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Bargaining, Nuclear Proliferation, and Interstate Disputes

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Contrasting claims about the consequences of nuclear weapons rely on different interpretations about how leaders respond to risk, uncertainty, and the balance of power. Nuclear optimists use deterrence theory to argue that proliferation can promote stability and inhibit the use of force. Pessimists argue that proliferation precipitates nuclear hubris, accident, or anger that heightens the risk of war. It is also possible that nuclear weapons have no net effect on dispute propensity. Since states fashion their own bargains, nuclear status is bound to influence the distribution of influence. Proliferation also reflects existing tensions, biasing upward the apparent impact of nuclear weapons on conventional conflict. Instrumenting for the decision to proliferate, the authors find that nuclear weapons increase diplomatic status without much affecting whether states fight.

Keywords: *nuclear proliferation; nuclear weapons; militarized disputes; conflict; diplomacy*

1. Introduction

Since the advent of the nuclear age, speculation has raged about whether taming the atom inflames or pacifies world politics. Optimists claim that nuclear weapons deter and therefore stabilize the politics of nations (Mearsheimer 1984, 1993; Waltz 1981, 1990). Pessimists see nuclear weapons as inciting fear, hubris, and misperception (Jervis 1984, 1988, 1989a; Sagan 1989). A third, somewhat neglected possibility is that both arguments are right and wrong. Diplomatic bargains tend to dampen the observable impact of nuclear weapons, even as contrasting tendencies tend to cancel each other out. To the degree that nuclear weapons influence the

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concessions proliferators are likely to obtain in lieu of force, proliferation does much less to account for behavioral conflict.

Possession of nuclear weapons increases the risks to opponents that choose to fight. In general, military advantages can be used to discourage an opponent from attempting to shift the status quo in the opponent's favor (deterrence) or to encourage an opponent to accept a shift that favors the advantaged state (compellence). A trade-off thus exists between efforts to secure the status quo and seeking to procure new prerogatives or benefits. Pressing for concessions raises the risk of war. Failing to press an opponent reduces the benefits available to a state. If opponents are more inhibited by nuclear weapons than nuclear states are emboldened, then deterrence prevails, as optimists suggest. If, instead, opponents are less cowed by nuclear weapons than proliferators are encouraged, conflict will tend to spiral, as pessimists warn. Where ambition roughly equals inhibition, nuclear weapons will not appear to matter much for whether states fight.

Even if only some of the substantial increase in lethality from "going nuclear" can be converted into political leverage, nuclear-capable nations are bound to increase their influence in international affairs. Greater influence amounts to getting what states want without having to use force. To the degree that nuclear capabilities lead to bargains that approximate the outcomes states expect from fighting, aggression becomes less appealing, and the anxieties of opponents are reduced. Diplomacy serves as a tool for smoothing the bumpy road of world politics.

The decision to proliferate is also endogenous to conflict. Nations are not assigned nuclear weapons at random but select into nuclear status despite high costs, long delays in development, and international opprobrium. Countries with significant security problems or responsibilities and substantial governmental resources are more prone to seek nuclear weapons (Jo and Gartzke 2007). These same nations fight more often, not because they possess a nuclear arsenal but because the causes of conflict also prompt states to proliferate. Nations with few enemies, modest resources, limited technology, or little dissatisfaction about world affairs are unlikely to pursue nuclear capabilities and also are less inclined to fight. Thus, nominal nuclear status probably overstates the empirical effect of proliferation in propagating interstate disputes.

This does not mean that nuclear proliferation is "consequence free." To the contrary, as other studies in this issue demonstrate, nuclear weapons status heavily influences the distribution of conflict behavior. Nuclear-capable countries have more minor disputes but fewer wars (Rauchhaus 2009, this issue). Opponents of nuclear powers are less likely to escalate during crises, though nuclear status does not appear to be an important determinant of selection into crises (Beardsley and Asal 2009, this issue). The introduction of nuclear weapons also front-loads conflict. Although new nuclear nations have more disputes, the effect decays as older nuclear powers have slightly fewer disputes (Horowitz 2009, this issue). Proliferation seems to matter most for the quality not the quantity of conflict.

After reviewing the relevant literature, we develop hypotheses from the optimist and pessimist perspectives as well as our own theory about the consequences of

proliferation. We then instrument for the tendency of some nations to acquire a nuclear arsenal. Nuclear weapons do not have a significant effect on conventional disputes once the impetus to proliferate is taken into account. Instead, proliferators prosper by becoming influential diplomatically. Nuclear weapons thus appear to matter more for who gets what in the world than for who fights whom.

2. Nuclear Security Scholarship

The preeminent concern of early research on nuclear security—after fear of the consequences if these weapons were used—was how to use these weapons (Freedman 1981). Diplomats and scholars understood that world politics occurs in the shadow of force (Clausewitz 1976 [1832]; Nicolson 1960). The prospect of military violence generates influence, which in turn, often obviates the need to fight. With nuclear weapons, however, the scale of ensuing carnage ensures that many threats are incredible (Powell 1990). If threats lack credibility, then nuclear weapons have no foreign policy utility and are only useful when used. Strategists grappled with ways to make the unthinkable plausible (Brodie 1946, 1959; Kahn 1960; Kissinger 1957; Schelling 1960, 1966), not out of a desire for annihilation but because of the need for diplomatic leverage.

Whether or to what degree efforts by advocates to engineer credibility succeeded and what effect these efforts had on the Cold War are subjects of considerable debate (Gaddis 1989; LeFeber 2002; Lebow and Stein 1995). Strategies such as brinkmanship were perceived to be useful by some participants, while others practiced détente, presumably also out of a sense that this was in the national interest (Gaddis 1983). Part of the ambiguity may result from a false rhetoric of Cold War politics. Kennan's (1947) influential notion of containment enshrined the status quo as the nominal U.S. strategic objective (Gaddis 2005).¹ The Soviets pushed, and the United States resisted. Yet Kennan's conception and most discussions of deterrence ignore a more dynamic reality in which the United States, protected by its nuclear umbrella, was able to pursue ambitious revisions of the international order. Nations that opposed U.S. interests were forced to decide whether they were willing to play chicken with a nuclear power in advancing preferred objectives. The United States probably was not willing to risk nuclear war over many policies, but opponents were similarly constrained. Few could credibly threaten the United States in more than a peripheral manner when a direct attack meant nuclear retaliation. Nuclear weapons thus provided a cushion permitting the freer exercise of conventional force and contained conflict to distant places.

2.1. Dichotomy Prompts Dialectic: Optimists and Pessimists

While some scholars worked on ways to make nuclear weapons more potent politically, others focused on the hazards posed by proliferation. Pessimists emphasize the

consequences of nuclear war, accidents, and the risk that possession of nuclear weapons may cause politicians or publics to become more aggressive (Dunn and Kahn 1976; Betts 1977b; Barnaby 1993; Sagan 1996).² Concerns about nuclear proliferation can be clarified by distinguishing between the number of nuclear weapons available to states and the number of countries that possess nuclear weapons. Existing nuclear powers could easily address the global supply of nuclear weapons by reducing their own arsenals. The number of nuclear-equipped nations is of more concern, but if the fear of nuclear war is based on likely casualties, destruction, and environmental damage, then some metric exists linking the probability of wars involving nuclear weapons with the intensity of an exchange, should one occur. Increasing the potential for nuclear war is not necessarily worse than increasing the anticipated scale of a nuclear contest. Nor is proliferation inherently harmful to the proliferator, even if adding members to the nuclear club raises the risk of nuclear war. Pessimists thus conceive of proliferation as a collective action problem in which individual-level benefits from proliferating are seen as more intense than the social bad of one more nuclear nation.

If proliferation is a collective action problem, however, many more states should have proliferated in the six-odd decades of the nuclear era. Given available evidence, we must conclude either that nuclear weapons are not all that appealing to most nations or that the normative efforts to counter proliferation have been effective. Previous research suggests that pressure from the international community and from major powers has had a limited effect (Singh and Way 2004; Jo and Gartzke 2007). Instead, what appears to have kept most nations from proliferating is that (1) nuclear weapons are extremely expensive and difficult to develop or acquire, and (2) their utility is relatively limited. The exercise or threat of nuclear war is only practical when touching on national survival. Most nations, if not content, are secure enough in their sovereign status to rate the possibility of conquest as small. Even insecure nations often possess protection from major powers. Countries that fear overthrow from abroad or other similar major security problems are more likely to consider proliferation prudent. Countries with ambitious foreign policies—designed either to maintain or significantly alter the status quo—may also find nuclear proliferation appealing if their opponents are much stronger materially or if they possess large conventional capabilities so that there are declining margins from further investments in existing military structures. For most of the world's nations too poor to buy a significant conventional capability and not unhappy or optimistic enough to believe that major change is possible and beneficial, nuclear weapons are not a practical option. Where pessimists fear conflict resulting from nuclear proliferation, optimists see the opportunity to promote stability. Precisely because nuclear contests promise to inflict unprecedented trauma, nuclear war is unlikely to occur. A looming risk of nuclear conflagration will tend to deter conventional forms of international violence, given the risk of escalation faced by nuclear powers.³ Waltz (1990) argues that the chilling effect of nuclear weapons means that proliferation among “stable powers”

is bound to promote peace. Mearsheimer (1984, 1990) suggests that proliferation generally is defensible and that the desire for nuclear weapons is understandable. Jervis (1989b) claims that nuclear deterrence can be credited with the lack of major war since 1950. Was it not nuclear weapons that kept the United States and the Soviet Union at bay during the Cold War?⁴

Existing arguments thus offer contradictory conclusions about nuclear proliferation and its effects on conventional conflict. At least some of the source of the dialectic lies in differing (and incomplete) theoretical frameworks. Optimists, who focus on the deterrent effect of nuclear weapons, ignore psychological and informational aspects of proliferation. Pessimists are more attuned to the role of perception in international affairs but fail to differentiate the stochastic and equilibrium consequences of claims. Work in other contexts notes that contrasting conclusions about cause and effect in international competition derive from different, typically implicit assumptions about risk propensity (Bueno de Mesquita 1981). The nuclear dialectic appears also to hinge on contrasting claims about human behavior, with optimists arguing that fear inhibits, while pessimists emphasize that anger may spiral into aggression. At the same time, both perspectives assume that while capabilities evolve, policy positions do not. Shifts in military potential brought about by nuclear proliferation almost certainly alter the balance of power, but whether capability shocks increase or decrease the likelihood of militarized disputes depends on how diplomats respond to these evolving conditions. Leaders might err on the side of caution or recklessness in estimating relative power. Citizens could become apprehensive or enraged by new strategic threats. But whether these reactions lead to war or to peace depends, in large part, on what diplomatic bargains nations fashion in the shadow of fear, anger, and nuclear weapons.

2.2. Empirical Analysis of Nuclear Status and Conflict

The paucity of nuclear conflict makes meaningful empirical inferences about the consequences of proliferation difficult. Nevertheless, several studies attempt to draw conclusions from samples of conventional disputes (Geller 1990; Huth 1990; Sample 1998, 2002; Gibler, Rider, and Hutchinson 2005).⁵ The rationale for studying nonnuclear contests is twofold. First, these disputes are of interest in their own right. Knowledge of how proliferation influences conventional conflicts affects evaluation of the overall consequences of proliferation. Insights also enrich our understanding of war. Second, divergent claims about nuclear proliferation carry over to the study of conventional conflict.

One group of studies claims that nuclear weapons reduce the likelihood of militarized contests by dissuading challengers from precipitating violence. The cost of nuclear war can be seen as a deterrent to conflict regardless of whether nuclear contests result from cumulative and unplanned actions of states or are waged by defenders after performing rational calculations (Schelling 1960, 187-203; Morgan 1977,

42-45; Powell 1990, 110; Sagan and Waltz, 2003, 34). Several studies support the claim that nuclear weapons deter conventional conflict (Bueno de Mesquita and Riker 1982; Betts 1977a; Russett 1989; Huth and Russett 1993).

Another group of studies argues that nuclear weapons do not have any significant effect on conventional contests. Use of nuclear weapons is proscribed by international and domestic norms. A “nuclear taboo” makes these weapons impotent in both military and political terms (Osgood and Tucker 1967; Blainey 1988 [1973]; Snyder and Diesing 1977; Blechman and Kaplan 1978). Because nuclear threats are not credible, they must be ineffective as well (Huth and Russett 1988; Paul 1995). Earlier studies support the claim that there is no deterrent effect of nuclear weapons in the outbreak of militarized contests (Organski and Kugler 1980; Kugler 1984). Huth and Russett show that nuclear weapons have no significant impact on extended deterrence (Huth and Russett 1984, 1988; Huth 1988; Russett 1989). Huth (1990) assesses an interaction between nuclear weapons status and conventional capabilities. Nuclear weapons matter most in deterrence situations where the conventional capabilities of the nuclear state are relatively weak; they matter least when the nuclear power possesses significant conventional forces.

3. Theory: Goldie Locks and Dale Carnegie

We add three elements to the study of nuclear politics. First, while optimists and pessimists each make valid points, their claims tend to work in opposite directions; if both views are (partially) correct, then the net effect is to diminish observable results of either perspective. Second, to the degree that nuclear weapons matter politically, they should tend to yield different self-enforcing settlements, regardless of whether nations fight or not. The effect of proliferation on influence and on conflict is then substitutes. Finally, variable incentives to proliferate imply that nations that “go nuclear” are more prone to fight, with or without nuclear weapons. This endogeneity tends to inflate the apparent impact of proliferation on conflict. The first two items are discussed below, while the third item (endogeneity) is presented in the subsequent empirical section.

3.1. Goldie Locks and the Three Theories of Nuclear Porridge

In the old fairy tale, Goldie Locks samples three bowls of purloined porridge. One is too cold. One is too hot. But the third bowl of porridge is just right, and so she eats it all up. The effect of proliferation on conventional disputes is like a bowl of porridge, but which one? The optimistic view is that proliferation is cold. Nations will avoid conflict if there exists a sufficient hazard of unacceptable costs or risks. Possession of nuclear weapons dampens the ardor of nations for war by making fighting prohibitively costly. The status quo prevails, as challenges are less likely.

Deterrence is a special case of coercive foreign policy in which the demand the deterring nation makes is the status quo. The claims of proliferation optimists hinge on the assertion that nuclear nations do not expand their objectives as they increase their capabilities. Yet proliferators face incentives to do just this. While often couched in terms of deterrence, brinkmanship involves an attempt by at least one nation to challenge and alter the status quo. If a challenger is equipped with nuclear weapons, then either this capacity is not being exercised or the challenger is using its nuclear status to seek to compel not deter. Scholars generally agree that compellence does not reduce the risk of conflict. It follows that the risk of war is contingent on what is being demanded by both sides and that what is being demanded is in turn subject to the expectations of competitors. Countries with a nuclear advantage must choose between spending some or all of this advantage on security (freedom from harm) or influence (discretion over outcomes). The bounded nature of any budget means that a country cannot increase its security and influence with the same increment of power. A country that only sought to deter could lower the probability of experiencing a dispute, but to do so, the country must refrain from pursuing any changes in the status quo that might be opposed by other nations. Countries with nuclear weapons that want to alter the status quo have the potential to do so but again, only by increasing opposition and, in turn, the risk of conflict. Nuclear nations may prefer security to influence, but this is a more idiosyncratic claim than the assertion that nuclear status deters. There is a case to be made on either side of the debate. Not all nations proliferate. Those that do must be different in some way from those that do not. One way that proliferators might differ from nonproliferators is in their valuation for influence. The pessimist view sees proliferation porridge as hot. Nuclear weapons may feed a political appetite that exceeds the national grasp, exacerbating instability and encouraging conflict. Proliferation might also cause other countries to underestimate the nuclear country's capabilities or resolve. Disagreements about the efficaciousness of nuclear weapons, rapid changes in the balance of power brought about by nuclear weapons, or secrecy could lead nations to misperceive. Finally, nuclear weapons could encourage leaders to act precipitously or without consulting with opponents.

While it is reasonable to be concerned that nuclear weapons may lead to recklessness, it is no less plausible that proliferation encourages restraint. To get the proliferation story "just right" requires mixing elements of both stories. The ardor for war among some leaders may diminish in the face of nuclear weapons. Anecdotes from the Cold War and from crises in the Indian subcontinent suggest that leaders are well aware of the tremendous dangers posed by escalating in the face of nuclear capabilities. At other times, the presence of nuclear weapons might inflame hostilities. Efforts by nuclear powers to use force appear to be encouraged by their security from retaliation under a nuclear umbrella. If nuclear weapons deter in some instances and spiral at other times, then these two forces will tend to cancel one another out. Even if one tendency occurs more often, the overall relationship is weakened by the countervailing tendency.

Just right could result from mixing “too hot” and “too cold.” Yet there are tremendous incentives for leaders to correctly gauge strategic conditions. Proliferation almost certainly alters the balance of power. States that acquire nuclear weapons see their military capabilities change, increasing dramatically the ability of these states to inflict harm. Nuclear nations and competitors will benefit most if they adjust diplomatic bargains in response to evolving strategic conditions rather than choosing to fight costly and unnecessary battles. Whether leaders judge circumstances correctly or err in some manner is key to assessing the consequences of proliferation.

What evidence is there that leaders err in equilibrium? War is rare. Even perennial rivals, with both means and motive, typically interact through words rather than force. Many purported precursors are omnipresent. At the very least, the timing of conflicts remains unclear. Conflicts should be more common if factors that are regularly present are the cause. If instead, disputes result from misperception, then it must be that the errors that precipitate disputes occur relatively infrequently, implying that states regularly identify mutually acceptable bargains, and that the presence of nuclear weapons is not sufficient for war. It is easier to explain the infrequent, episodic nature of warfare if leaders’ estimates and initiatives usually match empirical conditions.

Finally, both optimists and pessimists imply a roughly uniform reaction to proliferation. If instead, nuclear weapons can be used to shape global politics through influence, then what a nation wants is highly relevant to whether and to what extent another state approves/disapproves of attempts to proliferate. Powerful countries clearly pick favorites and targets when it comes to nuclear proliferation (Kroenig 2009a; Fuhrmann 2009, this issue). Capturing the effects of interest on proliferation ultimately requires that theories address differences in national objectives, but getting the overall relationships “about right” may be achieved by balancing the effects of too hot conceptions of nuclear pessimists with the too cold perspective of optimists:

Hypothesis 1: Optimist (Too Cold): States with nuclear weapons are less likely than nonnuclear states to be targets of conventional disputes.

Hypothesis 2: Pessimist (Too Hot): States with nuclear weapons are more likely than nonnuclear states to initiate conventional disputes.

Hypothesis 3: Balanced (Just Right): States with nuclear weapons are about as likely as nonnuclear states to initiate or be the targets of conventional disputes.

3.2. How to Win Friends or Influence Countries

Dale Carnegie, the business self-help guru, offered to make people popular and powerful at the same time. It may be more difficult in international politics to obtain friends and influence simultaneously. Winning friends involves doing things that other nations like or at least not getting in the way of other nations as they pursue their objectives. A nation with limited aims and a strong defense is likely to be the optimal candidate for successful deterrence. In contrast, attempts to generate influence

impinge on the interests of other countries. Having one's way in a conflict means denying others their ideal policies. The need often to concede influence for security or vice versa impacts the utility of military capabilities of any kind. It is a truism that diplomacy involves the politics of the possible. By proscribing what is possible, nuclear weapons arguably alter what nations contemplate in calling for or resisting change. Proliferation limits the influence of existing nuclear states and other powers by shifting the conditions that all states prefer to fighting. Countries intent on charting a different course in world affairs (pariah or rogue states)⁶ and regional or major powers find it particularly valuable to proliferate. If warfare results disproportionately from uncertainty about power relations (Blainey 1988 [1973]; Fearon 1995) and if nuclear capability shocks are relatively easily apprehended, then nuclear weapons should not have much impact on whether states fight. Even if nuclear weapons have the cognitive effects that proliferation partisans predict, changes in the probability of warfare only occur if competitors remain unresponsive to these changes. Bringing diplomacy "back in" to the study of nuclear politics implies little or no observable deterrent effect. Instead, we expect that nuclear status significantly influences a nation's status as well as success in diplomatic wrangling.

Hypothesis 4: States with nuclear weapons are more likely to receive diplomatic missions from other states than states without nuclear weapons.

Hypothesis 5: States with nuclear weapons are likely to receive higher level diplomatic missions from other states than states without nuclear weapons.

Hypothesis 6: States with nuclear weapons are more likely to obtain preferred policies peacefully.

4. Research Design and Data

We employ the directed dyad unit of analysis to test six hypotheses about the effect of nuclear weapons status on the initiation of militarized disputes, on influence, and on the settlement of conflicts. Directed dyads make it possible to differentiate between the behavior of initiators and targets, revealing additional information about causal processes (Bennett and Stam 2000). We use probit and ordinal probit, Huber-White standard error to correct for the effects of spatial dependence on statistical significance, and cluster on the dyad to address heteroskedastic error variance. We also correct for temporal dependence using "peace years" and splines (Beck, Katz, and Tucker 1998).

Nuclear weapons may be endogenous to conflict. Proliferation might effect or reflect power relations or patterns of interstate dispute behavior. The result would be to bias the size or significance of key coefficients. We examine this endogeneity by constructing an instrument for nuclear weapons status based on previous research (Jo and Gartzke 2007). The instrument is produced by estimating the effect of determinants of conventional conflict on nuclear weapons status in a data set of country-years.

Both data sets cover the period 1945 to 2001.⁷ All variables rely on data from EUGene (Bennett and Stam 2001), with additional changes as noted.

4.1. Dependent Variables

The main conflict variable is from the Correlates of War (COW) militarized interstate dispute (MID) data set (Gochman and Maoz 1984; Jones, Bremer, and Singer 1996; Ghosn, Palmer, and Bremer 2004). MID Initiation is coded 1 if the potential challenger initiates a MID against its counterpart and 0 otherwise.⁸

We operationalize influence in two ways. Each is flawed, but it is hoped that together they lend some credibility to our claims. First, the COW diplomatic exchange data set (Bayer 2006) lists directed bilateral deputations at the chargé d'affaires, ministerial, or ambassadorial level. These data are not coded annually.⁹ Formal recognition reflects attention from (to) other nations (Small and Singer 1973). While diplomatic ties result from many factors, our argument about nuclear status as influence implies that proliferation will increase diplomatic recognition.

Second, we examine variables from the Issue Correlates of War (ICOW) project (Hensel and Mitchell 2007). ICOW data code issues (territory, river, maritime) over which nations disagree. These data are unusual in capturing the distribution of stakes in a conflict, not just the presence or absence of violent behavior. ICOW also code information about settlement attempts. We focus on whether any attempt is made to resolve an ICOW issue in a given year (ATTNONE), whether attempts are peaceful (ATTANYP), and which side obtains concessions (RESOLVED).

4.2. Independent Variables

The possession of nuclear weapons is both a dependent and independent variable in our analysis. Nuclear status is coded dichotomously (presence or absence of nuclear weapons by a country in a given year). The directed dyadic analysis distinguishes between a potential Nuclear Initiator and a Nuclear Target. We use the consensus list of dates for nuclear status adopted by all participants in this special issue (Gartzke and Kroenig 2009), though our results do not depend on this coding.¹⁰ In addition to actual nuclear status, we generate predicted probabilities of possessing nuclear weapons, Pr.(Nuclear Initiator) and Pr.(Nuclear Target), based on work by Jo and Gartzke (2007) and detailed in an appendix to this study. An appropriate instrument should (1) correlate with the key predicting variable (i.e., the nuclear weapons dummies), (2) not correlate with the error term, and (3) act on the outcome indirectly through other predicting variables. Our instrument reflects latent nuclear production capacity, regime type, economic and military capabilities, and conventional and nuclear threat.

Nuclear and conventional capabilities could be substitutes or complements. We rely on the COW Composite Index of National Capability (CINC) to measure a country's power. Since the analysis involves directed dyads, we can assess the

impact of capability separately for each state. Enduring rivalries are widely used to identify states or dyads facing important national security challenges (Bennett 1996; Diehl and Goertz 2000). Dyadic Rivalry is a dummy variable coded 1 when the members of a dyad are considered rivals with each other (Klein, Goertz, and Diehl 2006). States that are not rivals may nevertheless experience greater hostility due to diffusion. Nuclear status is especially likely to matter when one or both members of the dyad proliferate to address security concerns with third-party states. Once armed, nuclear nations may act more aggressively toward any partner. We thus add a dummy variable for each state's monadic Rivalry Status.¹¹

Alliance is a dummy variable coded for whether dyad members share an alliance.¹² Most researchers agree that allies should be less likely to fight each other (Morrow 2000; Kimball 2006). In contrast, Bueno de Mesquita (1981) argues that allies are more dispute-prone. Others see the effect of alliances as contingent on other factors (Bremer 1992; Bearce, Flanagan, and Floros 2006).

Regime type is widely viewed as a determinant of conflict behavior (Doyle 1997; Russett 1993; Russett and Oneal 2001). Previous research finds that democracies are more likely to develop nuclear weapons (Jo and Gartzke 2007). We construct three variables using Polity IV data (Gurr, Jagers, and Moore 1989; Jagers and Gurr 1995; Marshall and Jagers 2002). To measure the regime type of each state, we take the difference between Polity democ and autoc variables, add ten, and then divide by two. This produces a regime score with an interval [0, 10] that matches the domain of the component variables. We use the product of monadic regime scores, since it is the interaction of democracies that is said to make them different (Oneal and Russett 1999; Oneal, Russett, and Berbaum 2003).

Neighbors fight more often than distant states (Boulding 1962; Bremer 1992; Gleditsch 2003). Contiguity is an ordinal variable identifying national proximity based on the COW six-point scale.¹³ Since contiguity may capture both opportunity and willingness, it makes sense also to include a metric measure of geographic proximity. Distance is coded as the log transformed great circle distance between capital cities of countries in a given directed dyad year.

Although not reviewed below, we examined many other variables. We use Gleditsch's (2002) data set of economic variables to determine whether dyadic trade interdependence or monadic openness alters our basic findings. Economic ties have a moderate effect on conflict (McMillan 1997; Mansfield and Pollins 2001).¹⁴ Economic integration may also condition a state's motivation (Fuhrmann 2009) or ability to proliferate (Kroenig 2009b, this issue). We also assess economic development, measured as gross domestic product per capita. Prosperous countries may be more satisfied, while wealthy nations can fund capable militaries (Boehmer 2001). While the economic variables do significantly influence conflict behavior, our findings remain unchanged.

Studies of interstate conflict often include COW major power dummies. Unfortunately, the coding criteria for these data are subjective. More problematic for

Table 1
The Effect of Nuclear Weapons on MID Initiation
(probit, directed dyads, 1945-2000)

D.V.: MID Initiation	Exogenous Model		Endogenous Model	
	Coefficient	(SE)	Coefficient	(SE)
Nuclear Weapons A	0.260***	(0.070)	-0.003	(0.234)
Nuclear Weapons B	-0.001	(0.077)	-0.033	(0.239)
Nuke A × Nuke B	-0.212	(0.135)	-0.255	(0.498)
Rivalry Status A	0.293***	(0.032)	0.285***	(0.031)
Rivalry Status B	0.157***	(0.030)	0.157***	(0.030)
Dyadic Rivalry	1.113***	(0.051)	1.122***	(0.038)
CINC A	0.778	(0.707)	2.353	(1.474)
CINC B	1.589†	(0.829)	1.782	(1.518)
CINC A × CINC B	0.207	(15.833)	-1.536	(20.308)
Democracy A	0.023***	(0.006)	0.025***	(0.006)
Democracy B	0.041***	(0.006)	0.041***	(0.005)
Dem. A × Dem. B	-0.005***	(0.001)	-0.005***	(0.001)
Contiguity	-0.137**	(0.044)	-0.139***	(0.022)
Distance (ln)	-0.050†	(0.026)	-0.047***	(0.013)
Alliance	0.043	(0.040)	0.046	(0.033)
Intercept	-2.308***	(0.081)	-2.297***	(0.061)
<i>N</i>	1,051,218		1,016,102	
Log likelihood	-6008.249		-5823.235	
$\chi^2_{(19)}$	6942.134		8643.780	

Note: Spline coefficients and SEs suppressed. CINC = Composite Index of National Capability; D.V. = dependent variable; MID = Militarized Interstate Dispute; SE = standard error.

† = 10%. ** = 1%. *** = 0.1%.

our purposes, the COW list appears to have been influenced by nuclear weapons status. We prefer not to include major power dummies in the main statistical tests, since the list overlaps closely with early proliferators.¹⁵

5. Results

Table 1 lists the coefficient estimates and standard errors of two probit models relating nuclear weapons status and other variables to the likelihood of a MID in the period 1945 to 2000. The exogenous model codes the actual presence or absence of nuclear weapons. The endogenous model uses the probability that a state possesses nuclear weapons as an instrument for nuclear status, based on the model outlined in the appendix.¹⁶ Military capabilities, regime type, rivalry status, and alliances have two possible avenues for influencing conflict. Each variable directly affects whether states fight and also impacts conflict indirectly through proliferation.

The effect of nuclear status on conflict does appear to be conditioned by the causes of proliferation. In the first (exogenous) model, having nuclear weapons significantly increases the chances of initiating a militarized dispute. The situation changes after incorporating the indirect effect of causal variables on MIDs. Substituting the instrument for nuclear proliferation reveals that relatively little of the effect of nuclear weapons on conflict behavior is attributable to the weapons themselves. Instead, countries with security problems, greater interest in international affairs, or significant military capabilities are simultaneously more likely to fight and proliferate.

While reported significance thresholds are adequate to reject hypotheses involving a relationship between nuclear weapons and MID initiation, assessing the hypothesis that nuclear weapons do not affect dispute behavior requires that we reverse the bias in significance testing. Our null is that some relationship exists between nuclear proliferation and interstate conflict. Taking the standard errors of the coefficient estimate for Nuclear Weapons A in the endogenous equation and using a 95 percent threshold, we obtain a 5 percent confidence interval around the estimated coefficient or [-0.0091609, 0.0025291]. Since this interval overlaps zero, we can reject the null that the estimated coefficient is statistically different from zero with 95 percent confidence.¹⁷

Neither of the coefficient estimates for Nuclear Weapons B is statistically significant. This appears disappointing for deterrence theory, but if we are correct, nuclear weapons have a larger deterrent effect than is reflected in these findings. Nuclear nations may be converting some or all of the conflict-diminishing effects of deterrence into bigger demands on other nations or may be “trading” security for influence (Morrow 1991). Nations protected by a nuclear umbrella may be more assertive, in turn diminishing the observable deterrent effect of nuclear capabilities.

The lack of statistical significance for jointly nuclear dyads in the endogenous model may result from small sample size, but an interpretation consistent with the non-findings for the component nuclear status variables is again that nuclear states attempt to compel as often as they seek to deter. Nuclear status may help avoid disputes over certain issues, but these issues are probably also less important and thus may fail to justify proliferation. Nuclear dyads may be less likely to fight over a given set of differences than nonnuclear dyads, but perhaps they also face more or more serious differences. This can result, as Rauchhaus (2009) argues, in an increase in low-level conflict but fewer major disputes, as nuclear powers play chicken (Snyder 1965).

Results for most of the remaining independent variables in Table 1 corroborate previous empirical findings. Rivals are more likely to fight one another, even as monadic rivalry separately correlates with conflict. Disputes increase with the capability scores of each state in the dyad, though these relationships are generally not statistically significant. Interestingly, the monadic effect of regime type is positive and significant, while the interaction of regime scores operates as anticipated (Maoz and Russett 1993; Rousseau et al. 1996).¹⁸ Contiguity and Distance are both negative and significant, while alliance ties fail to influence dispute initiation.

If nuclear weapons do not alter the probability of conventional conflict, perhaps nuclear nations are primarily interested in symbolic payoffs, such as prestige (O'Neill 2006). Countries might also be led by delusional leaders whose motives bear no semblance to empirical fact (Jervis 1988; Bush 2002). Yet if force remains a means to an end, we must also look to the ends to understand when certain means are appealing and when they are not. Relatively little attention has been focused on measuring the allocation of benefits or prerogatives in international politics. Research on treaties is promising but is still evolving (Koremenos 2001; Leeds 2003; Neumayer 2005; Simmons and Hopkins 2005). The International Crisis Behavior (ICB) data set codes data about bargains reached by states during crises. Beardsley and Asal (2009) use these data to show that nuclear powers tend to obtain concessions from crisis opponents. These findings support the thesis that nuclear capabilities tend to translate into better bargains for proliferators. However, we still cannot say whether nuclear status matters for the bargains nations obtain in lieu of crises.

We look at diplomatic recognition to assess whether proliferation allows states to obtain more of what they want. Nations with demands need to be recognized before those demands can be satisfied. If countries with nuclear weapons are recognized more often than countries that lack nuclear weapons, then at least nuclear powers are being listened to if not actually obeyed.

Table 2 presents two regressions that report the effects of nuclear status on the likelihood that State B recognizes State A. There is no need for a structural equations approach, as the effect of nuclear status does not appear to hinge the other exogenous variables. States that recognize one another also do not appear to be more likely to acquire nuclear weapons. Countries that are not yet recognized may consider proliferating, but those with recognition no doubt find the extra leverage useful as well. Thus, nuclear status should effect but not reflect the dependent variable.

Rather than attempt to interpolate missing values of the COW diplomatic recognition data, we chose to rely on the existing intervals. This reduces the sample size from roughly 1 million cases to a little over two hundred thousand. The difference should not matter for these analyses. A more serious concern is how to deal with temporal dependence. For the model with a dichotomous dependent variable, we construct standard Beck, Katz, and Tucker (1998) splines.¹⁹ Addressing temporal dependence in the ordinal analysis is problematic. We lag the dependent variable (previous observation, not always the same time interval). Recognition trends strongly. A given diplomatic relationship in one period tends to persist in subsequent periods.

Nuclear-capable states are more likely to be recognized by and to formally recognize other nations. The effect of nuclear status on recognition intensifies when we use the ordinal dependent variable for the level of diplomatic mission, since this contains more information. The coefficient estimates for the Nuclear Weapons variables grow larger, while the standard errors associated with these estimates decrease. The finding is robust to the effects of other determinants of diplomatic recognition. Dyadic Rivalry is negative and significant, while states with rivalries are more likely

Table 2
Nuclear Weapons and Diplomatic Recognition
(probit, directed dyads, 1945-2000)

D.V.: Diplomatic Recognition (State B recognizes State A)	Dichotomous		Ordinal	
	Coefficient	(SE)	Coefficient	(SE)
Nuclear Weapons A	0.168***	(0.033)	0.232***	(0.028)
Nuclear Weapons B	0.116***	(0.033)	0.252***	(0.029)
Nuke A × Nuke B	-0.241	(0.186)	0.071	(0.155)
Rivalry Status A	0.250***	(0.010)	0.139***	(0.009)
Rivalry Status B	0.260***	(0.010)	0.137***	(0.009)
Dyadic Rivalry	-0.757***	(0.073)	-0.564***	(0.055)
CINC A	9.566***	(0.485)	5.432***	(0.354)
CINC B	12.311***	(0.542)	6.471***	(0.386)
CINC A × CINC B	9.173	(63.830)	-96.018***	(16.082)
Democracy A	0.035***	(0.002)	0.008***	(0.002)
Democracy B	0.043***	(0.002)	0.011***	(0.002)
Dem. A × Dem. B	0.002***	(0.000)	0.002***	(0.000)
Contiguity	-0.196***	(0.050)	-0.396***	(0.041)
Distance (ln)	-0.200***	(0.007)	-0.158***	(0.005)
Alliance	0.652***	(0.021)	0.146***	(0.016)
Lagged D.V.			0.780***	(0.003)
Intercept	0.830***	(0.057)		
_cut1			0.467***	(0.044)
_cut2			0.573***	(0.044)
_cut3			0.575***	(0.044)
<i>N</i>	213,454		187,394	
Log likelihood	-79093.293		-64753.548	
$\chi^2_{(19,16)}$	44041.069		69850.369	

Note: Spline coefficients and *SEs* suppressed. CINC = Composite Index of National Capability; D.V. = dependent variable; *SE* = standard error.

*** = 0.1%.

to recognize and be recognized by other states. Countries with high CINC scores are more likely to send and receive diplomatic recognition. Capable countries are particularly likely to recognize one another. Democracies are more active diplomatically, again particularly with each other. Distant nations are less likely to recognize one another. While contiguous states are less likely to recognize each other, they are more likely to have higher level embassies when they recognize one another. Allies, of course, tend to have formal diplomatic ties.

For additional evidence of the diplomatic impact of nuclear status, we turn to ICOW data on settlement attempts of contentious issues. Table 3 contains two regressions of the effects of nuclear weapons status and other variables on attempts to settle ICOW disputes. In a separate regression (not reported), we find that states with nuclear weapons are more likely to obtain settlements of ICOW issues. Here,

Table 3
Nuclear Weapons and ICOW Settlement Attempt
(probit, directed dyads, 1945-2000)

D.V.: ICOW Settlement (State A targets State B)	Settlement Attempt		Peaceful Attempt	
	Coefficient	(SE)	Coefficient	(SE)
Nuclear Weapons A	0.090	(0.212)	0.108	(0.156)
Nuclear Weapons B	-0.602***	(0.189)	0.550***	(0.116)
Saliency to Challenger			-0.080	(0.058)
Saliency to Target			0.127†	(0.076)
Rivalry Status A	0.216	(0.132)	-0.115	(0.087)
Rivalry Status B	0.046	(0.120)	-0.071	(0.085)
Dyadic Rivalry	-0.607***	(0.158)	0.250*	(0.115)
CINC A	-2.936†	(1.568)	0.357	(1.486)
CINC B	3.335	(2.388)	-1.295	(1.692)
CINC A × CINC B	-115.467	(223.152)	127.719	(183.545)
Democracy A	-0.016	(0.027)	0.022	(0.023)
Democracy B	-0.032	(0.020)	0.030	(0.019)
Dem. A × Dem. B	0.000	(0.003)	-0.001	(0.003)
Contiguity	0.396*	(0.188)	-0.287**	(0.109)
Distance (ln)	0.058**	(0.021)	-0.050***	(0.013)
Alliance	-0.069	(0.119)	0.077	(0.079)
Intercept	0.875**	(0.285)	-0.545*	(0.225)
N	3,233		3,233	
Log likelihood	-1502.776		-1248.575	
$\chi^2_{(14,20)}$	66.823		537.608	

Note: Significance levels: Spline coefficients and SEs suppressed. CINC = Composite Index of National Capability; D.V. = dependent variable; ICOW = Issue Correlates of War; SE = standard error.
 † = 10%. * = 5%. ** = 1%. *** = 0.1%.

we examine whether nuclear weapons status affects the nature and content of settlement attempts. The first regression in Table 3 evaluates whether there is any attempt to settle an ICOW issue in a given year. The variable is coded inversely; a 1 implies no settlement attempt of any kind. As is clear from the results, nuclear challengers are no more or less likely to seek to initiate a settlement. However, nuclear targets are much more likely to be the recipients of overtures. Other states seek to resolve differences with nuclear powers over ongoing ICOW issues, even while nuclear powers are no more prone to seek settlements with other states.

Use of the ICOW data requires some changes to the model specification. The interaction term between nuclear status is excluded from the model since its zero values perfectly determine zero values of the dependent variable. Rivalry may also correlate strongly with ICOW issues, since rivals are, by definition, facing ongoing tensions. We ran regressions with and without the rivalry variables without noticeable changes. We also included ICOW variables for issue saliency but found that the

Table 4
Nuclear Weapons and ICOW Resolution (probit, directed dyads, 1945-2000)

D.V.: ICOW Resolution (State A targets State B)	Challenger Concedes		Target Concedes	
	Coefficient	(SE)	Coefficient	(SE)
Nuclear Weapons A	-0.026	(0.316)	2.054**	(0.652)
Nuclear Weapons B	0.745**	(0.274)	0.622	(0.616)
Rivalry Status A	0.043	(0.241)	-4.807***	(0.373)
Rivalry Status B	0.344	(0.257)		
Dyadic Rivalry	-0.085	(0.272)	5.430	(0.000)
CINC A	4.542	(3.045)	-71.536**	(24.844)
CINC B	-3.541	(3.388)	-38.485	(46.400)
CINC A × CINC B	-1794.496†	(1089.284)	-25178.662	(41311.316)
Democracy A	0.095*	(0.044)	0.406	(0.268)
Democracy B	0.090†	(0.052)	0.508*	(0.240)
Dem. A × Dem. B	-0.023***	(0.006)	-0.047†	(0.028)
Contiguity	-6.058***	(1.235)		
Distance (ln)	-0.812***	(0.158)		
Alliance	-0.346†	(0.201)	-0.102	(0.400)
Intercept	3.349**	(1.233)	-7.018**	(2.460)
<i>N</i>	3,233		3,233	
Log likelihood	-152.776		-32.888	
$\chi^2_{(14,20)}$	70.355			

Note: Spline coefficients and (*SEs*) suppressed. CINC = Composite Index of National Capability; D.V. = dependent variable; ICOW = Issue Correlates of War; *SE* = standard error.

† = 10%. * = 5%. ** = 1%. *** = 0.1%.

salience issue does not confound our results. Finally, the temporal dependence variables are highly colinear. Several of these variables often drop out of these models.

The second regression in Table 3 examines the determinants of peaceful settlement attempts. Again, nuclear challengers behave much as nonnuclear challengers, but the opponents of nuclear targets appear more willing to pursue peaceful settlements. This does not mean that disputes are less likely to occur when states have nuclear weapons, since nuclear powers themselves may become less tractable in negotiations.

Table 4 assesses whether nuclear weapons make states more or less tractable. Here, each regression uses different portions of the ICOW Resolved variable. In the first regression in Table 4, the dependent variable is coded 1 if ICOW records an issue as being “dropped by the challenger” or “renounced by the challenger.” As these results reveal, the nuclear status of the target is a significant determinant of whether challengers concede issues. Similarly, if it is the target that is conceding, then the nuclear status of the challenger is salient (but not that of the target). In sum, opponents of nuclear powers are more willing to accommodate nuclear states, while nuclear states are not more willing to pursue peaceful accommodation with their opponents.

6. Conclusion

For nuclear weapons to inhibit conventional conflict, proliferation must discourage aggression from other states without at the same time encouraging the nuclear state to become more aggressive. For nuclear weapons to increase conventional dispute behavior, states with nuclear weapons must become more aggressive without their opponents responding by becoming more circumspect. Predictions from both perspectives hinge on partial equilibria frameworks in which one actor adjusts its behavior in response to the nuclear capability shock, while other actors do not. Instead, both nuclear nations and their opponents may adjust roughly simultaneously to the presence of nuclear capabilities. States with nuclear weapons become more ambitious, while their counterparts become more tractable. Indeed, if both powerful nations and pariahs proliferate in large part to gain greater influence, then nuclear-capable countries are particularly likely to seek to realize increased influence through mechanisms that are more diplomatic than military. The spread of nuclear weapons is neither pacific nor chaotic but reflects an evolution of the struggle for influence that has always characterized world affairs. The largest impact of nuclear weapons is likely to be in terms of what nations bring to the bargaining table and what they take home.

Our analysis offers some evidence that nuclear weapons matter less for war and peace than is generally presumed. Nuclear-capable states do not appear to differ significantly in terms of their dispute propensity once we address the tendency of states to proliferate. Instead, it is in the realm of diplomatic wrangling and bargained settlements that we observe a significant shift associated with nuclear weapons. Our analysis of diplomatic recognition shows that nations with nuclear weapons are more likely to garner attention from other countries. Similarly, opponents of nuclear states are more likely to attempt to settle ongoing conflicts and to settle them peacefully.

If the acquisition of nuclear weapons is costly and time consuming, then proliferation should appeal disproportionately to the most insecure countries or those with the biggest defense budgets. Nations facing major threats may find that proliferation is an avenue to secure primary interests, while affording greater freedom to pursue broader objectives, such as aiding allies or wielding influence in the face of powerful opponents. The richest states have more flexibility in designing national defense. While nuclear weapons are less fungible than conventional forces, countries with substantial conventional capabilities may find that the declining marginal value of additional conventional defense effort reduces the opportunity cost of building nuclear weapons. In contrast, nations with friendly neighbors, limited budgets, or that are satisfied with their lot in the world system are unlikely to proliferate. While nuclear weapons may have little impact on the potential for conventional contests, our "middle path" argument suggests that nuclear weapons significantly affect the international status quo. One need not draw a sword to make its presence felt. If diplomacy involves the politics of the possible, then proliferation changes the possibilities. It is the parallel between shifts in relative power brought about by nuclear weapons and the diplomatic response that helps to explain the apparent nonimpact of nuclear weapons.

Appendix

Constructing an Instrument for Nuclear Weapons Status

Our instrument for nuclear status is based on previous research (Jo and Gartzke 2007) and on the specific needs of the current study. The determinants of nuclear proliferation fall into three categories loosely based on opportunity and willingness: latent national capacity (nations that cannot build the bomb, don't), threat or interest (nations that can build the bomb but that have no need to, won't), and institutional or normative factors (audience costs in democracies).

Since there is no market in nuclear arms, the ability to build the bomb is an important choke point in the proliferation process.²⁰ Jo and Gartzke (2007) offer an index of latent national nuclear capacity, based on the size or availability within a country of seven key inputs (uranium deposits, metallurgists, chemical engineers, nuclear engineers/physicists/chemists, nitric acid production capacity, electronic/explosive specialists, electricity production capacity). In addition, countries that are generally powerful, populous, or rich are better able to allocate scarce resources to nuclear weapons development and to compensate for any lack of latent capacity. We use energy consumption per capita as a proxy for economic development. Energy consumption correlates closely with gross domestic product, and these data are available with fewer missing values. We also use the Correlates of War Composite Index of National Capability (CINC) score to measure a country's material power.

Nations with large military arsenals may care more about the policies of other nations than countries with smaller investments in arms. Nations that have no rivals probably have less interest in proliferating. To see whether proliferation is diffused by concerns about balancing or by nuclear threats in particular, we look at whether a country has a rivalry with a nuclear-capable nation. Discussions of a "nuclear umbrella" imply that rivals with nuclear protectors are also a threat. We include a dummy variable for whether a rival is allied with a nuclear-capable state.

States facing large conventional threats may seek nuclear weapons to compensate for a conventional imbalance. In contrast, nuclear-capable partners have less need to proliferate if other states are already providing protection. We examined variables measuring whether a state has a nuclear-capable ally and the largest or the sum of conventional threats from rivals. We omit these variables, as no version proved statistically significant in preliminary analysis.

Domestic political structure and international institutions impact the decision to proliferate. Previous research reveals that democracies are more likely to acquire nuclear weapons. Democratic willingness to proliferate may reflect the premium democracies place on public goods provision, greater risk aversion on the part of democratic leaders, or because citizens punish leaders for failed programs. It is tempting to also include a variable to measure membership in the nuclear nonproliferation treaty (NPT). However, NPT membership is closely aligned with a decision not to proliferate. In effect, NPT status is a proxy for nuclear status or aspirations among all states subsequent to the original five nuclear powers. For this reason, we omit a measure of NPT status.

While consistent with Jo and Gartzke (2007), we found several ways to streamline or improve the model. First, the original model includes both regime type and political instability as separate variables. Strikes, riots, and other forms of unrest in a country correlate strongly with regime type. Indeed, recent research shows that the Polity scale subsumes political instability (Gates et al. 2006). For this reason, we omit a measure of domestic unrest.

(continued)

Appendix (continued)

Second, major and regional power status variables correlate strongly with nuclear status and were omitted. Third, we omit a measure of diplomatic recognition, as this is one of the dependent variables. Fourth, we remove the nuclear contagion variable, since this correlates strongly with temporal processes.

Table 5 details results of a probit regression of the independent variables just described on nuclear status. The unit-of-analysis is the country year, covering the same time period as the sample for the main regression (1945-2000). As expected, Latent National Capacity, CINC, and Rivalry Status are all highly significant and increase the likelihood that a country will produce nuclear weapons. Democracy and per capita energy consumption are significant at the 5 percent level and operate in the expected direction. Overall, this model does correlate strongly as an instrument, accounting for almost 64 percent of the variance in annual national nuclear weapons status.

Table 5
Nuclear Weapons Status (probit, country-years, 1945-2000)

D.V.: Nuclear Status	Coefficient	(SE)
Latent National Capacity	0.525**	(0.181)
Energy Cons. Per Cap.	0.041*	(0.018)
Democracy	0.084*	(0.040)
CINC	24.110***	(4.312)
Rivalry Status	1.113**	(0.400)
Nuclear Rival	-0.030	(0.429)
Rival has Nuclear Ally	-0.295	(0.386)
Intercept	-6.736***	(1.187)
<i>N</i>	7,723	
Log likelihood	-484.3	
	85.424	

Note: CINC = Composite Index of National Capability; SE = standard error.

* = 5%. ** = 1%. *** = 0.5%.

An instrument requires both exogenous and endogenous variables. The endogenous variables are those that appear in the main conflict equation as well as in the instrument equation. These are CINC, Rivalry Status, and Democracy. The exogenous variables include Latent National Capacity, Energy Cons. Per Cap., Nuclear Rival, and Rival has Nuclear Ally.

Notes

1. Deterrence theory implies the moral superiority of the status quo over other available bargains and thus privileges established powers over challengers (cf. United Nations 1995). This is particularly problematic for realists (Grieco 1990; Mearsheimer 2001). Given anarchy, it is not clear why the status quo is objectively different from other bargains.

2. Arguing more forcefully that some nations should lack a nuclear deterrent has the effect of bolstering Western interests. It may be true that nuclear weapons proliferation in India and Pakistan will increase the likelihood of crises, accidents, terrorism, and nuclear war (Sagan 2004), but surely these problems exist in other places as well.

3. The claim that nuclear deterrence has some redeeming value really rests on the assertion that nuclear weapons decrease conventional conflict, since nuclear war can be averted simply by not proliferating.

4. Mueller (1988) argues that nuclear weapons had little salience for the “long peace” during the Cold War.

5. Geller and Sample inquire whether nuclear weapons inhibit escalation, not initiation or onset. Huth studies extended immediate nuclear deterrence, also selecting on the dependent variable (Fearon 1994).

6. Caprioli and Trumbore (2005) find that “rogue states” are no more dispute-prone than other states. Instead, rogue status has more to do with attempts by revisionists to thwart the policy interests of status quo powers.

7. Analysis of the entire 1816-2001 period covered by most Correlates of War (COW) data sets produces comparable results.

8. More restrictive (fatal militarized interstate disputes [MIDs]) and less restrictive codings (MIDs begun by either state) yield similar results.

9. Values are coded intermittently, usually at five-year intervals, but there are gaps in the nineteenth century.

10. We examined eleven different codings, ranging from narrow (publicly declared nuclear status, detonated a nuclear device) to broad (temporarily “inherited” nuclear weapons). Results are the same, with the exception that the interaction term between nuclear powers in the exogenous model is sometimes significant.

11. Attempts to measure latent conflict include inductive techniques, such as a lag model of previous disputes (Crescenzi and Enterline 2001), or deductive approaches intended to capture interests (Bueno de Mesquita 1981; Bueno de Mesquita and Lalman 1992; Gartzke 1998). With little consensus about what comprehensive models of conflict motives should include, we adopt a conservative approach of measuring past behavior.

12. Comparable results can be obtained using a dummy variable coded 1 exclusively for defense pacts.

13. States with contiguous colonies are contiguous. Results are similar using other measures of contiguity.

14. For studies challenging the view that interdependence is pacific, see Beck, Katz, and Tucker (1998) and Barbieri (2003).

15. Small and Singer (1982, p. 44) acknowledge that “the criteria for differentiation between major powers and others are not as operational as we might wish.” They note particular concerns “for the period since 1965.” We conducted tests using COW dummies and an “objective” measure based on Schweller’s (1998) definition of a “pole” as a state with “at least half of the resources of the most powerful state in the system” (p. 46).

16. The endogenous model uses the `IVPROB` procedure in STATA, which implements Amemiya’s generalized least squares estimator with endogenous regressors. Equations for the estimator are from Newey (1987).

17. The estimated coefficient for State A is just short of being indistinguishable from zero at the 1 percent threshold.

18. Quackenbush and Rudy (2006) find that democracy has opposing effects on conflict in monads and dyads.

19. There is a risk that the splines might bias the results, since not all time intervals are of the same five-year duration. Our findings are unchanged when removing the splines or using a lagged dependent variable.

20. No nation has ever bought (or sold) the bomb. However, as Kroenig (2009a) and Fuhrmann (this issue) demonstrate, trade in nuclear components and know-how is a significant contributor to proliferation success.

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