

Empirically Assessing the Bargaining Theory of War: Potential and Challenges

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Summary and Keywords

What explains war? The so-called bargaining approach has evolved quickly in the past two decades, opening up important new possibilities and raising fundamental challenges to previous conventional thinking about the origins of political violence. Bargaining is intended to explain the causes of conflict on many levels, from interpersonal to international. War is not the product of any of a number of variables creating opportunity or willingness, but instead is caused by whatever factors prevent competitors from negotiating the settlements that result from fighting. Conflict is thus a bargaining failure, a socially inferior outcome, but also a determined choice.

Embraced by a growing number of scholars, the bargaining perspective rapidly created a new consensus in some circles. Bargaining theory is radical in relocating at least some of the causes of conflict away from material, cultural, political, or psychological factors and replacing them with states of knowledge about these same material or ideational factors. Approaching conflict as a bargaining failure—produced by uncertainty and incentives to misrepresent, credible commitment problems, or issue indivisibility—is the “state of the art” in the study of conflict.

At the same time, bargaining theories remain largely untested in any systematic sense: theory has moved far ahead of empirics. The bargaining perspective has been favored largely because of compelling logic rather than empirical validity. Despite the bargaining analogy’s wide-ranging influence (or perhaps because of this influence), scholars have largely failed to subject the key causal mechanisms of bargaining theory to systematic empirical investigation. Further progress for bargaining theory, both among adherents and in the larger research community, depends on empirical tests of both core claims and new theoretical implications of the bargaining approach.

The limited amount of systematic empirical research on bargaining theories of conflict is by no means entirely accident or the product of lethargy on the part of the scholarly community. Tests of theories that involve intangible factors like states of belief or perception are difficult to pursue. How does one measure uncertainty? What does learning look like in the midst of a war? When is indivisibility or commitment a problem, and when can it be resolved through other measures, such as ancillary bargains? The challenge before re-

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searchers, however, is to surmount these obstacles. To the degree that progress in science is empirical, bargaining theory needs testing.

As should be clear, the dearth of empirical tests of bargaining approaches to the study of conflict leaves important questions unanswered. Is it true, for example, as bargaining theory suggests, that uncertainty leads to the possibility of war? If so, how much uncertainty is required and in what contexts? Which types of uncertainty are most pernicious (and which are perhaps relatively benign)? Under what circumstances are the effects of uncertainty greatest and where are they least critical? Empirical investigation of the bargaining model can provide essential guidance to theoretical work on conflict by identifying insights that can offer intellectual purchase and by highlighting areas of inquiry that are likely to be empirical dead ends. More broadly, the impact of bargaining theory on the study and practice of international relations rests to a substantial degree on the success of efforts to substantiate the perspective empirically.

Keywords: empirical international relations theory, bargaining theory of war, model, war, conflict, theory, uncertainty, bargaining, peace, dispute

Introduction

What explains war? The so-called bargaining model of war has evolved quickly in the last two decades, opening up important new possibilities and raising fundamental challenges to conventional thinking about the origins of political violence. Embraced by a growing number of scholars, the bargaining model rapidly created a new consensus in some circles. At the same time, bargaining models remain largely untested: theory has moved far ahead of the empirics. The bargaining model has been favored largely because of compelling logic rather than empirical validity (Ramsay & Kenkel, 2014). This has contributed to some notable scholars being hostile of the model (Kirshner, 2015) or thinking that while the bargaining model is largely correct, it may need to incorporate additional variables (Lake, 2010/2011; Streich & Levy, 2016). Further progress for the bargaining model, both among adherents and in the larger research community, depends increasingly on empirical testing of new theoretical implications and of the model's core claims.

The bargaining model is radical in relocating at least some of the causes of conflict away from material, cultural, political, or psychological factors and replacing them with states of knowledge about these same material or ideational factors. Approaching conflict as a bargaining failure—produced by uncertainty and incentives to compete, credible commitment problems, or issue indivisibility—is the “state of the art” in the study of conflict.¹ The model is evident in work ranging from the onset of war (Wagner, 2007), the use of mediation (Beardsley, 2011), the formation of alliances (Smith, 1995), the efficacy of deterrence (Fearon, 1994B), the practice of diplomacy (Trager, 2010), the utility of peacekeeping (Fortna, 2008), and other activities.

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Despite the bargaining model's wide-ranging influence (or perhaps because of this influence), scholars have largely failed to subject the key causal mechanisms of the model to empirical investigation. Consider uncertainty, a key causal mechanism outlined by the bargaining model. Uncertainty as a cause of conflict implies an indeterminate theory at the level of individual events, though predictions can still be made probabilistically (Gartzke, 1999). As Powell (1999, p. 6) remarks, "The mechanisms are too general and too sparse to explain particular outcomes in any degree of specificity." Scholars employing diverse empirical approaches have struggled to capture the effects of uncertainty in the real world (cf. Huth, Bennett, & Gelpi, 1992; Reed, 2003; Signorino, 1999). Slantchev (2004) rightly wonders, "It is not clear that uncertainty can be operationalized at all" (p. 815). Evidence of the effects of uncertainty is critical to testing the bargaining model and necessary to confirm a large number of important findings in international security, ranging from the role of democracy to the influence of alliances.

None of this is to say that scholars have failed to use the bargaining model as the underlying motivation for empirical tests of auxiliary arguments. Consider work on territorial disputes. To use the bargaining model to explain how war erupts from territorial disputes, Hensel and Mitchell (2005, p. 276), building from the work of Hassner (2003) and Toft (2003), add the concept of "intangible salience": "territory valued largely for intangible reasons will result in greater image and reputational losses for leaders who make significant concessions, which will produce rigid bargaining." Make no mistake: this is a useful explanation for the link between territorial disputes and militarized violence.² But it is only an indirect test of the bargaining model of war.

On the one hand, perhaps the bargaining model requires auxiliary theories to generate testable hypotheses because it serves a purpose similar to cost-benefit analysis: bargaining is a *paradigm*, meaning it provides a general framework on which one can construct richer theories that lend themselves to empirical investigation. In this case, attempting to directly test the basic assumptions of the bargaining model is a fool's errand. On the other hand, if the bargaining model is itself a theory—if it constitutes bargaining theory—then it is possible to directly test implications of the model. This holds the potential to answer a host of fundamental questions about the onset of militarized violence. Is it true, for example, as the bargaining model suggests, that uncertainty leads to the possibility of war? If so, how much uncertainty is required? Which types of uncertainty are most pernicious (and which most benign)? Under what circumstances are the effects of uncertainty greatest and where are they least critical? Empirical investigation of the bargaining model as bargaining theory can provide essential guidance to theoretical work on conflict by identifying insights that offer intellectual purchase and by highlighting areas of inquiry that are likely to be empirical dead ends.

The impact of bargaining theory on the study and practice of international relations rests to a substantial degree on success in substantiating the perspective empirically.

Why Bargaining Theory?

In his classic work *The Strategy of Conflict*, Thomas Schelling (1960) writes, “To study the strategy of conflict is to take the view that most conflict situations are essentially *bargaining* [emphasis in the original] situations” (p. 5).³ To say that war is a process of bargaining is to place the notion of “settlement” squarely at the center of how we understand wars. This differs from the idea that wars generally end because of unilateral capitulation or conquest. But what many researchers operating within the bargaining perspective in the early 21st century do not realize is that Schelling’s claim grows out of early empirical research on the termination of interstate wars. Those studies made clear that the bulk of wars ended in peace treaties. As early as 1916, Coleman Phillipson (1916), identified how the peace treaty “is the more usual mode of putting an end to hostilities and offers the largest number of examples” (p. 3). Grob (1949, p. 312) and Carroll (1969, p. 307) reiterated this claim, and Morris (1969) pointed out:

When the power balance shifts or the will to fight ceases, or the internal political climate has been altered, a nation, grudgingly acknowledging its reverses, will begin talking at the peace table. England needed Yorktown, Spain needed Gibraltar, France needed Dien Bien Phu.

(p. 347)

Underlining the empirical basis for his theorizing, Schelling (1957) analyzed the prospects of tacit bargaining solutions during war by observing how “war was limited in Korea, and gas was not used [on the battlefield] in World War II; on the possibility of limited war these two facets are more persuasive than all the suggestions contained in the foregoing [abstract and theoretical] discussion” (p.32).⁴ These studies largely focused on war termination; however, Blainey (1973) and Rosen (1972) expanded the bargaining analogy to the onset of war. Blainey, building on an extensive knowledge of history,⁵ wrote:

The link between diplomatic crisis and the outbreak of war seems central to the understanding of war In fact that main influence which led to the breakdown of diplomacy—a contradictory sense of bargaining power—also prompted the nations to fight War is a dispute about the measurement of power. War marks the choice of a new set of weights and measurements.

(p. 114)

Indeed, the conceptual innovation of viewing war onset as a bargaining situation is to treat both countries as the cause of war (Wittman, 1979, p. 744 n. 1). While one can still talk in terms of initiators of disputes, the moral status of aggressors is in part muted by the need to discuss conflict in terms of relative perceptions rather than absolute power, interests, or other “truths.”

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These works introduced the notion of conflict as bargaining, but Snyder and Diesing (1977) offered the first formalization of the concept, though only in the form of discrete choice 2 x 2 games.⁶ Wittman (1979) was the first to consider the now canonical war-bargaining framework of a single line of continuous settlement options that run from country X's ideal point (unconditional surrender by country Y) to country Y's ideal point (unconditional surrender by country X). Wittman acknowledged that his framework could be applied to the initiation of war, but he focused on the ending of war because "it is hard enough to measure the costs of a war, let alone the costs of a war which was not fought" (Wittman, 1979, p. 744). Morgan (1984) and Morrow (1985) took on the challenge of evaluating war onset. Building from work such as that of Bueno de Mesquita (1980), they considered a range of crisis outcomes, not just war and status quo or victory and loss.⁷ Powell (1987) was the first to explicitly model how incomplete information could influence the ability of states to reach a settlement short of war. Allowing for incomplete information showed, for example, that sometimes an "unresolved" state could secure a favorable outcome during crisis bargaining (i.e., bluffing can work). Morrow (1989) built on Powell by developing a limited information model to identify when bluffing enabled a weak state to secure a deal short of war. He clearly articulated how the incentive to misrepresent created the essential dilemma of crisis bargaining, "Any nation in a crisis has a strong incentive to overstate its resolve. Further, the knowledge that the other side may be bluffing leads both sides to discount each other's honest signals of resolve" (p. 965).⁸

This formative work provided the foundation for Fearon (1995) to state what has become the core puzzle of the bargaining model, "War is costly and risky, so rational states should have incentives to locate negotiated settlements that all would prefer to the gamble of war" (p. 380). He offered three answers to this question, the first of which largely echoes Morrow (1989):⁹ rational leaders may be unable to locate a mutually preferable negotiated settlement due to private information about relative capabilities or resolve and incentives to misrepresent such information (Fearon, 1995, p. 380). The second answer involved commitment problems, meaning situations in which mutually preferable bargains are unattainable because one or more states has an incentive to renege on the terms of an agreement. While the notion of commitment problems follows directly from the classic prisoners' dilemma game, Fearon (1995) was the first to formalize it in a bargaining framework and pair it along with information problems. Fearon's third cause of war arises from issue indivisibilities: some issues, by their very nature, will not admit to compromise. Fearon (1995, p. 381) found this third explanation to be less compelling, and, indeed, later work by Powell (2006) showed that indivisibilities may best be thought of as a variation on the commitment-problem argument. Even in the case of indivisibilities, war's costliness means that a bargaining solution exists that the belligerents prefer to fighting. The problem is that states may not wish or be able to commit themselves to abide by available agreements (Powell, 2006, p. 171).

Fearon (1995), by consolidating the literature on bargaining and war, providing it with a coherent intellectual framework and articulating its core puzzle, catalyzed theoretical research on the bargaining model of war. In a review of the bargaining literature, Powell

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(2000) identified four tracks along which subsequent work has extended the bargaining model: multilateral bargaining, the influence of domestic politics, intrawar bargaining, and dynamic commitment problems. In addition to these tracks, one should also acknowledge the continued work on information, uncertainty, and war onset (Arena & Wolford, 2012; Slantchev, 2005, 2010).

Over a decade later, Powell's four tracks continue to serve as useful subcategories in the bargaining literature. Wolford (2014); Yuen (2009); Fang, Johnson, and Leeds (2014); Wagner (2004); Werner (2000); and Werner and Yuen (2005) discuss how alliances and the involvement of third parties and coalitions can alter the dynamics of ongoing wars or the onset of war between two states. Powell (2004); Slantchev (2004); Smith and Stam (2004); Wittman (2009); Langlois and Langlois (2009); Leventoglu and Slantchev (2007); Filson and Werner (2007); and Fey, Meirowitz, and Ramsay (2013) explore the implications of bargaining not ending with the onset of conflict. Slantchev (2003) and Langlois and Langlois (2006) evaluate the onset of war in the presence of perfect information, while Wolford, Reiter, and Carrubba (2011); Chadeaux (2011); and Tarar (2013) exemplify the work using bargaining models to understand how war occurs through commitment problems driven by power shifts and preventive war motivations. Finally, researchers have continued to analyze how the domestic characteristics of states influence bargaining outcomes, most notably, in the massive literature on "audience costs" (see below).

Testing Implications of the Bargaining Model

Much of bargaining literature is highly theoretical, and it has helped scholars to fine-tune the nuances of how rational actors can fail to reach agreements and how bargaining failure leads to war. But more must be done to convert logical constructs into empirical insight. Testing of the bargaining model is essential to identify which theoretical pathways offer the greatest intellectual purchase and to highlight plausible logics that may, regrettably, produce empirical dead ends. Indeed, scholars have been attempting to test at least some of the implications of bargaining theory for decades. However, as Morgan (1984, pp. 409–410) points out, much (if not all) of that early work failed to identify and test hypotheses that logically derive from a formal construction of the bargaining situation. For Morgan, this was problematic, because formal models make it possible to examine how a group of variables interact. A close connection between logical construct, hypothesis, operationalization, and test is needed to move the literature forward.

Subsequent work, informed by some version of the canonical bargaining model, tested several implications of bargaining theory.¹⁰ Consider a few examples. Conducting comparative statics analysis on equilibrium results from a crisis bargaining model, Fearon (1994B) hypothesized that precrisis information on capabilities and a defender's interest in a protégé should influence the success of general deterrence (i.e., the absence of threats in an adversarial relationship), whereas such information revealed during the course of a crisis should influence immediate deterrence (i.e., the prevention of escalation after a state has issued a threat). Sartori (2005) used data on militarized interstate

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disputes to identify whether failing to follow through on a past defensive threat would lead to subsequent challenges against a state. Sechser (2010) used a crisis bargaining model to predict that a challenger's military power, by raising the reputational stakes of a crisis, could actually make compelling threats less likely to be successful, a result he then confirmed with data on "militarized compelling threats" (Sechser, 2011). Weisiger (2016), building on qualitative work by Goemans (2000), Reiter (2009), and Weisiger (2013), used participant-level data on the timing of battle deaths to examine how the information revealed from battlefield outcomes influences the willingness of the belligerent parties to settle.¹¹

Perhaps the richest vein of literature testing the implications of the bargaining model of war is experimental work on audience costs, the notion that a leader can be punished by an audience, typically domestic, that is displeased by the leader's failure to abide by a stated promise or threat (Fearon, 1994B, 1997).¹² These costs can include reduced public popularity or support, rising domestic opposition to policy initiatives, removal from office, and, in the worst case, imprisonment or execution (Goemans, 2008). Others have refined this concept (e.g., Guisinger & Smith, 2002) and applied it more broadly across a wide range of issue areas (Broz, 2002; Martin, 2000; Simmons, 2010). Empirical work on audience costs was initially stymied by difficulties in observing the strategic selection effects of leaders' endogenously choosing to generate audience costs (Schultz, 2001). Tomz (2007) sought to overcome this constraint by employing an experimental survey research design. He found that participants responded very unfavorably when the leader failed to follow through on a threat. Although some scholars subsequently questioned the influence of audience costs during crises (Levendusky & Horowitz, 2012; Snyder & Borghard, 2011; Trachtenberg, 2012), others continue to subject the notion of audience costs to experimental investigation (e.g., Chaudoin, 2014; Kertzer & Brutger, 2016; Levy et al., 2015).¹³ Considerable progress has thus been made in subjecting audience costs arguments to empirical tests in particular, even as more remains to be done. These efforts provide some evidence of bargaining and reinforce (yet again) the value of empirical testing in refining, extending, and validating theoretical research. But analysis of audience costs offers relatively little guidance for the larger literature on bargaining theories of conflict; existing tests of the bargaining model itself are rare, circumspect, or somewhat ambiguous. The existence of audience costs is neither necessary nor sufficient to validate the bargaining model. Bargaining itself does not require audience cost mechanisms to exist in order to function, and the presence of audience costs, though consistent with the bargaining model, does not prove that bargaining is important, or even particularly relevant, to explaining conflict behavior.¹⁴

Testing Bargaining Theory

The empirical work mentioned here is useful because it tests implications of the bargaining model. The bargaining model offers empirical predictions that, if verified, support the continued use of the theoretical framework, particularly in (the many) circumstances where evidence is not available. But the bargaining model continues to be favored largely

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because of the compelling nature of its logic, rather than the accumulation of supporting empirical evidence, at least at present. While empirical research has explored many of the model's secondary implications, the foundational mechanisms of the bargaining model—uncertainty and commitment problems as the causes of war—have largely eluded empirical investigation or have been considered too difficult to evaluate directly.¹⁵

Consider uncertainty, arguably the single most essential mechanism of bargaining failure.¹⁶ Despite its foundational role, scholars have yet to perfect a means of directly observing the influence of uncertainty on crisis outcomes.¹⁷ This is due to a host of complications, not least of which is the fact that if the exact source of uncertainty could be ex ante identified, then crises would either not occur or not escalate to conflict (Gartzke, 1999). Furthermore, questions about scale, emphasis, definition, and context, which can be assumed, generalized, or glossed over in theory, are impossible to ignore in the empirical domain. Over what are the actors uncertain?¹⁸ Is the most relevant source of uncertainty rival competitors' capabilities, war costs, "resolve,"¹⁹ or something else? How do these components relate to one another? Which are critical and which can be safely ignored? How do different assumptions common to modeling in bargaining theory influence the kinds of relationships empirical research is likely (or unlikely) to find?

What do we conceptually mean by uncertainty, not just the abstract ideal of uncertainty, but uncertainty over a particular thing? How do we measure uncertainty about that thing? Do we define uncertainty as ambiguity over the outcome probabilities (Ellsberg, 1961), as being unable to assign subjective probabilities to the occurrence of an event (Knight, 1921), or, if we characterize beliefs as a distribution over probabilities (Al-Najjar & Weinstein, 2009), is uncertainty the variance of those probabilities?²⁰ The diversity of definitions itself creates a demand for empirical brush clearing. A better understanding of the role of different types of uncertainty in fomenting conflict is critical to future development of bargaining theory.

Whatever one's definition of uncertainty, bargaining theory implies the need to operationalize it and place it in our empirical models. Some scholars have turned to estimation techniques, such as logit quantal response equilibrium (LQRE) models to inject uncertainty into the actions taken by the actors of sequential games (Carter, 2010; Gent, 2007; Signorino, 1999).²¹ However, LQRE is a means of incorporating strategic interaction (and uncertainty) into an estimator, rather than using uncertainty as an explanatory concept in and of itself. In another approach, Reed (2003) and Slantchev (2004) hypothesized that uncertainty over war performance would have its greatest effect on war duration when observable capabilities are close to parity.²² The argument is that small differences in observables should suggest greater uncertainty over unobservables. It is these unobservables that play the critical role in the outcome of crisis bargaining (Fearon, 1994A). This approach has merit, and it has been extended by Bas and Schub (2016) to capture uncertainty within the region inhabited by a dyad or uncertainty in the system as a whole. But this approach only indirectly captures the influence of uncertainty. Hence, none of these approaches truly capture the direct influence of uncertainty on crisis outcomes.

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Nor does work on these issues follow a one-way street. Though theoretical work on bargaining has made great strides in a relatively short period of time, empirical input could guide theory in a number of ways. Like Schelling, modern theorists are bound to benefit from evidence about what works and what does not. Since uncertainty about any “strategic” variable (costs, power, or interests) can be used to motivate conflict, it is tempting for theoretical work to emphasize one condition or another, without knowing that this source of uncertainty is the most important empirically. Debates have begun about whether states fight more often because of private information about war costs or capabilities, for example. There are also controversies about the relative importance of Fearon’s three causal mechanisms. Do wars occur more often because of uncertainty or commitment problems? In all likelihood, these mechanisms interact, but unraveling their contributions will require guidance about how they actually operate.²³

Improved information about how uncertainty operates in the empirical world can prove useful in refining and extending the bargaining model; however, evidence of the bargaining model’s predictive power will be critical to extend the appeal of these arguments into the broader scholarly and policy community. Consider a famous example: Einstein’s theory of relativity. This theory initially gathered a devoted core of close scientific adherents, but it was findings such as the phase shift in the light spectrum of stars—a search informed by Einstein’s theory—that led many outside this small circle to finally recognize the primacy of the core perspective (Pound & Rebka, 1959, 1960). Similarly, many in the policy community and the social sciences will find it convenient to continue to hold on to more traditional beliefs about the causes and consequences of conflict until bargaining theorists are able to show that their ideas really work. This, in turn, will open the field to a much larger group of researchers and practitioners. In short, though the bargaining perspective has won over many of those involved in conflict research, its penetration into the great majority of contemporary debates among intellectuals and policy elites has been nearly nonexistent. Without this broader influence, bargaining theory will remain a “boutique” experience, pivotal to some scholars and almost unknown to many others. To the degree that the bargaining perspective is important in understanding conflict, this will mean presumably that governments and their critics will continue to misunderstand why it is that conflict occurs. Hence, we advocate renewed efforts to test the uncertainty mechanism, as well as other features indicative of the bargaining model.

The Way Forward

Tests of the bargaining model’s core mechanisms have proven difficult. The model takes variables that have long been recognized as relevant to warfare—uncertainty, misrepresentation, and a lack of centralized enforcement—and formalizes new relationships between them. But these variables are also by their nature often difficult to observe and measure. At the same time, there is little serious debate within the research community about the need to test bargaining theories *eventually*. The heavy focus on developing, debating and refining basic theory in the two decades since Fearon (1995) has been so productive and intellectually engaging that there may have been less impetus for empirical

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work. This, combined with the lack of familiarity with new variables and other challenges to operationalizing bargaining concepts has meant that theory is far ahead of evidence (see Morgan, 2013). Indeed, the balance between concepts and empirics in the bargaining perspective has become so lopsided that it has begun to produce challenges even for theoretical researchers.

Testing the bargaining model is not only desirable; it is essential. The evolution of theory in an empirical discipline requires empirical tests to establish external and internal validity, to provide a baseline to ground and help adjudicate theoretical debates, and to guide subsequent theorizing. Evidence that theories are more than just plausible is also critical in the marketplace of ideas both within and across communities. The future of even the most perspicacious theoretical approach hinges on its ability to demonstrate that its claims are more than just intriguing or plausible. The bargaining model, in particular, sits within a larger community of researchers who are deeply committed to empirical inquiry. If the bargaining approach proves largely untestable (and, hence, fails the acid test of whether something even qualifies as a theory), it raises doubts about the prospects for its fruitful evolution as a body of knowledge.

Although not easy, empirical assessment of the bargaining model can be accomplished with greater emphasis from the research community, and with the creativity and imagination of empirical researchers. There are two basic avenues for empirical research: tests of core implications of the theory and tests of ancillary implications.

First, tests of core implications are necessary to validate the basic tenets of the perspective and to provide the basis of empirical support needed to broaden its intellectual and practical appeal. The theoretical appeal of the perspective is manifest but others will want to see evidence that the bargaining perspective actually works. The bargaining perspective emphasizes core variables that have not previously been the focus of empirical research in international relations. The most important of these is uncertainty, or private information. It is daunting to attempt to measure what cannot be observed. However, the relevant parameter is participant uncertainty, and there seem to be a number of ways that researchers could quantify ignorance. Data on stock-market volatility, for example, reflects not just ignorance of the future, but differing beliefs and a rapid evolution in thinking. As volatility ends, market consensus is reflected in more information and less noise in the market price. Similar forms of volatility in international relations may be a sign of uncertainty. Work on bargaining theory has already emphasized that demands should shift with changing expectations of the balance of power or interests. This implies the need to pay more careful attention to demand dynamics in crises and to demands generally. These dynamics may occur not just prior to, but also during crises and conflicts.²⁴

If a critical cause of conflict is different beliefs about the balance of power, costs, or resolve, then measuring uncertainty directly is a foundational task for empirical tests of the bargaining model. This is also important for ensuring that other relationships in international relations are robust to claims of the bargaining perspective. Measures of uncertainty may actually be more obtainable than many suspect. States, groups, and organizations

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publish mountains of data about themselves and one another. These data are regularly revised, disputed, and criticized. The noise is a source of concern for statisticians and decision-makers, but it is a valuable indication of uncertainty for bargaining theorists. Measuring uncertainty could be as easy as coding discrepancies in national capability estimates (Kaplow & Gartzke, 2015). Refinements and extensions of this basic approach could take tests of core bargaining concepts even further. For example, interactions between uncertainty and power, mediated by risk propensity, are a possible source of variation in the application of bargaining theory to conflict onset. Weak states may not attack the strong even if they overestimate their own capabilities. Two powerful nations may be the most prone to fighting because of uncertainty and incentives to bluff.

Second, tests of particular theories within the rubric of bargaining will involve teasing out unique implications of these theories, and then using findings to help push forward research agendas that appear most likely to be fruitful. If testing the bargaining model's core arguments is required to confirm the convictions of its adherents and to win wider appeal, then empirically exploring a broader set of hypotheses from particular theories within the bargaining approach promises to stimulate future theoretical developments. Debates over the relative impact of informational and distributional determinants of conflict, for example, have no obvious terminus in strictly theoretical form. Claims about the relative impact of two or more logical constructs really devolve to different claims about the relative weights to different coefficients. Similarly, concepts such as signaling (alliances, crisis bargaining, etc.) require the input of empirical tests to determine when actions constrain or inform. Tests of ancillary bargaining arguments will be challenging in their own right, but the bargaining model has the advantage that validating rigorous theory does not require tests of all or even most implications of an argument. Unique implications can validate a theory and offer the opportunity to test specific formulations of the bargaining perspective in novel, counterintuitive ways; implications that in themselves are not important, but which confirm logics with much more momentous implications.

Testing a broad array of implications related to the bargaining model has proven a useful first step in empirically evaluating bargaining as a theory of war. But it is time to develop unique tests of the model's implications and, most importantly, mechanisms. Scholars must seek to empirically unpack the core components of the model to see if bargaining failure is an explanation for war.

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Notes:

(1.) Commitment-problem wars, another insight of bargaining theory, suggest that fighting can result from changes in the balance of power and an inability to commit, under anarchy, to maintaining bargains in the face of changing power. Uncertainty under these conditions can actually prevent war, given that the parties may not realize they face a commitment problem. Work on the boundaries and some tensions between bargaining explanations for war is an area where theoretical and empirical innovations in the literature can combine (Wolford, Reiter, & Carrubba, 2011)

(2.) For example, this piece, along with Toft, Hassner, and a few others, serves as the basis for Goodard's (2009) exploration of how territory becomes perceived as indivisible. In the context of the present discussion, Goodard raises two excellent points. First, that "often the physical indivisibility of an issue is beside the point. Territory is physically divisible—Kashmir, Ireland, and Kosovo can be infinitely divided—but this does not prevent actors from treating territory as indivisible in practice" (p. 7). Second, that "indivisibility cannot be equated with bargaining failure or war. Indivisibility is not a root cause of war. Certainly other mechanisms—commitment problems, domestic politics, or misperception, for example—can lead to bargaining failure and violent conflict" (p. 7).

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(3.) Powell (2000) and Reiter (2003) provide an earlier review of the bargaining literature.

(4.) This statement comes from an article appearing in the first issue of the *Journal of Conflict Resolution*.

(5.) It is important to recall that Blainey is a trained historian.

(6.) As Wagner (1983) writes, "Any game matrix can accurately represent a situation only if it includes all the possible strategies . . . More careful attention to this basic point would show that none of the classic 2 x 2 games can do the work that is so often assigned to them" (p. 345).

(7.) One challenge for students of conflict stems from the impossibility of inferring categorical meaning (i.e., preference intensity) from even a reasonable rank ordering of outcomes (e.g., winning is better than losing, but how much better?). See O'Neill (2001). Morrow (1986) extends the model to the two-issue case.

(8.) Banks (1990) generalizes this result to any crisis bargaining game of incomplete information.

(9.) A point Fearon acknowledges (Fearon, 1995, p. 397 n. 36).

(10.) It should be emphasized that much of the research associated with bargaining theory actually fails to produce comparative statics from bargaining models, more narrowly defined, in which offers are endogenously derived.

(11.) All three works find that commitment problems, not informational problems, lead to protracted and deadly conflicts.

(12.) This audience costs literature is by no means the only or even the oldest experimental work focused on bargaining and war (see, e.g., Pillar, 1983). While we focus on the experimental work here, there is also work seeking to evaluate audience costs using large-n observational data, commonly by looking at regime type or constraints on executive decision making (e.g., Partell & Palmer, 1999; Schultz, 2001; Uzonyi, Souva, & Golder, 2012; Weeks, 2008).

(13.) Other work questions those studies, such as Snyder and Borghard (2011) and Trachtenberg (2012), which argue for the non-existence of audience costs (Schultz, 2012; Slantchev, 2012; Levy, 2012; Gartzke & Lupu, 2012).

(14.) Audience cost theory only requires that the audience punish leaders for inconsistency between their words and their deeds. Such inconsistencies need not take place in the context of crisis bargaining. See work on commitments to international treaties and audience costs (Chaudoin, 2014).

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(15.) One might contend that uncertainty and commitment problems are proximate causes of war, other slow-moving characteristics of states (e.g., regime type) or between states (e.g., trade flows) being distal causes.

(16.) Fearon (1995) is at pains to emphasize that uncertainty must be combined with incentives to misrepresent information on the part of actors. Otherwise, private information can simply be communicated publicly, resolving the asymmetric information problem. However, while indisputable in technical terms, incentives to deceive appear to follow directly from the bargaining context, when actors dispute the distribution of goods or benefits. Whether incentives to misrepresent vary in the same bargaining context remains an open, and interesting, question.

(17.) Also, it is not uncertainty per se that can induce war but the disagreement that results from uncertainty that leads to war. See Smith and Stam (2004, pp. 784–786) and Mitzen and Schweller (2011).

(18.) Some work seeks to understand how national security decision-makers handle uncertainty when making strategic recommendations (Friedman, Lerner, & Zeckhauser, forthcoming)

(19.) If so, what is resolve (Kertzer, 2016)?

(20.) Not knowing probabilities can be a product of “fundamental uncertainty” (uncertainty that results from the complexity of innumerable chance events, such as weather or illness) and “estimation uncertainty” (uncertainty that results from having fewer than an infinite number of observations) King, Tomz, and Wittenberg (2000, p. 349).

(21.) Bas (2012) offers an approach to account for the uncertainty being heteroskedastic within an LQRE framework.

(22.) The notion of uncertainty being linked to power parity is found in Singer, Bremer, and Stuckey (1972).

(23.) Gartzke and Coletta (2015) argue that the Fearon typology of reasons for bargaining failure is endogenous rather than exogenous. Politicians can alter or combine different mechanisms to manipulate the bargaining environment.

(24.) Though as Wagner (2000) has pointed out, there are also incentives to appear to be unwilling to negotiate early in a contest.

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