Stalling

William Spaniel* Peter Bils† Gleason Judd‡

April 10, 2019

Abstract

In many wars, fighting allows a state to hold onto the status quo until the conflict is over. Indeed, war may look attractive to some actors for that purpose even if they will likely lose and must pay substantial costs in the process. How does this incentive to stall alter the likelihood of conflict onset? We develop a model in which a delay exists between war's initiation and termination. During that time, states maintain a status quo division of the disputed good. If states value the future at different rates, no mutually preferable settlement may exist. War is more likely when a comparatively patient state is powerful but holds a disproportionately small share of the status quo. In addition, we show the parameters for war are non-monotonic in the length of conflict: fighting only occurs when the delay falls in a middle range. We relate these results to existing theories of civil war, democratic peace, and the offense-defense balance.

*Department of Political Science, University of Pittsburgh, Posvar Hall 4446, Pittsburgh, PA 15260. (williamspaniel@gmail.com, http://williamspaniel.com).

†Department of Politics, Princeton University, Fisher Hall 312, Princeton, NJ 08540. (phbils@gmail.com, http://peterbils.com).

‡Department of Politics, Princeton University, Fisher Hall 313, Princeton, NJ 08540. (gleason.judd@princeton.edu, http://gleasonjudd.com).

The Sri Lankan Civil War began in 1983 when the Tamil Tigers tried to create a breakaway state. The conflict raged on for almost 26 years before the Sri Lankan government militarily defeated the uprising. From one perspective, the Tamil Tigers failed—they did not achieve their war aims. But from another perspective, the war was a success. For more than two decades, the Tigers held territorial sovereignty over Tamil Eelam. At its peak, this *de facto* state had a capital in Kilinochchi, created a functioning court system, and ran the Bank of Tiger Eelam. The Tamil Tigers achieved—at least temporarily—some of their war aims merely by fighting. Conflict may have been costly, and defeat may have perhaps been inevitable, but the Tamil Tigers nevertheless enjoyed the *intrabellum* status quo.

The Tamil Tigers' experience is not unique. Wars where one side have stalled for time and held onto some benefits during that period are pervasive throughout history. This goes back to Rome's surrounding of Carthage during the Third Punic War and became commonplace during the Medieval era. To this day, civil wars often extend decades (Fearon, 2004). The United States in particular has participated in many protracted conflicts since the September 11th attacks.

What makes a state willing to fight a war to stall and hold onto the status quo? To answer this question, we analyze a model of bargaining and conflict. We find that two key features of the dyadic relationship make states more inclined to stall: (i) they expect that war will neither terminate too quickly nor drag on indeterminately and (ii) a disparity exists between the distribution of goods during war and the expected post-war distribution. If either condition fails, however, then states are able to reach a peaceful settlement for the same reasons as in previous work, e.g., Fearon 1995. Indeed, as hinted at by point (i), if one side could hold onto the status quo indefinitely in the model, then the states can always agree on a peaceful resolution. Thus, explaining stalling wars requires more than simply arguing that such conflicts arise from one side wanting to maintain a favorable status quo.

To generate these insights, we build on the standard ultimatum bargaining model in two ways. First, we assume there is delay between the initiation of conflict and its resolution. As such, the aforementioned *intrabellum* status quo plays an important role: during war, each state enjoys a share of the good in dispute. Second, we allow actors to have different discount factors. Relaxing either of these assumptions in isolation generates peace with certainty. But together, they create the perfect storm for war.

The intuition is as follows. Suppose an impatient state is militarily weak but holds a disproportionate share of the disputed good during a war. Securing a peaceful settlement requires giving this state a large share of the good, despite its weakness. This is because it can fight a war to stall for time, obtaining a large share in the interim. In the long run, this plan looks unattractive—it will likely lose and ultimately receive nothing. Yet it does not care because it is impatient.

Now consider that state's more patient opponent. It too requires a large share of the settlement to maintain the peace. After all, in the long term, this state is likely to win a military confrontation. Fighting will give the actor a poor *intrabellum* payoff. However, this will not dissuade the actor from pursuing war—it places high value on future payoffs.

Combining the two preceding observations, each state's minimum share of a peaceful settlement exceeds what the other is willing to give up. War ensues.

At its core, our mechanism is a commitment problem. Settlements exist that both parties prefer. For example, suppose that the parties peacefully divide the stakes according to the *intrabellum* values for the length of time war would last. Afterward, the parties would redivide the good according to the military balance for the rest of time. Such a division improves welfare because it matches the intertemporal war payoffs but is not costly. However, such deals are incredible. At the time of the transition period, the impatient state would not want to follow through. Instead, it would fight to hold the status quo for even longer. Recognizing this, the patient state would never agree to the deal in the first place. We show that this problem is endemic to the strategic situation—

even if states can freely renegotiate over time to allow for a smooth transition, war may still be inevitable.

Although stalling is a commitment problem, it is a part of a unique subclass that warrants its own analysis. According to the standard commitment problem mechanism, large and rapid shifts in power render deals incredible over time (Powell, 2006). Power remains static in our setup, and thus our mechanism is also distinct from wars due to imperfect information about arming (Debs and Monteiro, 2014) or war debt to produce military power (Slantchev, 2012). In addition, war payoffs do not need to be a function of previous offers to obtain conflict (Chadefaux, 2011). This gives it a close connection to issue indivisibility (Powell, 2006). States could resolve the problem with an *ex ante* cost-free mechanism (a weighted coin flip in the case of issue indivisibility, a defined transition point in ours) but the states cannot follow through on those solutions.

We show that our baseline model is equivalent to placing greater structure on states' war payoffs in the standard crisis bargaining setting. Consequently, at a technical level, war can occur in our model because the sum of the players' war payoffs can exceed the sum of their payoffs from peace. Although this technical reason for war in our setting is well-known from previous work, their more general formulation of war payoffs obscures our substantively important insights about stalling. In particular, by providing micro-foundations for states' war payoffs, we uncover why stalling can create these conditions for war. Furthermore, our microfoundations facilitate comparative statics and generate empirical predictions on the effects of time, power, and patience on states' willingness to stall. Key predictions would be difficult to deduce from either previous work or without writing down a model. Indeed, one of our main comparative statics is that the probability of stalling wars is non-monotonic in the how long states expect conflict to last.

Substantively, our comparative statics produce three important implications for the existing conflict literature. First, our mechanism is more likely to cause war when the disparity between military power and the *intrabellum* status quo is large. Wars of independence—like the Sri Lankan Civil War—often follow this pattern. Weak rebellions can hold onto territory for the duration of war but face an uphill battle in defeating a better organized and funded central government. While it may seem odd for an actor to rebel when it is doomed to fail, we shed light on this behavior by showing that a state in our model can be willing to fight even when it is guaranteed to lose. Counter to fears of perverse incentives (Kuperman, 2008; Spaniel, 2018), prospects for foreign interventions can incentivize peace here by better balancing the distribution of power and *intrabellum* status quo. The underlying commitment problem also suggests that peacekeeping missions can succeed by enforcing a change in distribution of the disputed good over time.

Second, stalling wars are more likely to begin when there is a greater disparity between the parties' levels of patience. Work in comparative politics indicates that autocracies and democracies have different time horizons (Haggard and Kaufman, 1995). Thus, all else equal, our mechanism suggests greater conflict between dissimilar dyads. When combined with *monadic* theories of democratic, these two mechanisms can create a *dyadic* democratic peace, which is an empirical regularity in the quantitative international relations literature.

Third, peace is certain when wars are fast or will endlessly persist. This provides a new perspective to the offense-defense balance in international relations. Existing theories argue that war is most likely when military technologies favor offensive maneuvers (Jervis, 1978) or defensive maneuvers (Fearon, 1997). Our model instead indicates that wars of stalling are most prevalent in a middle ground.

Motivation

Our paper diverges on two dimensions from the standard assumptions in the bargaining model of war literature. Both changes are necessary to obtain our key result. However, researchers have relied on the assumptions that we relax out of mathematical convenience rather than empirical accuracy. We use this section to outline our assumptions' substantive relevance.

First, we allow states to have noncommon discount factors. Discount factors weigh how an actor values today versus future periods—either due to pure impatience or because they believe that the interaction is not likely to continue long into the future. Most models within the conflict literature assume that states are equally impatient. This is useful for creating a more parsimonious model—rather than needing δ_A and δ_B to represent two states' discount factors, the modeler can simply set them equal to each other and call it δ. But this is purely for notational convenience. Using a single discount factor is an edge case and likely does not have much empirical grounding.

Indeed, a large literature in comparative politics claims that discount factors vary across states and regimes. Haggard and Kaufman (1995) argue that autocratic leaders generally have longer time horizons than democracies. Intuitively, stable autocratic leaders face less competition and need not worry about term limits. Nor can a domestic population blame them for short-term costs of war at the polls (Levy, 2011, 92-93). As such, they are more willing to forgo small payoffs today for larger payoffs in future years.

Variation also exists within regime types. Countries with longer tenured leaders (Bienen and Van de Walle, 1992), better economic growth (Londregan and Poole, 1990), and with no ongoing sanctions episodes (Marinov, 2005) are more likely to maintain their current regimes into the next year. Beyond that, governments formed in the wake of a coup survive longer when they are well-received from the international audience (Thyne et al., 2018), while potential targets of coups are less likely to face a plot in the first place when challengers cannot easily obtain funds from the international community afterward (Marinov and Goemans, 2014). These differences in time horizons drive state level behavior a number of fronts, including the personal accumulation of wealth extracted (Wright, 2008), investment in public health (Dionne, 2011), and shares of cartel rents (Blaydes, 2004).

Although these mechanisms are diverse, discount factors are a useful way to model their common incentives.[1] Correspondingly, we are not the first to incorporate non-common discount factors in theories of conflict. Toft (2006) discusses asymmetric time horizons in the context of valuing the afterlife, and Kertzer (2016) accounts for variation in time preferences in predicting intervention outcomes. More related to our interests, Chadefaux (2011) finds asymmetric patience can lead to war when the object negotiated today affects the probability of victory tomorrow. As we detail below, our mechanism is distinct. Conflict only occurs when we also include an *intrabellum* status quo payoff. No such payoff exists in Chadefaux's framework. And as we detail in the modeling section, if anything, bargaining over objects that influence future bargaining power ought to have a pacifying effect under these conditions.

Speaking of *interbellum* status quo payoffs, the second assumption that we relax is that war immediately produces a change to the issues at stake. In most models, following a rejection, players receive a war payoff. There is no delay. States instantaneously pay their costs of fighting, and Nature determines each state's share of their benefits. The status quo does not play a role.

In practice, this is not the case. Civil wars are notoriously long affairs; in 1999, the *average* length of civil conflicts still ongoing was 16 years (Fearon, 2004, 275-276). Prominent interstate conflicts have also dragged on: World War II lasted six years, World War I lasted more than four years, and the Iran-Iraq War lasted almost eight. The U.S. War in Afghanistan, begun in 2001, continues in some form at the time of this writing.

Combatants can pay heavy costs during these periods, but even a side woefully outmatched can benefit from delaying the inevitable. As long as war wages, a breakaway

[1] We lose some nuance by doing this—e.g., not having a full model of domestic politics causing leadership turnover—but capturing a more general incentive structure is worth that price.

region can continue administering the territory it claims. The opening case of the Tamil Tigers illustrates this. Countries repressing a minority group can maintain their discriminatory laws until an outside intervention finishes the process of regime change. Citizens can stay in disputed territories until forced out. In the extreme, a political body can maintain its existence until completely eradicated. For example, the Siege of Carthage may have ended in Roman victory and a complete destruction of the city and its population, but Carthaginians survived for three years simply by electing to fight (Tucker, 2010, 65-67).

Relaxing the instantaneous war assumption seems innocuous. After all, it appears to only devalue war for the actor disadvantaged by the status quo. Delay may shift the terms of settlement—the disadvantaged actor would accept less given the time delay—but it ought not cause bargaining breakdown. Indeed, some existing models (Slantchev, 2003; Powell, 2004) include a status quo payoff until war is resolved and do not find the effect. And Powell (1999) compares the status quo and the distribution of power in a more general conversation about stable settlements.

However, no existing work simultaneously incorporates both noncommon discount factors and delay in war outcomes. We by and large support this practice, as more parsimonious models make mechanisms more transparent. But it is still important for researchers to understand how more empirically accurate assumptions interact with one another, as mixing common features of conflict can yield new results (Wolford, Reiter and Carrubba, 2011; Tarar, 2013). Our model shows delay and noncommon discount factors combine to create a pernicious effect—impatient actors who hold an advantageous status quo may be unwilling to accept the most a patient actor is willing to offer.

Model

Suppose two states, A and B, are in a dispute over a good represented by the unit interval. The states bargain over the good, and the dispute may end in conflict or a peaceful settlement. The good is initially divided between the two states according to a status quo division, with A enjoying $q \in [0, 1]$ and B possessing $1 - q$. Bargaining begins with A proposing a settlement $x \in [0, 1]$. Next, B chooses to accept or reject A's demand. If B accepts then the good is divided according to x and peace prevails forever after. If B rejects then the states fight a war.

In our model, war does not resolve immediately. Instead, conflict lasts for $0 \leq T < \infty$ periods, at the end of which one side prevails and obtains the entire good. At the end of T periods, A wins the war with probability $p \in [0, 1]$ and B is victorious with probability $1-p$. In the baseline, T is fixed and known by both players at the outset. However, these particular assumptions are not crucial.

In the appendix we study a number of alternative specifications and show that our key insight survives. First, we let the length of conflict be a random variable. Second, we allow for states to continue trying to come to an agreement after starting a conflict. Third, we allow states to renegotiate the division of the good even after a demand has previously been accepted.

Throughout an ongoing conflict, the status quo remains in place and players obtain utility each period according to the division q. Once conflict resolves, the winner controls the entire good and states accrue utility in each subsequent period according to this new division. Furthermore, each state $i \in \{A, B\}$ incurs a per-period cost c_i in perpetuity.[2] Dynamic payoffs are given by the sum of per-period payoffs and each state i discounts future periods according to $\delta_i \in [0, 1)$. All the parameters of the model are common

[2] In an extension we show that our results also hold under more general assumptions on costs.

knowledge.

We are now in position to formally express each state's expected payoffs. First, A's payoff if B accepts a demand x is $\sum_{t=0}^{\infty} \delta_A^t x = \frac{x}{1-\delta_A}$. On the other hand, if B rejects the demand, then A's expected payoff is

$$\sum_{t=0}^{T-1} \delta_A^t q + \sum_{t=T}^{\infty} \delta_A^t p - \sum_{t=0}^{\infty} \delta_A^t c_A.$$

B's payoffs for peace and conflict are analogous. If B accepts a settlement x, then it enjoys a per-period payoff of $1 - x$, which accrues to provide B with a dynamic payoff equal to $\sum_{t=0}^{\infty} \delta_B^t (1-x) = \frac{1-x}{1-\delta_B}$. If B rejects, then its expected payoff equals

$$\sum_{t=0}^{T-1} \delta_B^t (1-q) + \sum_{t=T}^{\infty} \delta_B^t (1-p) - \sum_{t=0}^{\infty} \delta_B^t c_B.$$

To recap our baseline setting, the game begins with A making a demand that B can accept or reject. If B rejects, then a war breaks out. The war lasts for a finite number of periods before being resolved according to a lottery. Thus, our baseline model retains the ultimatum structure assumed in much of the crisis bargaining literature. However, although bargaining is one-shot, payoffs accrue dynamically.[3] In the appendix, we demonstrate that our main intuitions still hold if we relax numerous assumption in the baseline model, for example by allowing for (i) uncertain conflict length, (ii) time-dependent relative power and/or costs of conflict, and (iii) evolving status quo. In particular, we show that the assumptions driving our results in the baseline model, non-common discount

[3] As discussed in the introduction, because our baseline model has one-shot bargaining, we can actually define payoffs so that the model is equivalent to the standard crisis bargaining model with complete information and general war payoffs w_i. Specifically, let $w_A = \sum_{t=0}^{T-1} \delta_A^t q + \sum_{t=T}^{\infty} \delta_A^t p - \sum_{t=0}^{\infty} \delta_A^t c_A$ and $w_B = \sum_{t=0}^{T-1} \delta_B^t (1-q) + \sum_{t=T}^{\infty} \delta_B^t (1-p) - \sum_{t=0}^{\infty} \delta_B^t c_B$. Normalizing by $1 - \delta_i$ for each player then yields the usual set-up.

factors and intermediate war duration, are necessary for conflict.

Analysis

We study the subgame perfect equilibria (SPE) of our model. First, we characterize equilibrium behavior for both states. Using this characterization, we provide scope conditions for peace to be an impossibility in our setting. These conditions shed light on which features of our model can generate conflict. Building upon that understanding, we explore how changes in these features make conditions for conflict more or less favorable. Specifically, we show that increasing the duration of conflict initially makes conditions more favorable for conflict to occur, but beyond a certain point this makes conditions less favorable for conflict. Moreover, we characterize conflict duration that is uniquely most favorable for conflict and explore how it varies with respect to the relative patience of both states.

To characterize behavior that occurs in every SPE, we work backwards from B's decision to accept or reject a given demand x. If B accepts, then it receives $1 - x$ in each period, which accrues over time to yield a dynamic payoff of $\frac{1-x}{1-\delta_B}$. On the other hand, rejection leads to conflict, where B receives its status quo division $1 - q$ for T periods and with probability $1 - p$ wins the right to enjoy prize in all periods following T. Additionally, conflict saddles B with a cost c_B that is incurred in every period.[4] Consequently, B accepts x only if

$$\sum_{t=0}^{\infty} \delta_B^t (1-x) \geq \sum_{t=0}^{T-1} \delta_B^t (1-q) + \sum_{t=T}^{\infty} \delta_B^t (1-p) - \sum_{t=0}^{\infty} \delta_B^t c_B, \tag{1}$$

[4]Equivalently, we can assume that B pays a one time cost of $\frac{c_B}{1-\delta_B}$.

which rearranges to yield

$$x \leq q + c_B + \delta_B^T(p - q) \equiv x^*. \tag{2}$$

Inspecting (2) reveals that B's reservation value, $1 - x^*$, depends on (i) the status quo division, q; (ii) B's cost of conflict, c_B; and (iii) the discrepancy between relative power and the status quo division, $p - q$, discounted by B's present value of payoffs received after T periods of conflict, δ_B^T.

Working backwards to A's proposal decision, A anticipates B's acceptance behavior and structures its demand accordingly. Any accepted demand x provides A with a payoff of x in every period. Alternatively, any rejected demand leads to A receiving q for T periods, winning the conflict with probability p and enjoying the prize in each period after $T + 1$, and incurring the cost c_A in each period. Thus, all policies that lead to conflict are payoff equivalent for A.

In equilibrium, A compares its optimal acceptable demand against its expected dynamic payoff from conflict. In our setting, A has a uniquely optimal acceptable denand, which provides B with its reservation value, $1 - x^*$. As is standard, B must accept this demand with probability one in equilibrium, otherwise A has a best response problem. Thus, A makes a peaceful demand in a SPE only if

$$\sum_{t=0}^{\infty} \delta_A^t x^* \geq \sum_{t=0}^{T-1} \delta_A^t q + \sum_{t=T}^{\infty} \delta_A^t p + \sum_{t=0}^{\infty} \delta_A^t c_A. \tag{3}$$

Using (2) to substitute for x^* and rearranging yields

$$c_A + c_B \geq (\delta_A^T - \delta_B^T)(p - q). \tag{4}$$

We say that A has *unrealized potential* if $p > q$, reflecting that its relative power is larger than its share of the status quo division. Conversely, we say that B has unrealized potential if the opposite inequality holds. Notably, (2) indicates that if A has unrealized potential, then B is willing to accept less favorable demand and this effect is more pronounced as B places more value on the future.

Proposition 1 collects preceding observations and characterizes equilibrium behavior.

Proposition 1. *In every SPE,*

1. *B accepts a demand x only if $x \leq q + c_B + \delta_B^T(p - q) \equiv x^*$; and*
2. *A makes the peaceful demand x^* if and only if $c_A + c_B \geq (\delta_A^T - \delta_B^T)(p - q)$, and otherwise demands $x > x^*$, which leads to conflict.*

It is immediate from part 2 of Proposition 1 that conflict cannot occur in equilibrium if either (i) both states value the future identically, $\delta_A = \delta_B$, or (ii) neither state has unrealized potential, $p = q$. The latter reflects a common theory that stable international systems require a match between status quo benefits and the distribution of power (Powell, 1999). Additionally, conflict cannot occur if conflicts resolve immediately, $T = 0$, or conflicts never resolve, $T = \infty$, because $\delta_A^T - \delta_B^T = 0$ in either of these cases. Corollary 1.1 collects these observations. Note, however, that even if $p = 0$ or $p = 1$ the term $(\delta_A^T - \delta_B^T)(p - q)$ can be positive depending on the difference in discount factors. Thus, the states in our model may fail to come to a peaceful agreement even if one of the states will prevail with certainty in the conflict.

Corollary 1.1. *There are no parameters under which war occurs in a SPE if any of the following are true: (i) conflicts resolve immediately, (ii) conflicts are interminable, (iii) states are equally patient, or (iv) neither state has unrealized potential.*

If none of the knife-edge conditions of Corollary 1.1 hold, however, then A can make

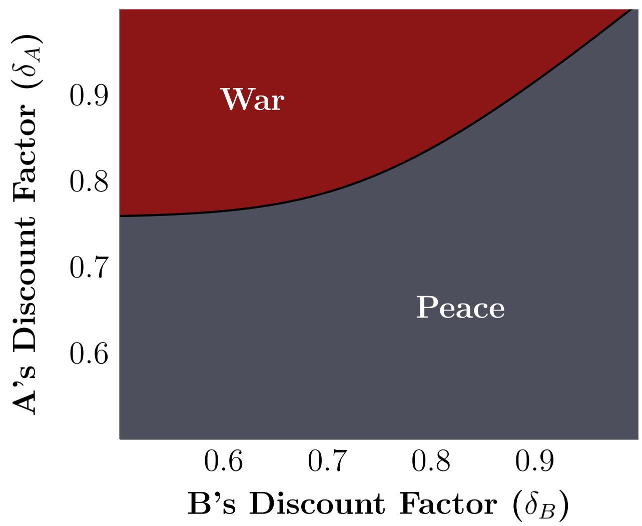

Figure 1: Equilibrium outcomes as a function of both states' discount factors.

an unacceptable demand if the cumulative costs of conflict are small enough.[5] Specifically, if one state is (i) relatively more patient and (ii) has unrealized potential, then conflict occurs in an open set of parameters. Thus, conflict can arise from stalling incentives if (i) one of the states has unrealized potential, (ii) that state is relatively more patient, and (iii) conflict is temporary. In the Appendix, we show that these conditions can be further weakened. Throughout the rest of the analysis, we suppose that one state has unrealized potential.

Comparative Statics on Conditions for Conflict

In a certain sense, Proposition 1 has implications for the conflict propensity. We say the dyad is *more bellicose* as $(\delta_A^T - \delta_B^T)(p - q)$ increases, and less bellicose as this expres-

[5] It is straightforward to show that the condition identified in part 1 of Proposition 1 implies that if state A's demand leads to conflict, then the war payoffs defined in footnote 3 satisfy $w_A + w_B > 1$ (after being normalized). While $w_A + w_B < 1$ is commonly assumed in theories of crisis bargaining, our model provides microfoundations for why this assumption may be violated for some forms of conflict.

sion decreases. This terminology reflects expansion or compression of the region of the parameter space in which conflict occurs.

Corollary 1.2. *The dyad's bellicosity weakly increases in unrealized potential,* $|p - q|$.

In general, the dyad is more bellicose as the unrealized potential of the more patient state increases. For example, if $\delta_A > \delta_B$ and A has unrealized potential, then bellicosity strictly increases with A's unrealized potential. Under these conditions, A's current share of the good is low relative to its expected success from conflict. As this discrepancy grows, A requires a more favorable settlement from B to avoid conflict. In the canonical conflict bargaining framework, which is equivalent to our setting with $T = 0$, the states can find a peaceful resolution that accounts for A's relative power. If $0 < T < \infty$, then B disproportionately discounts A's power because it places relatively less weight on the future. Consequently, B fights to, at worst, temporarily preserve the status quo. A similar logic applies to the case where B is more patient and has unrealized potential.

By part 2 of Proposition 1, conflict does not occur if the more patient state does not possess unrealized potential. In these cases, the state with unrealized potential is not willing to wait out conflict and an always peaceful settlement exists. Thus, increasing unrealized potential does not affect bellicosity in this case.

Our second comparative static analyzes the effect of varying the discrepancy between how both states value the future.

Corollary 1.3. *The dyad's bellicosity weakly increases in the patience gap,* $|\delta_A - \delta_B|$.

The effect cataloged in Corollary 1.3 arises from greater bellicosity as the patience of the state possessing unrealized potential increases relative to other state. To illustrate, if A has unrealized potential, then bellicosity increases with δ_A. Increasing δ_A causes A to value the outcome of conflict more heavily when formulating its proposal, whereas B places relatively more weight on receiving the status quo before conflict resolves. Consequently,

A is more willing to incite conflict and B is more willing to endure it, making the dyad more bellicose.

Conflict Duration and Bellicosity

Thus far, we have fixed conflict duration, T, and studied how unrealized potential and the patience gap affect bellicosity. Next, we analyze how T affects bellicosity. Throughout this section, to focus on cases where conflict can occur, we maintain the assumption that one state has unrealized potential and is relatively more patient.

By Corollary 1.1, conflict does not occur if it resolves immediately or lasts interminably. This observation implies that T has a non-monotonic effect on bellicosity. We can be more precise, however, and show that bellicosity is single-peaked with respect to T. Specifically, Proposition 2 shows that bellicosity increases with T up to a certain point, and decreases in T beyond that point.

Proposition 2. *The dyad's bellicosity is non-monotonic and single-peaked in the duration of conflict, T. That is, there exists a $T^* \geq 1$ such that the dyad is (i) more bellicose as T increases towards T^* and (ii) less bellicose as T increases above T^*.*

By Proposition 1, $(\delta_A^T - \delta_B^T)(p - q) > 0$ is necessary for conflict, which holds that the state with unrealized potential is more patient. Because T does not affect unrealized potential, changing T alters bellicosity only through the difference between the states' respective present values for payoffs at the end of conflict, $\delta_A^T - \delta_B^T$. For example, if A has unrealized potential, that is $p > q$, then $\delta_A > \delta_B$ is necessary for conflict. Under this ordering, Proposition 2 shows that $\delta_A^T - \delta_B^T$ increases in T up to T^* and then diminishes. Thus, shifting T towards T^* increases the combination of A's willingness to incite conflict and B's willingness to temporarily preserve the status quo. Bellicosity consequently increases.

Having shown that bellicosity is single-peaked in T, we next study the location of this

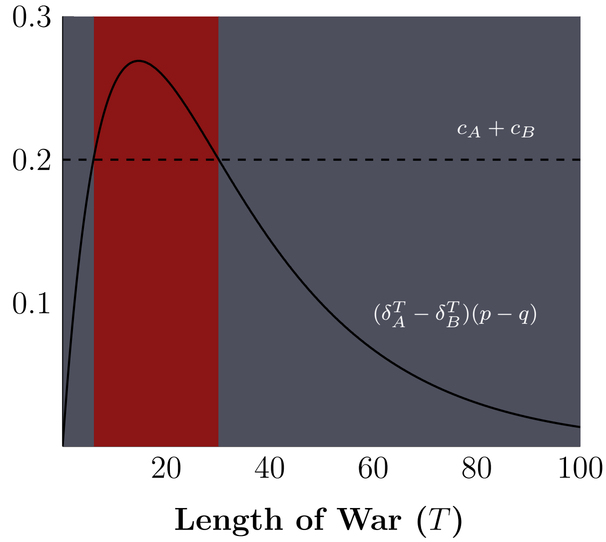

Figure 2: Illustration of Proposition 2's critical cutpoint. War occurs for t values in the red region.

peak. Specifically, we shed light on the conflict duration that maximizes the bellicosity of a fixed dyad.

We say that a conflict is *protracted* if $T \geq 2$ and *brief* if $T = 1$. Proposition 3 establishes that the most bellicose conflict duration is protracted if and only if the cumulative patience of both states is sufficiently high. Otherwise, brief conflict is maximally bellicose.

Proposition 3. *Protracted conflict maximizes the dyad's bellicosity if and only if the dyad is sufficiently patient.*

Because bellicosity is single-peaked in T and only affected by T through $\delta_A^T - \delta_B^T$, brief conflict is maximally bellicose if and only if $\delta_A^2 - \delta_B^2 < \delta_A - \delta_B$, which for this parameter space is equivalent to $\delta_A + \delta_B < 1$. If cumulative patience is low, then protracted conflicts shrink the difference in the value that each places on the conflict outcome. Shrinking this wedge smooths the bargaining friction caused by unrealized potential, reducing bellicosity. On the other hand, this wedge grows as conflict becomes protracted if cumulative patience is high. Consequently, brief conflicts do not make the dyad maximally bellicose in this case. See Figure 2 for an illustrated example with high cumulative patience. Overall, the prospect of unrealized potential facilitating conflict is strongest for (i) short conflicts in impatient dyads and (ii) longer conflicts in patient dyads.

Although Proposition 3 uses the dyad's cumulative patience to characterize whether brief or protracted conflicts are most favorable for conflict, it is not necessary for both states to be very patient. Corollary 3.1 states an equivalent result using only the patience of the state with unrealized potential.

Corollary 3.1. *Protracted conflict makes the dyad maximally bellicose if and only if the state with unrealized potential is sufficiently patient.*

Corollary 3.1 ensures that protracted conflict can maximize dyadic bellicosity even if one state is very impatient. To illustrate, suppose A has unrealized potential. Fixing B's patience, δ_B, there is a threshold on A's patience $\overline{\delta}_A = 1-\delta_B$ such that protracted conflict maximizes dyadic bellicosity if and only if $\delta_A > \overline{\delta}_A$.

Discussion

Our model connects the incentive to stall to the outbreak of war. Although the mechanism has a natural intuition, some of the implications of the model are not obvious. In this section, we compare our results to existing theories in militarized conflict. Because stalling has implications across many popular theories, we focus on breadth over depth here, discussing regime type and conflict, civil wars, the offense-defense balance, and patience.

Democratic Peace. Most quantitative work on the democratic peace report a *dyadic* relationship. Pairs of democracies engage in fewer conflict than any other pairs of states. However, dispute rates between pairs of autocracies and mixed pairs are indistinguishable. This suggests that democratic regimes are no more peaceful in isolation than autocracies. Rather, pairs of democracy drive the effect.

Given the law-like relationship between democracies and conflict, many scholars have offered theories to explain the lack of disputes. Democratic institutions tend to be more transparent (Mitchell, 1998); if incomplete information causes war (Fearon 1995), then transparent states ought to fight less. Alternatively, democracies can create greater audience costs than autocracies; thus, even if democracies are not naturally more transparent, endogenous actions taken during crises again increase the information provision (Fearon, 1994; Schultz, 1998). Large electorates give democratic leaders incentives to provide public goods; they therefore avoid fighting wars that can only serve a narrow interest (Bueno de Mesquita et al., 2005). Democracies, by their domestic methods of conflict resolution, may be more willing to adopt similar processes on the international front (Dixon, 1994). Finally, checks and balances within a democracy may make it more difficult for such a regime to escalate a conflict to war (Maoz and Russett, 1993).

Despite their ubiquity, these theories suffer from a common problem: they predict a *monadic* peace at least to some extent, not the dyadic one observed in the data. Transparency and information should help democracies avoid war against both other democracies and autocracies. Yet, at least in the aggregate, that seems not to be the case. A similar logic applies to public goods provision and norms. Some scholars—perhaps seeing an absence of a compelling theory for a *dyadic* democratic peace—have turned to other explanations for the observation (Gartzke, 2007; Gibler, 2007).

Our results suggest it may be premature to discard monadic theories of democratic pacifism. No single mechanism drives all conflict in international relations, and Wagner (2007, 20) warns of drawing broad empirical implications from single causal mechanisms. With that in mind, suppose another mechanism implied little conflict between pairs of democracies and pairs of autocracies but moderate amounts of conflict between mixed dyads. In conjunction with a monadic democratic peace, a world driven by these two mechanisms would see little conflict between democracies. It would also see moderate amounts of conflict between autocratic dyads, as the supposed mechanism would drive no conflict but the absence of democratic institutions would. Lastly, it would see moderate amounts of conflict between mixed dyads, as both mechanisms predict that rate of conflict.

Stalling is exactly this type of mechanism. If discount factors are similar across all governments that share a regime type, stalling predicts little conflict between democratic and autocratic dyads. This was the central finding of Corollary 1.1 and reflects what happens when our model converges to the traditional crisis bargaining setup—war is costly, so the parties agree to a settlement. However, different discount factors across regime types spell trouble. This mechanism nevertheless does not predict widespread conflict—a disparity between the more patient actor's power and status quo to overrides war's inefficiency. The additional conflict between mixed dyads would mask the pacifying monadic effect of democracy.

Wars of Independence. The model's comparative statics show that war becomes more likely as the gulf between power and the *intrabellum* distribution grows. A natural implication of this brings us back to our opening anecdote on Tamil Elam and wars of independence in general. Rebel groups wishing to establish an independent state can often do this—at least for a while—simply by declaring war. However, established governments have an inherent military advantage in these conflicts, given their standing armies and existing sources of tax revenue. In short, the independence movement maintains majority of the good in dispute during war but the existing government holds a majority of the power. The model says that these conditions are ripe for war, so long as the government is more patient.

Conventional wisdom on civil wars suggests that third-party peacekeeping is critical to resolving disputes (Walter, 1997). Our model also indicates that third-parties can resolve the problem, but sets out different scope conditions and recommends a radically different approach. The "critical barrier" explanation emphasizes an issue that civil war combatants face after a conflict has begun. In the absence of a third-party, civil wars tend not end short of military defeat because the disadvantaged combatant worries that the party in control of government will renege on any agreement once the first has laid down its arms. The solution is to find a third-party enforcer who will uphold a peaceful distribution of the good in dispute according to the military balance at the end of the war, regardless of how strong one side grows afterward. That is, although power may shift, *the deal must remain static*.

In sum, disarmament is the central issue. As a result, the commitment problem is a greater concern for center-seeking civil wars. When the sides do not have an obvious territorial division and share a mutual goal of securing the capital, disarmament is a prerequisite for peace. The commitment problem is not as serious in wars over autonomy. Under these conditions, the parties can reach a truce based on the current level of military power and distribute regional autonomy accordingly. The side seeking independence can maintain its armaments inside of that zone, which prevents the central government from reneging on the terms.

Almost all of those conditions and implications run the opposite way for our model. First, our model mainly explains war initiation. Second, no shifting power is necessary to explain conflict here—the probability of victory is fixed at p in our model. Third, given the necessary discrepancy between military power and the *intrabellum* distribution, our model explains why wars of independence begin. In contrast, initiators of center-seeking civil wars are more likely to have little to hold onto while they fight to obtain the capital. As such, the central government's power is more likely to match its share of the good *intrabellum*.

How, then, can third-party peacekeeping prevent wars of stalling? Contrary to the standard recommendation, a peacekeeper must force a transfer of the good over time. Recall that our underlying mechanism is a different type of commitment problem. Both parties would prefer a division that matches the *intrabellum* distribution for however long a war would last and then a division that matches the distribution of power thereafter.

This matches exactly what a war would generate but comes at no cost. In contrast, a peacekeeping mission that aims to keep a static settlement will create war for the same reason that no mutually preferable settlement exists in the baseline model.

The war parameters also generate a logic that runs counter to a common concern about intervention in civil conflict. The post-Cold War era has seen an international effort to intervene on behalf of weak rebellions. Critics worry that the shadow of intervention has a perverse effect—strengthening weak groups and saving them the costs of conflict incentivizes conflict to begin that would not have otherwise (Kuperman, 2008). Indeed, for many rationalist explanations for war, decreasing expected costs causes parties to run greater risks in bargaining (Spaniel, 2018). The overall takeaway from this literature is that international institutions need to think carefully about the second-order effects of their actions and perhaps reduce the number of interventions.

We do not dispute the validity of those claims, but our model indicates that the overall policy prescription may not be so clear. As described above, balancing military power and the *intrabellum* distribution is an effective way to induce peace. Given that fledgling independence movements are militarily weak and can sustain some level of *de facto* statehood during the war, a solution is to intervene on behalf of the rebels. This induces the parties to reach an agreement—greater regional autonomy, for example—and not begin a war. Following the perverse incentives literature's prescription has the opposite effect and exacerbates the discrepancy between power and *intrabellum* holdings. In short, failure to support independence wars may lead to more wars of independence.[6]

As a final note on this topic, recall that the disparity between rebel power and rebels' ability to create a *de facto* state *intrabellum* only matters when the government is more

[6]By the same logic, international bodies can also incentivize peace by sanctioning rebellions during war. Insofar as this would shift the *intrabellum* distribution in the government's favor, such actions are peace promoting.

patient than the rebel group. When those time preferences run the opposite way, peace prevails, and the need to close the gap or enforce a shift in distribution over time disappears. Unfortunately, existing empirical work on the time preferences of rebel groups is lacking. Cederman and Gleditsch (2009) call for more dyadic research on civil conflict, and our model underscores that point. Without calculating a potential rebellion's time horizons, we cannot predict which states are at greater risk of civil war.

Offense-Defense Balance. International relations scholars offer a variety of offense-defense balance theories. By the standard account, offensive technologies predict greater conflict, lowering the barriers to conquest as compared to times when the defense dominates Jervis (1978). Yet the historical record is rife with cases where the opposite relationship holds (Fearon, 1997). A second interpretation is that offense promotes greater variance in outcomes, making it more likely that states breaks through stalemate and complete war objectives. This can make risk-averse states less inclined to start a war.

Building on this second interpretation, the stalling mechanism makes a different prediction. The parameter T reflects how long war lasts. One could say that offensive military technology correlates with lower levels of T while defensive technology correlates with higher levels. That is, the more technology favors countries decisively winning battles, the faster war will conclude. Proposition 2 and Figure 2 shows that stalling wars are most likely when T falls in a middle range, so much that technology neither favors the offense not the defense too much.

Although our theory convolutes an already complicated theoretical literature and empirical record, our model makes precise predictions about when changes to the offense-defense balance increase or decrease the prevalence of stalling wars. In fact, the answer depends on the current status of that balance. If technology heavily favors the offensive, then slight improvements to defense increase the prevalence of war as Fearon argues, though due to a different mechanism.[7] On the other hand, if technology begins balanced, further improvements to defense decrease the prevalence of war as Jervis argues, though again due to a different mechanism.[8]

Patience and War. The conventional wisdom in the conflict literature is that more patient actors are more likely to engage in war. (Kertzer, 2016, 39-40) describes states with longer time horizons as being more "resolved" and are therefore more willing to endure costs to obtain their goals. Toft (2006) argues that this explains why stopping religiously motivated terrorists is so difficult. Such individuals place almost no discount on the future and are therefore willing to pay any price to achieve victory.

Nevertheless, our model shows that the relationship between patience and peace is not at all straightforward. Whether increasing an actor's patience increases conflict depends on a complicated interaction between the opponent's patience, the balance of power, and the status quo distribution of benefits. Under certain conditions, decreasing one party's patience can incentivize war. What the current literature misses is the titular stalling incentive. Greater impatience disincentivizes a state from fighting for the long-term purpose of obtaining the policy in dispute. But it also incentivizes fighting to hold onto the policy in the short term at the expense of war costs and long-term security of the policy. All this requires is the state in question to be less patient than its opponent and its share in the status quo to outstrip its military power.

[7] The "slight" qualifier is necessary because large changes could push the parameters beyond the point where they maximize conflict. Also, one can observe that the mechanism is distinct by noting that the states have risk neutral preferences in our setup.

[8] One can observe this by noting that the costs of war remain static in our setup, which is what drives Jervis's theory.

Conclusion

In the standard bargaining model of war, fighting ends instantaneously, and states discount the future at a common rate. This paper shows that when we relax both of these simultaneously—but not in isolation—war occurs with complete information. We describe such conflicts as war of stalling because a weak but impatient actor fights to hold onto a status quo for as long as possible. A commitment problem underlies the mechanism. If states could agree to transfer the policy after a set period of time, both would be better off. However, once the states reached that previously agreed to time period, the state enjoying the advantageous status quo would prefer to fight to hold onto the object for longer. Renegotiating the policy over time does not solve the underlying problem.

Our results indicate that scholars must be careful in applying theoretical mechanisms to substantive expectations and policy recommendations. Some of our comparative statics run in opposite directions depending on other parameters. For example, increasing a state's power increases the parameters for which war occurs when the state is relatively patient but decreases the probability of war when the state is relatively impatient. Meanwhile, many of our results are not consistent with empirical implications of models featuring other mechanisms.

On one hand, these are negative results in the sense that we argue against making blanket, unnuanced recommendations to policymakers. Nevertheless, they highlight the value of formalization of arguments. We can still make useful recommendations to policymakers featuring our results, and others from the bargaining model of war. However, as Fey and Ramsay (2011) note, mechanisms causing war are not identical. Recommendations need to take the form of conditional statements, requiring policymakers to identify the current incentives at play that then allow them to draw the correct policy conclusion.

Finally, although we have focused on war initiation, our model also makes predictions about war duration. Existing empirical work on bargaining and war duration tends to focus on asymmetric information and learning (Slantchev, 2004). However, the length of conflicts caused by our mechanism should cluster around T^*. Future research ought to consider how empirical models of stalling could generate different expectations.

Appendix

Proofs of Main Results

Proposition 1. *In every SPE,*

(i) state B accepts a demand x only if $x \leq q + c_B + \delta_B^T(p-q) \equiv x^*$; and

(ii) state A demands x^* if and only if $c_A + c_B > (\delta_A^T - \delta_B^T)(p-q)$, and demands $x < x^*$ if and only if $c_A + c_B < (\delta_A^T - \delta_B^T)(p-q)$.

Proof. Consider the baseline model.

First, B's payoff from accepting a demand x is $\frac{1-x}{1-\delta_B}$. Next, B's payoff from rejecting a demand and starting conflict is

$$\frac{(1-\delta_B^T)(1-q) + \delta_B^T(1-p) - c_B}{1-\delta_B}. \tag{5}$$

Therefore B accepts a demand x only if

$$1 - x \geq (1-\delta_B^T)(1-q) + \delta_B^T(1-p) - c_B \tag{6}$$

$$x \leq x^* \equiv q + c_B + \delta_B^T(p-q). \tag{7}$$

This completes the part (i) of the proof.

From (7), it follows that A will propose either x^* or a policy that results in war. First, A's payoff from proposing x^* is

$$u_A(x^*) = \frac{q + c_B + \delta_B^T(p-q)}{1-\delta_A}. \tag{8}$$

Next, A's payoff from proposing any policy that results in conflict is

$$u_A(\text{war}) = \frac{(1-\delta_A^T)q + \delta_A^T p - c_A}{1-\delta_A}. \tag{9}$$

Consequently, A strictly prefers to propose a policy that results in war if and only if

$$u_A(x^*) < u_A(\text{war}) \tag{10}$$

$$q + c_B + \delta_B^T(p-q) + c_B < (1-\delta_A^T)q + \delta_A^T p - c_A \tag{11}$$

$$c_A + c_B < (\delta_A^T - \delta_B^T)(p-q). \tag{12}$$

If the strict inequality in (12) is reversed, then A strictly prefers to propose x^*. □

Proposition 2. *Assume $p > q$ and $\delta_A > \delta_B$. War does not occur in any SPE if $T = 0$, or $T \to \infty$. Furthermore, there exists a finite $T^* > 1$ such that as T increases*

1. *the conditions for war become less restrictive if $T < T^*$, and*
2. *otherwise the conditions for war become more restrictive.*

Analogous results hold if $p < q$ and $\delta_A < \delta_B$.

Proof. By Proposition 1, conflict occurs in a SPE only if

$$c_A + c_B \leq (\delta_A^T - \delta_B^T)(p-q). \tag{13}$$

Assume $p > q$ and $\delta_A > \delta_B$.

Part 1. If $T = 0$, then the right-hand side of (13) is zero and war cannot occur in any SPE. Similarly, the right-hand side of (13) goes to zero as $T \to \infty$. Thus, war does not occur in any SPE if T is sufficiently large.

Part 2. We show the existence of $T^* > 1$ such that the right-hand side of (13) strictly increases if $T < T^*$ and strictly decreases if $T > T^*$. Define

$$T^* = 1 + \frac{\ln(1-\delta_A) - \ln(1-\delta_B)}{\ln(\delta_B) - \ln(\delta_A)}. \tag{14}$$

We show that $\delta_A^T - \delta_B^T > \delta_A^{T-1} - \delta_B^{T-1}$ if and only if $T < T^*$, which implies the desired result.

Simplifying and rearranging, we have

$$\delta_A^T - \delta_B^T > \delta_A^{T-1} - \delta_B^{T-1} \tag{15}$$

$$\delta_B^{T-1} - \delta_B^T > \delta_A^{T-1} - \delta_A^T \tag{16}$$

$$\delta_B^{T-1}(1-\delta_B) > \delta_A^{T-1}(1-\delta_A) \tag{17}$$

$$\left(\frac{\delta_B}{\delta_A}\right)^{T-1} > \frac{1-\delta_A}{1-\delta_B}. \tag{18}$$

Taking the natural log of both sides yields

$$(T-1)\Big(\ln(\delta_B) - \ln(\delta_A)\Big) > \ln(1-\delta_A) - \ln(1-\delta_B) \tag{19}$$

$$T < 1 + \frac{\ln(1-\delta_A) - \ln(1-\delta_B)}{\ln(\delta_B) - \ln(\delta_A)} \equiv T^*, \tag{20}$$

where (20) follows because $\delta_B < \delta_A$ implies $\ln(\delta_B) < \ln(\delta_A)$. Notice that $T^* > 1$ because $\ln(\delta_B) < \ln(\delta_A)$ and $\ln(1-\delta_A) < \ln(1-\delta_B)$.

An analogous argument establishes the result if $p < q$ and $\delta_A < \delta_B$. □

Proposition 3 *Suppose the state with unrealized potential is more patient. Protracted conflict makes the dyad maximally bellicose if and only if the dyad is sufficiently patient.*

Proof. Suppose WLOG $p > q$ and $\delta_A > \delta_B$. Proposition 2 implies that $T^* \geq 2$ if and only if $\delta_A^2 - \delta_B^2 \geq \delta_A - \delta_B$. We have $\delta_A^2 - \delta_B^2 = (\delta_A - \delta_B)(\delta_A + \delta_B)$, which is greater than or equal to $\delta_A - \delta_B$ if and only if $\delta_A + \delta_B \geq 1$. $\square$

A Generalized Model of Stalling

Our model shows how relaxing standard assumptions about the bargaining model of war can lead to new insights. In particular, conflict can occur with complete information. Furthermore, in our baseline model it is necessary to relax that war resolves immediately and that states have common discount factors. However, it could be that other generalizations of our baseline model allow us to produce conflict in equilibrium without relaxing both of these factors. In this section we generalize the model in a number of ways and show that this is not the case. Thus, the conditions identified in the baseline model are necessary for a stalling war.

We now directly generalize the baseline model by allowing for (i) an uncertain ending time for conflict, as well as variation over time in (ii) the status quo, (iii) discount factors, (iv) each state's costs of war and (v) the balance of power.

First, assume that the length of conflict, T, is unknown prior to conflict. Let $\mathcal{T} = \{0, \ldots, N\}$ denote the space of possible conflict durations, where $N > 0$ is an integer, and let $\mu \in \Delta(\mathcal{T})$ denote the common belief over conflict duration, where $\Delta(\mathcal{T})$ is the space of probability measures over $\mathcal{T}$. Thus, $\mu(T)$ is the probability that a conflict lasts for T periods and $\sum_{T \in \mathcal{T}} \mu(T) = 1$.

Second, we allow the status quo vary as a function of time, as represented by the mapping $q : \mathbb{N} \to [0, 1]$.

Third, we allow each player's discount factor to vary as a function of time. In particular, state $i \in \{A, B\}$ values its payoff in each period according to the function $\delta_i : \mathbb{N} \to [0, 1]$. To ensure that players do not discount the present, define $\delta_i(0) = 1$ for $i \in \{A, B\}$.

Fourth, each state accrues cost in each period. We allow these costs to possibly vary over time and depend on whether a conflict is ongoing. Formally, each state $i \in \{A, B\}$ has the cost function $c_i : \mathbb{N} \times \{0, 1\} \to \mathbb{R}$ that maps from time periods and conflict status to the positive reals.

Fifth, we also allow the relative power to vary as a function of the period that conflict ends. Specifically, state A's probability of winning the conflict is represented by the mapping $p : \mathbb{N} \to [0, 1]$.

Proposition 4. *Consider the generalized model. If there is positive probability that conflict does not resolve immediately and in some period the states value the future differently, then there exists an open set of parameter for which conflict occurs in every SPE.*

Corollary 4.1. *If $\delta_A(t) = \delta_B(t)$ for all t, or $\mu(0) = 1$, then every SPE of the generalized model is peaceful.*

Proof. Consider the extension with uncertain conflict duration, varying status quo, varying relative power, and varying costs of conflict. Assume that μ is not degenerate on $T = 0$.

For convenience, define $\tilde{\delta}_i(t) = \prod_{t'=0}^{t} \delta_i(t')$. State B's expected utility from conflict is

$$U_B(\text{war}) = \sum_{T=0}^{N} \mu(T) \left[\sum_{t=0}^{T} \tilde{\delta}_B(t) \Big[(1 - q_t) - c_B(t, 1) \Big] + \sum_{t=T+1}^{\infty} \tilde{\delta}_B(t) \Big[(1 - p(T)) - c_B(t, 0) \Big] \right], \tag{21}$$

and B's expected utility from accepting a demand x is $\sum_{t=0}^{\infty} \tilde{\delta}_B(t)(1 - x)$. Define

$$\overline{W}_B = \sum_{T=0}^{N} \mu(T) \left[\sum_{t=0}^{T} \tilde{\delta}_B(t) \Big[(1 - q_t) \Big] + \sum_{t=T+1}^{\infty} \tilde{\delta}_B(t) \Big[(1 - p(T)) \Big] \right] \tag{22}$$

and

$$\overline{C}_B = \sum_{T=0}^{N} \mu(T) \left[\sum_{t=0}^{T} \tilde{\delta}_B(t) \Big[c_B(t, 1) \Big] + \sum_{t=T+1}^{\infty} \tilde{\delta}_B(t) \Big[c_B(t, 0) \Big] \right]. \tag{23}$$

Define $\overline{W}_A$ and $\overline{C}_A$ analogously.

Thus, B accepts a demand x only if $1 - x \geq U_B(\text{war})$, which is equivalent to

$$\sum_{t=0}^{\infty} \tilde{\delta}_B(t)(1-x) \geq \overline{W}_B - \overline{C}_B \tag{24}$$

$$x \leq 1 - \frac{\overline{W}_B - \overline{C}_B}{\sum_{t=0}^{\infty} \tilde{\delta}_B(t)} \equiv x^*. \tag{25}$$

Next, A's expected utility from conflict is

$$U_A(\text{war}) = \sum_{T=0}^{N} \mu(T) \left[\sum_{t=0}^{T} \tilde{\delta}_A(t) \Big[q_t - c_A(t,1) \Big] + \sum_{t=T+1}^{\infty} \tilde{\delta}_A(t) \Big[p(T) - c_A(t,0) \Big] \right] \tag{26}$$

$$= \overline{W}_A - \overline{C}_A. \tag{27}$$

Define $D_i = \sum_{t=0}^{\infty} \tilde{\delta}_i(t)$ for $i \in \{A, B\}$. Since A proposes either x^* or something that leads to conflict, it follows that A strictly prefers conflict if

$$D_A x^* < \overline{W}_A - \overline{C}_A \tag{28}$$

$$D_A - \frac{D_A}{D_B}\left(\overline{W}_B - \overline{C}_B\right) < \overline{W}_A - \overline{C}_A \tag{29}$$

If $\delta_A(t) = \delta_B(t)$ for all t then $D_A = D_B = D$, and using equation (29), we have that state A prefers conflict if

$$D - \frac{D}{D}\left(\overline{W}_B - \overline{C}_B\right) < \overline{W}_A - \overline{C}_A \tag{30}$$

$$D < \overline{W}_A + \overline{W}_B - \overline{C}_A - \overline{C}_B \tag{31}$$

$$D < D - \overline{C}_A - \overline{C}_B, \tag{32}$$

where equation (32) follows because $D_A = D_B$, and so, $\frac{\overline{W}_A + \overline{W}_B}{D} = 1$. As (32) can never hold, if the states have the same discount factors in all periods then state A always makes a peaceful demand.

Next, assume that $\mu(0) = 1$. In this case, war terminates immediately, $\overline{W}_A = D_A p(0)$ and $\overline{W}_B = D_B(1 - p(0))$, while $\overline{C}_A = D_A \sum_{t=0}^{\infty} c_A(t, 0)$ and $\overline{C}_B = D_B \sum_{t=0}^{\infty} c_B(t, 0)$ Using equation (28) and substituting we have that state A makes a conflict inducing demand if

$$D_A \left[1 - \frac{D_B[1 - p(0)] - \overline{C}_B}{D_B}\right] < D_A\, p(0) - \overline{C}_A \tag{33}$$

$$p(0) + \sum_{t=0}^{\infty} c_B(t, 0) < p(0) - \sum_{t=0}^{\infty} c_A(t, 0). \tag{34}$$

$$\sum_{t=0}^{\infty} [c_A(t, 0) + c_B(t, 0)] < 0. \tag{35}$$

As equation (35) can never hold, indeed it is the same condition from the standard complete information crisis bargaining model but with a more complicated costs structure, if $\mu(0) = 1$ then state A never makes the belligerent demand. □

Bargaining while Fighting

In the baseline model, states are not allowed to renegotiate after conflict has started. Consider the following alternative set-up. States repeatedly interact. In each period t, state A makes a demand x_t which state B can accept or reject. If state B accepts, then peace prevails and division x_t is implemented in all future periods. On the other hand, if state B rejects the demand, then conflict occurs. With probability p_A, state A prevails and consumes the entire good for every period after; with probability p_B, state B prevails and obtains the good; and with probability $1 - p_A - p_B$, the game continues to period $t + 1$.

Proposition 5. *Consider the bargaining while fighting extension. Let* $q^* \equiv \frac{p_A}{p_A + p_B}$. *War occurs in every stationary SPE if either (i)* $\delta_B > \delta_A$ *and* $q > q^*$, *or (ii)* $\delta_A > \delta_B$ *and* $q < q^*$.

Proof. Let σ denote a stationary SPE. Under σ, B's continuation value from conflict is

$$V_B(war;\sigma) = p_A \frac{0}{1-\delta_A} + p_B \frac{1}{1-\delta_B} + (1 - p_a - p_B)\,(1 - q + \delta V_B(war;\sigma))\,. \tag{36}$$

Rearranging,

$$V_B(war;\sigma) = \left(\frac{p_B}{1-\delta_B} + (1-p_A-p_B)(1-q)\right)\left(\frac{1-\delta_B}{1-(1-p_A-p_B)\delta_B}\right). \tag{37}$$

Thus, B accepts any demand x satisfying

$$x \leq x^* \equiv 1 - \left(\frac{p_B}{1-\delta_B} + (1-p_A-p_B)(1-q)\right)\left(\frac{1-\delta_B}{1-(1-p_A-p_B)\delta_B}\right). \tag{38}$$

In turn, A must make a belligerent offer under σ if

$$\frac{x^*}{1-\delta_A} < V_A(war;\sigma) = \left(\frac{p_A}{1-\delta_A} + (1-p_A-p_B)(1-q)\right)\left(\frac{1}{1-(1-p_A-p_B)\delta_A}\right). \tag{39}$$

Simplifying yields two cases. First, if $\delta_B > \delta_A$, then (39) holds for all $q > \frac{p_A}{p_A+p_B} = q^*$, as desired. Next, if $\delta_A > \delta_B$, then (39) holds for all $q < q^*$, as desired. □

Short-Term Agreements

The baseline model most directly represents bargaining situations in which today's proposal does not affect the war-period payoffs of future negotiations. This has many applications. Take negotiations between the United States and a regime committing human rights violations as an example. Suppose the U.S. and that state reach an agreement this year that reduces the level of abuse. Such a deal does little to change the situation on the ground next year should war break out—the state can go right back to committing those violations while the United States initiates a conflict to try to stop it.

Not all issues at stake have this flavor. Consider instead territorial disputes. Redrawing borders today changes tomorrow's status quo. To illustrate, the transfer of Alsace-Lorraine following World War I meant that France could control the area until Germany achieved military victory. Thus, transfers today alter tomorrow's war payoffs—in a sense, the parties now bargain objects that influence future bargaining power. Such a connection can cause conflict (Fearon, 1996; Chadefaux, 2011).

Unlike prior research on the subject, stalling in a static model leads to war. Thus, the key question we now must address is whether war also occurs in a dynamic setup. The answer is not immediately obvious. Bargaining over objects that influence future bargaining power is not an inherently possible task. Fearon (1996) shows that peace prevails when parties share a discount rate and the function mapping the division to a level of power is continuous. Chadefaux (2011), however, shows that war can result when players have noncommon discounts.

Still, it is conceivable that short-term agreements changing the status quo during future wars may have a pacifying effect. In the standard bargaining over power setup, the central tension is that a concession today makes the opponent stronger tomorrow. Thus, concession has a pernicious effect. There is no analogous pernicious effect in our model.

Indeed, the central bargaining tension here is that weak and impatient states currently enjoying the status quo have incentives to maintain it. Negotiations seem to alleviate this problem. That is, such a state could make a small concession to its opponent in the present. It would therefore maintain a large share of the status quo in the short term—what it values most—and avoid paying the cost of war. Meanwhile, if these concessions continue, the patient actor eventually receives a large share. Because the short-term is less important to that actor, it may also benefit from avoiding the costs of conflict.

We show this pacifying effect of short-term agreements never arises in equilibrium under certain conditions. To demonstrate this, consider the following extension to the baseline model. In each period, if conflict has not previously occurred, then A makes a demand x_t. If B accepts, then A and B receive payoffs x_t and $1-x_t$, respectively, in period t. Next, the game continues with x_t as the status quo in period $t+1$. Finally, assume that rejection still leads to war, which proceeds as in the baseline model and effectively concludes the strategic interaction. Thus, each period's the status quo is endogenous to the previous period's bargaining outcome.

Proposition 6. *Consider the model with short-term agreements. If δ_A is sufficiently low, δ_B is sufficiently high, and $q_1 > p$, then there exists an open set of parameters in which conflicts occurs in every stationary SPE.*

Proof. Consider the dynamic extension of the baseline model and fix first-period status quo q_1. Suppose $q_1 > p$.

State A's normalized expected dynamic payoff from a war initiated in the first period is $w_A(q_1) = (1-\delta_A^T)q_1 + \delta_A^T p - c_A$. Next, A's normalized expected dynamic payoff in a stationary SPE in which war never occurs is bounded above by $1 - w_B(0) = 1 - \delta_B^T(1 - p) + c_B$.

A sufficient condition for conflict to occur in every equilibrium is

$$1 - \delta_B^T(1-p) + c_B < (1-\delta_A^T)q_1 + \delta_A^T p - c_A \tag{40}$$

$$c_A + c_B < \delta_A^T(p - q_1) + \delta_B^T(1-p) - (1-q_1). \tag{41}$$

As $\delta_A \to 0$ and $\delta_B \to 1$, the RHS of (41) goes to $q_1 - p$, which is strictly positive because $q_1 > p$. Thus, the desired result follows by continuity. □

Loosely, conflict occurs in Proposition 6 because A prefers to start a conflict to enjoy status quo for a while, even though its prospects for ultimately prevailing are not particularly great, rather than have B accept a demand that is weakly better for A than any acceptable equilibrium demand. Because B is very patient, it overwhelmingly values the payoff it receives once conflict resolves. In turn, this makes A's best peaceful demand less favorable for A. Because A is very impatient, its focus centers on enjoying the status quo before conflict resolves and is virtually unconcerned about the prospect of losing. Together, these forces create conditions under which A always makes an unacceptable demand that leads to conflict.

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