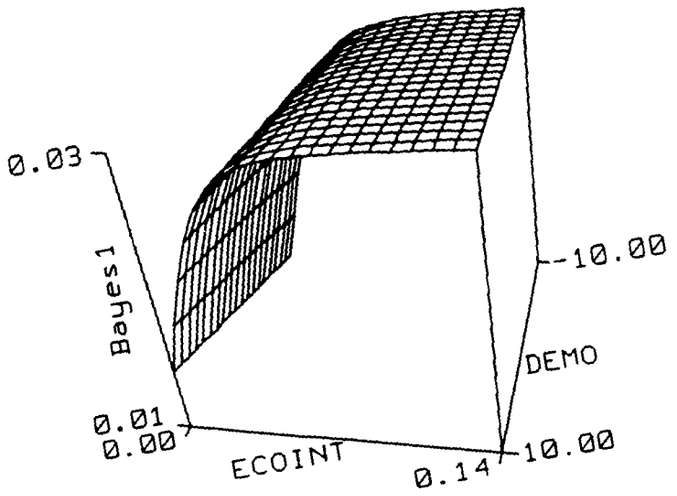
Figure 6-1-1A
Three-Dimensional Plots of the Network Output against Two Inputs, 1950-1974



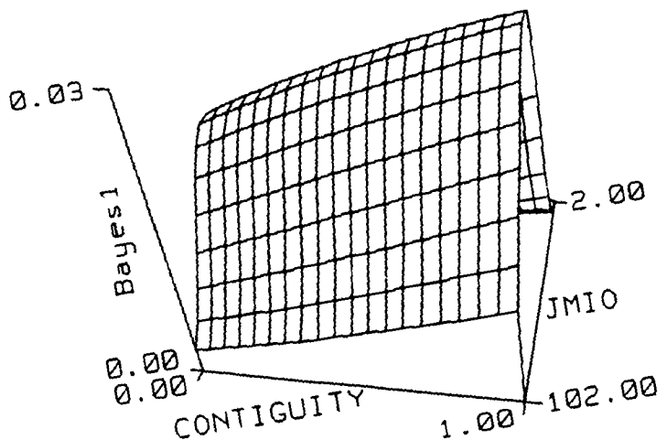
(a) The likelihood of MID-related casualties against civil-military relations and conscription



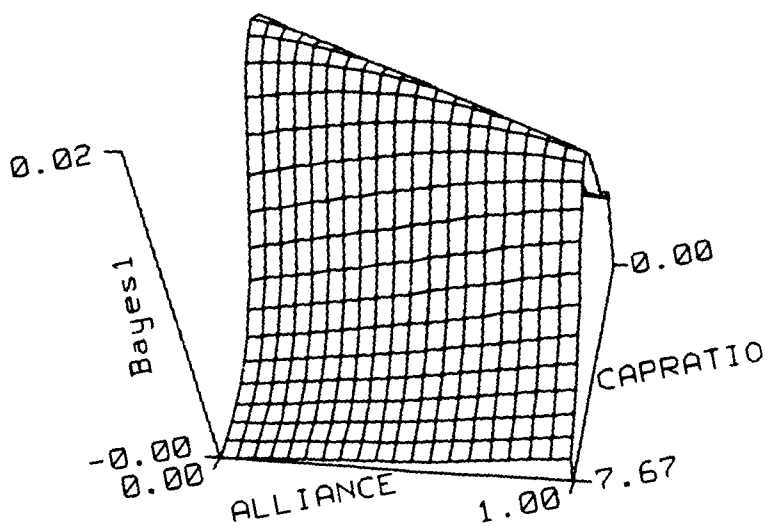
(b) The likelihood of MID-related casualties against diplomatic channels and media openness



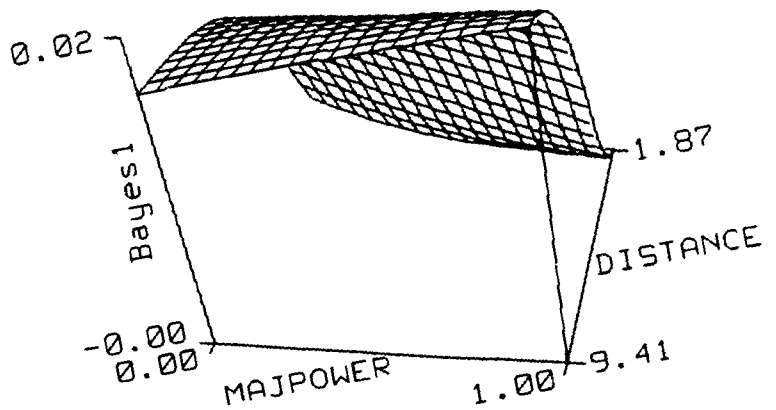
(c) The likelihood of MID casualties against democraticness and economic interdependence



(d) The likelihood of MID-related casualties against international organizations and contiguity

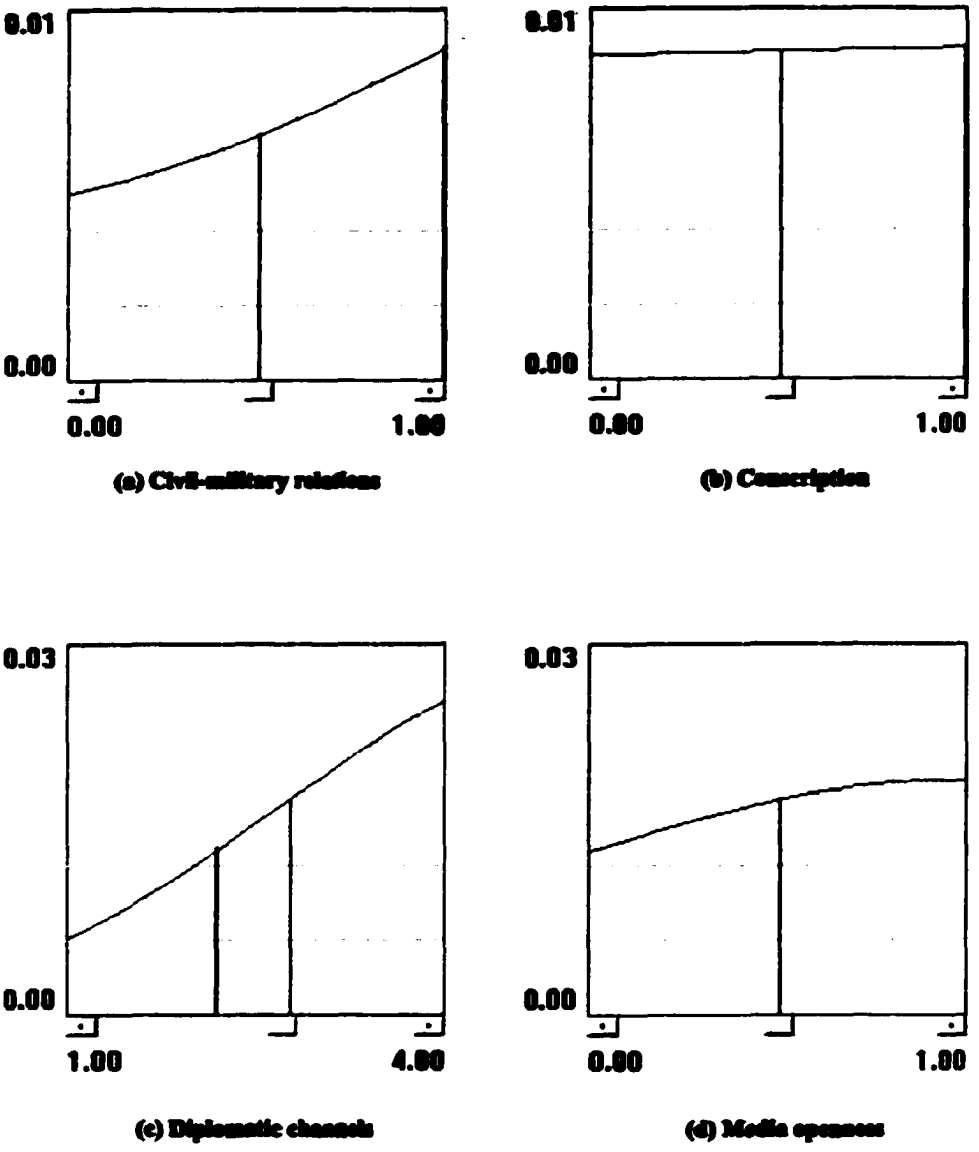


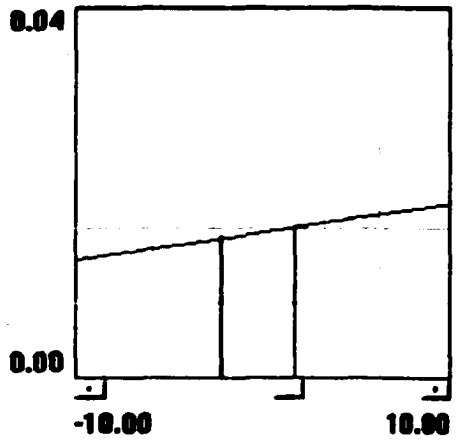
(e) The likelihood of MID-related casualties against capability ratio and alliance



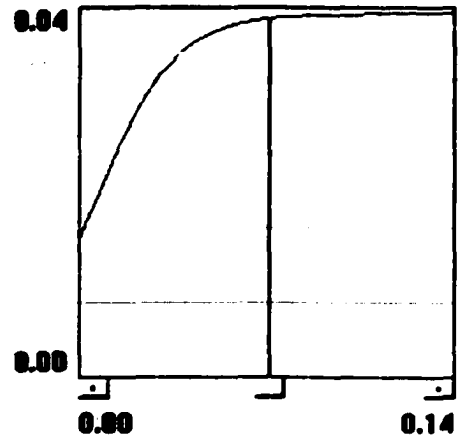
(f) The likelihood of MID-related casualties against distance and major power

Figure 6-1-2A
Marginal Effects of Each Independent Variable, 1950-1974

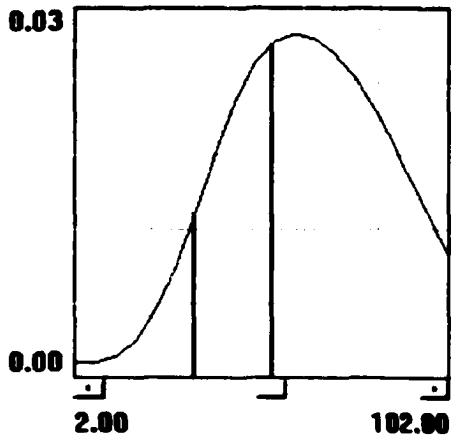




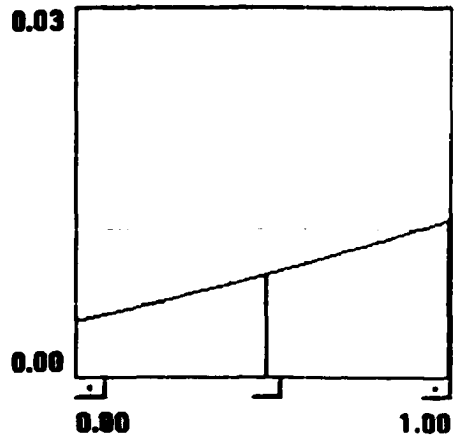
(e) Democraticness



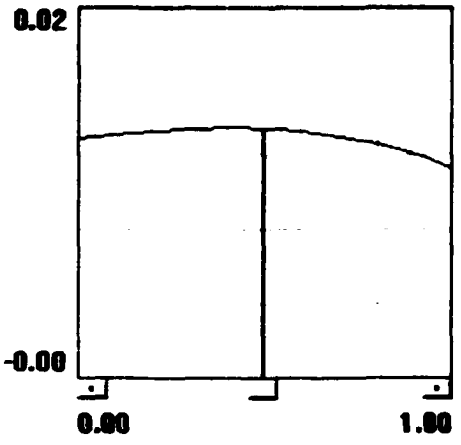
(f) Economic interdependence



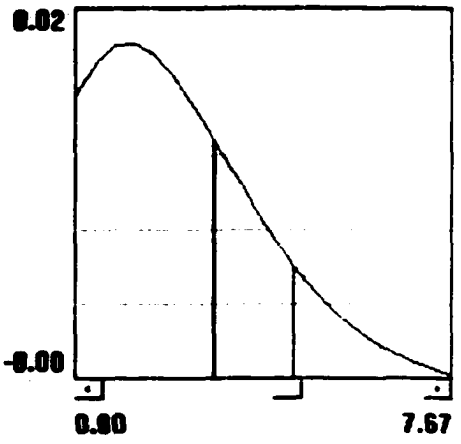
(g) International organizations



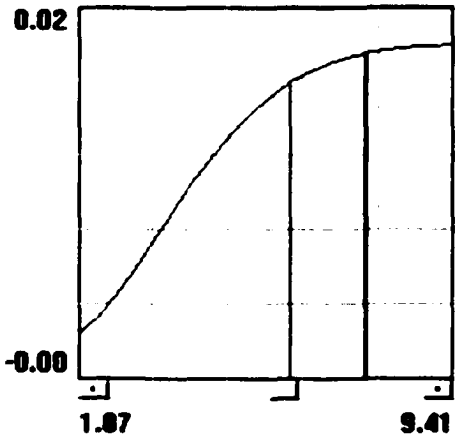
(h) Contiguity



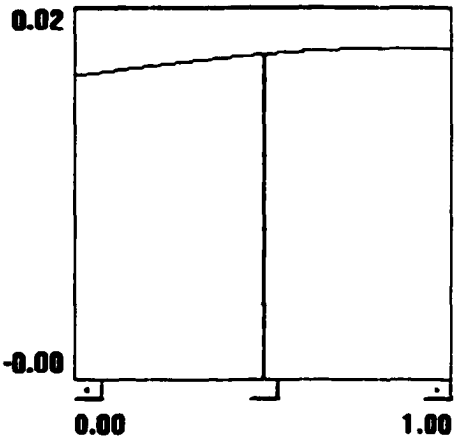
(i) Alliance



(j) Capability ratio



(k) Distance



(l) Major powers

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