

## Military Buildups Arming and War

Susan C. Sample

**D**o arms races cause wars? For a variety of reasons, one of the most elusive pieces of this war puzzle has been the role that military buildups play in the occurrence of war. It is a question intricately bound up with foreign policy choices that countries make each day in an effort to enhance their security. As such, the empirical question of the impact of arming for security has also been wrapped up in direct political controversy between those convinced that arming will cause war and those convinced that *not* arming will cause war. The social-scientific literature has been slow in finding an authoritative answer to this question due to controversies over how to structure a test properly, a debate that has often seemed to overshadow the real questions at its heart: do arms races cause wars; and what impact, if any, do military buildups really have on a nation's security?

The political controversy stems from a real theoretical disagreement. There are, in fact, two mutually exclusive theoretical arguments about how arming affects the relationship between states. The first, what we refer to as the *para bellum* argument, derives from the ancient Latin creed: "If you desire peace, you must prepare for war." In this formulation, preparing for war has the seemingly nonintuitive effect of staving off conflict. This is the argument of deterrence; if a country prepares for war, it is able to make any potential attacker believe that the costs of an attack will be too high to make the act of aggression worthwhile. The policy implication of this view is that armaments programs may be pursued because they serve the double purpose of decreasing the likelihood of war, while simultaneously making it easier to fight any war that cannot be deterred or otherwise avoided. It is a clear, logical argument based on the assumption that policymakers rationally calculate the costs and benefits of all actions as they relate to the national interest of a country.

In complete contrast to this theoretical argument, the lesson derived from

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World War I was that the arms buildups prior to the war had significantly contributed to its occurrence. Mutual arming, the argument goes, leads to a situation in which both countries may plausibly believe that the other intends threatening or aggressive behavior. With no supranational arbitrator of their disputes, countries depend on their own arms to give them security. However, by creating the impression of threat (and the capability of threat), arming increases the chance that war will occur, while ensuring that any war that does happen will be extremely costly for everyone involved.

Addressing the question of whether arms buildups lead to war is more complex than it first appears. Controversies over conceptualization (How exactly should we conceptualize an "arms race"?), research design, and measurement (How do we know an arms race when we see it?) have taken on a life of their own in the literature. The methodological controversies have served to stunt the theoretical growth of the literature on arms races. There has been a notable lack of evolution in our attempts to develop a strong explanation (in light of what we *do* know) for why arms increases might lead to wars that would not occur in their absence (Diehl and Crescenzi 1998).

Another important issue that must be addressed if we are to discern the probable outcome of arms programs is the role now played by nuclear weapons. The advent of nuclear weapons added a whole new dimension to the controversy, scholarly and political. The enormous cost attendant with a nuclear exchange added a great sense of urgency to the question. Did the advent of nuclear weapons fundamentally alter the nature of interstate relations, as some argue, making war between the major states rationally incredible as long as the weapons existed? Or, alternatively, did nuclear weapons mean that the spiral of threat and hostility that states initiated with an arms race could now have utterly devastating results for all the world?

This chapter considers what we know from tests previously conducted on these issues and reformulates some questions to give a more nuanced estimation of the effect of military buildups on international security. The conclusions of this study suggest that, like many political questions, the answer is far more complex than either side of the political debate would prefer. In the end, I offer what I intend to be a stronger and more consistent theoretical argument to explain what might at first appear to be theoretically contradictory empirical findings. Those findings are a positive and significant relationship between mutual military buildups and war occurrence that may have changed substantially in the face of the nuclear threat.

I argue that to explain what otherwise seems contradictory, we should focus our attention on the norms, or rules of behavior, in the international system for dealing with conflict. An exploration of the nature, growth, and change in the norms states employ to determine what constitutes appropriate behavior in the context of their relationships with other states is critical to our analysis. Understanding these norms will make it possible to explain why states tend to react to

military buildups with policies that tend to escalate the violence, while at the same time explaining more of the observed behavior of major states during the Cold War than either deterrence theory or its opposite. In this chapter, I outline the dimensions of the conflict over the role of arms buildups in the empirical literature, then address three major questions that help assess what, empirically, the relationships really are, before weaving the empirical findings into the larger theoretical argument.

### THE CONTROVERSY IN THE LITERATURE

A large part of the controversy in the empirical literature on the effects of arming stems from the work of Michael Wallace. His initial study (Wallace 1979) found an extraordinarily strong relationship between countries rapidly arming and disputes between them escalating to war. Of ninety-nine total dyadic disputes between 1816 and 1965, twenty-eight occurred while both countries were rapidly building up their weapons, and twenty-three of those escalated to war. Only three disputes in the group became wars in the absence of arms buildups. The conclusion was a strong statement that arms races led to wars.

This observation did not stand unchallenged. The findings of this initial study were criticized on several grounds, but the focal points of the criticism were the set of disputes Wallace used and his index for determining when an arms race was occurring. The primary concern regarding the dispute set was that the findings might be the result of dividing the multilateral World Wars into bilateral dyads, perhaps artificially increasing the number of disputes characterized by both arms buildups and war outcomes. Several research notes by Wallace and others explored this possibility, and it was discovered that the strength of the findings could be affected by manipulating the dispute set, though the direction of the relationship remained the same (Wallace 1980; Weede 1980; Altfeld 1983). Several possible problems with the index were also explored. While Wallace intended to capture intense mutual military buildups, it seemed that the index might be capturing intense *unilateral* buildups and/or war preparations themselves (Altfeld 1983). In either case, they might be associated with war occurrence, but the theoretical link offered by Wallace between arming and war would obviously not be a valid explanation for the finding.

Diehl (1983, 1985) stepped into the continuing controversy with an independent test of the military buildup-war connection. He used a new measure of military buildups and avoided many of Wallace's problems with the dispute set by including only disputes occurring within rivalries. Those studies only found a weak relationship between arming and dispute escalation. Despite its contribution, Diehl's study did not fully resolve the controversy because he used both a new dispute set and a new means of measuring arms buildups. It was therefore impossible to determine which change led to the findings that differed so much

from Wallace's. Diehl cast substantial doubt on Wallace's findings but could not really banish them.

The real problem with the research for a number of years was an apparent assumption that the various criticisms of Wallace's study could not, in fact, be tested to determine their validity. But they could be. Holding the measure of military buildups constant while testing with different dispute sets allows us to determine what impact the exact dispute set has on the statistical findings. Holding the dispute set constant while testing with different measures of arming allows us to determine what effect that measure has on the statistical findings. Thus, it was possible to resolve the debate over the nature of the bivariate relationship between arms buildups and dispute escalation (Sample 1996, 1997). As it turned out, the changes in dispute set and arming measure did make slight statistical differences, but none that actually altered the conclusions.<sup>1</sup> While the uncovered relationship never appeared as strong as Wallace concluded, there is a significant positive link between arming and dispute escalation in complete bivariate testing.

### MISSING PIECES OF THE PUZZLE

While resolving that controversy over the bivariate relationship was an important step forward in our understanding of the relationship between arms buildups and national security (or insecurity), it doesn't answer all of our questions. Three other pieces to this particular puzzle were not addressed originally, and they needed to be for us to determine what we really know and advance our understanding of these relationships. The first is a question of research design. While we have some evidence that military buildups increase the chance of a dispute escalating to war, we don't know whether they contribute to the *occurrence* of disputes in the first place. As it turns out, this question is far more important theoretically than it might first appear.

The second question is the obvious issue of whether this bivariate relationship holds up under multivariate scrutiny. Perhaps it is not the military buildup that increased the chance of war at all but rather some other variable or variables entirely. The early tests were rather primitive in that sense.

The last question is that of the impact of nuclear weapons in the state system after World War II. If nuclear weapons have qualitatively altered the relations between countries that possess them, we have to consider what that means for our overall understanding, not only of arming but of the dynamics of international relations more generally. Has the behavior of the major states changed, and if so, is it due primarily to a change in the structure of the international system, or the result of an effective evolution of the norms the states employ in their interactions?

### WHAT EFFECT DO MILITARY BUILDUPS HAVE ON THE OCCURRENCE OF DISPUTES?

The question of whether military buildups encourage disputes in the first instance is an important, though neglected, question. The original research design to address the impact of military buildups on dispute escalation has been criticized on the grounds that by including the militarized dispute as an intervening variable, the actual question of cause and effect between arming and war gets hopelessly offtrack. Houweling and Siccama (1981) argue that Wallace's original study, because it looked at the outcome of militarized disputes rather than the results of arms races per se, could not be assumed that it was finding a causal relationship rather than just an association. For instance, both arms buildups and war could be the result of ongoing enduring rivalries, making the statistical relationship spurious (Diehl and Crescenzi 1998; Goertz and Diehl 1993).

Houweling and Siccama (1981) assert that by including the militarized dispute as an intervening variable, the results can only be considered a conjunction of the effect of military buildups and the dispute. This is, of course, entirely true. However, by beginning with a set of militarized disputes, the disputes themselves are a constant in the formulation. Any variation in the outcome must be the result of the independent variable—the military buildup—rather than the constant. There is a statistically significant correlation between military buildups and war, given the occurrence of a militarized dispute. The correlation between militarized disputes and war certainly exists; it is determined by the fact that war is defined as a militarized dispute that reaches a certain intensity.

Theoretically, the criticisms are more telling. This is so primarily because the research design does not purport to begin with all arms races and seek instances of wars but rather takes the shortcut of starting with disputes. Although this is entirely adequate for determining whether a relationship exists between military buildups and dispute escalation to war, this formulation (due to the inclusion of disputes as an intervening variable) is not a compelling way to test whether military buildups lead to war. It might logically be inferred that disputants should be deterred from escalating to war when both countries have rapidly built up their militaries in preparation. However, it is significant that the research design eliminates the possibility that there would have been more militarized disputes (and possibly wars) if the arming had not happened as it did. The logic of deterrence would certainly suggest that a country might be deterred from challenging the status quo (initiating a dispute) if its potential opponent were rapidly increasing its military capability. The flip side of this, of course, is that there is also no way of knowing whether the rapid military buildups led to disputes that would not have otherwise occurred.

It is possible that arms buildups coincident with militarized disputes *are* more likely to escalate than disputes in which neither party is arming rapidly, while at the same time, arming has the general tendency of deterring disputes from occur-

ring. This division of outcomes from arming might be the result of a self-selection bias into the phase of a militarized dispute. In other words, for a country to get into a militarized dispute, overcoming the deterrent effect of the other's arms buildup, it must really be willing to settle the conflict by force if necessary. Such disputes would naturally be more likely to escalate than disputes in which the initiator did not have to overcome the deterrent barrier of the other's buildup (Pearon 1994).

Because of this possibility, the relationship between arming and dispute occurrence is often considered the critical missing element in the arming-to-war equation. If arming leads to disputes, the finding would contradict the tenets of deterrence theory: military buildups could not be counted on to discourage either the occurrence of disputes or their escalation. A positive relationship between arming and dispute escalation suggests that deterrence may somehow be faulty, but it does so in an indirect way. It does not directly address the possibility of different outcomes of arming when considered independent of the intervention of an already hostile relationship (as shown by the occurrence of militarized disputes). If deterrence works, then arming should not be associated with the occurrence of disputes, even if it might be related to the escalation of disputes once that barrier is broken.

One way of determining how arming affects the chance of conflict is to take dyad-years as the unit of analysis and discern whether arming affects the likelihood of a dispute occurring between any given pair of states. The test in this case is a fairly simple one and a first cut at trying to pin down what relationship exists between arming and dispute occurrence. The unit of analysis is the dyad-year from 1816 to 1993 among the major states in the system. This yielded 2,444 dyad-years for which it was possible to calculate a measure of mutual military buildup (eliminating a number of cases following immediately on the heels of a major war). There was at least one dispute in 198 of those dyad-years.

The test was conducted twice, using the same two measures of a military buildup used to resolve the initial controversy.<sup>2</sup> The findings suggest that there does appear to be some slight positive relationship between mutual military buildups and the chance that countries will be involved in militarized disputes. In bivariate logit analysis, the relationship was statistically significant using one measure of arming, but not so over the whole Correlates of War (COW) period using the other.<sup>3</sup> Tables 8.1 and 8.2 show the proportion of dyad-years in which there was a dispute, given by whether the countries involved were rapidly arming in that year or not.

If we look at the likelihood of a dispute occurring in a given dyad-year, we see a clear difference between mutually arming dyads and the others. We see a militarized dispute occurring in 15 or 16 percent (depending on the specific arms measure used) of the dyad-years characterized by a mutual military buildup. This is nearly twice the proportion of dispute occurrence in a given dyad-year than

**Table 8.1 The Relationship between Dispute Occurrence and Military Buildup—Diehl's Index**

<i>In a Given Dyad-Year</i>	<i>Neither Arming</i>	<i>One Arming</i>	<i>Both Arming</i>	<i>Total</i>
No dispute	1,217	797	232	2,246
Dispute	79	75	44	198
Total	1,296	872	276	2,444
Proportion of dispute-years to total dyad-years	6%	8.6%	16%	8.1%
$\chi^2 = 30.1$	$p < .01$			
$\phi = .11$	$p < .01$			

when neither country, or only one country, was arming. Although the relationship is not extremely strong, it is worth investigating, because it is not the negative correlation we would expect if arming discouraged dispute occurrence.

While the argument has been made that arming could have two different effects depending on timing and selection bias (stemming the occurrence of disputes, but aggravating those that do occur), the evidence herein suggests that this is not the case. This is not an altogether surprising finding when we consider the evidence that conflicts between rapidly arming states are far more likely to escalate than other militarized disputes. If disputes characterized by mutual military buildups have a much higher probability of escalation than disputes between non-arming states, it does seem unlikely that predispute arming would lead to deterrence, despite the apparent logic of such an argument. Evidence regarding the "missing link" in this first instance, then, supports the notion that rapid military buildups increase both the chance that states would engage in a dispute and also the chance that disputes happening in that context would be particularly likely to escalate all the way to war.

**Table 8.2 The Relationship between Dispute Occurrence and Military Buildup—Horn's Measure**

<i>In a Given Dyad-Year</i>	<i>Neither Arming</i>	<i>One Arming</i>	<i>Both Arming</i>	<i>Total</i>
No dispute	1,574	575	97	2,246
Dispute	142	39	17	198
Total	1,716	614	114	2,444
Proportion of dispute-years to total dyad-years	8.3%	6.3%	15%	8.1%
$\chi^2 = 9.7$	$p < .01$			
$\phi = .06$	$p < .01$			

### IS THE BIVARIATE CORRELATION JUST AN ARTIFACT OF THE RELATIONSHIP OF OTHER VARIABLES?

The second big question we must address to understand the role military buildups play in dispute escalation is whether the bivariate relationship is robust in multivariate testing. Obviously, if other factors are significantly related to both military buildups and the likelihood of dispute escalation, then the link between arming and escalation may be an artifact of one or more of those relationships.

A number of factors could plausibly be leading to both military buildups and dispute escalation. The statistical impact of this in bivariate tests would be to suggest that there is a relationship (perhaps implying a causal relationship) between arms buildups and war but that in reality that correlation is only a reflection of others. To determine whether this is true, my analysis considers the impact of several other variables. The impact of the power balance between the states is considered, as well as the speed and nature of change within that power balance, the defense burden of each state, whether the states possess nuclear weapons, and the salience of the issue at stake.<sup>4</sup> In each case, we have a viable alternative that might be related to escalation and military buildups in such a way as to create an illusory impression that the dynamic process of a buildup is somehow unique in its particular impact on the likelihood of further conflict. The variables represent other explanations for whether and how disputes escalate that are based on profoundly different theoretical underpinnings than the thesis regarding arms buildups.

Traditionally, our analyses of war have concentrated on power: How is power distributed between states? How are changes in that distribution likely to impact the relationship between states? The theoretical underpinnings of these queries are grounded in the idea that states must seek power in an anarchical international environment and that they are rational in that pursuit. However, disagreement persists in the literature over the exact nature of the relationship. Traditional realists argue that war is least likely when states are roughly equal in power because both will rationally avoid the consequences of the possible loss to an adversary as capable as they. They argue that war is likely when one state is much more powerful than another because that state can rationally expect victory in any conflict.

The argument of the power transition thesis is precisely the opposite. War, it is argued, is unlikely when one state holds enormous power because the state can exert its dominance over a weak opponent in more efficient ways. When two states have equal power, they can each rationally assume they have a good chance of winning a war. If the prize to be won is the ability to determine the rules of the international system, states have a powerful incentive to attempt to defeat anyone who has a real capacity to challenge their status. A most dangerous time occurs when one state approaches and passes another in power (Organski 1958; Organski and Kugler 1980).

In both theories, the key to understanding how wars come about lies in understanding power and the dynamics of power. While it is obvious that both cannot be correct, it is equally obvious that these arguments must be addressed if we are to understand whether or how military buildups impact state interaction. If mutual military buildups do significantly alter the political dynamics of disputes, it is possible that the power distribution or changes in it would not be highly significant once arming patterns are taken into account. Independent of the power distribution between states, a militarized dispute between two rapidly arming countries may suggest to one or both states that their buildup, perhaps intended to prevent or deter conflict, has failed, and any further display of resolve short of war is likely to be unsuccessful. Alternatively, arms buildups may only represent a shift in the balance of power that is fundamentally more significant to the relationship than the military buildup itself. It could easily be that military buildups are a mere symptom of the overarching struggle over power in the international system. Any statistical relationship between military buildups and war would only be reflective of that larger relationship.

The study includes three power-based variables. The first variable determines whether two states are equal in power at the time of the dispute. The second variable considers whether the states have experienced a power transition in the last decade (one state has passed the other in relative power).<sup>5</sup> And the third looks at whether one state has been rapidly closing the gap with the other over the course of the last decade.<sup>6</sup> Although they cannot be used to make general conclusions, bivariate tests can provide a valuable "snapshot" as we begin to investigate relationships. The bivariate conditional probabilities of dispute escalation have been calculated for all three and placed in comparison with the conditional probability of a dispute escalating in the context of a military buildup (see Table 8.3).<sup>7</sup>

**Table 8.3** Bivariate Conditional Probabilities of Escalation of Major State Disputes and Military Buildups Compared to Power-Based Variables

	Number of Dyadic Disputes	Number of Dyads Escalating	P(esc)	Z score	P(Z)
All major state dyadic disputes	257	31	0.12	NA	NA
Mutual military buildups	29	12	0.41	4.8	<0.01
Equality	85	11	0.13	0.2	0.41
Rapid approach	78	11	0.14	0.5	0.31
Transition	34	7	0.21	1.6	0.05
					(4.1)

The numbers in parentheses indicate the predicted number of escalating disputes if the variable had no significant impact on the likelihood of escalation. The number above it in the second column is the number of dyads with that characteristic that actually escalated. In Table 8.3, we see that the unconditional probability of a dispute escalating to war across 257 dyadic major state disputes is about 12 percent. The probability of a dispute escalating in the context of a military buildup for the period was about 41 percent, which is significantly different from the unconditional probability.

However, the only one of the three power-based variables that appears to show a direct relationship with dispute escalation in this bivariate analysis is the occurrence of a transition in power in the preceding decade, which is significant at the .05 level. If we were to stop at bivariate analysis, we must conclude that some support exists for the power transition thesis. The other variables are not significant at all, even in a bivariate testing. This suggests that when we include them in a multivariate model, the only variable likely to affect the statistical relationship between military buildups and dispute escalation might be a preceding power transition.

Another factor we must consider in determining the real role of military buildups is the level of militarization, or defense burden, of each state. This is important because it gets to the issue of dynamism. The argument that military buildups increase the chance of war assumes that there is something to the *action* of the buildup that creates the change. Taking a measure of the defense burden is a related, but different, concept. The defense burden is the portion of resources a state dedicates to the military. A high defense burden might be unsustainable over long periods, lending a sense of urgency to any conflict, thus enhancing the chance of war without the increase being theoretically related to the immediate rate of change of military expenditures. On the other hand, imagine the scenario when two countries with abundant resources are not spending a large portion of their resources on the military, but they've just begun to rapidly increase their expenditures from year to year. That is a situation in which the defense burden is low, but a rapid military buildup is going on. The escalation of disputes like this would suggest that it is not the proportion of resources dedicated to the military that is problematic but the rapid increase and its impact on decision making. By considering the impact of both military buildups and the states' defense burdens, we can begin to determine whether the increased chance of escalation is related to one or the other (or perhaps both).

Table 8.4 indicates the unconditional probability of a dispute escalating when one or both states at the time of the disputes have a high proportion of their resources dedicated to the military. As it turns out, the defense burden does appear to be highly correlated with the chance of dispute escalation. We would predict that nine or ten disputes would escalate, but twenty do, a significant difference. Multivariate analysis will allow us to see whether our measure of a mutual military buildup is really only representing cases in which the countries have high

**Table 8.4** Bivariate Conditional Probability of Escalation of Major State Disputes if One or Both States Have a High Defense Burden

	Number of		P(esc)	Z score	P(Z)
	Dyadic Disputes	Dyads Escalating			
All major state dyadic disputes	257	31	0.12	NA	NA
Defense burden	81	20	0.25	3.6	<0.01 (9.7)

defense burdens. This would indicate once again that the relationship we see between military buildups and escalation is an artifact of another variable related in some way to both.

While the impact of nuclear weapons on the dynamics between states will be considered in some depth further on, it is important to begin to address them in this context. Proponents of nuclear deterrence argue that a buildup of nuclear weapons should profoundly decrease the chance that disputes will escalate. The interplay between arms buildups and nuclear weapons, when we consider the period of the Cold War, seems undeniable. When we look at the bivariate conditional probability that a dispute will escalate when at least one of the states involved in the dispute had nuclear weapons, we see that the chance of such a dispute escalating is far below the unconditional probability of escalation.

Does Table 8.5 suggest that nuclear weapons have fundamentally altered the nature of relations between states? It certainly must be considered. The table also highlights the importance of discovering how these relationships hold up in multivariate analysis, since the impact of possessing nuclear weapons seems to be acting in one direction, while arms buildups seem to be acting in the other.

The last variable considered here is the relationship between the issue under contention in a given dispute and the likelihood that dispute will escalate. Specifically, the study looks at the issue of territory. In general, the importance of issues as causes of escalation has been ignored in our studies of war because of the dominance of power-based explanations. It has been assumed that any given

**Table 8.5** Bivariate Conditional Probability of Escalation of Major State Disputes if One or Both States Possess Nuclear Weapons

	Number of		P(esc)	Z score	P(Z)
	Dyadic Disputes	Dyads Escalating			
All major state dyadic disputes	257	31	0.12	NA	NA
Nuclear	114	1	0.01	3.6	<0.01 (13.7)

issue was not, in fact, the cause of conflict, just the trigger of the moment. The implication of this assumption is that the disputes over different issues should have the same probability of escalation. A number of studies (Diehl 1992; Holsti 1991; Mansbach and Vasquez 1981; Vasquez 1993, 1995b; Gochman and Leng 1983; Leng 1993) have suggested that this is not the case. In Table 8.6, we see that disputes over territory have about a 22 percent chance of escalating, nearly twice the unconditional rate of escalation. This study focuses on the issue of territory because it may be a particularly salient issue: and long-standing conflicts over a particularly salient issue may lead to both arms buildups and escalation.

It is obvious from the results of the bivariate tests that multivariate testing is mandatory to discover to what extent these relationships might be artifacts of the bivariate analysis. The multivariate test used in this survey employs logistic regression to test the relationships.<sup>8</sup> Each of the independent variables is coded dichotomously: arming, the issue of territory, rapid approaches, power parity, transition, possession of nuclear weapons, and high defense burdens are coded as 1, otherwise 0.<sup>9</sup>

The equation estimated in the analysis is:

$$\log W_i = a + b_1(\text{MutualMilitaryBuildup}_i) + b_2(\text{Issue}_i) + b_3(\text{RapidApp}_i) + b_4(\text{Parity}_i) + b_5(\text{Transition}_i) + b_6(\text{DefenseBurden}_i) + b_7(\text{Nuclear}_i),$$

where  $W_i$  is the conditional log odds of a dispute escalating to war given the influence of the variables in the model. The model has been estimated using all major state dispute dyads and employing Horn's measure of arms buildups.

As Tables 8.7 makes clear, the relationship between preceding mutual military buildups and the escalation of disputes to war is positive and significant.<sup>10</sup> A dispute that occurs during a mutual military buildup is more than twice as likely to escalate than disputes that occur in the absence of military buildups, once the effects of other variables are considered. The findings here suggest that it is the dynamic aspect of the mutual military buildup that somehow affects the outcome of the dispute, rather than the more static or structural factors. The only one of the other variables that remains highly significant in multivariate testing is the possession of nuclear weapons.

**Table 8.6** Bivariate Conditional Probability of Escalation of Major State Disputes if the Dispute Is over the Issue of Territory

	Number of Dyadic Disputes	Number of Dyads Escalating	P(esc)	Z score	P(Z)
All major state dyadic disputes	257	31	0.12	NA	NA
Issue	54	12	0.22	2.3	0.01
			(6.5)		

**Table 8.7** Logit Model: Escalation to War, 1816–1993, All Major State Dispute Dyads

Factor	B	SE	Wald	p	R	Exp(B)
Mutual Military Buildup	1.1088	0.5249	4.463	0.0346	0.1141	3.0308
Rapid Approach	-0.8905	0.7190	1.534	0.2155	0.0000	0.4104
Equality	0.5234	0.5621	0.867	0.3518	0.0000	1.6877
Transition	0.7720	0.7676	1.012	0.3145	0.0000	2.1642
Defense Burden	0.9127	0.4922	3.439	0.0637	0.0872	2.4911
Nuclear	-1.6652	0.6527	6.5091	0.0107	-0.1544	0.1892
Territorial Issue	0.7877	0.4864	2.623	0.1054	0.0574	2.1984
Constant	-2.4258	0.4149	34.18	0.0000		
Log-likelihood	189.24					
Model log-likelihood	150.43					
Model $\chi^2$	38.80, df 7; $p < .0001$					

Table 8.8 calculates the predicted probability of a dispute escalating to war given the parameter estimates from the logistic regression. When all variables were set at zero, the probability of a dispute escalating between the major states in the COW period from 1816 to 1993 was 0.08. When both states were arming, but all other conditions were absent from the dyadic dispute, the probability of escalation to war leaps to 21 percent. When at least one country has a high defense burden, the odds of escalation are increased from the base probability of 8 percent to 18 percent. Presumably at least one country has realized that its capacity to maintain current levels of spending may begin to diminish, making it necessary either to come to a political détente or to precipitate a war while it perceives

**Table 8.8** Probabilities of Escalation to War, 1816–1993, Based on the Estimated Coefficients in Table 8.7

	Probability of Escalation
1. Baseline: all independent variables at zero	0.08
2. Mutual Military Buildup; all others at zero	0.21
3. High Defense Burden; all others at zero	0.18
4. Military Buildup and Defense Burden; all others at zero	0.40
5. Dispute over Issue of Territory; all others at zero	0.16
6. Military Buildup, Defense Burden, Territorial Dispute; others at zero	0.59
7. Military Buildup, Defense Burden, Territorial Dispute, Parity, Transition, Rapid Approach; Nuclear at zero	0.69
8. Nuclear; all others at zero	0.02
9. Military Buildup and Nuclear; others at zero	0.05
10. All variables at 1	0.25

that it still has a chance of winning. While the variable measuring the defense burden is not highly significant in the multivariate model, there does appear to be some relationship. In the same vein, the issue of territory may have some positive impact on the likelihood of escalation, but the measured variable is not statistically significant in this model.

The parameter estimates for the power-related variables were not significant.<sup>11</sup> Bivariate logit models were run for each variable as well, and in that analysis a power transition was positively related to the likelihood of escalation at the 0.10 level of significance, but that relationship vanishes in the multivariate model. When other, specifically political variables are controlled for, the power distribution, and changes in it, cease to be significant indicators of war potential in particular disputes.

Much more important to the chance of two disputing nations going to war are the particular foreign policy choices taken in the preceding few years, specifically the decision to vastly increase military capabilities. However, the parameter estimates for both parity and transition are in the direction proposed by power transition theory, and the probability of a war outcome does increase to its highest level when they are included. The probability of a dispute escalating to war given a mutual military buildup, a high defense burden, and a territorial dispute as the base of the conflict is 0.59. If the states are also at parity after a rapid approach and have recently experienced a transition, the chance of escalation to war increases to 0.69.

#### ARMING AND WAR: THE THEORETICAL CONNECTION

As previously mentioned, the research on the impact of arming has been greatly hampered by the failure to develop a strong theoretical argument connecting arms policies with war occurrence. Richardson (1960: 307) argued that at the root of unstable arming between states was the security dilemma: each country justified its own military expenditure by comparing it to that of potential rivals. For Richardson, the true tragedy of the security dilemma was that war came about because of mutual fear, not design. Two countries might be arming for their own security in an anarchic international environment, but each would assume that the arming of the other country was meant as a threat, thus making war the result of a series of miscalculations. Although this explanation of war, and the view of mutual military buildups, is symmetrical in terms of cause and effect—an action-reaction cycle of arms growth that explodes in hostility and fear—it has proven empirically inadequate. A hostile spiral model requires interactive, accelerating arms growth between the parties, and those behaviors are rare indeed. A better explanation must be more theoretically complex to account for what we do know about the arming of nations.

The evidence here suggests that rapid military buildups do increase the likeli-

hood of war and that military buildups are positively related to the occurrence of a militarized dispute between two countries. Within the context of militarized disputes, a mutual military buildup significantly increases the chance that the dispute will escalate to war, suggesting perhaps that the buildup itself affects the nature of the dispute or leads the countries involved to choose a path of increasing escalation in a crisis.

The key to understanding how arming affects the dynamics of interstate relations is in the junction between objective threat, the effects of subjective cognitive interpretations of events by policymakers, and, significantly, the impact created by the political norms associated with realism, the traditionally dominant theory of international politics. The political norms of realism prescribe certain foreign policy choices in the face of threats to security, both real and potential. These prescriptions are based on assumptions about international politics that include the pervasiveness and inevitability of conflict. One of the policies promoted to counter existing and potential security threats is the increase of a country's armaments.

The contribution that cognitive psychology can make to an understanding of decision-making behavior is important to an overall understanding as well. The potential threats to security, more than the sure ones, are the driving force behind the choice of policies and the overall orientation toward international politics that is characteristic of realism. In cases in which information is limited, cognitive psychology tells us, it is not unusual to employ shortcuts for defining situations and drawing conclusions about necessary and appropriate action in those contexts (Khong 1992: chap. 2; Jervis 1976). Realism has served the apparently functional purpose of providing decision makers of major states with a default cognitive framework for international politics since the Treaty of Westphalia in 1648—a framework that both defines the nature of politics and provides behavioral norms for acting within that political structure (Vasquez 1983, 1993).

Cognitive psychological approaches emphasize misperception in international politics, but they cannot satisfactorily explain why the balance of uncertainty so often tips in favor of conflict. Nevertheless, an analysis of the interplay between patterns of cognitive understanding and the political norms offered by realism goes a long way toward explaining why military buildups increase the likelihood of war.

When faced with direct security threats, realism prescribes that states augment their power through increasing arms (and solidifying alliances). These behaviors serve double purposes. Realism suggests that displays of resolve and capability will deter aggression, so arms and allies should help avoid unwanted conflict escalation. If that fails, however, they are useful tools for fighting a war. It is important to remember that realist policy prescriptions are meant to keep the peace by balancing a relationship so that no actor feels that violence would be a low-cost, rational option to achieving their objectives.

Despite their intentions, the choices associated with realist norms and practices

may increase the chance that war will be the outcome of militarized disputes, and the evidence herein suggests that arming increases the chance that disputes will occur in the first place. The assumption of the pervasiveness of conflict in the foreign policy culture may lend itself to the promotion of conflict, and this effect can be reinforced and redoubled by the patterns of cognitive (mis)perception evident in individual behavior. When faced with situations in which the motives of another actor can only be assumed, individuals (including policymakers in their official capacity) tend to assume that observed behavior is the product of coordination, not accident. They tend to perceive an overall high level of centralization and planning on the part of the other that may or may not exist. They assume that their own motivations must be clear to the opponent and, significantly, tend to believe that they play a central role in the policies of others (Jervis 1976: 62). Each of these elements can contribute to the overall level of risk in a dispute in which both countries have been arming. Policymakers often act in ways consistent with the norms related to realist theory, but the outcomes of those choices are more consistent with the psychological arguments regarding escalation (Leng 1993).

Mutual military buildups taking place before and during the occurrence of a militarized dispute are interpreted as current military threats, but it may be that the threat issues from hostility that goes back over the several years of the buildup. If countries tend to assume that they play a central role in the policy of others during (if not before) a militarized dispute, they are highly likely to assume that they were the target of the other's arms buildup from the beginning. This may or may not be misperception on their part, but it will serve to increase the level of danger in the current situation. This is all the more likely when we consider that disputes themselves are somewhat more likely to occur when countries are arming. The association between arming and dispute occurrence implies that countries may indeed worry about the arms policies of others before a dispute occurs.

A state that initiates the militarized dispute has presumably come to the conclusion that the target, despite its own military buildup, will either back down or that it will be unable to provide a serious threat to the initiator in the event of war. The target state, on the other hand, is faced with a challenger who has been building up its military and has now initiated a dispute, showing a seemingly clear willingness to fight while simultaneously not being deterred from initiating the conflict by the target's own military buildup. While realism suggests that a clear show of resolve is the best means of avoiding a major confrontation, a country that has already been actively building up its military is likely to believe that it has shown resolve and that it has not been sufficient to prevent aggression. It now appears that the country's security is seriously jeopardized by the threat and animosity displayed by the other (it may be or seem that the initiator intends to initiate a war), and the chance that violence will be deemed a necessary response under the circumstances is increased.

Unlike disputes in which neither party has been arming at high rates, there is little chance that this dispute will be interpreted as the product of momentary conflict, or an opportunistic testing of the waters. War may seem to be the likely outcome of the relationship, whether in this dispute or a subsequent one. Even if the issue at stake would not normally be considered critical, it may now take on symbolic value in the view that to surrender on this issue puts the continued security of the country at serious risk, given an opponent that (apparently) has been planning aggression for some time. Indeed, the tenets of realism are reinforced in the minds of decision makers: they increased their arms to increase their security; the dispute proves that their security was in jeopardy and that building up the country's arms was necessary. The next step in the realist prescription is to make one's resolve clearer and to fight, if necessary.

In the absence of a mutual military buildup, the complex dynamics of the relationship are altered, and certainly those of the dispute are different. Disputes are somewhat less likely, and when they do occur, the perception of their meaning is different. There is not the same impetus for each state to interpret the dispute as the outcome of a coordinated policy and arming process aimed at them over the period of several years or a possible failure of deterrence. There does not appear to be the same increase in the hostility level resulting from those interpretations, nor does the target presume a heightened and deliberate threat resulting from the failure of their own increased military to prevent militarized conflict. Disputes that do not begin with a declaration of war are thus less likely to escalate to it in the absence of a mutual military buildup. These findings strongly suggest that the rules of behavior that are dominant in the international system are clearly related to the likelihood of war in that system.

#### HAVE NUCLEAR WEAPONS FUNDAMENTALLY CHANGED INTERNATIONAL POLITICS?

Thus far, we have addressed two related questions regarding the role of arms buildups in war: whether arming increases the likelihood of militarized disputes between states, and whether they increase the chance that such a dispute will escalate to war. The third pillar of this research must be an evaluation of the impact that nuclear weapons have had on these dynamics in the post-World War II era. Have major state politics fundamentally altered, as some argue, so that the existence of nuclear weapons acts as a shield against war, or are states playing an always dangerous game with now unfathomably deadly weapons? To what extent can a consideration of norms in the international system (or rules of acceptable behavior) contribute to a more complete understanding of the observed behavior of the major states, particularly the superpowers, during the Cold War? The dramatic explosion of nuclear weapons into international politics gave birth to two competing views of the weapons, theoretically grounded in the long-

standing arguments about the consequence of military buildups. First, there was the argument that arms races increased the chance of war; therefore, a nuclear arms race could easily lead to nuclear war. The obvious policy implication of this view was to advocate disarmament, as quickly as possible. Second, there was the argument of nuclear deterrence, which was the basis of policy for the nuclear states throughout the Cold War.

In a very early discussion of the meaning of nuclear weapons in international politics, Brodie (1946) argued that nuclear weapons fundamentally altered the nature of war and politics. The dangers inherent in allowing conflict to escalate in the nuclear era meant that war, quite simply, could no longer be viewed, as it had traditionally been, as a "continuation of politics by other means," as Clausewitz (1962) had put it.

The frightfully efficient capacity to destroy cities and countries without the necessity of meeting their armies on the battlefield led many to conclude that war as humankind had known it must be at an end. Any country with a secure second-strike capacity, able to cause massive damage in retaliation for a first attack against it, could not rationally be challenged or threatened or attacked. Any country with nuclear capacity facing a nonnuclear opponent could be secure because it possessed the unquestionably more devastating arsenal. Nuclear weapons give to their possessor the capacity to inflict such costs on the opponent that no potential benefits to challenging them would be worth the risk of reprisal. Nuclear weapons could be used to avoid war among the major states and perhaps limit it elsewhere.

This is the heart of classical nuclear deterrence theory, the premises of which have provided an acceptable explanation of the unprecedented lack of major state war in the half-century following World War II for most national leaders and many international relations scholars. They point to the fact that the two primary nuclear antagonists in the postwar era, the United States and the Soviet Union, did not go to war, despite clear and repeated disputes over a period of some 40 years. And China and the Soviet Union, despite long-running hostility and border conflicts, also avoided escalating their conflicts to all-out war.

So, what makes it clear that any discussion of arming and its effect on war is not just a matter of considering the effect brought by nuclear weapons in the international system? To address that issue, this part of the study focuses on two questions: to what extent to which the postwar period really is different from the second looks at the causes for the lack of war between World War II. Is that peace best explained by the existence of nuclear weapons? Or is it attributable to other causes? Countries have only faced each other in war once, in the last fifty years. Despite the considerable costs of nuclear war, nuclear war has lasted for a longer period than any other war in the history of the world. If deterrence is the effect of nuclear weapons, some

maintain that other explanations for the postwar order are possible. For example, Mueller (1993) suggests that after two utterly devastating wars in the course of thirty years, those states capable of initiating a third were in no rush to do so, no matter what their conflicts might be.

There are numerous reasons for evaluating the merits of these arguments. Theoretically, a clearer understanding of which best explains the empirical record of major state relations over the last fifty years will tell us a great deal about our continued search for factors associated with increased or decreased chances of war. The implication of nuclear deterrence is that other factors, such as arms buildups increasing the chance of war and mutual democracy decreasing the chance of war, become more or less irrelevant in the presence of a nuclear deterrent. Understanding what role nuclear weapons truly play, then, may offer us a great deal of insight regarding the impact of nuclear proliferation on international security in the long term.

To preface my conclusion, the results here indicate that nuclear weapons have played a substantial role in decreasing the likelihood of war among the major states in the last fifty years. However, the picture is not that simple: nuclear deterrence does not appear to be a sufficient explanation for the actual behavior of states during the period. Rather, the lack of major state war must be attributed to a combination of two things: the deterrent effect created by the nuclear threat and the growth of rules and norms of behavior between the nuclear rivals of the Cold War era. These rules of behavior evolved out of a shift in the power structure, but the change in the power structure cannot alone explain the real interaction of states in this period. It is less than clear whether newer nuclear rivals would have, or take the time to develop, a *modus vivendi* that functions as that of the United States and the Soviet Union did. If they do not, there is no guarantee that they would avoid war in the face of critical challenges to their real or perceived interests, even given the possession of nuclear weapons by their rival.

### MAJOR STATE PEACE AND THE POSTWAR ERA

Our first question is whether the postwar period is really that different once we consider other variables. We can answer that question by dividing the whole Correlates of War period of 1816–1993, using 1945 as a break point. This allows us to examine the way the relationships might change from before World War II to after. In Table 8.9, it is evident from the statistical analysis that the pattern of dispute escalation has altered significantly in the postwar era. The relationships we saw over the whole era really reflect the 1816–1945 period. It is clear that military buildups in the period from 1816 until World War II are positively associated with the escalation of disputes to war: arming at unusually high rates did nothing to deter the occurrence or the escalation of disputes between countries. It is worth noting, too, that while the relationship between territorial disputes and

Table 8.9 Logit Model: Comparing the Patterns of Escalation to War by Era

Factor	B	SE	Wald	P	R	Exp(B)
<b>Mutual Military Buildup:</b>						
1816-1993	1.1088	0.5249	4.463	.0346	0.1141	3.0308
1816-1945	1.1831	0.5659	4.372	.0365	0.1301	3.2646
1945-93	13.713	599.6	0.0005	.9818	0.0000	9.0 × 10 <sup>8</sup>
<b>Rapid Approach:</b>						
1816-1993	-0.8905	0.7190	1.534	.2155	0.0000	0.4104
1816-1945	-0.9526	0.7924	1.445	.2293	0.0000	0.3857
1945-93	-6.63	89.66	0.0055	.9411	0.0000	0.0013
<b>Equality:</b>						
1816-1993	0.5234	0.5621	0.867	.3518	0.0000	1.6877
1816-1945	0.9404	0.6236	2.274	.1316	0.0442	2.5609
1945-93	0.5974	1.644	0.1321	.7163	0.0000	1.8173
<b>Transition:</b>						
1816-1993	0.7720	0.7676	1.012	.3145	0.0000	2.1642
1816-1945	-0.0796	0.8631	.0085	.9265	0.0000	0.9234
1945-93	8.104	89.66	.0082	.9280	0.0000	3.308.6
<b>Defense Burden:</b>						
1816-1993	0.9127	0.4922	3.439	.0637	0.0872	2.4911
1816-1945	0.4536	0.5525	.6741	.4116	0.0000	1.5740
1945-93	015.48	130.3	.0141	.9055	0.0000	5.3 × 10 <sup>6</sup>
<b>Nuclear:</b>						
1816-1993	-1.6652	0.6527	6.5091	.0107	-0.1544	0.1892
1816-1945						
1945-93	-0.9297	879.8	0.0000	.9992	0.0000	0.3947
<b>Territorial Issue:</b>						
1816-1993	0.7877	0.4864	2.623	.1054	0.0574	2.1984
1816-1945	01.332	0.5280	6.363	.0117	0.1765	3.7882
1945-93	-9.595	229.7	0.0017	.9667	0.0000	0.0001
<b>Constant:</b>						
1816-1993	-2.4258	0.4149	34.1818	.0000		
1816-1945	-2.3061	0.4207	30.0465	.0000		
1945-93	-16.926	870.1	0.0004	.9845		
<b>1816-1945</b>						
Log-likelihood	189.24	Log-likelihood	140.11	Log-likelihood	1945-93	27.90
Model log-likelihood	150.43	Model log-likelihood	123.43	Model log-likelihood		9.97
Model $\chi^2$	38.80	Model $\chi^2$	16.68	Model $\chi^2$		17.94
df 7	$p < .0001$	df 6	$p = .01$	df 7		$p = .01$

escalation is not significant over the whole period, it is highly significant before World War II.<sup>12</sup>

The evidence of the Cold War period paints an entirely different picture. All the relationships that are significant before the war fail utterly in the era after World War II. Disputes occurring during that period, even when the major countries were arming heavily, did not escalate. Highly contentious disputes over territory did not escalate. The answer to our first question, of whether the postwar period was really that different, must be a resounding yes.

The one variable in the analysis that changes from the earlier period to the later is the existence of nuclear weapons in the arsenals of first the United States, then eventually the other major states as well. It is vital to point out at this time that this statistical test does *not* directly test the results of possessing nuclear weapons. In fact, virtually every dispute after World War II occurs when at least one of the disputants has nuclear weapons. In other words, the variable isn't varying much. In reality, all the statistical test can tell us at this point is that the major states in the international system behave very differently after 1945 than they did before. And while the statistical findings cannot offer us any sort of definitive answer about nuclear weapons themselves, it certainly makes it clear that we really need to consider how we answer this question of the cause of the long postwar peace.

The first, obvious explanation for this era of peace (or, perhaps more appropriately, lack of war) in major state rivalries is the power of nuclear weapons. Even though this statistical analysis cannot make the fine distinctions we would like regarding nuclear weapons versus other possible causes of the long peace, we certainly cannot ignore their import. Classical nuclear deterrence theory predicts that nuclear states will not risk war once they have achieved levels of power capable of mutual destruction. The potential for mutually assured destruction (MAD) has been credited with bringing about a long-lasting period during which war among the major states was irrational, therefore impossible (Intriligator and Brito 1989).

Several possibilities in addition to nuclear deterrence have been put forth as explanations for the half-century absence of a major state war, however. Mueller (1993) argues that even in the absence of nuclear weapons, the likelihood that the superpowers would go to war after World War II was very small. He gives several reasons for this. Given two devastating world wars in thirty years, he maintains, the major states could easily have been restrained by their fear of a dispute escalating to a third total war, nuclear or not. After the war, the only countries really in a position to start a third world war would have been the Soviet Union and the United States, and they were essentially content with a status quo that favored their interests.

Despite its logical appeal, Mueller's argument that nuclear weapons were "essentially irrelevant" is not entirely convincing. Each of the given reasons for the postwar peace has its own empirical flaws. If the superpowers were restrained by their belief in the possibility of escalation to another total war on the scale of

World Wars I and II. American behavior in the face of the North Korean attack on South Korea is inexplicable. Leaders in the United States believed that the Korean crisis was a Soviet-inspired venture and that it was meant to distract Western attention from the real attack anticipated in Europe. Despite this, American leaders did not hesitate to get involved militarily, thus, in their own calculations, risking a third major war in forty years (Spanier 1980; Truman 1956). In addition, the Soviet Union and the United States may have been relatively content with the status quo, but that does little to explain the unprecedented numbers of militarized disputes they engaged in over the course of the Cold War. And though the chance of war would not have been high during the Cold War anyway if the conflicts were over low-salience issues, this study shows that the issues in contention during the Cold War were not substantially different from those before the war. There were many territorial disputes between the superpowers, but the escalatory propensity observed before World War II vanishes after the war.

Singer (1991) also puts forth a perhaps exhaustive list of possible explanations for the postwar peace among the major states. The list includes Mueller's reasons but also displacement of wars away from the center system to the periphery, cultural changes against war, the increase in communications technology, and the character of the international system in the Cold War period.

Keeping in mind the possibility that war might have been avoided because of a combination of all these factors, the results of this study suggest that it is impossible to ignore the effect of nuclear weapons. The strong escalatory effects of arming and of territorial disputes are both swamped in the postwar era, and nuclear weapons must be part of the explanation for the findings. But what part do they play? Classical nuclear deterrence theory argues that the overwhelming force given states by the possession of nuclear weapons means that they cannot be challenged by nonnuclear states, or compelled to behave against their own interests, or attacked by nuclear states. Fortunately, there has been no use of nuclear weapons in war since World War II, so deterrence is difficult to test. It is possible, however, to test deterrence theory indirectly by considering how well the logical implications of the theory have held up empirically (Kugler 1984).

For deterrence to have worked perfectly, we have to assume that there would have been a war without the existence of nuclear weapons. This assumption has two components. First, if either the United States or the Soviet Union intended to attack the other but did not because of the threat of nuclear weapons, then deterrence worked. Because there is no compelling evidence that such attacks were ever seriously considered, we cannot conclude that deterrence worked in this way (Vasquez 1991). However, general deterrence of a direct attack is not really the question addressed in this study. Once a militarized dispute has occurred, a certain threshold has been crossed, and it is a failure of general deterrence. The question apropos to this study is whether nuclear weapons deterred the escalation of militarized disputes to war after that line had been crossed. Examination of the data suggests that the answer, tentatively, should be yes.

This answer is tentative because it would be premature to presume that the dynamics of warfare have clearly and permanently altered. As a solitary explanation for the postwar peace, deterrence is not sufficient, especially when the results of miscalculation are contemplated. Too many empirical incongruities must be skirted or ignored for deterrence to be accepted. It is worth noting, in fact, that while the explanations Mueller offers for the lack of a major state war do not really conform to many of the events we observe, none of those events can easily be explained by deterrence theory, either.

Classical deterrence theory simply does not hold up to a careful examination of the behavior of states in the nuclear era. Although Gaddis (1987) offers some evidence suggesting that U.S. policymakers feared Soviet nuclear retaliation, this does not translate into systematic evidence wholly supporting deterrence in practice. In policy, the superpowers, particularly the United States, showed little inherent caution or fear of escalation during the Cold War; nuclear weapons were often used as a means of policy coercion (George and Smoke 1974). China chose to intervene in the Korean War against the United States despite the nuclear threat. That the one war between two states in the post-World War II era was initiated despite a clear chance of nuclear counterattack fatally undermines deterrence theory.

Huth and Russett (1984) found that possession of nuclear weapons was not greatly associated with cases of successful deterrence. Also, in his study of behavior in extreme crises, Kugler (1984) discovered that not only did nonnuclear countries feel capable of challenging nuclear states, but they often got what they wanted when they did so. Paul (1995) argues that this behavior was evident because the nonnuclear powers were aware that the nuclear powers would not violate the "taboo" against the use of the weapons. Although this may provide an explanation for later behavior, it hardly explains China's willingness to engage the United States less than a decade after World War II. In any case, a taboo against the use of nuclear weapons is a (perhaps valid) normative, rather than power-based explanation, at odds with deterrence theory. The possession of nuclear weapons clearly did not stop either the occurrence of militarized disputes or their escalation to violence short of war among the major states (Kugler 1984; Organski and Kugler 1980; Vasquez 1991). None of this behavior should have been evident if nuclear deterrence worked as the theory argued. Nuclear weapons do have a deterrent effect, but nuclear deterrence is a myth.

To explain the nonescalation of disputes over the period of the Cold War, any explanation including the deterrent effect of nuclear weapons must be coupled with the development of a *modus vivendi* in the superpower relationship. The failure of any disputes between the major states to escalate to war after Korea can probably be attributed to a number of fortunate factors. But chief among these was the development of a set of rules to govern behavior among the nuclear countries to accompany the actual deterrent effect of their nuclear arsenals (Kremenyuk 1994; Midlarsky 1994). The development of this set of rules and norms for

doing business contributed significantly to the peaceful outcome of the Cold War. In terms of interaction, the Cold War cannot be considered a pure game of either prisoner's dilemma or chicken because the Soviet Union and the United States could communicate and negotiate, and "the game" was repeated over and over. Under those circumstances, the development of cooperative relations is not impossible (Russett 1983; Axelrod 1984).

These rules for behaving, or *modus vivendi*, although not granting ideal circumstances to either party, were not intolerable for either the United States or the Soviet Union. They maintained their spheres of influence while allowing some shift in structure: the European alliances were set in stone, while other alliances were more flexible. The scope of allowed activity within those spheres of influence was extremely broad; the Soviet Union was free to crush dissidents in Eastern Europe, and the United States was free to interfere with incipient socialist states in the Western Hemisphere (Organski and Kugler 1980). The pace of militarized disputes between the superpowers did not fall off substantially, but their intensity did (Kugler 1984: 479). A threat to use force was progressively less and less plausible over time: militarized disputes became a ritualized way of publicizing positions and testing resolve.

The effect that nuclear weapons had (and have) was to raise the threshold of provocation between states (Lebow 1985). The calculus of potential costs and benefits of a war are changed with the possession of nuclear weapons, and the enormous cost of escalation to war does decrease the likelihood that national leaders will choose to escalate. Disputes that might once have been resolved with war were not resolved that way during the Cold War. Although the basic calculus is the same for this argument and classical deterrence theory, there is a fundamental difference. Deterrence theory predicts 100 percent success given reasonable leaders: neither war, nor disputes. In doing so, it fails to explain a great deal of international behavior over the last fifty years. On the other hand, the argument that nuclear weapons increase the threshold of provocation explains the decrease in the likelihood that war will occur without making it an impossible choice in the face of sufficient provocation.

The implications of this development for the preservation of nuclear peace over time are mixed. In the early years of their rivalry, the United States and the Soviet Union went to the brink of war over Berlin and Cuba. Although they had deep symbolic significance, neither was the home territory of the participants. Would a more direct confrontation over vital issues have led to a different outcome at the beginning stages of the Cold War, before their relationship became normally ritualized? The relationship between the Soviet Union and China speaks a similar course. The casualties resulting from the 1969 Damasky Island skirmishes show that those two countries came close to war when their conflicts began to generate militarized disputes. That they did refrain from outright war suggests that the threshold of provocation has most certainly been raised and that peace may be preserved between nuclear states if they can survive the game long

enough to create norms for their interaction. And those norms are more complex than behavior based on an assessment of relative power. Rivals may develop norms for conflict short of war when the costs of escalation are so enormous, but the nuclear rivalries between the United States and the Soviet Union, and the Soviet Union and China, show that this takes time. The fact that they came so close probably indicates that the outcome owed something to luck as well. Countries have initiated wars when they knew that the probable costs of doing so far outweighed the probable benefits (Vasquez 1991: 215). That uncertain period of massive destructive capabilities and highly salient rivalry, if not tempered by the establishment of clear rules of engagement, could be an explosively dangerous combination; we cannot be certain that all rivals will develop a new normative context for their interaction.

The relationship between Pakistan and India indicates that in a direct confrontation over critical issues, the risk of war, even with the threat of nuclear escalation, may be very high. The issue of Kashmir became so heated in 1990 that forces in both countries were on full alert (Chari 1995); in a controversial article, the *New Yorker* reported that this included readying nuclear weapons in both countries (Hersh 1993). A year after the 1998 nuclear tests by both countries, they were engaging once more in border clashes in Kashmir, not, it appears, overly concerned with the threat of escalation. Imagine two nations (such as Iran and Iraq) fighting a total war for several years: if one were on the verge of victory, and the other possessed nuclear weapons and did not believe that it could realistically appeal to the international community to be saved, nuclear escalation is not a far-fetched notion. Such circumstances are exceedingly rare, but that does not mean the results could not be devastating.

The road by which the United States and the Soviet Union traveled to arrive at a relatively stable relationship by the end of the Cold War was a hazardous one. It is not determined that other national leaders would react the same way when faced with a dispute as extreme as the Cuban Missile Crisis, and volatility may be reintroduced into the international relationship when a country experiences massive domestic upheaval. Certainly, warfare within the former Soviet Union since the end of the Cold War suggests that it is the breakdown of the political rules rather than the threat of overwhelming force that has led to conflicts.

While nuclear deterrence theory cannot provide a full and adequate explanation for the observed behavior of nuclear and nonnuclear states in the Cold War era, it is equally clear that nuclear weapons have not been irrelevant to the long postwar peace. They serve the function of raising the threshold of provocation at which states will determine that the benefits of war outweigh the costs, allowing us to explain the apparent deterrent effect while also explaining why nuclear states continued to engage in disputes with each other. War did not alter entirely from being "politics by other means" to being impossible. During the Cold War, disputes occurred at an unprecedented pace and stopped just short of war on several occasions. Both nuclear and nonnuclear countries continued to challenge nu-

clear opponents, a fact incongruent with deterrence theory. However, a large number of disputes with none escalating also indicates that the Soviet Union and the United States at least developed rules and norms in their rivalry. These rules allowed a reasonably certain international structure, while incorporating enough flexibility to encourage prudent behavior in the face of militarized disputes over low-salience issues.

Both elements of the postwar peace, the norms of engagement and the lifting of the threshold of provocation, are necessary to explain the long-term relationship. If nuclear rivals fail to develop rules delineating acceptable and predictable behavior between them, their relations are more likely to be governed by the patterns of escalation that prevailed in prenuclear crises. And it should not be forgotten that the majority of rivalries remain nonnuclear, leaving those countries in the position of following well-worn paths toward war if they do not consciously avert their course.

## CONCLUSION

The purpose of this volume is to examine what we know about war by focusing first on a number of proposed correlates of war, then considering how these relationships fit together in a larger theoretical explanation for war. I contend that this chapter can contribute successfully to both elements of the overall research project. The empirical findings here show us that the choice to engage in military buildups is positively associated with the occurrence of militarized disputes and with the escalation of disputes to war before World War II. After the war, something quite different is going on: the relationships have changed in the postwar or nuclear era. Neither military buildups nor territorial disputes are any longer associated with escalation.

The theoretical explanation usually offered by those who argue the dangers of arms races revolve around the idea of a hostile spiral: states progressively see more and more threat from their arming rival, whether it is intended or not, and, in objective terms, overreact irrationally in the face of the perceived threat. The theoretical explanation offered by those claiming that arming is not dangerous but is, in fact, necessary, is that states behave rationally in the face of threat. Obviously, both arguments cannot be right. The behavior of states is clearly more complex than either side would suggest. The thread that brings this tapestry together, that allows us to find commonality in what seem to be incompatible findings, is the role that norms play in dealing with conflict.

To understand this, it is necessary to begin with what the findings tell us about the nature of war, the international system, and the role of policymaking in (re)creating that international system. Traditional international relations theory explained war in terms of power and shifts in power. In other words, war essentially results from factors largely beyond the control of policymakers. While they can

alter their arms and alliance policies, real power is more intrinsic than that and virtually impossible to fundamentally change over the short run. The distribution of power is part of the structure in which states operate.

The crucial element of the arms-to-war argument offered in this chapter is the impact of specific arms policies within the context of the political norms accepted by national policymakers. If we venture beyond the belief that war is determined by structural factors outside human control, it is impossible to underestimate the importance of political norms for handling conflict. That does not mean that the accepted norms in the international system at a given time will necessarily create peace—that depends on the norms. It is evident, for instance, from this and other studies that the norms for dealing with territorial disputes promote the use of violence to resolve conflicts.

More generally, realism provides a set of norms intended to create security in an insecure international environment. The evidence indicates that while realism may advise certain policies as a means of avoiding war, they can in fact increase the occurrence of the wars they are intended to avert. Rapidly building up arms, like tightening alliances, is meant to project decisiveness and so deter, but the policies do not appear to succeed in their task. When decision makers accept the political assumptions of realism, they anticipate threat and perceive the only proper reaction to be the use of force. This set of norms does not successfully deter war, no matter what its goal.

Despite the dominance of this tradition in the political culture of international relations, it has not been unchallenged, even in the modern era. Wallensteen (1981, 1984), for example, finds that some periods, like the immediate post-Napoleonic era in Europe, have had fairly clear established guidelines for behavior, and in those times, the major states have been far less likely to use war as a means of resolving conflicts. In addition, if war is indeed less likely among democracies than in other contexts, it would also appear to indirectly confirm the importance of norms in international politics. Democracies may resolve their conflicts peacefully because there is an interplay between their belief that democracies do not fight and the policy choices that they make to bring about a peaceful resolution. Equally, countries whose decision makers believe in the inevitability of war are more likely to choose policies that increase the likelihood of war.

The evidence after World War II directs us along a path that is not so dissimilar as it might first appear. It is impossible to say that nuclear weapons had no deterrent effect for the superpowers, but a comprehensive view of the evidence suggests that the superpowers developed norms for handling their interactions with each other, which is critical to understanding the outcome of their relationship. The chance of war between the superpowers was not constant over the course of the Cold War; the disputes in the early years came close to war more than once, culminating in the Cuban Missile Crisis. After that, tensions were never again so high as they were in the 1950s and beginning of the 1960s. This was due partially to the rational fear generated by going to the brink of nuclear war and partially

to the fact that the superpowers immediately set themselves on a course of vigorous policy interaction (including the quick negotiation of the first test ban treaty) meant to make such an event far less likely in the future. The new rules for interacting, though not ending the rivalry, certainly changed how it was played out.

This study points to several related questions worthy of further consideration. I have emphasized the fact that the rules and norms within the superpower relationship were unique to that rivalry. It is possible, however, that the relationship and its place in history over the last half century have contributed to the development of a larger norm against the use of nuclear weapons as a tool of mass destruction. To what extent have these states (and the reaction of other states to them) created an international norm regarding the acceptability of using nuclear weapons, thus changing the international context in which other nuclear rivals (e.g., India and Pakistan) now operate? Between the world wars, the international system developed a norm against the use of chemical weapons in war, and that norm proved highly resilient during the six years of total war in World War II. We must seriously consider the possibility that the international system, as complex as it is, is to a large extent what we make of it through our own policy choices.

Another element of this research we might want to explore is the issue of minor state interactions and interactions between major and minor states. The study here focuses on relations among major states, concluding that the norms these states have for dealing with conflict are highly important determinants of what we observe in the system. Do minor states exhibit similar or different behavior? How do major and minor states relate? The implication of a normative argument would be that context matters, that we can't implicitly assume that all types of states will act the same. That is an empirical question that needs to be addressed for several reasons related to this study. First, it will allow us to determine whether the original relationship between military buildups and conflictual issues holds up across minor states. Second, it allows us to assess the post-World War II peace with some more nuanced distinctions (there will be more variation in that nuclear variable). Finally, it will allow us to address the question of whether different types of states really do have different norms or contexts in which they interact.

What explains both these patterns is the norms that they reflect. War is the consequence of a series of policy choices that states make, and the policies chosen are governed by norms that prevail in the international system at a given time. The major states learned a new pattern of behavior during the Cold War that cannot be entirely attributed to the power of nuclear weapons. Before that, they embraced norms that told them to build up their militaries for security in an uncertain environment, and they apparently failed to deliver on that security. Most of the international system is made up of nonnuclear states that may still operate in that environment. The important role that our rules for governing conflict play gives us both cause for hope and reason for caution—caution because we know that behavioral norms do not have to promote peace, hope because it shows us

that the international structure does not foreordain war: it is possible to make choices and develop norms that create peace.

## NOTES

1. It is clear from that study that the vast difference between the findings of Diehl and those of Wallace are the result of Wallace's index. Since Wallace's index has not been replicated, his findings are interesting but cannot be accepted on their face because of that. The article continues to be important more for the other criticisms of it, which are likely to be of interest in any test of arming phenomenon.

2. Both of these measures are based on military expenditures made by the countries in each year. The use of expenditure data has been criticized on several fronts. There is the fear that the data are not sufficiently reliable to justify making such nuanced conclusions. Diehl and Crescenzi (1998) suggest using stockpiles or military personnel as a basis for determining when a buildup is ongoing. This does not mean military expenditures as a measure of arming behavior should be abandoned. As a reflection of affective hostility or animity, a critical component in determining both arms policies and the effect of those arms policies, changes in expenditures in a given year do reflect policy choices quite well (Sample 1996, 1998a). However, other measures and data should be considered to the extent that they can provide an equal or more valid general measure over the same spatial-temporal frame and perhaps can be more reliable. My concern is that virtually any data source is going to be imperfect; therefore, abandoning one for another would be a mistake. I would advocate following the same strategy regarding this question as I followed to resolve the initial debate over Wallace's work: develop or make use of at least two other measures of military buildups and test what specific results they lead to. Such a test is beyond the scope of this chapter, but it would unquestionably be worthwhile to determine to what extent we can trust the Correlates of War expenditure data and its validity as a measure of military buildup.

3. The results of the bivariate logit analysis of the relationship between arming and dispute occurrence is shown in the following tables, one employing Diehl's measure and one using Horn's:

Variable	B	SE	Wald	df	p	R	exp (B)
Military buildup	0.5119	0.1008	25.8019	1	.0000	0.1316	1.6685
Diehl constant	-2.7806	0.1096	644.1680	1	.0000		
Variable	B	SE	Wald	df	p	R	exp (B)
Military buildup	0.0802	0.1279	0.3939	1	.5303	0.0000	1.0835
Horn constant	-2.4571	0.077	784.9702	1	.0000		

The fact that Horn's measure better divides the disputes that escalate from those that do not, whereas Diehl's index of arming is more closely associated with dispute occurrence, is not particularly surprising. Horn's measure of arming behavior is more conservative than Diehl's, and the difference is commensurate with the likelihood of dispute escalation. This means that Horn's measure finds far fewer cases of mutual buildups among the disputes or by dyad-year. Diehl's measure, which finds that more of the disputes themselves are characterized by mutual military buildups (though it does not distinguish so well the likelihood of war escalation) is therefore necessarily going to find a closer relationship between arming and dispute occurrence. However, that finding itself is contingent on their being a relationship between arming and dispute occurrence: if arming and dispute occurrence were not related, then each measure would likely find many instances in which two countries were both rapidly arming but had no dispute in a given year. The relationships reveal that this is not the case: Diehl's measure shows a relationship between arming and dispute occurrence, whereas Horn's fails to, not because it finds an overwhelming number of cases of arming where there was no dispute but rather because it only finds arming during a relatively small minority of the disputes themselves.

4. A complete discussion of each variable and its measurement can be found in Sample (1998b).

5. This variable has been empirically investigated in several studies, including Hensel and McLaughlin (1996) and Lemke (1993, 1996).

6. Mayman (1996) argues that the speed with which a gap between two states is being closed can have a significant impact on the security concerns that the change generates in the states.

7. This and all subsequent analyses in this chapter make use of Horn's measure of a military buildup. Compared to Diehl's, the measure is somewhat more conservative; however, these tests were all conducted originally using both measures. Small differences exist, but they do not alter the substantive conclusions of the study.

8. The following section follows the analysis in Sample (1998b).

9. The military buildup measure used in this analysis is Horn's. The issue codings were taken from the Militarized Interstate Dispute data. The measures of power were based on the Correlates of War capabilities data, a commonly used measure that correlates highly with the gross national product (GNP) (another good measure, but one for which adequate data do not extend over the entire 1816-1993 time period). Each of the military, economic, and demographic indicators were weighted equally. Pairs of countries were compared on the basis on their average holdings of these factors of national power. If the weaker country of the two had holdings that equaled at least 80 percent of the holdings of the stronger, they were considered to be at parity. A rapid approach is said to have occurred when the gap between the holdings of two countries closed by at least 40 percent in the preceding ten years, and a transition occurred in the preceding decade when their power positions were reversed. The measure for defense burden is adapted from that used by Diehl (1985). Because of fluctuating availability of data and macro trends in military expenditure patterns, the COW period is broken into four periods: 1816-60, 1816-1914, 1919-39, and 1945-93. Although the ratio of defense spending to GNP would be the preferred way of measuring the defense burden, the lack of adequate GNP data for this study prevents the use of the measure. Rather, I looked at military expenditures as a function of available economic resources (represented by the economic indicators of the Cor-

lates of War capabilities data). For the three periods after 1860, I regressed all the major states' annual military expenditures on their coal/steel production and energy consumption separately. The actual annual economic indicators from the capabilities data were then fed back into the resulting equation to determine an estimate for predicted expenditures in that year. The two ratios of actual to predicted military expenditures were averaged. If the result was more than one standard deviation from the mean for that country, then the state was said to have a high defense burden in that year. At the last step, countries were only compared to their own typical spending pattern, rather than the spending pattern of major states in general. In each historical period, one country provided such an outlier in the data that its spending would swamp all others (Prussia, the Soviet Union, and China) so that no other country would ever be determined to have a high defense burden. Before 1860, adequate economic data are unavailable, so I regressed military personnel on total population, otherwise calculating the defense burden in the same manner. Military personnel as a function of total population is a good measure of defense burden in this historical period, since this is the era of mass mobilization in the wake of the Napoleonic wars. Each dispute dyad is then coded on the basis of whether at least one of the disputants had a high defense burden in that year.

10. Despite what may appear to be fine theoretical distinctions between some variables, in no case did the partial correlations between the measures of any independent variables approach a customary 0.7 cutoff point for problems with multicollinearity (none exceeded 0.5). Moreover, the standard errors do not appear to be particularly high, as one should expect in cases in which collinearity is an issue.

11. Models testing interaction effects of these variables did not alter the findings.

12. In fact, if we consider the actual number of disputes that occurred over territorial issues before and after the war, we find that there were twenty-two such disputes after the war, none of which escalated. Before the war, twelve of thirty-two escalated. This finding is interesting in the context of deterrence theory. It suggests that we certainly cannot make the argument that war between the major states was absent simply because they never contested over salient issues; in fact, the issues over which they contested were not substantially different from those before, but the outcomes were.