Military Mobilization and Commitment Problems*

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Abstract

Because of its costliness, military mobilization is generally seen as a mechanism by which high-resolve leaders can credibly signal their high resolve in international crises, thereby possibly overcoming informational asymmetries that can lead to costly and inefficient war. I examine how power-shifts caused by mobilization within a crisis can lead to commitment-problem wars. In a simple ultimatum-offer crisis bargaining model of complete information, war occurs if and only if the power-shift caused by mobilization exceeds the bargaining surplus, which is Powell’s (2004, 2006) general inefficiency condition for commitment-problem wars. When private information is added, and hence mobilization potentially has a stabilizing signaling role, under certain conditions the commitment problem overwhelms the signaling role and mobilization leads to certain war. Finally, I analyze an infinite-horizon model that captures the reality that mobilizing takes time, and find that commitment-problem wars occur under broader conditions than the general inefficiency condition implies.

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1 Introduction

Numerous students of international relations have examined the causes and consequences of military buildups and arming decisions. In the game-theoretic literature in international relations, scholars have examined, among other topics, the guns-versus-butter tradeoff (Powell 1993), the causes and effects of arms races (Kydd 2000), and the causes and consequences of long-term military investment decisions (Brito and Intriligator 1985; Jackson and Morelli 2009; Meirowitz and Sartori 2008). Another literature looks at the role of military mobilization within a crisis. Fearon (1997) models military mobilization as purely a sunk cost (Spence 1974), and examines its role as a mechanism by which a leader can credibly signal private information in international crises. Slantchev (2005, 2011) models military mobilization as having a power-enhancing effect in addition to its sunk-cost effect, and examines its dual role as a commitment-creating (“tying hands”) and commitment-signaling mechanism.

Despite the recognition that military mobilization can cause power shifts within a crisis, no study yet examines whether mobilization can thereby induce commitment problems that can lead to inefficient war even under complete information, as other power-shift mechanisms can (Fearon 1995; Powell 2004, 2006). However, a number of prominent historical episodes suggest that the potential power-shift caused by mobilization within a crisis can bring commitment issues into play. For example, according to Robert Kennedy’s memoir of the Cuban Missile Crisis, once the United States revealed that it knew that the Soviet Union was shipping nuclear-capable missiles to Cuba in October 1962, construction of the Cuban missile sites accelerated even as the two sides began negotiating. The US was willing to negotiate for a time, but was not willing to wait until the missile sites became operational. Thus, Soviet mobilization seemed to create an endogenous deadline for reaching an agree-
ment beyond which the US would launch air strikes and/or invade Cuba (Kennedy 1999: 64, 71, 83).

Similarly, in the leadup to the second Anglo-Boer War (1899-1902), negotiations were occurring even as Britain was sending more troops to the region in preparation for a possible war. Boer State Attorney Jan Smuts declared that the continuing British military buildup would eventually change the military balance too much and Boer leaders decided to force the issue by issuing an ultimatum before the British forces became too strong, and war broke out soon thereafter (Judd and Surridge 2003:50; Pakenham 1979:102-103; Schultz 2001:205).

In a related vein, Germany’s notorious Schlieffen Plan relied on the slowness of Russian mobilization, during which time Germany would quickly defeat France before turning to war in the east, with the goal of avoiding a simultaneous two-front war (Trachtenberg 1991). Thus, the start of Russian mobilization would leave very little time for diplomacy, for any significant delay by Germany in attacking France would cause the Schlieffen Plan to lose its effectiveness and thus cause a power-shift to the French-Russian side. More recently, Israeli leaders have maintained that the progression of Iran’s capability to build nuclear weapons may impose a deadline on how long they are willing to give diplomacy and/or sanctions an opportunity to lead to a negotiated settlement, beyond which they might initiate airstrikes to try to destroy or damage Iran’s nuclear facilities.

In this paper, I examine how the power-shift caused by military mobilization within a crisis, as opposed to long-term exogenous power shifts as in power-transition theory (Organski 1958), can induce commitment-problem wars under complete information, and also analyze how such problems interact with mobilization’s role as a credible signaling mechanism under incomplete information. I begin by analyzing a simple ultimatum-offer crisis bargaining
model in which, prior to a satisfied state making a take-it-or-leave-it offer of a divisible disputed good to a dissatisfied state, the dissatisfied state endogenously chooses a military mobilization level that sinks costs as well as enhances the probability of victory in war. Under complete information, the straightforward result emerges that such military mobilization, when not too financially costly, is used to generate bargaining leverage by causing the satisfied state to offer more than it otherwise would. In particular, war never occurs. But when the model is modified to allow the satisfied state to begin the interaction by initiating a war rather than allow the dissatisfied state to engage in extra mobilization, then if the power-shift caused by the dissatisfied state’s optimal mobilization level exceeds the bargaining surplus, which is Powell’s (2004, 2006) general inefficiency condition for commitment-problem wars, then the satisfied state immediately attacks, rather than allowing the dissatisfied state to mobilize for so much bargaining leverage. Thus, the ultimatum-offer model suggests that mobilization fits well into Powell’s (2004, 2006) unified framework of power-shift mechanisms that lead to commitment-problem wars when his general inefficiency condition holds.1 If the dissatisfied state could credibly commit to not engage in any extra mobilization for bargaining leverage, or even to just mobilizing by less than the bargaining surplus, then war would be avoided; however, once the satisfied state foregoes an initial attack, the dissatisfied state has a strict incentive to abandon its promise and mobilize to its optimal level; anticipating this, the satisfied state begins the interaction by attacking.

To examine how this commitment problem interacts with mobilization’s role as a credible signaling mechanism in incomplete-information crisis bargaining, I then suppose that

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1As in Fearon (1995), the power-shift mechanisms that Powell analyzes are (i) long-term exogenous power-shifts as in power-transition theory, (ii) first-strike military advantages, and (iii) bargaining over objects that affect future bargaining power (Fearon 1996).
the satisfied state is uncertain about the dissatisfied state’s cost of war, and hence there is a positive probability of informational-problem war through the well-known “risk-return trade-off” (Fearon 1995; Powell 1999). I derive the conditions under which military mobilization allows for credible signaling and thereby reduces the probability of informational-problem war. When the conditions are such, but the high-resolve type’s optimal mobilization level exceeds the bargaining surplus and the satisfied state is sufficiently confident that it faces the high-resolve type, then the satisfied state begins the interaction by attacking rather than allowing mobilization to fulfill its signaling role, even when that role would reduce the probability of informational-problem war to 0. Under these conditions, the commitment problem induced by mobilization completely trumps mobilization’s signaling (and hence stabilizing) role. Ironically, a solution to one major rationalist explanation for war (private information and incentives to misrepresent it) can bring another major explanation (commitment problems) into play, with the “solution” sometimes leading to certain war in a scenario in which the probability of war is less than one prior to the solution being introduced.

In the final section of the paper, I analyze an infinite-horizon model of crisis bargaining with mobilization (and of complete information) that captures the reality that mobilization takes time, with the other side being able to observe such mobilization occurring, and hence having the ability to make offers and possibly initiating war even as mobilization is occurring (these factors seemed to have been at play in the crises discussed earlier). In contrast, Fearon’s (1997) and Slantchev’s (2005, 2011) models of military mobilization, as well as the earlier model that I analyze, assume that mobilization essentially occurs instantaneously. In the gradual-mobilization model, when the per-period shift in the distribution of power

\( ^2 \) Lai (2004) empirically examines the effect of public versus secret mobilization on the probability of war.
caused by mobilization exceeds the bargaining surplus, which is Powell’s (2004, 2006) general inefficiency condition for commitment-problem wars, then war occurs, just as in the earlier model that treats mobilization as instantaneous. However, in contrast to the earlier model as well as other models of commitment-problem wars, war occurs even when the per-period shift lies in a certain lower interval. This is due to a new type of commitment problem that comes into play only in the gradual-mobilization model, and suggests that mobilization can lead to commitment-problem wars even when the per-period power-shift is not too large (and Powell 2004 notes that it exceeding the bargaining surplus is unlikely to be the case empirically in most international relations scenarios).

Overall, then, the results imply that a mechanism that has generally been seen as a tool for overcoming informational problems can bring commitment problems into play, in a way that can have a net destabilizing effect on international crises. The rest of the paper is organized as follows. In the next section, I describe and analyze the ultimatum-offer model that treats mobilization as instantaneous, first under complete information, and then under incomplete information. Then I describe and analyze the gradual-mobilization model. I conclude by discussing some additional implications of the analysis, as well as some limitations and fruitful avenues for future research.

2 The Ultimatum-Offer Model

The crisis setting is as follows. Two countries (labeled \( D \), henceforth a “he,” and \( S \), henceforth a “she”) have a dispute over a divisible good (for example, territory) whose value to both sides is normalized to 1. If war occurs, it is treated as a game-ending costly lottery, with \( D \) winning with probability \( p \in (0,1) \) and \( S \) winning with probabil-
ity $1 - p$. The costs of war are $c_D, c_S > 0$. Then, country $D$’s expected utility from war is 
\[ EU_D(\text{war}) = (p)(1) + (1-p)(0) - c_D = p - c_D, \]
and country $S$’s expected utility from war is 
\[ EU_S(\text{war}) = (p)(0) + (1-p)(1) - c_S = 1 - p - c_S = 1 - (p + c_S). \]
Thus, as seen in Figure 1, the interval $[p - c_D, p + c_S]$ is the set of agreements that both sides prefer to war (Fearon 1995).

The status quo division of the disputed good is $(q, 1 - q)$, where $q \in [0, 1]$ is $D$’s share and $1 - q$ is $S$’s share. Suppose $D$ is dissatisfied with the status quo, that is, strictly prefers war to the status quo ($q < p - c_D$; Powell 1999). Then war will occur unless the status quo is revised in $D$’s favor. I use the following ultimatum-offer bargaining protocol, as in Fearon (1995). $S$ makes an ultimatum offer $(y, 1 - y)$ to $D$, where $y \in [0, 1]$ is $D$’s proposed share and $1 - y$ is $S$’s proposed share. $D$’s choices are to (i) accept the offer (in which case each side’s utility is its proposed share; I assume risk-neutrality throughout), (ii) reject by choosing the status quo (in which case each side gets its status quo payoff), or (iii) reject by going to war (in which case each side gets its expected payoff from war). There is a unique subgame-perfect equilibrium (SPE) in which $D$ accepts any $y \geq p - c_D$ and goes to war for any lower offer, and $S$ offers exactly $y^* = p - c_D$. The status quo is peacefully revised in $D$’s favor, with $S$ getting her most preferred outcome within the preferred-to-war bargaining range.

Now consider the following variant that allows for additional military mobilization by $D$, and which is shown graphically in Figure 2. Before $S$ makes her offer, $D$ endogenously chooses some mobilization level $m$ from the continuous interval $m \in [0, \overline{m}]$, where $\overline{m} > 0$. Choosing $m = 0$ can be interpreted as making the minimum mobilization amount that is needed to go to war (or the mobilization level at the point where the dispute/crisis began),
whereas choosing \( m = \bar{m} \) means mobilizing to \( D \)'s maximum potential. Anything in between is also allowed. \( D \)'s probability of winning the war is \( p(m) \), which is strictly increasing in \( m \): the more \( D \) mobilizes, the greater his probability of winning a war. \( D \)'s cost of mobilizing is \( c(m) \), which is also strictly increasing in \( m \). This cost is sunk, meaning that it is paid regardless of the outcome of the crisis (unlike the cost of war, which is only paid in the event that war occurs). Regarding the probability of winning function, I assume that (i) \( p(m = 0) = \underline{p} \ (\geq 0) \) (thus, \( \underline{p} \) is \( D \)'s probability of winning a war if he mobilizes minimally), and that (ii) \( p(\bar{m}) \leq 1 \) (that is, \( D \)'s probability of winning a war is no greater than one even if \( D \) mobilizes maximally). Regarding the cost of mobilizing function, I assume that \( c(m = 0) = 0 \), meaning that I am normalizing \( D \)'s cost of minimally mobilizing to be zero. I now define “\( D \) being dissatisfied at mobilization level \( m \)” to mean that at that mobilization level, \( D \) strictly prefers war to the status quo, that is, \( p(m) - c_D - c(m) > q - c(m) \), which is equivalent to \( p(m) - c_D > q \). Henceforth, I assume that \( q < \underline{p} - c_D \), meaning that \( D \) is dissatisfied at mobilization level \( m = 0 \), which implies that he is also dissatisfied at all higher mobilization levels.\(^3\)

\(^3\)Note that I am therefore not investigating the commitment-creating effect of military mobilization analyzed by Slantchev (2005, 2011). I assume that \( D \) begins the interaction with a credible threat to use force unless the status quo is sufficiently revised in his favor (that is, by being dissatisfied with the status quo from the outset), and hence already has a credible commitment to fight. I look at how \( D \) can use military mobilization to enhance that pre-existing commitment, thereby generating bargaining leverage, and how this can lead to commitment-problem wars. An alternative situation that would be worth investigating in future work is where \( \underline{p} - c_D < q < p(\bar{m}) - c_D \), meaning that \( D \) is satisfied at \( m = 0 \) but dissatisfied at \( m = \bar{m} \), with the transition occurring at some intermediate value of \( m \). This would allow for an investigation of how \( D \) can endogenously make himself dissatisfied by mobilizing, which would be the divisible-good equivalent of what Slantchev
As shown in Figure 2, if $D$ chooses mobilization level $m$, then his payoff for accepting the offer $(y, 1-y)$ is $y - c(m)$, his payoff for rejecting the offer by opting for the status quo is $q - c(m)$, and his payoff for rejecting the offer by going to war is $p(m) - c_D - c(m)$.

### 2.1 Complete-Information Results

We can now find the SPE of this model by backwards induction. At his lower decision-node, for any mobilization level $m$, $D$ will accept any offer $(y, 1-y)$ such that $y - c(m) \geq p(m) - c_D - c(m)$, which is equivalent to $y \geq p(m) - c_D$, and will go to war for any lower offer (my assumption that $D$ is dissatisfied at all mobilization levels means that he always prefers war over the status quo).\(^4\) Therefore, for any given mobilization level $m$, $S$ offers $y = p(m) - c_D$, which leaves her with $1 - p(m) + c_D$, which is strictly greater than her war payoff of $1 - p(m) - c_S$. This offer, which $D$ accepts, gives $D$ a utility of $U_D(m) = p(m) - c_D - c(m)$. Thus, in the first move of the game, $D$ will choose the value of $m$ that maximizes $U_D(m)$.

Without any more assumptions, we cannot determine the value of $m$ that maximizes $U_D(m)$. In particular, a higher $m$ increases $p(m)$, which increases $D$’s utility, but a higher $m$ also increases $c(m)$, which decreases $D$’s utility. So let us add such assumptions. For simplicity, I assume that $p(m)$ and $c(m)$ are linear in $m$. That is, $p(m) = p + k_p \cdot m$, and $c(m) = k_c \cdot m$, where $k_p, k_c > 0$ are positive constants ($k_p$ is the “power coefficient,” which indicates how sensitive $D$’s probability of winning is to his mobilization level, and $k_c$ is the “cost coefficient,” which indicates how costly it is to mobilize by a given amount).\(^5\) Then, calls mobilization’s “commitment-creating” effect.

\(^4\)As is common in bargaining models, I assume that $D$ accepts an offer if he is indifferent between accepting and rejecting it.

\(^5\)Note that my previous assumption that $p(m) \leq 1$ now requires that $p + k_p \cdot m \leq 1$. For any
$U_D(m) = (p + k_p \cdot m) - c_D - (k_c \cdot m) = p - c_D + m(k_p - k_c)$.

Thus, if $k_p - k_c > 0$, then $U_D(m)$ is strictly increasing in $m$, and hence in equilibrium $D$ will choose $m = \overline{m}$, whereas if $k_p - k_c < 0$, then $U_D(m)$ is strictly decreasing in $m$, and hence $D$ will choose $m = 0$. If $k_p > k_c$, then the probability of winning (and hence the offer that $S$ makes) increases at a faster rate than the cost of mobilization, and hence $D$ mobilizes maximally, thereby obtaining bargaining leverage by getting $S$ to make a bigger offer than what she would without additional mobilization ($p(\overline{m}) - c_D$ rather than $p - c_D$). On the other hand, if $k_p < k_c$, then the cost of mobilization outweighs the increase in the offer, and hence $D$ chooses not to engage in any extra mobilization for bargaining leverage. In either case, a negotiated settlement is reached and war is avoided.

### 2.2 Complete-Information Results With Initial Attack Option

To examine whether the power-shift caused by mobilization can lead to commitment-problem wars, I modify the model of Figure 2 by giving $S$ the initial choice of attacking or not. If $S$ chooses to attack, then the game ends in a costly-lottery war, with $D$ winning the war with probability $p$, and hence $D$’s and $S$’s expected payoffs are $p - c_D$ and $1 - p - c_S$, respectively. If $S$ chooses not to attack, then the game of Figure 2 begins, with $D$ choosing his mobilization level $m$, and $S$ then making an ultimatum offer.

Given values of $p$ and $k_p$, this restriction can be obtained by requiring that $\overline{m} \leq (1 - p)/k_p$. The more standard assumption is that $p(m)$ is equal to $D$’s share of the total mobilized military resources of the two sides (for example, Slantchev 2005). When only one side can mobilize, the linear assumption seems reasonable for simplicity and in order to get clear results, and the results derived below make sense. Nevertheless, it is worth investigating in future work whether the same results hold under the more standard capabilities ratio assumption.

6If $k_p = k_c$, then $D$ is indifferent among all mobilization levels.
From the previous results, it is straightforward to see that if \( k_p < k_c \), so that \( D \) would choose \( m = 0 \), then \( S \) chooses not to attack, and agreement is reached with \( S \) offering \( y = p - c_D \).

Now suppose that \( k_p > k_c \), so that \( D \) would choose \( m = m \). If \( S \) chooses not to attack, then \( D \) chooses \( m = m \), and \( S \) then offers \( y = p(m) - c_D \), which leaves \( S \)'s payoff to be \( 1 - p(m) + c_D \). Thus, if \( 1 - p(m) + c_D \geq 1 - p - c_S \), which simplifies to \( c_D + c_S \geq p(m) - p \), then \( S \) chooses not to attack, and agreement is reached after \( D \) mobilizes. On the other hand, if \( c_D + c_S < p(m) - p \), then \( S \) chooses to attack rather than allow \( D \) to mobilize for bargaining leverage; the shift in power is large enough that the offer that \( S \) will have to make leaves her worse off than just attacking right away. Note that this condition under which war occurs is exactly Powell’s (2004, 2006) general inefficiency condition for commitment-problem wars, namely that the per-period shift in the distribution of power caused by \( D \)'s optimal mobilization level, \( p(m) - p \), exceeds the bargaining surplus, \( c_D + c_S \) (note that this is essentially a two-period model in which the distribution of power can only shift once).\(^7\)

Thus, in the ultimatum-offer model, military mobilization leads to a commitment-problem war if and only if \( D \)'s optimal mobilization level causes a power-shift that exceeds the bargaining surplus. If \( D \) could credibly commit to not mobilize by an amount that exceeds the bargaining surplus, then war would be avoided. But once \( S \) chooses not to initially attack,

\(^7\)The exact mathematical statement of the general inefficiency condition is the inequality on the bottom of p.182 of Powell (2006). As the discount factor approaches 1, so that discounting of future payoffs is not an issue, the inequality becomes equivalent to the condition that “the per-period shift in the distribution of power is larger than the bargaining surplus” (Powell 2006:183). In the ultimatum-offer model, there is no discounting of future payoffs. In the infinite-horizon model that I analyze later, I consider the results as the discount factor approaches one.
\(D\) strictly prefers to abandon his promise and choose his optimal mobilization level \(m\), which causes a power-shift that exceeds the bargaining surplus. Anticipating this, \(S\) begins the interaction by attacking. Thus, the ultimatum-offer model suggests that military mobilization fits well into Powell’s (2004, 2006) overall framework of power-shift mechanisms that lead to commitment-problem wars under complete information when his general inefficiency condition holds.\(^8\)

It will turn out that this result changes in a model that captures the reality that mobilizing takes time, and that \(S\) can attack, or make new offers, at intermediate points of the mobilization process. In particular, in that model, commitment-problem wars can occur even when Powell’s general inefficiency condition does not hold. Before presenting that model, however, I analyze (in the simpler ultimatum-offer setting) how the potential commitment problem induced by mobilization interacts with mobilization’s signaling role in incomplete-information crisis bargaining.

### 2.3 Incomplete-Information Results

To do so, I begin by considering the purely signaling role, and then introduce the possible commitment problem. That is, I begin by leaving out \(S\)’s initial attack option, in order to

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\(^8\)Note that this is not a preemptive war in which \(S\) attacks because she believes that \(D\) is going to attack and there is a military advantage to striking first (Jervis 1978). In a preemptive war scenario, the military advantage to striking first may arise from the other side’s impending mobilization (and the military advantage of initiating the war before it has fully mobilized). But in the scenario that I have analyzed, it is the unfavorable agreement that \(S\) will have to reach, rather than a war on less favorable terms, that causes \(S\) to begin the interaction by attacking, and hence this is quite different from a preemptive war. Similarly, this is not a preventive war in which \(S\) attacks with the goal of forestalling \(D\)’s long-term growth in power.
first identify the pure signaling properties of military mobilization in this crisis bargaining setting of a satisfied and dissatisfied state negotiating over revising the status-quo division of a divisible disputed good, and then add the initial attack option to see how the possibility of the commitment problem affects the signaling role.

To investigate the signaling role, I introduce private information about \( D \). I assume that there are two types of \( D \), which differ in their cost of war. \( S \) believes that \( D \)'s cost is \( c_{D_l} \) with probability \( s \in (0, 1) \), and \( c_{D_h} \) with probability \( 1 - s \), with \( c_{D_l} < c_{D_h} \) (see Figure 3). Note that \( c_{D_l} \) is the more resolved type, because his expected utility from war is higher.

First suppose that additional mobilization is not allowed, and the probability of each type of \( D \) winning a war is \( p \), and that \( q < p - c_{D_h} \), which implies that \( q < p - c_{D_l} \) (see Figure 3), meaning that both types of \( D \) are dissatisfied. In the first move of the game, “nature” chooses \( D \)'s type with the above probabilities, a move that \( D \) observes but \( S \) does not, and then \( S \) makes her ultimatum offer.

In this setting, the standard risk-return tradeoff result (Fearon 1995; Powell 1999) is that if \( s < s^* = \frac{c_{D_h} - c_{D_l}}{c_{D_h} + c_{S}} \in (0, 1) \), that is, \( S \) is sufficiently confident that she faces the low-resolve type, then \( S \) makes the small offer of \( y^* = p - c_{D_h} \), which only type \( c_{D_h} \) accepts; type \( c_{D_l} \) rejects it and goes to war instead.\(^9\) Hence, if \( s < s^* \), then the \( \textit{ex ante} \) equilibrium probability of war is \( s \), which is simply the probability that \( D \) ends up being the high-resolve type. In this risk-return setting of \( s < s^* \), now suppose that upon realizing his type, \( D \) chooses a mobilization level \( m \in [0, \overline{m}] \), which \( S \) gets to observe, and then makes her ultimatum offer.

In this setting, mobilization may generate bargaining leverage, but may also signal private

\(^9\)If \( s > s^* \), then \( S \) makes the large offer \( y^* = p - c_{D_l} \), which both types accept, and war is avoided with certainty.
information.\textsuperscript{10}

Because the signaling properties of mobilization have been analyzed in detail elsewhere (Fearon 1997; Slantchev 2005, 2011), here I just briefly discuss the results (which are fully analyzed in the online appendix), and then examine how mobilization’s commitment problem interacts with its signaling role. It turns out that if the two types of $D$ have the same mobilization cost coefficient $k_c$ (and hence differ only in the cost of war), then mobilization does not transmit any information and has no effect on the probability of war. If $k_p > k_c$, then both types choose $m = \overline{m}$, and the equilibrium probability of war remains at $s$ (but the low-resolve type generates bargaining leverage by getting an offer of $p(\overline{m}) - c_{D_h}$ rather than $p - c_{D_h}$). If $k_p < k_c$, then both types choose $m = 0$, and the equilibrium probability of war remains at $s$.

Therefore, I now suppose that the high-resolve type not only has a lower cost of war than the low-resolve type (which is the condition that designates it as the “high-resolve” type), but also faces a lower financial cost for mobilizing by a given amount.\textsuperscript{11} In particular, I assume that type $c_{D_l}$’s cost coefficient is $k_{c_l}$ and type $c_{D_h}$’s cost coefficient is $k_{c_h}$, with $k_{c_l} < k_{c_h}$.

\textsuperscript{10}My assumption that $q < p - c_{D_h}$ implies that both types are dissatisfied at all mobilization levels. Hence, in the incomplete-information analysis, just like in the complete-information analysis, I do not allow mobilization to have a commitment-creating effect; even the low-resolve type of $D$ begins the interaction with a credible threat to use force unless the status-quo is sufficiently revised in his favor.

\textsuperscript{11}For example, there is a substantial literature that suggests that left governments (and their constituents) typically not only consider war to be more costly than right governments, but may also find military spending and preparations to be more costly, perhaps in terms of foregone spending on social welfare policies (Eichenberg 1989; Fordham 2002; Holsti 2004; Koch and Sullivan 2010; Palmer, London, and Regan 2004).
If $k_{cl} > k_p$, then both types of $D$ choose $m = 0$, no information is transmitted, and the equilibrium probability of war remains at $s$. Therefore, a necessary condition for mobilization to transmit information is that $k_{cl} < k_p$, so that the high-resolve type chooses $m = \overline{m}$ (i.e., finds it financially worthwhile to mobilize). When this necessary condition is met, then the results are graphically shown in Figure 4. If $k_{ch} < k_p$, then the low-resolve type also chooses $m = \overline{m}$, no information is transmitted, and the equilibrium probability of war remains at $s$. If $k_{ch}$ exceeds $k_p$ but is less than $k_p + \frac{c_{Dh} - c_{Dl}}{\overline{m}}$, then the low-resolve type mixes between $m = 0$ and $m = \overline{m}$, partial information-transmission occurs, and the equilibrium probability of war is less than $s$ but still positive. Finally, when $k_{ch}$ exceeds $k_p + \frac{c_{Dh} - c_{Dl}}{\overline{m}}$, then the low-resolve type chooses $m = 0$ with certainty, full information-transmission occurs, and the equilibrium probability of war is zero. These results illustrate the well-known idea that for a signal to transmit information between actors with highly-conflicting interests, the signal has to be sufficiently more costly for the weak type to send than for the strong type (Crawford and Sobel 1982; Spence 1974).

2.4 Incomplete-Information Results With Initial Attack Option

To explore how the possible commitment problem induced by military mobilization interacts with its signaling role, I now modify the model to give $S$ an initial choice to attack or not. If she attacks, the game ends with a costly-lottery war, with $D$ winning with probability $p$. If she chooses not to attack, then $D$ chooses his mobilization level, which $S$ observes, and then makes her ultimatum offer.

Because it is sufficient to illustrate the core ideas, here I just discuss the results when the parameters are such that the fully-separating equilibrium in Figure 4 exists (that is, $k_{ch} > k_p + \frac{c_{Dh} - c_{Dl}}{\overline{m}}$), that is, when mobilization has its greatest signaling role (the remaining
cases are discussed in the online appendix). When the parameters are such, then if $S$ chooses not to initially attack, the high-resolve type chooses $m = \overline{m}$ whereas the low-resolve type chooses $m = 0$, and $S$ then makes an acceptable offer to whatever type she faces; the probability of war would be zero, that is, mobilization would fully eliminate the possibility of informational-problem war.

Hence, $S$’s expected payoff for not initially attacking is $EU_S(not\ attack) = (s)[1 - p(\overline{m}) + c_D] + (1 - s)[1 - p + c_{D_L}]$. Setting this strictly less than her expected payoff for initially attacking, $EU_S(attack) = 1 - p - c_S$, and solving for $s$, we obtain that $S$ strictly prefers to initially attack if and only if $s > s_{crit} \equiv \frac{c_S + c_{D_L}}{c_{D_H} - c_{D_L} + k_p \overline{m}}$, that is, $S$ is sufficiently confident that she faces the high-resolve type. Note that $s_{crit} > 0$ always, and $s_{crit} \geq 1$ simplifies to $p(\overline{m}) - p \leq c_S + c_D$. Hence, when the latter condition holds, then $S$ never chooses to initially attack, no matter how confident she is that she faces the high-resolve type. This gets to the first way in which the commitment and informational problems interact with each other. The latter condition is simply that Powell’s general inefficiency condition does not hold with the high-resolve type (that is, the power-shift caused by that type’s optimal mobilization level does not exceed the bargaining surplus with that type). When this is the case, then the potential commitment problem is not an issue at all, because the power-shift is small enough that $S$ prefers to make an acceptable offer to the high-resolve type even if he is going to fully mobilize, and hence $S$ chooses not to engage in an initial attack (note that because the low-resolve type does not engage in any extra mobilizing, the potential commitment problem is certainly not an issue with that type). Therefore, $S$ allows mobilization’s signaling role to operate, and the probability of war is zero.$^{12}$

$^{12}$Note that Wolford, Reiter, and Carrubba (2011) also analyze a model that combines informational and commitment problems, but in a substantially different way than I do.
On the other hand, if Powell’s general inefficiency condition does hold with the high-resolve type, then $s_{crit} \in (0, 1)$, meaning that if $S$ begins the interaction sufficiently confident that she faces the high-resolve type, then she engages in an initial attack before $D$ can engage in any extra mobilization. Note that when the commitment problem potentially exists (because Powell’s condition holds with the high-resolve type), then $S$’s initial belief plays an important role in whether war occurs — $S$ only attacks if she is sufficiently confident that she faces the high-resolve type (the type with whom the commitment problem exists).\(^{13}\)

Because I have been assuming the risk-return setting of $s < s^*$ (that is, $S$’s prior belief inclines her to make a small offer that carries a positive probability of war), an initial attack can only occur if $s_{crit} < s^*$, so that it is possible for the prior to be such that $s_{crit} < s < s^*$. I show in the online appendix that there do indeed exist parameter ranges such that $s_{crit} < s^*$. They analyze an intra-war bargaining model with incomplete information in which reaching an agreement before one side is totally defeated causes an exogenous power-shift to occur, and show how the prospect of this power-shift can lead to equilibrium behavior that is quite different from what occurs in purely informational models. In my model, the scenario just described, in which only the high-resolve type would engage in extra mobilization but Powell’s general inefficiency condition does not hold with this type, corresponds to the scenario in their model in which the exogenous power-shift for each type of the informed actor does not exceed the bargaining surplus and hence the uninformed actor is certain that it faces a type with whom no commitment-problem exists (and which leads to “screening-for-peace” equilibria; p.567-568).

\(^{13}\)This scenario, in which only the high-resolve type would engage in extra mobilization and Powell’s general inefficiency condition holds with this type, corresponds to Wolford, Reiter, and Carrubba’s (2011) scenario in which only the strong type’s exogenous power-shift exceeds the bargaining surplus and hence the uninformed actor is uncertain about whether it faces the type with whom the commitment-problem exists (and which leads to “screening-for-war” equilibria; p.568-571).
Therefore, when the parameters are such, then $s_{\text{crit}} < s < s^*$ is an interesting range of priors where in the model without the option of mobilization, $S$ would make a small offer and war would occur with probability $s$ (the standard risk-return tradeoff under uncertainty). In the model with mobilization but without the initial attack option, mobilization would lead to full information-transmission and the probability of war drops from $s$ to zero. By adding the initial attack option, the probability of war increases from zero to one. If we view mobilization as a solution to informational problems, then this is a parameter range where introducing the “solution” causes a net increase in the probability of war, from $s$ to one, because of the commitment problem associated with the solution.

To summarize, this is a case where mobilization would allow for full signaling, but because the power-shift caused by the high-resolve type’s optimal mobilization level exceeds the bargaining surplus (with that type), and because $S$ is sufficiently confident that she faces that type, she attacks before $D$ has the opportunity to mobilize. In this scenario, the potential commitment problem induced by mobilization dominates $S$’s choice and she does not allow the signaling role to come into play, even though that role would guarantee peace, and in a situation where $S$ has all of the bargaining leverage of getting to make an ultimatum offer (meaning that $S$ has every incentive from the perspective of the bargaining protocol to avoid war and reach a negotiated settlement instead; this bargaining protocol allows $S$ to get all of the gains from avoiding war). Also note that if $D$ ends up being the low-resolve type, then ex post $S$ will regret that she attacked.

On the other hand, if the prior belief satisfies $s \leq s_{\text{crit}}$, that is, $S$ begins the interaction sufficiently confident that she faces the low-resolve type, then $S$ does not initially attack; thus, mobilization leads to full signaling, and the probability of war is zero.\textsuperscript{14} However, note

\textsuperscript{14}Note that if the parameters are such that $s_{\text{crit}} \geq s^*$, then my maintained assumption
that if $D$ ends up being the high-resolve type, then \emph{ex post} $S$ will regret that she did not initially attack.\footnote{In addition to Wolford, Reiter, and Carrubba (2011), Fearon (2007) also analyzes a model that combines informational and commitment problems, but again in a substantially different way than I do. He analyzes an intra-war bargaining model with incomplete information in which if an offer is accepted, the proposing actor can continue to make new offers and is not committed to abiding by the first offer that is accepted. In this scenario, accepting an offer can reveal that one is a weak type that is willing to accept an even smaller offer (a “ratchet effect”; Hart and Tirole 1988; Laffont and Tirole 1988), and hence the commitment problem can interfere with the usual information-eliciting nature of making progressively larger (“screening”) offers.}

### 3 An Infinite-Horizon Model

So far, I have analyzed a model of military mobilization to examine how mobilization can lead to commitment-problem wars under complete information, and have also examined how this commitment problem interacts with mobilization’s signaling role in incomplete-information crisis bargaining. Consistent with the mobilization models of Fearon (1997) and Slantchev (2005, 2011), I have assumed that mobilization essentially occurs instantaneously, that is, that mobilization decisions are immediately implemented. I now present a (complete-information) model that captures the reality that mobilizing takes time, and that if $S$ is aware that $D$ is mobilizing, she can attack, as well as make offers, at intermediate points in the mobilization process. In such a setting, we would naturally expect that $D$’s ongoing mobilization will affect $S$’s offers (if any) as well as her decisions of whether or not to attack.

It turns out that in this more realistic setting, commitment-problem wars can occur even when Powell’s general inefficiency condition does not hold, and partially due to a new type $s < s^*$ implies that $s < s_{\text{crit}}$, and hence $S$ does not engage in an initial attack.\footnote{In addition to Wolford, Reiter, and Carrubba (2011), Fearon (2007) also analyzes a model that combines informational and commitment problems, but again in a substantially different way than I do. He analyzes an intra-war bargaining model with incomplete information in which if an offer is accepted, the proposing actor can continue to make new offers and is not committed to abiding by the first offer that is accepted. In this scenario, accepting an offer can reveal that one is a weak type that is willing to accept an even smaller offer (a “ratchet effect”; Hart and Tirole 1988; Laffont and Tirole 1988), and hence the commitment problem can interfere with the usual information-eliciting nature of making progressively larger (“screening”) offers.}
of commitment problem on the part of the satisfied state.

The overall setup is the same, in that a satisfied and dissatisfied state are bargaining over revising the status-quo division of a divisible disputed good. Each period begins with $S$ deciding whether to attack or instead make an offer (one period of the model is shown in Figure 5). If $S$ attacks, the game ends in a costly-lottery war, with $D$’s probability of winning determined by its mobilization level in that period (see below). If $S$ makes an offer, $D$’s four options are to (a) accept it (in which case the agreement becomes the new status-quo and then the next period is reached, which is structurally identical), (b) attack (which ends the game with the same costly-lottery war as if $S$ attacked; there are no first-strike military advantages), (c) peacefully reject it while mobilizing, or (d) peacefully reject it without mobilizing. If $D$ peacefully rejects the offer without mobilizing or with mobilizing, then the next period is reached, which is structurally identical.$^{16}$

I assume that $D$’s probability of winning a war begins at $p \in (0, 1)$, and each time $D$ peacefully rejects an offer by mobilizing, his probability of winning increases (beginning in the next period) by the amount $m > 0$, which I call the “mobilization increment.” For simplicity, I treat $m$ as exogenous — in each period in which $S$ makes an offer, $D$ can choose to mobilize, but cannot (as in the previous model) endogenously choose how much to mobilize. Note that in terms of Powell’s (2004, 2006) general inefficiency condition, $m$ is $^{16}$Note that by using a bargaining protocol in which $S$ gets to make all of the offers and hence has all of the structural bargaining leverage, I am stacking the deck against commitment-problem wars breaking out, because $S$ has every incentive from the perspective of the bargaining protocol to reach a negotiated settlement and avoid war. Hence, if we find that commitment-problem wars can occur under this bargaining protocol, we would expect them to occur under more circumstances (that is, under broader parameter ranges) using alternative bargaining protocols.

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the per-period shift in the distribution of power if \( D \) chooses to mobilize. It is the amount by which \( D \) can mobilize between offers, and between \( S \)’s opportunities to attack.

I assume that \( D \) can mobilize a maximum of \( n \) times, where \( n \geq 1 \) is an exogenous positive integer. If \( D \) fully mobilizes, then his probability of winning a war is \( p + n \cdot m \) (Figure 6 shows a period of the game after \( D \) has fully mobilized — the option of mobilizing is no longer present). Of course, I assume that for any given value of \( p \), it is the case that \( m \) and/or \( n \) are small enough that \( p + n \cdot m \leq 1 \). Finally, because I am not investigating mobilization as a signaling device, but am focusing purely on its possibility of inducing complete-information commitment problems, for simplicity I assume that mobilizing is financially costless for \( D \) — its only effect is to increase the probability that \( D \) wins a war beginning in the next period.\(^{17}\)

I assume that if \( D \) accepts an offer, then that agreement is immediately implemented and becomes the new status-quo, and then the next period is reached, which is structurally identical, and in which \( D \)’s mobilization level remains the same. I do this in order to capture the idea that even if an agreement is reached, \( D \) is not committed to abiding by that agreement permanently (Fearon 2007) and has the opportunity to engage in further mobilization in order to try to secure an even better deal if it is in his interest to do so.

The payoffs are as follows. The players discount future payoffs with common discount factor \( \delta \in (0, 1) \). Thus, if we label the periods \( t = 0, 1, 2, \ldots \), then \( D \)’s payoff if war never occurs is \( \sum_{i=0}^{\infty} \delta^i y_i \) and \( S \)’s payoff is \( \sum_{i=0}^{\infty} \delta^i (1 - y_i) \), where \( y_i \) is \( D \)’s share of the disputed

\(^{17}\)In effect, I am assuming that the financial cost of mobilizing is small enough compared to the increase in power that it brings, that \( D \) finds it financially worthwhile to mobilize. If mobilization is too costly, then of course the below results will not hold and agreement will be reached in the first period with \( S \) offering \( y^* = p - c_D \), and this agreement will never be renegotiated.
good in period $i$, and $1 - y_i$ is $S$’s share. These shares can be the original status-quo $(q, 1-q)$ or agreements reached, depending on what happens in the game. If they go to war in some period $t$ ($t = 0, 1, 2, \ldots$), then $D$’s payoff is $\sum_{i=0}^{t-1} \delta^i y_i + \sum_{i=t}^{\infty} \delta^i (p_t - c_D)$ and $S$’s payoff is $\sum_{i=0}^{t-1} \delta^i (1 - y_i) + \sum_{i=t}^{\infty} \delta^i (1 - p_t - c_S)$, where $p_t$ is $D$’s probability of winning a war in period $t$ (based on his mobilization level in that period). I assume that $D$ begins the interaction by being dissatisfied with the status quo, i.e., $q < p - c_D$.

### 3.1 Results

I now discuss the results for the case where $n = 3$, that is, $D$ can mobilize a maximum of three times (allowing for more mobilization periods does not provide any more insight). In the online appendix I derive the SPE of the model, depending on whether the mobilization increment $m$ is low, lower-medium, higher-medium, or high. These equilibrium ranges are graphically illustrated in Figure 7. Here, I describe the intuition behind the results, as the discount factor $\delta$ approaches one.\textsuperscript{18}

Begin by noting that if $D$’s probability of winning a war in period $t$ is $p_t$, then the preferred-to-war bargaining range in period $t$ is $[p_t - c_D, p_t + c_S]$. If $D$ mobilizes in period $t$,
then beginning in the next period, the entire preferred-to-war bargaining range shifts to the right by the amount \( m \), that is, it becomes \([ (p_t + m) - c_D, (p_t + m) + c_S ] \). It is the size of this shift \( m \) that determines what happens in equilibrium.

First suppose that \( m \) is low, in particular \( 3m \leq c_S + c_D \) (or \( m \leq \frac{c_S + c_D}{3} \)), meaning that the power-shift caused by full mobilization (that is, three mobilization increments) does not exceed the bargaining surplus. Then, if \( S \) were to allow \( D \) to fully mobilize, agreement would then be reached on \( y = (p + 3m) - c_D \). Because this agreement lies within the original (that is, pre-mobilization) preferred-to-war bargaining range, in the SPE war does not occur and instead \( S \) makes an infinite sequence of minimally-acceptable offers that approach \( (p + 3m) - c_D \). When \( m \) is low, \( D \) is able to use the threat of mobilizing to gain some bargaining leverage, and war does not occur.

Now suppose that \( m \) is high, in particular \( m > c_S + c_D \), meaning that the power-shift caused by a single mobilization increment (which is the same as the per-period shift in the distribution of power if \( D \) chooses to mobilize) exceeds the bargaining surplus, that is, Powell’s general inefficiency condition holds. Then \( S \) begins the interaction by attacking. This is because if \( S \) were to make too small an offer, then \( D \) would mobilize, and the offer that \( S \) would then have to make leaves her worse off than just initially attacking. Moreover, the smallest offer that \( D \) is willing to accept in the first period is his continuation value for mobilizing, which is also unacceptable to \( S \) (in fact, for \( \delta \) close to one it is essentially the same offer that \( S \) will have to make in the next period, which, as just discussed, is worse for \( S \) than just attacking right away). If \( D \) could credibly commit to not mobilizing, this would drive down the minimal offer that \( D \) is willing to accept to something that \( S \) finds preferable to attacking, and war would be avoided. However, once \( S \) chooses not to initially attack, \( D \)
strictly prefers to mobilize rather than accept that (relatively small) offer; anticipating this, 
S attacks. This is a standard commitment-problem war when Powell’s general inefficiency 
condition holds.19

Now consider the “lower-medium” range of $m$ in Figure 7, namely $\frac{c_S + c_D}{3} < m \leq \frac{c_S + c_D}{2}$: 
three mobilization increments (that is, full mobilization) exceeds the bargaining surplus, but 
two mobilization increments do not. Then, S’s reasoning in the first period is as follows: “If 
I allow $D$ to achieve one mobilization increment, I will then allow him to achieve two more, 
because at that time, only two more mobilization increments will be possible (as he will then 
be fully mobilized), and at any given time two mobilization increments from thereon are 
acceptable. Therefore, if I do not fight now, I cannot credibly do so in the next two periods, 
and agreement will ultimately be reached on $y = (p + 3m) - c_D$, which is strictly worse 
than fighting now.” Therefore, S begins the interaction by attacking. This is a case where 
a commitment-problem war occurs even though Powell’s general inefficiency condition does 
not hold (and in fact $m$ is less than the bargaining surplus by a discrete amount rather than 
an arbitrarily small amount; even two per-period shifts in the distribution of power do not 
exceed the bargaining surplus). Note that in addition to D’s inability to credibly commit

19Note that this same argument would seem to hold in a more complicated model in which 
$D$ could choose how much to mobilize in each period (up to a maximum of $m$ in each 
period, and up to an overall total of $n \cdot m$). Even if $m > c_S + c_D$, if $D$ could credibly 
commit to mobilizing by less than the bargaining surplus in the current period, $S$ would not 
attack; however, once $S$ has chosen not to attack, $D$ has a strict incentive to mobilize by the 
maximum amount $m$ in that period rather than accept the offer; anticipating this, $S$ would 
begin the interaction by attacking. Therefore, I conjecture that all of these results would 
hold in the more complicated model, and that “salami tactics” whereby $D$ always mobilizes 
by a small enough amount to dissuade $S$ from attacking, would not occur in equilibrium.

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to not mobilizing, $S$’s own inability to credibility commit to fighting in the future (given the limited size of $m$) plays a role in why war breaks out here. If $S$ could credibly commit to fight in the second (or even third) period, this would drive down the minimal offer that $D$ is willing to accept in the first period to something that $S$ finds preferable to attacking. However, if $S$ chooses not to attack in the first period, $D$ knows that $S$ will not in fact fight in the second (or third) period, and so chooses to mobilize rather than accept that (relatively small) offer. Anticipating this, $S$ begins the interaction by attacking. $S$’s own inability to credibly commit to fight in the future plays a crucial role in why war breaks out here.\(^{20}\)

Finally, consider the “higher-medium” range of $m$ in Figure 7, namely $\frac{c_S + c_D}{2} < m \leq c_S + c_D$: a single mobilization increment does not exceed the bargaining surplus, but two mobilization increments do. Then, if $D$ were to achieve two mobilization increments, $S$ would then allow the final one (because from thereon, one mobilization increment is acceptable). Thus, in the third period, $S$ would not fight. Anticipating this, in the second period $S$ does fight (because two mobilization increments from thereon are unacceptable). Anticipating this, in the first period, $D$ is willing to accept offers close to (as $\delta$ approaches one) $(p+m)-c_D$.

\(^{20}\)Note that this is quite different from $S$’s inability to credibly commit to fighting in the future in power-transition type accounts of commitment-problem wars. In those accounts, $S$ cannot credibly commit to fighting in the future because the power balance will have changed so much by then that war, now on unfavorable terms, is no longer an acceptable choice for $S$. In this model, on the other hand, it is the limited amount by which $D$ will be able to further change the power balance in the future (given the limited size of $m$, and given that he will already be close to his full mobilization level) that makes $S$’s future threat to fight non-credible. To see this more clearly, note that there is no requirement in any of the results that $p + 3m$ ($D$’s probability of winning when fully mobilized) exceeds some threshold such as $\frac{1}{2}$; it can in fact be substantially lower than this.

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which is his continuation value for mobilizing. Because one mobilization increment does not exceed the bargaining surplus, $S$ prefers such agreements to attacking right away, and hence in the SPE $S$ makes an infinite sequence of minimally-acceptable offers that approach $(p+m) - c_D$, and war does not occur. $D$ is able to use the threat of mobilizing once to extract some bargaining leverage. In this case, the size of $m$ is such that $S$ does have a credible threat to attack in the second period, and this prevents a commitment-problem war from breaking out. $D$ still cannot credibly commit to not mobilizing, but because $S$ can credibly commit to attacking in the second period, $D$ can at most achieve one mobilization increment, and because a single mobilization increment does not exceed the bargaining surplus, $D$’s commitment problem does not lead to war.

The analysis thus suggests that when mobilization takes time and crisis bargaining occurs even as mobilization takes place, the probability of commitment-problem war is non-monotonic in the size of the mobilization increment. As seen in Figure 7, when $m$ is low, the probability of war is zero. When $m$ becomes lower-medium, the probability of war jumps to one. It then falls to zero once $m$ becomes higher-medium, before increasing to one once $m$ becomes high.

Finally, this non-monotonicity leads to additional insight as to why mobilization leads to commitment-problem wars under broader conditions than Powell’s general inefficiency condition implies, in contrast to other power-shift mechanisms.\footnote{Note that Powell (2004, 2006) establishes that the general inefficiency condition is \textit{sufficient} for commitment-problem war to occur in a general stochastic game of which many power-shift models are specific cases, and does not claim that it is a necessary condition. However, I am unaware of any commitment-problem model in which it is not necessary as well (for example, Proposition 4.1 in Powell 1999).}

Large per-period power
shifts are conducive to commitment-problem wars breaking out, because the concessions the rising state has to make to prevent the declining state from attacking must (due to resource constraints) stretch out over a number of periods, and with a sufficiently rapid power-shift the rising state will lose its incentive to provide these concessions during the “concession phase” (Powell 2004:237). This suggests that small per-period power shifts should be conducive to peace. But the problem in the mobilization context is that small per-period power shifts reduce the credibility of S’s threat to fight in the future, when D has achieved some (but not all) of his mobilization potential, and this effect is destabilizing in that it gives S an incentive to attack right away. These two conflicting influences come to a head in the lower-medium range of m in Figure 7, where m is large enough that at the beginning of the crisis, S prefers to attack rather than allow D to fully mobilize, but is small enough that if S allows D to achieve one mobilization increment, she will then allow him to fully mobilize. Anticipating this, she begins the interaction by attacking. By contrast, when m becomes higher-medium, it is large enough that S does have a credible threat to fight in the second period, and this allows the two sides to settle on mutually acceptable terms and avoid war.

4 Conclusion

Because of its costliness, military mobilization has generally been seen as a mechanism by which high-resolve leaders can credibly signal their high resolve in international crises, thereby possibly overcoming informational problems that can lead to costly and inefficient war. The irony identified here is that because mobilization can also cause power-shifts within a crisis, a mechanism that has been seen as a solution to one rationalist explanation of war can in fact invoke another one, namely commitment problems, in a way that can have a net
destabilizing effect on international crises.

Revisiting some of the historical episodes that were discussed earlier, the analysis suggests that although Russia’s motivation in opting for a partial mobilization directed against Austria-Hungary on July 28, 1914, and which was expanded to a general mobilization directed against Germany as well just two days later, may have been to coerce Austria into reaching a negotiated settlement with Serbia and to convince Austria and Germany of Russia’s commitment to its ally (Trachtenberg 1991:80), the power-shift this would have caused (in light of the Schlieffen Plan’s reliance on the slowness of Russian mobilization to avoid having to fight a simultaneous two-front war) if Germany significantly delayed attacking France, led to Russia’s mobilization having a net destabilizing effect on the July Crisis. Similarly, although Britain’s troop buildup in southern Africa in 1899 may have been motivated by a desire to coerce the Boer government of the Transvaal to accept its demand regarding voting rights for British immigrants (Uitlanders) and to convince the Boers of the British government’s high resolve on this issue (Langer 1951:612,616; Pakenham 1979:91-93), the potential power-shift caused by this mobilization clearly alarmed Boer leaders and eventually led them to issue an ultimatum demanding British demobilization, with war breaking out almost immediately thereafter.

There are a number of promising areas for future research on this topic. One limitation of my analysis is that I only allow one side to engage in extra mobilization (beyond the level of mobilization at the beginning of the crisis, captured by the initial power balance $p$). If the other side could also engage in extra mobilizing, this might reduce the size of the power-shift, possibly mitigating the commitment problem. Allowing both sides to have the

\[ \text{Slantchev (2005, 2011) allows both sides to mobilize, but does not analyze how mobilization can lead to commitment-problem wars.} \]
opportunity to engage in extra mobilizing is a promising area for future research. However, note that in some crises, it may be the case that one side is essentially fully mobilized, and the other side then has to decide how much mobilization to engage in. This might especially be the case in crises between non-contiguous countries, where the “home” country (on whose border or territory the conflict would occur) would typically fully mobilize because of the high stakes involved, with the “intervening” country having the luxury to choose how much resources to devote to the crisis. For such crises, the one-sided mobilization model might be appropriate. Additionally, if one side faces resource constraints that limit its ability to engage in additional mobilization, the one-sided mobilization model might apply.

Another promising area for future research would be to introduce private information into the infinite-horizon (gradual-mobilization) model, so that the interaction of the signaling and commitment-problem roles of military mobilization can be examined in a more realistic (if less tractable) setting than the ultimatum-offer model. Because the gradual-mobilization model suggests that commitment-problem wars can occur under broader conditions than Powell’s general inefficiency condition implies, we would expect that $S$ would engage in an initial attack, rather than allow mobilization’s signaling role to come into play, in more circumstances than in the ultimatum-offer model. Further research may help us better understand the conditions under which military mobilization allows for credible signaling, or brings commitment problems into play, and hence when it has a net stabilizing or destabilizing effect on international crises.
References


