

Explaining peace during long and rapid power shifts: A theory of grand bargains.

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Abstract

Power transition scholars predict long or rapid power shifts cause war. But cases where power shifts would be long and rapid often remain peaceful. To explain the dogs that don't bark, we introduce instant, costly militarization into Powell's (1999) conventional weapons power transition model. We find that under many conditions where past research uniquely predicts war other equilibria emerge that we call a grand bargain. In a grand bargain, rising powers get more than what they can extract from threatening war; declining powers get a stable distribution of power. Because war and a grand bargain both prevent power from shifting, declining powers deploy these strategies under the same conditions. We show that grand bargains can peacefully resolve many war-causing hazards including shocks to the rate of shifting power and indivisibilities. We illuminate unappreciated similarities in how Britain and Japan managed a rising Russia circa 1900. We show that the end of the Great Game fits the grand bargain, and similar conditions drove Japan to war. We also examine other important cases where the parties struck or considered grand bargains and clarify contemporary debates about China's rise.

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1 Introduction

China's economic growth and military expansion have heightened concerns about great power conflict (Levy, 2008; Allison, 2017). These concerns are established by theories of power transitions that stem from bargaining theory (Powell, 2006; Leventoğlu and Slantchev, 2007; Yoder, 2019): rapidly shifting power (Powell, 1999), long power transitions (Krainin, 2017), or sudden increases in the rate of shifting power cause preventive war. These predictions follow from contrasting the declining power's incentives for preventive war and appeasement. When power shifts are short and slow, declining powers prefer appeasement: incremental, minimalist concessions designed to avoid war as power shifts (Powell, 1996).¹ Declining powers do not like ceding territory. However, slowly increasing offers as power shifts is preferable to war. In contrast, when power shifts rapidly declining powers realize that they will be forced to make large concessions. They prefer a war today that stops power from shifting, to large and frequent concessions in the future.

The evidence, however, is mixed. Scholars identify specific cases where long and rapid power shifts caused preventive conflict (Copeland, 2015; Streich and Levy, 2016). But well-designed large-n or medium-n studies find that high rates of economic growth or military spending explain little variance in whether war breaks out or not (Bell, 2017; Kim and Morrow, 1992; Rasler and Thompson, 2000; Lemke, 2003). One of the most rigorous tests finds a robust relationship between the expected rate of shifting power and conflict (Bell and Johnson, 2015). But even their measure of anticipated power shifts explains less than 1% of the variance in conflict. Quantitative studies struggle to fit the dogs that don't bark: cases that ended in a stable peace despite rapidly shifting power. For example, during the late 1800s, the United States set out to expel British influence from the Western Hemisphere through force if necessary. At the point where American military and economic power grew most rapidly, Britain responded by withdrawing from key economic interests and ceding influence to the United States—the opposite of preventive war (Schake, 2017). In recent years, Japan (1980s), and Germany (1990s) experienced rapid economic success, and the United States tried hard to accommodate them, leading to a stable peace.

Why do power transitions that seem destined for war often end in peace? To answer this question, we return to the classic, infinite horizon bargaining model of war with repeated power

¹Kennedy (1976, p195) notes that the public consciousness incorrectly associates appeasement with Chamberlain's efforts to compromise with European dictators. He also describes this strategy as appeasement.

shifts (Powell, 1999). We analyze the simplest version of this model with the added assumption that militarization is endogenous and costly (Powell, 1993).

By introducing endogenous militarization, our model generates two new results. First, the opportunity to consume generates a novel mechanism for war based on long (not rapid) power shifts and the opportunity cost of arming relative to consumption.² The rising power could fight today and consume the resources she would have spent on militarization tomorrow (Coe and Vaynman, 2019). So long as the rising power militarizes, the declining power must compensate the rising power for arming when it could have fought and consumed instead. When power transitions last many periods and the rising power's opportunity cost is large, the declining power prefers preventive war to repeated concessions as power shifts.

Second, the declining power has a strategy other than war to stop power from shifting: a grand bargain. In it, the declining power makes a single concession larger than appeasement given the present-day levels of relative power. The declining power promises to keep making this generous offer in future periods so long as the balance of power remains stable. This generous offer is backed by a threat of war if power shifts again. The rising power prefers this generous offer and consumption to costly militarization and war. Thus, the generous offer entices the rising power to consume her surplus resources henceforth.

Grand bargains have recently been popularized by China-focused researchers (Glaser, 2015), and in historical accounts of great power transitions (see Ripsman and Levy, 2008, for discussion). But they focus on large offers as screening mechanisms that generate re-assurance under uncertainty. These arguments have lost salience as China has revealed aggressive motives. Unlike these accounts, the grand bargain we identify is not a two-way exchange of territory, or a signaling device. Rather, our mechanism relies on a one-way transfer in exchange for a stable future. The rising power gets a larger present-day offer; the declining power gets a promise of stability in the balance of power.

Our mechanism is closer to theories of nonproliferation where nuclear aspirants accept generous foreign policy concessions in exchange for nuclear disarmament (Spaniel, 2019; Debs and Monteiro, 2014). But nuclear models assume delayed militarization. In these models, the declining power's threat to revert to war is easier because it has time to do so after it observes nuclear research

²Krainin (2017) finds long shifts lead to war. But his result can be overcome by efficient side payments. Our result does not because it is driven by expected cumulative inefficiencies.

and before the rapid shift in power takes place. In contrast, past theories focused on converting economic surplus into conventional military power assume no delay between military spending and a slower shift in power. These theories do not find a grand bargain (McCormack and Pascoe, 2015; McBride, Milante, and Skaperdas, 2011).³

We find a grand bargain in a theory of conventional power shifts because we allow for cumulative militarization over many periods. Past models assumed that power could only shift once. Thus, there is no second commitment problem once power has shifted. If the rising power accepts the generous offer and militarizes anyway the declining power cannot justify war in the next period because power is assumed not to shift again. In our model, if the rising power shirks on the grand bargain and militarizes in one period, there is a second opportunity to shirk in the next period and militarize again. When the power transition is long, power shifts sufficiently fast, or there are sudden fluctuations in the rate of shifting power, the declining power wants to stop power from shifting today, and can credibly promise to revert to war tomorrow if the rising power continues to militarize. With a future credible threat of war, the declining power can enforce the grand bargain today.⁴

Surprisingly, we find a grand bargain equilibrium under conditions where the declining state prefers war to appeasement. Why would the declining power be willing to make a large offer, but not a small offer? From the declining power’s perspective the grand bargain serves the same purpose as war: it stops an undesirable future by stopping power from shifting. Since both strategies serve the same purpose, the declining power prefers them both to appeasement under the same conditions. As a result, in much of the parameter ranges where past models uniquely predict war (power transitions are rapid), our model shows that both a grand bargain and war are equilibria. We consider model extensions to refine our theoretical predictions. However, we find no convincing basis to rule out either a grand bargain or war when power shifts are long or rapid. This result highlights that conventional and nuclear power shifts make different grand bargain predictions. We

³Treisman (2004) finds a grand bargain in a multi-actor model. This result is consistent with ours, but does not capture the bipolar challenges of the Cold War or US China relations. Monteiro and Debs (2020) make the rising power’s economic growth endogenous to declining power choices and uncover incentives for the rising power to declare war.

⁴This drives three differences from nuclear grand bargains (e.g Debs and Monteiro, 2014). First, our grand bargain offer is backed by the rising power’s threat of future militarization not war. Second, slow, cumulative power shifts generates our commitment problem that grand bargains overcome. Third, existing results are driven by a liquidity problem. We show that this problem only supports a no-delay grand bargain. Our novel equilibrium supports grand bargains following long periods of delay; consistent with many historical cases.

find that the parameter ranges that predict war and a grand bargain overlap.

From an empirical stand-point, the multiple equilibria help explain the weakly positive relationship between power variables and war commonly observed in quantitative evidence (Bell and Johnson, 2015). Current bargaining theories over-predict war because they ignore the grand bargain equilibrium that also emerges when power shifts are long and rapid. When declining powers anticipate long, or rapid power shifts, we cannot say whether they will rationally respond with war or a generous offer. All we can say is that declining powers will stop power from shifting one way or the other.

We use the theory illuminate unappreciated features of Anglo-Russian Competition (1869-1907), which ended in a grand bargain. In the supplementary material, we contrast this case with the Russo-Japanese war to illustrate empirical applications of our multiple equilibria. In section 4.3 we briefly review internal deliberations of critical power transition cases identified by Allison (2017). We illustrate that declining powers frequently consider both grand bargains and war at the points where they realize the power transition will be long or rapid.

In addition to our contributions to the power transition literature, we also advance research on the inefficiencies of militarization (McCormack and Pascoe, 2015; Schram, 2021; Coe and Vaynman, 2019), and variation in the formation of rivalries (Rasler and Thompson, 2000; Thies, 2005; Joseph, 2020). Finally, our theory moves beyond simple predictions of war and peace to explaining the international origins of large, rapid, territorial transfers, and therefore governance, in the developing world. These transfers have lasting distributional consequences for millions of inhabitants (Banerjee and Iyer, 2005; Robinson, Acemoglu, and Johnson, 2005).

2 Two types of peace: grand bargain, appeasement

Following the power transition literature, we contrast war with peace (meaning the absence of war). However, we argue that not all versions of peace are equal. Rather, some peaceful power transitions unfold as appeasement, and others as a grand bargain. Much of the power transition literature ignores this difference. Instead, it asks: is appeasement a rational alternative to war? Since the Munich Agreement, historians and many social scientists have argued that the answer

was no (e.g. [Mearsheimer, 2001](#), p163-164).⁵ But a core contribution of bargaining theory was to re-cast appeasement in a different light ([Treisman, 2004](#); [Powell, 1996](#)). In the bargaining literature, appeasement is described as a sequence of incrementally increasing offers that the declining power makes to avoid war as power shifts. To be clear, appeasement is not buying time until an opportune moment for preventive war ([Ripsman and Levy, 2008](#)). Rather, appeasement includes repeated concessions matching frequent, small power shifts.

An essential ingredient in appeasement is that the rising power repeatedly militarizes. In past studies of conventional power transitions, this assumption is implicit because power shifts exogenously ([Powell, 1999](#)). We assume that military power shifts endogenously. Thus, in our model, appeasement is a pair of strategies that includes a pattern of militarization, and a sequence of offers.

If we accept that appeasement is not simply a sequence of offers, but a pair of strategies, then we face a definitional challenge. We want a definition of appeasement that is broad enough to include any strategy pair that fits our intuitive understanding of appeasement. We then want to identify strategy pairs that both fit our intuitive definition of appeasement, and that are supported as an equilibrium in our model. Once we find equilibrium strategies, we can explain the logic that drives them by analyzing the equilibrium behavior, and form predictions about when we expect to see appeasement strategies in real life.

Appeasement is any strategy pair that has two observable features:

- Consecutive militarization: the rising power militarizes in the first period and every subsequent period until she cannot shift power any further.
- Peace: States successfully negotiate a war-avoiding settlement in every period.

In theory, there are many sequences of diplomatic negotiations, concessions and threats that fit this definition. However, our model will confirm the logic for rationalist appeasement that is common in the existing literature ([Powell, 1999](#)). Each period, the declining power makes the smallest offers that the rising power is willing to accept, given the rising power's expectation that she will militarize in the future.

We argue that declining powers use offers to achieve more than barely avoiding war as the rising power repeatedly militarizes. The declining power can also make larger offers that entice the rising

⁵See [Rock \(2000\)](#) and [Kennedy \(1976\)](#) for exceptions.

power to accept the negotiated settlement and consume her surplus instead. We call this a grand bargain. Intuitively, a grand bargain is an offer large enough that the rising power prefers to accept it forever and consume her surplus rather than invest in her military. Accordingly, grand bargains not only prevent war, but stop power from shifting. Like appeasement, we define a grand bargain as a specific pair of strategies.

A **Grand Bargain** is any strategy pair that converges to a stable state of peace before the power transition is complete. In every period of that stable state, the declining power makes the same offer, the rising power never militarizes and accepts that offer.

We will show that the model supports many grand bargain equilibria. In each of them, the offer that secures a stable peace is more than the rising power's minimum demand from war if the rising power was to militarize in every subsequent period. Many have argued that grand bargains are not rational because of a two-sided commitment problem that is most severe when the incentives for war are high (see [Easley, Kim, and Glaser, 2016](#), for discussion). On one side, nothing prevents the rising power from accepting a large offer today and militarizing to coerce even more concessions tomorrow. As we explain in more detail after we present the equilibrium result of our model, two factors help the rising power overcome the commitment problem: (1) the grand bargain offer is larger than what the rising power would expect to get from militarization and war in that period; (2) the declining power can credibly promise to revert to war if the rising power continues investing in her military. On the other side, once the rising power has spent her surplus that period, nothing prevents the declining power from deviating from the large offer to a smaller one. We'll show that the declining power can overcome the temptation to low ball the rising power because the rising power can credibly promise to deviate to militarization in every future period if she receives a low-ball offer. This leads to a seemingly paradoxical result: grand bargains are rational under the same conditions as war because the two-sided commitment problem is easy to overcome when the incentives for war are strong.

3 The Model

A **Declining state** and a **Rising state** bargain over a pie standardized to value 1 over an infinite horizon. The pie represents all the territories and normative issues that both R and D have a common interest in controlling. Broadly, we model the power transition as a setting where the

rising power’s economy is growing at a faster rate than the declining power’s. Thus, the rising power has an economic surplus that it can either invest in its conventional military power (leading to an instant power shift) or consume (leading to no power shift) slowly over time. In contrast to existing models of negotiating over power shifts, we model R’s militarization over $T \geq 2$ discrete increments.⁶

The game begins in a power transition phase. Each period of the power transition phase unfolds as follows. R chooses whether to militarize or not. If R militarizes, its military power immediately increases. If R does not, its power does not change. Regardless of R’s militarization choice, D chooses between war or demanding an $x_t \in [0, 1]$ share of the pie, where $t \in \{1, 2, \dots\}$ denotes the period. Initiating a war ends the game. If D proposes x_t , R chooses to accept or reject it. If R rejects, the game ends in war. If R accepts, players accrue payoffs and the game moves to the next period.

The duration of the (possibly infinite) power transition phase depends on how many times R has militarized over the history of the game. Let n denote that number. If $n < T$, we remain in the power transition phase. If $n = T$, R has completed the power transition and thus there are no more decisions to militarize. Each period after $n = T$ truncates the interaction to the negotiations. D proposes $x_t \in [0, 1]$, and R accepts (leading to the next period) or rejects (leading to war).

In the power transition phase, R’s militarization choice affects the balance of power. Let $p \in (0, 1)$ be D’s probability of victory in war when $n = 0$. Thus, p represents the balance of power at the beginning of the game. Each time R militarizes, we subtract $\Delta > 0$ from this value. Thus, D’s probability of winning equals $p - \Delta$ after R militarizes once, equals $p - 2\Delta$ after R militarizes twice, and so forth.⁷ For convenience, let $T\Delta = p$. This assumption means that if R militarizes T times, it guarantees herself victory in war.⁸ Returning to our definitions, this assumption means that appeasement equilibria must transition from p to 0 in the first T periods of the game.⁹ However,

⁶With notational restructuring, the case where $T = 1$ is a subgame of the main model. See Proposition A.1 in the appendix for its solution.

⁷As Beckley (2017) notes, China’s rate of economic growth and capacity to convert that growth into military power was increasing relative to the United States in the 1990s. Below we describe hazards that account for fluctuations in the rate of shifting power. More flexible investments produces additional off-path strategies to rule out but do not ruin the grand bargain result. For example, we can construct a model that generates a grand bargain if we assume R is given a surplus of size $M \in \mathcal{R}^+$ and invests $m_t \in [0, M]$ such that $p_t = f(p, \sum m_t)$.

⁸In effect, we assume an initial p and Δ so that power transitions sum to one. Adjusting this assumption complicates the final transition period but does not alter our conclusions. We assume a constant rate of militarization in the main model but relax this in an extension.

⁹Our results still hold if power transitions are partial. In that case, we restrict the power shift to less than total

grand bargain equilibria must converge to a stable period before the balance of power reaches 0.

Payoffs are as follows. The states are risk-neutral and have a common discount factor $\delta \in (0, 1)$. For each period that ends in a settlement, D receives x_t and R receives $1 - x_t$. In addition, in each period that R militarized, it pays $k > 0$. The value k represents R's opportunity cost of armament. Had R not militarized, it could have consumed that value or dedicated resources to foreign policy contests with third-parties instead.

War payoffs depend on the balance of power and the cost of war. War costs the respective parties $c_D, c_R > 0$.¹⁰ Because fighting a war is game ending, we project the corresponding payoffs throughout the rest of time. Thus, all told, D's payoff for fighting a war from that period forward is $\frac{p - \Delta - c_D}{1 - \delta}$. R's payoff for fighting a war from that period forward is $\frac{1 - p + \Delta - c_R}{1 - \delta}$. A subtle feature of this payoff structure is that it omits R's expectation for future militarization costs (k). The reason is that R's advantage from militarization comes when the threat of war is plausible. Once war has happened, R has no reason to militarize.

Putting everything together, imagine that the states successfully negotiate in the first m periods, R militarizes in period $m + 1$, and D fights. Then D's payoff equals:

$$x_1 + \delta x_2 + \dots + \delta^{m-1} x_m + \frac{\delta^m (p - \Delta - c_D)}{1 - \delta}$$

Meanwhile, R's payoff equals:

$$1 - x_1 + \delta(1 - x_2) + \dots + \delta^{m-1}(1 - x_m) + \frac{\delta^m (1 - p + \Delta - c_R)}{1 - \delta} - \delta^m k$$

Payoffs are similar in cases where R militarizes multiple times, adjusting the number of Δ values and the instances of discount-adjusted k costs.

R's payoff highlights a fact often overlooked in power-transition models: militarization is inefficient. Each time R invests in its military, R loses k utility and D gets no benefit. The less R invests in its military, the more aggregate utility the states thus receive. However, inefficient militarization appears necessary if R wants to increase its bargaining leverage over the contested foreign policy

and define appeasement as a transition until the maximal point. Then a grand bargain must converge to a stable settlement before the maximal transition.

¹⁰We amortize the cost of war over future periods to keep the payoffs identical with Powell (1999). The results are identical if we treat it as a one-time payment, except we must multiply all instances of the c_i values within equilibrium parameter spaces and actions by $1 - \delta$.

issue through shifting the balance of power.

To be clear, we assume that the decision between militarization and consumption does not impact the size of the surplus. Consumption could influence R’s economic growth rate, but we omit this complication for three reasons. First, it is consistent with other models that allow for endogenous militarization (Spaniel, 2019). Second, the simpler set-up appreciates the distinction between private sector factors that contribute to a state’s economic productivity (R’s surplus is exogenous) and the political choice to invest increased tax revenue in different sectors (how R spends its surplus is endogenous). As economists point out, marginal changes in military spending has a small impact on overall economic growth relative to industry development, corporate innovation, or population growth. Third, political economists are unclear if consumption increases or decreases relative rates of growth. The reason is that military spending has positive externalities. For instance, technologies like computers, the internet, and jet engines have military origins (Sandler and Hartley, 1995). Moreover, consumption such as patronage and welfare spending, does not always promote economic growth (Ruttan, 2006). Furthermore, we theorize that consumption includes the rising power’s efforts to pursue foreign policy interests that the declining power does not care about. For example, China could dedicate its surplus to regional competition with Russia, and therefore would be spending its surplus on forward deployments, and land-based military technologies. These would be less valuable for contesting American forces in the Pacific, and could not be used in two places at once.

Also to be clear, our intuitive definition of a grand bargain described a setting where R *wants* to militarize, and D makes an offer large enough to incentivize R not to. Thus, we narrow our focus to the case where R’s military investment is sufficiently profitable that R wants to militarize:

$$\Delta > (1 - \delta)k \tag{C1}$$

The left-hand side is the per-period shift in the balance of power. The right-hand side is the time-discounted inefficiency of militarizing. When C1 is violated our model matches existing predictions (Debs and Monteiro, 2014; Spaniel, 2019). R has no motivation to militarize because the cost of doing so is large relative to the shift in power it produces.¹¹

¹¹We also assume that $c_R < 1$ to avoid corner solutions that do not yield any additional insight.

3.1 Analysis: Long power shifts and inefficient militarization as a cause of war.

Our model generates a novel mechanism for war based on long power shifts and the accumulation of inefficient militarization. This mechanism is intrinsically interesting and empirically plausible so we take time to derive it. It also helps us establish our core claims. We claim (1) that a grand bargain can act as a substitute for war because it also stops power from shifting; and (2) that appeasement is not rational under the same conditions. To satisfy these claims, we need to identify when war is an equilibrium and appeasement is not. Later, we will focus on these conditions to describe a specific kind of grand bargain: a grand bargain that is backed by the threat of war and repeated, instant power shifts.

First we contrast our war equilibrium with the common result:

$$\Delta < \frac{(1 - \delta)(1 - p - c_R + k)}{\delta} \quad (\text{C2})$$

When C2 is violated, preventive war is an equilibrium based on the well-known logic of rapidly shifting power (Powell, 1999). Power shifts so fast that R cannot compensate D enough in the present given what R's minimum demand will be tomorrow. Since this logic for war is well-known, we derive the equilibrium in Appendix A.6.¹²

The conventional wisdom is that when C2 holds, appeasement is an equilibrium and war is not. However, once we account for an endogenous rise over many periods we identify a second mechanism for war that crowds out appeasement. In our model, this mechanism is especially important because it defines the threshold for which war is an equilibrium but appeasement is not. As we will explain after we present the equilibria, whether we observe war or appeasement hinges on whether the duration of the power transition (T) is longer than a critical threshold T^* .¹³ We write that threshold as:

$$T > T^* \equiv \frac{\ln\left(1 - \frac{c_D + c_R}{\delta k}\right)}{\ln(\delta)} \quad (\text{C3})$$

Proposition 3.1 *Appeasement equilibrium:* *Suppose C1 and C2 hold but C3 does not. Then*

¹²Appendix A.6 also shows that grand bargains backed by the threat of war exist even if C2 is violated.

¹³To be clear, $T^* = p/\Delta$. Thus, we can re-write the following condition as $\Delta < \frac{p \ln(\delta)}{\ln\left(1 - \frac{c_D + c_R}{\delta k}\right)}$. We write it as T^* to emphasize the important role of the duration of the power shift.

there is a sub-game perfect equilibrium of appeasement. In it, R militarizes for T consecutive periods or until war happens. During the power transition phase, R accepts iff $x_t \leq p - \Delta n + \frac{\Delta}{1-\delta} + c_R - \delta k$. During the phase after the power transition is complete, R accepts iff $x_t \leq c_R$. In the power transition phase, D proposes $x_t = p - \Delta n + \frac{\Delta}{1-\delta} + c_R - \delta k$. During the phase after the power transition is complete, D proposes $x_t = c_R$.

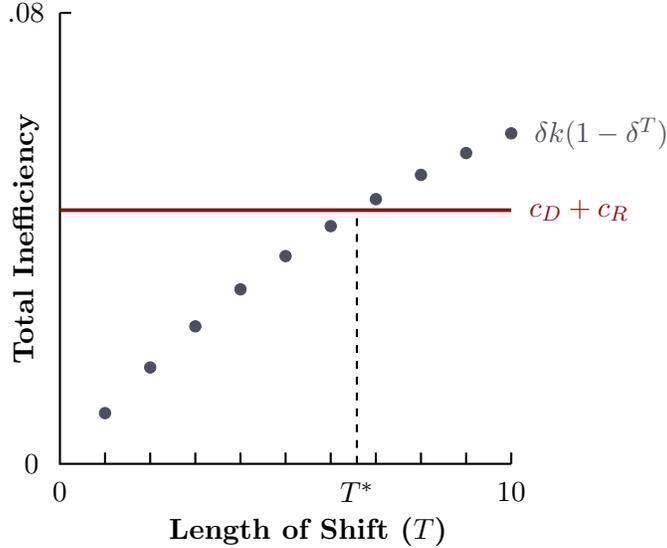
Proposition 3.2 War equilibrium: Suppose *C1*, *C2* and *C3* hold. Then there is a sub-game perfect equilibrium that ends in first period war. In it, R militarizes for T consecutive periods. In a sub-game in which there are more than T^* opportunities for militarization remaining, D fights a preventive war if R militarizes. In a sub-game in which there are fewer than T^* periods remaining, D 's offer and R 's accept strategies correspond with those defined in Proposition 3.1.

We jointly prove these equilibria in Appendix A.1.¹⁴ Here we describe how their logics are connected, and explain why T^* determines whether we see war or appeasement. The appeasement equilibrium is very similar to that described by Powell (1999) and others. D offers R enough to leave R indifferent with war every period, given that R expects that it will continue to militarize until the power transition is complete. In this way, $x_t = p - \Delta n + \frac{\Delta}{1-\delta} + c_R - \delta k$ represents R 's minimum demand from fighting during the power transition phase given n military investments. Consistent with standard results, R 's minimum demand is $\frac{\Delta}{1-\delta}$ lower than R 's present value for war because R anticipates that it will be stronger in the next period. Its present value for avoiding war factors in its time-discounted increased negotiation power in the next period.

Inconsistent with standard results, R 's minimum demand is δk larger than its present value for war. R 's demand is larger because militarization deprives R the opportunity to consume its surplus (which could be interpreted as avoiding militarization costs). Under appeasement, R expects to spend its surplus every period on militarization. However, once war settles the dispute, future military investments cannot benefit R . Thus, if R chooses to fight at t , it can consume its surplus in all future periods. To avoid war, D must compensate R an additional δk for this opportunity to consume resources in the next round.

The mechanism for war hinges on R 's larger minimum demand under appeasement. Notice that D must compensate R an additional δk in *every period* of the power transition phase. In

¹⁴We can do this because appeasement is a sub-game of the war equilibrium.



Black dots plot anticipated inefficiency from militarization given the power transition will last T periods. Solid, horizontal line captures total cost of instant war.

Figure 1: Contrasting cumulative inefficiencies from appeasement and war.

the first period, D anticipates paying R an additional δk for T future periods. When $T > T^*$, the accumulation of these time-adjusted compensations exceeds the inefficiency of war. Figure 1 illustrates this. The x-axis varies the duration of the power transition holding all other parameters constant. The y-axis captures the total inefficiency encountered over the course of the game for one of two different strategies. The solid line represents the total inefficiency from first period war. This line is horizontal because the cost of instant war is insensitive to the duration of the power transition. The dots represent the time-discounted cost to D from playing T periods of appeasement. If the duration of the power transition is longer than T^* , then R's accumulation of power generates more inefficiency than fighting a war straight away. In this case, D reverts to war because D knows his alternative is to pay δk under appeasement for $T > T^*$ periods.¹⁵

Substantively, our mechanism for war matches the concerns of many foreign policy experts in the early 2000s. These policy-makers worried about the long-term consequences from slow increases in Chinese economic growth and military spending for US interests in Asia 50 years from now. Those that called for war argued that China would militarize slowly over many years. This debate hinged

¹⁵Based on the figure, one might worry that the inefficiency from a period of arming must exceed the costs of war. This is misleading and an artifact of how this literature calculates payoffs. If we assume that armament destroys capital stock (to match how war costs are modeled), the cutpoint becomes $\frac{k}{1-\delta} > \frac{\delta(c_D+c_R)}{1-\delta^2}$, which permits k to be substantially smaller than $c_D + c_R$. See Coe (2011) for a similar substantive argument.

on the duration of the power transition and not the rate of shifting power.

3.2 Analysis: Grand Bargain Equilibrium

We focus on the conditions defined in Proposition 3.2. The conventional wisdom is that a grand bargain is especially unlikely under these conditions because war is an equilibrium and appeasement is not. Appeasement involves small offers, and a grand bargain likely involves larger offers. Why would D be willing to make a large offer when it is unwilling to make a small one? The reason is that there are two kinds of inefficiencies that states want to avoid: war and militarization. In the war equilibrium, players avoid the inefficiency of many periods of militarization. But they still deal with the costs of war. By definition, appeasement strategies allow states to avoid the cost of war, but force them to confront costly militarization. As we shall see, a grand bargain is possible even when war is attractive because it allows states to avoid both inefficiencies.

We must introduce one final condition:

$$\Delta < c_D + c_R + (1 - \delta)k \tag{C4}$$

This has an intuitive interpretation: the per-period shift in the balance of power is smaller than the combined inefficiencies of war and (time-adjusted) armaments. For now, we focus on grand bargains that arise in the first period because we can support it under the broadest conditions.

Proposition 3.3 *Suppose Conditions C1–C4 hold. For all $x \in [p - c_D, p - \Delta + c_R + (1 - \delta)k]$, there exists a subgame perfect equilibrium in which R never arms, D proposes x in every period, and R accepts that x in every period. If any state ever deviates, then they switch to the strategies from Proposition 3.2: R arms at every opportunity and D reverts to preventive war.*

See Appendix A.2. In the manuscript, we complete two tasks. First, we informally explain the grand bargain’s mechanism and how it is supported by war reversion. Second, we explain why the grand bargain is never unique. The reason is that it requires a credible threat to revert to war. Thus, for the grand bargain to hold together, war must also be an equilibrium strategy.

3.2.1 The grand bargain's mechanism

The central feature of the grand bargain is that D makes an offer larger than R's minimum demand for war under appeasement. Then in all future periods, D repeats that offer and R never militarizes again. Of course, both states face incentives to deviate. All else equal, D wants to reduce the size of his offer, and R wants to accept a generous offer, then militarize in the next period. The grand bargain is held together because each player can promise punishment if the other deviates from their grand bargain commitment. D punishes R's choice to militarize by reverting to war. R punishes D's choice to deviate to a different offer by militarizing (which triggers D into war in the next period). In short, states revert to the war equilibrium (Proposition 3.2) as a penal code (Abreu, 1988).

The credible threat of punishment is possible for two reasons. First, the grand bargain is both fairer¹⁶ and more efficient than both war and appeasement. By efficient, we mean that the sum of the total expected utility of both players is larger because resources are not wasted on either militarization or war. By fair, we mean that players distribute this additional surplus between them. Thus, both players get more in a grand bargain than they would have gotten under either war or appeasement. It follows that R and D both have something to lose if the other deviates from the grand bargain and cannot recover it.

Second, each state only benefits from this division of the additional surplus because the other complies with the terms of the grand bargain. If one deviates from the grand bargain equilibrium, then the other no longer profits from the surplus. It follows that once one state exploits their incentive to deviate from the grand bargain equilibrium, then the other no longer has anything to lose from deviating also. Since they no longer lose from deviating, they can credibly promise to revert to their chosen punishment.

Consider D's promise to revert to war if R's militarizes in the next period. Once D observes R's deviation, D knows that R will not accept a renewed x in the future. Faced with this realization, D cannot benefit from making another generous offer because R will militarize anyway. Since D cannot benefit from playing the agreed upon grand bargain, D considers other strategies. In the

¹⁶Our definition of fair assumes that D offers R more than R's minimum demand under appeasement. This is fair in the sense that R gets more than it can guarantee herself (Abreu, 1988). Proposition 3.3 shows that grand bargains vary in size. Some can be fairer than others.

analysis of the war equilibrium, we showed that when condition C3 was satisfied, D strictly prefers war to any offer that R will accept under the assumption that power repeatedly shifts. This makes clear why incentives for war help the grand bargain hold together if militarization has an instant effect on relative power. As we showed in the analysis of the war equilibrium, the longer the power transition is, the easier it is for D to rationally prefer war to appeasement across multiple periods. For D to credibly promise to revert to war, it must be the case that D wants to fight if R deviates from the grand bargain. If this condition is satisfied, then if D makes the grand bargain offer in the first period backed by the threat of war, then D can credibly promise to revert to war.

3.2.2 The grand bargain is a (weak) substitute for war

Figure 2 plots our equilibrium expectations as a function of the cost of militarization (k) and the rate of shifting power (Δ).¹⁷ In region (1) C1 is violated. Thus, R does not want to militarize. In region (2) Proposition 3.1 is satisfied and we can support appeasement on the path. Region (3) emphasizes the multiple equilibria that our model predicts. In this region, both war and a grand bargain backed by the threat of war (Proposition 3.3) are equilibria but appeasement is not. This result is counter-intuitive given what we know from the existing literature. The literature tells us that appeasement is D's most preferred offer. Thus, when we cannot support appeasement, we expect that power transitions will end in war. However, the grand bargain we have identified overlays considerably with the war equilibrium.

Why is this the case? The logic of our theory indicates that a grand bargain backed by the threat of war must overlap with the war equilibrium. The reason is that the grand bargain is held together by D's promise to revert to war. From D's perspective, war and a grand bargain serve the same purpose: D wants to lock in a stable negotiated settlement because it anticipates repeated shifts in power, where D is forced to repeatedly compensate R as the strategic setting shifting against him. War is an outside option that imposes a final resolution to the contest on both states based on the current level of relative power. The grand bargain is an inside option that ensures a stable balance of military power by encouraging R to consume its surplus. Once D decides that it wants to stop power from shifting repeatedly, D can use either a grand bargain or war to do it.

¹⁷The figure shows our mechanism exists when $k > .65$. As stated above, this is because we do not amortize the cost of consumption but we do amortise the cost of war. If we amortize both, we can support our mechanism with $k > .1$ holding all other parameters constant.

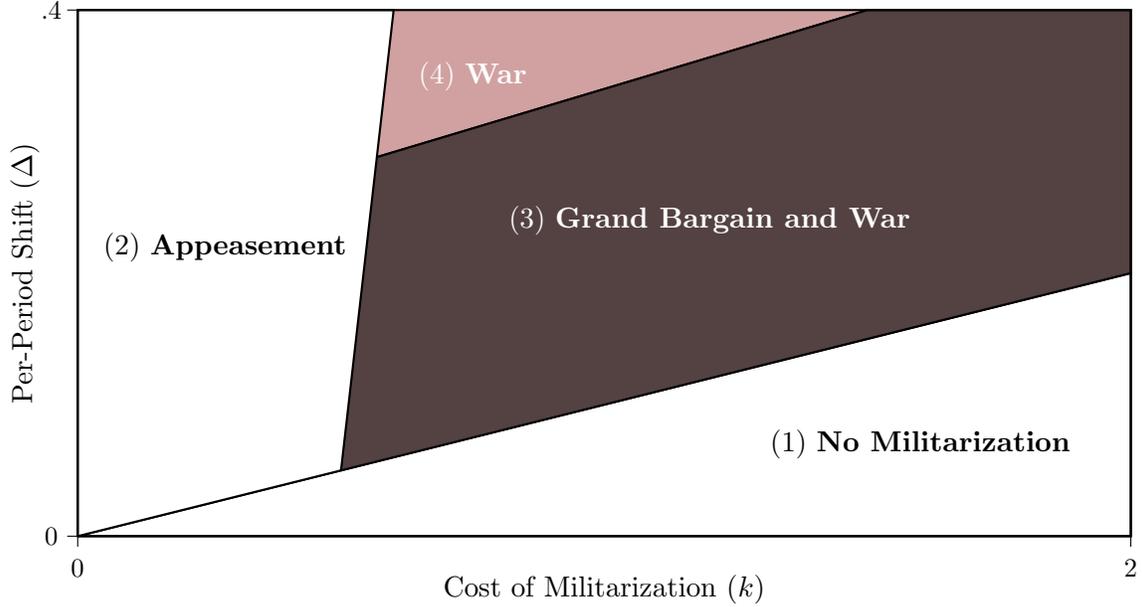


Figure 2: Equilibrium outcome as a function of militarization cost and per-period shifts.

3.3 Other grand bargain equilibria

We now describe other grand bargains we can support as SPE. Appendix A.3 reports technical information. The grand bargain we reported in Proposition 3.3 converged to a stationary offer. However, the standard folk theorem result applies. We can obtain proposal strategies that vary from period to period if the time-adjusted average values exceed listed quantities.

This grand bargain also assumed no-delay. R did not arm and D made a large offer in the first period. In practice, grand bargains are often delayed and follow a sequence of concessions. Under the conditions described in Proposition 3.3 we can support limited delayed grand bargain equilibrium backed by the threat of war for as long as D can credibly threaten to revert to war (a variant of condition C3).¹⁸

Finally, Proposition 3.3 only explored grand bargains under the threat of war. In the appendix, we show that we can support grand bargains under limited conditions if appeasement dominates war. Like Proposition 3.3, the logic is one of avoiding inefficiency. But now the inefficiency the states work to avoid is on the armaments. D continues to provide concessions under the expectation that R will not arm, and R continues to accept those concessions under the expectation that D will

¹⁸Interestingly, in parameter ranges where war is driven by a liquidity problem, we can only support a no-delay grand bargain backed by the threat of war.

continue to provide them.

3.4 Hazards, rapidly shifting power and grand bargains

Like all models, ours is a simplification. To explore the logic of different strategies, we focused on a perfectly divisible issue, constant transition function and reasonable costs of war. However, the world is more complex. Scholars document critical cases where states confront hazards in the middle of power transitions that exacerbate incentives for war. We know that the incentives for war are heightened if states locked in a power transition also must confront: sudden shocks to the rate of shifting power, indivisibilities, an irreversible status quo and rapidly shifting power (Powell, 1999), accidents (Schelling, 1957), and the rise of third-party competitors (Treisman, 2004). One might wonder, do we find a grand bargain because we study a hazard-free world? If we do, then our multiple predictions may not match a more complex world where hazards abound.

To address this concern we assume states confront a hazard during the power transition in Appendix A.5. Consistent with past studies, we find that hazards increase the conditions under which war is an SPE. Specifically, there are cases where the hazard forces them into war when they would prefer to select appeasement in the baseline model.

Inconsistent with past studies, we show that these hazards also increase the conditions under which we observe a grand bargain backed by the threat of war. The mechanisms are slightly different depending on the hazard. But the basic logic is the same. Declining powers anticipate emerging hazards. When they anticipate these hazards, they want to stop power from shifting. Since both war and a grand bargain stop power from shifting, they can use either. Since these hazards generate incentives for war under more conditions, it is easier for D to threaten to revert to war if R shirks from a grand bargain offer. Thus, introducing war-causing hazards makes a grand bargain easier to achieve because it makes the threat to revert to war credible under more conditions.

In summary, introducing these hazards points to the following set of on path actions under conditions where the baseline model predicts appeasement. Assume initial conditions where power shifts slowly, and players expect power transitions are relatively short. Players will start out with appeasement-like offers: R militarizes, and D makes minimalist concessions that avoid war. Somewhere along the way, D anticipates a hazard such as a sudden increase to the rate of shifting

power, an indivisible issue, a risk of an accident, or the rise of a third party threat. There is one equilibrium in which D can turn to war and prevent that hazard from materializing. However, there is a second equilibrium in which D makes a grand bargain offer that entices R to end the power transition before players are forced to confront the hazard.

This point highlights the substitution logic of our argument. A grand bargain requires that D can credibly threaten to revert to war if R accepts the offer and militarizes anyway. It does not matter where the threat of war comes from, only that D can promise to turn to it if R shirks on the grand bargain. Thus, when D anticipates a rapid shift in the rate of shifting power tomorrow, D can offer a grand bargain today and credibly promise to revert to war.

4 Empirical Implications and Illustrative Evidence

Our theoretical results generate expectations that help us understand (1) when we should observe grand bargains, and (2) the real-world features of grand bargains that we can use to distinguish them from appeasement.

Above we argued that both war, and a grand bargain backed by the threat of war occur under the same structural conditions. We also argued that these conditions are different from those that drive appeasement. Based on the hazards examined in section 3.4, we generate the following prediction about how declining powers change their strategies over time:

Expectation about the timing of war, appeasement and a grand bargain. *When declining powers anticipate the power transition is short, slow, and hazard free, they select a strategy of appeasement. When declining powers realize the power transition will be long, rapid or that they will soon confront a hazard that will trigger either large or frequent demands, they select either a grand bargain or war.*

We search for evidence of expectation one by examining when and why declining powers shift strategy across time within a single power transition.

Our model also illuminates differences between a rationalist grand bargain and rationalist appeasement. Table 1 summarizes the qualitative features of these different forms of peace. The model is useful because it clarifies specific differences in the declining power's logic for making an offer, the size and nature of the offer, features of diplomatic negotiations, and the dynamics once a settlement is reached.

Table 1: Expectations of qualitative features surrounding grand bargains and appeasement

		Grand Bargain	Appeasement
Underlying conditions	structural	Power transitions are either long, rapid, or hazardous	Power transitions are short, slow, and hazard-free
Reasoning for concessions		Elites argue in favor of generous concessions because they believe it will entice the rising power to accept a stable peace.	Elites argue in favor of minimalist concessions that barely avoid war.
Terms of negotiated settlement		Declining powers explain that concessions are conditional on arms limitation. The rising power believes that the declining power will revert to war if the rising power violates the agreement.	Peace is not conditional on future militarization or arms limitations. Declining powers make no threat to revert to war should the agreement fail in the future.
Relative size of concession		Territorial concessions will be larger than appeasement concessions that came before.	Territorial concessions will be smaller than grand bargain concessions that come later
Post-settlement dynamics		Rising power diverts resources to domestic spending and/or military adventures in other regions of the world. Does not make future demands.	Rising powers continues to militarize and make future territorial demands.

We search for evidence of these different logics by examining internal deliberations between elite in the declining power, and diplomatic negotiations between different states. Of course, our model cannot explain divergences in elite debate because it assumes that states are unitary actors. However, internal deliberations give us leverage for two reasons. First, during internal debates, elites explain the logics of their policy proposals. Thus, by examining why elites argue in favor of war, or a grand bargain, or appeasement we can tease out what policymakers hope to achieve through these strategies.

Second, certain combinations of debated policies are more surprising for our theory than others. In particular, once a hazard arises our model suggests that appeasement is no longer a rational strategy. Thus, we would find it surprising for a large group of elites to argue in favor of continued appeasement. However, our model predicts that either a grand bargain or war could emerge in this period. Thus, it would be reasonable to assume that this is the fissure around which elites will fall. While finding elite debate between grand bargain and war during this period would be consistent with (but not confirm) our theory, finding significant support for appeasement would

help us disconfirm our theory.

We studied two cases in-depth: Britain's response to Russia in Central Asia (1869-1907) and Japan's response to Russia's rise in Northeast Asia (1894-1905). Because of space constraints, we present Britain case in the article and the Japan case in appendix B.1. In appendix C, we also offer short vignettes on all major power transitions.

We analyze Britain and Japan as they offer the most-similar cases of power transitions that end in a different outcome. Both cases involve the rise of Russia, whose rise was in both cases primarily caused by railroad building, at approximately the same time. Moreover, both declining powers were island nations facing a Russian threat to its key overseas possession.

Despite these similarities, the Britain cases ended with a grand bargain and the Japan case with a war. This allows us to assess whether grand bargains and war can take place under the same conditions. Because of space constraints, we present Britain case in the article and the Japan case in appendix B.1. In appendix C, we also offer short vignettes on all major power transitions.

We find that the conditions that drove Japan to switch from appeasement to war are similar to the conditions that drove Britain to switch to a grand bargain. Furthermore, Britain's logic for a grand bargain mirrors Japan's logic for war. Both states worried about looming hazards, and wanted to seek a permanent end to the power shift. The similar conditions in these cases is consistent with the multiple equilibria we find and our logic that both grand bargains and war are appropriate strategies to stop power from shifting.

We accept that the structural conditions are not identical. First, Northeast Asia was more proximate to the Japanese mainland than Central Asia was to the British isles. Second, international alliances played a bigger role in Anglo-Russian competition. Third, the rise of Germany had a much bigger impact on the Anglo-Russian case than the Russo-Japanese case. These differences limit the confidence in which can put on our findings. Nevertheless, our findings still give a good indication of our theory's plausibility, as the two cases are arguably more similar than any other major power transitions.¹⁹

¹⁹In appendix B.2.3 we also consider the interaction of the two cases.

4.1 The Anglo-Russian Great Game, 1869-1907

Following its defeat in the Crimean War (1853-1856), Russia increasingly focused on expansion in Central Asia. Britain saw this as a threat to its possession of India, its most important colony. Decades of Anglo-Russian geopolitical competition followed in Central and South Asia, called ‘the Great Game’ (Sergeev, 2013). British policymakers generally understood that logistical difficulties prevented a full-scale Russian invasion of India. Nevertheless, the Indian Rebellion of 1857 demonstrated the fragility of British rule. Consequently, London feared that even a small Russian force could destabilize Britain’s hold over the subcontinent (Rawlinson, 1875). Furthermore, London saw the expansion of Russian power would as a threat to Britain’s commercial interests in Central Asia and the Middle East.

We now use our empirical implications to illuminate unappreciated features of this case. Our case material draws from an extensive review of primary documents, specialized works on the cases, general works of diplomatic history, and political science articles using this case.

We targeted our research to address four questions: What are the important events in this case? Do important diplomatic negotiations reflect a logic of appeasement, a grand bargain or something else? What are the structural conditions that surround these different choices? Looking at elite deliberations and debate, why did elites make the choices that they made?

4.2 Major events during the Great Game

We identified four major British concessions to Russia in Central Asia, summarized in Table 2. Based on our review of deliberations and diplomatic negotiations, we code concessions made in 1873, 1885, 1895 as appeasement. We code the final concession, made in 1907 as a grand bargain. As a result, we code this case as starting with a period of appeasement between 1869 and (roughly) 1904. We then code the case transitioning from appeasement to a grand bargain between 1904 and 1907.

There is one striking difference between the 1907 Anglo-Russian convention and previous agreements: the size of the concession. The 1907 convention covered Afghanistan, Tibet, and Iran, an area of roughly 3.5 million square kilometers. It thus dealt with all Anglo-Russian disputes in

Central Asia and the Middle East.²⁰ In comparison, previous concessions only concerned specific disputes. For instance, the 1884-5 Panjdeh Crisis concerned the delineation of roughly a quarter for the Russo-Afghan border (modern-day border between Afghanistan and Turkmenistan).

We now use diplomatic records to explore the logic of these settlements. Consistent with our theoretical focus, we emphasize events and deliberations surrounding the 1907 Anglo-Russian Convention. However, we make clear that the logic of a grand bargain is different from appeasement by including a contrasting example from the period of appeasement.

4.2.1 Expectation 1: Shifting structural Conditions and the shift to a grand bargain

We predict that a sudden shift in British beliefs about the rate of Russian demands would shift Britain's strategy. This is what we find. For the first three decades of the power transition Russia's rate of growth was relatively slow, as Russia gradually consolidated its hold on the former Central Asia Khanates (Morrison, 2011). This period corresponds with the period of appeasement.

At the turn of the century, several factors sped up the rate of Russia's rise. One major factor was Russian railroad building into the region, which increasingly allowed Russia to rapidly deploy its huge army in Central Asia. The Trans-Caspian Railroad reached Tashkent in 1898, and Russia planned to extend it to Termez on the Afghan border (Pierce, 1960, 188). British policymakers closely studied Russian rail-road building and anticipated how it would impact the rate of Russia's rise. Britain realized that if Russia continued railroad construction that Britain could not easily prevent Russia from invading of Afghanistan. A 1907 War Office study argued that Russia could soon deploy a "practically unlimited" number of men in the region.²¹

The threat of Russian railroad expansion was amplified by a heightened risk of accidental war with the Franco-Russian Alliance. This risk followed from crises during the 1898 Fashoda Crisis and the 1904 Dogger Bank Crisis. It was sufficiently serious that until 1906, all British plans for major war were directed against France and Russia (Tomes, 1997, 131-132).

Britain was also concerned that a rising Germany would force them to balance two great power rivalries simultaneously (Williams, 1977, 133-134). Some political scientists believe that Germany's rise is the sole cause of Anglo-Russian peace (Mearsheimer, 2001, 300). However, these views are

²⁰Britain had traditionally opposed Russian naval access to the Mediterranean through the Turkish Straits, but also took an increasingly cooperative stance on this issue.

²¹*The Military Resources of the Russian Empire*, 1907, W.O. 33/419, p. 287.

Table 2: Coding British Strategy Towards Russia

Year	Russian Advance	British Concessions	Aftermath	Coding
1869-1873	Russian annexation of Central Asian Khanates	1873 Anglo-Russian Agreement: Britain tacitly accepts Russian control over territories Russia had already taken in exchange for Russian recognition of British influence over the rest of Afghanistan.	Hostilities soon returned over interpretation of the agreement.	Appeasement
1884-1885	Russia defeats Afghan forces at Panjdeh. Russia demands Britain accept its control over Panjdeh and the pass of Zulfiqar backed by the threat of Anglo-Russian war.	1885 Anglo-Russian Protocol: Britain concedes Panjdeh but demands the return of Zulfiqar. Ultimately agrees to a commission delineating the border.	After an initial agreement, Britain refuses to accept Russian regional maps of Zulfiqar, leading to renewed tensions. Final delineation of western Russo-Afghan border in 1888, border dispute in the Pamir Mountains remains unresolved.	Appeasement
1892-1895	Russia defeats an Afghan force in Pamir.	1895 Anglo-Russian exchange of notes: Russia gains some land in northern Pamir, but Afghanistan maintains the Wakhan Corridor (Afghan panhandle)	End of Russo-Afghan border disputes. Increasing Anglo-Russian competition in Tibet and Persia	Appeasement
1903-1907	Russian railroad building in Central Asia. Britain projects that Russia can triple its military deployments within 10 years. However, Russia does not instigate any conflict	1907 Anglo-Russian Convention. With no active conflict, Britain offers Russian non-political relations with Afghanistan and a larger sphere of influence in Persia. Britain also giving up predominant position in Tibet. Britain mainly demands that Russia gives up expansionist aims in return.	End of serious Anglo-Russian competition in Central Asia and the Middle East	Grand Bargain
Other Relevant Events				
1898-1912	Increasing British concern about the German threat in Europe, especially following the 1905 Moroccan Crisis.			
1903	British assess Russian increased military spending and modernization.			

not widely held by historians. Historians argue that the Anglo-Russian Convention had a number of causes.²² Some, such as A. J. P. Taylor, even argues that the Anglo-Russian entente had “little

²²For a notable exception, see Williams (1977, 133-134).

to do with Germany” (1954, 442). Our theory takes a step towards reconciling these positions. It is broadly consistent with a balance of power explanation because the rise of a third-party competitor (Germany) acts as a hazard by causing rapid shifts in relative power.²³ Thus, we argue that a common fear of Germany likely encouraged cooperation between Britain and Russia. Nevertheless, it was not in itself sufficient to ensure it. Rather, Anglo-Russian cooperation was realized only after extensive negotiations and significant British concessions. Furthermore, the topic of Germany rarely came up during Anglo-Russian negotiations, nor did the Anglo-Russian Convention create any commitments of mutual defense.

What is uncontroversial, is that Britain feared the prospect of a Russo-German alliance, which would enable Russia to deploy all its resources to Central Asia. Germany offered Russia an alliance in late 1904 (Taylor, 1954, 419-423). The following year, Nicholas II and Wilhelm II signed the Russo-German Treaty of Björkö. Russia did not ratify the treaty (Rohl, 2014, 85), but Russo-German alliance negotiations continued. This led to considerable distress in London (White, 1995, 240-294).²⁴

4.2.2 Connecting British reasoning to hazards in the early 1900s

How did British policymakers respond once they realized that Russia would rapidly rise? The conventional wisdom is that the fear of rapidly shifting power should drive states to war (Powell, 1999). We argue that it can also generate incentives for a grand bargain. Consistent with our theory, the deliberations circa 1900 illustrate these multiple equilibria.

In 1902, future Foreign Secretary Edward Grey laid out three potential options. First, Britain could pursue a policy of “perpetual resistance to Russian expansion everywhere in Asia” that would carry a serious risk of war. Second, Britain could “remove, at any rate between the British Government and the Russian Government, that cloud of suspicion and mistrust and that continual friction that has existed for so long between the two countries.” He believed this could only come in the form of an agreement considering “Russian policy in Asia and British policy in Asia must be looked upon as a whole”, rather than looking at individual disputes in isolation.²⁵ This corresponds

²³Treisman (2004) models such a hazard.

²⁴*BD*, No. 195, F.O. Russia 1697, pp. 205-207; *BD*, No. 231, pp. 244-245; *BD*, No. 243, F.O. 371/318, pp. 256-258.

²⁵He did not go into any specifics, he presumably envisioned an agreement along the lines of the grand bargain which he himself negotiated five years later.

to a grand bargain. Third, Britain could continue to make individual concessions in response to Russian moves, which mirrors our strategy of appeasement.²⁶

Consistent with our theory, Grey thought that both a grand bargain and war were potential policies. However, he argued that appeasement was a “a policy which [Britain] must not pursue”.²⁷ In his view, appeasement combined “in a most extraordinary way the disadvantages both of yielding and of resistance without getting the advantages of either course”. This was because Britain would end up having made “all the concessions which ought to have entitled [it] to reward and friendship in return, while we have incurred odium and enmity and friction, even though the concessions were made in the end”. Thus, Grey believed appeasement was “intolerable”.²⁸ Grey’s contrast of appeasement and grand bargains highlights a key aspect of our theory, namely that militarization and bargaining continues after the former, while the latter provide lasting peace.

Between war and a grand bargain, Grey thought that the grand bargain was the “desirable” option. However, he was unsure whether it was achievable. He wanted “to find out what the Russian Government really want ... [to determine] how far it is so compatible with [British] interests to come to an agreement with Russia.”²⁹ In light of our model, Grey’s reasoning reflects how grand bargains are efficient, but that they do require the consent of both parties.

Given that Grey became the Foreign Secretary who would negotiate the Anglo-Russian Convention, his reasoning is important. Most other key British policymakers also shared Grey’s assessment that a grand bargain and war were Britain’s main options. However, there was considerable disagreement over which one of these strategies they preferred. For example, Foreign Secretary Lansdowne supported a grand bargain and initiated discussions with Russia for this aim in 1903. Conversely, other policymakers argued for war because they believed that Russia had too extensive demands in Central Asia and the Middle East for a satisfactory agreement to be feasible. For instance, Indian Viceroy Curzon, believed that “an agreement was impossible because no government aware of its country’s geographical and strategic advantages over Britain, would ever set a limit on its expansion” (Gilmour, 2003, 201).

Interestingly, given our multiple equilibria prediction, Britain came close to going to war with

²⁶ *Parliamentary Debates, Commons*, 22 January, 1902, pp. 609-610.

²⁷ *Ibid.*, p. 610.

²⁸ *Ibid.*, p. 610.

²⁹ *Ibid.*, p. 611.

Russia. Proponents of war wanted to take advantage of the growing Russo-Japanese tensions in East Asia. Austen Chamberlain, the Chancellor of the Exchequer, argued that a Russo-Japanese war would be “the proper time for us to secure, and to secure promptly, whatever we want in places where Russia is our rival” (Otte, 2007, 313).

An opportunity came in 1904, when the Russian Baltic Fleet en route to East Asia accidentally opened fire on a fleet of British trawlers at the Dogger Bank. Many saw this as proof of Russia’s hostility, and wanted to take advantage of the opportunity to strike back. The British public and press responded with outrage, and several cabinet members argued for war (Monger, 1963, 172). The Royal Navy prepared intercepting the Russian Baltic Fleet at Gibraltar. Fisher, the First Sea Lord argued that “the Russian Fleet is ours whenever we like to take it” (Morgan-Owen, 2017, 139). If Britain had attacked, Britain’s ambassador to Russia believed that Russia would seek peace with Japan and “concentrate its entire energy and forces in a determined attack on India”.³⁰ However, Lansdowne was ultimately able to prevent the crisis from escalating into war by securing a Russian apology and reparations.³¹

Consistent with our theory, proponents of war and a grand bargain both pointed to the same underlying structural conditions when justifying their strategy. For instance, the pro-war First Lord of the Admiralty Selborne summarized that “[i]t is a terrific task to remain the greatest naval Power when naval powers are year by year increasing in numbers and in naval strength and at the same time to be a military Power strong enough to meet the greatest military power in Asia”.³² Similarly, the pro-grand bargain Secretary of State for India, Hamilton, wrote that “time is on Russia’s side; the longer we delay coming to an arrangement, the worse the settlement for us will be” Monger (1963, 110).

The logic for a grand bargain was very different than the logic of appeasement in the three decades prior. As our theory predicts, policy-makers favoured appeasement in the earlier period because they anticipated a relatively slow and hazard-free power transition. Their goal was to make the smallest possible concessions and avoid war knowing that power would shift slowly. We see evidence of this during the Panjdeh Crisis, which began in March 1885 when the Russians defeated an Afghan force at Panjdeh. This attack could have forced Britain into war because Britain

³⁰ *BD*, No. 26, F.O. Russia 1730, pp. 33-35.

³¹ *BD*, No. 25, F.O. Russia 1730, pp. 28-33.

³² Selborne to Curzon, January 4. Quoted from Monger (1963, 110).

had previously committed itself to Afghanistan’s defense (Langer, 1931, 315). Prime Minister Gladstone planned for the “sad contingency of an outbreak of war” by securing emergency funds in parliament. However, he promised to “continue to labour, for an honourable settlement by pacific means”.³³ Most British policymakers shared Gladstone’s desire to avoid war with Russia over a remote and sparsely populated corner of Afghanistan. Nevertheless, neither Gladstone nor his critics seem to have considered to simply accept Russia’s possession of Panjdeh, let alone to offer broader concessions in Central Asia.³⁴ On the contrary, the British did their best to minimize the concessions they had to make. After the initial war-scare, Britain reluctantly agreed that Russia would keep Panjdeh, but had to withdraw from Zulfiqar further east.³⁵ Then they quickly resurrected the crisis by disagreeing with Russia about Zulfiqar’s geographic extent.³⁶ It was only in September the Anglo-Russian Protocol finally averted the risk of war.

4.2.3 Terms of the Concessions

In accordance with our expectations, the Anglo-Russian convention explicitly limited Russian militarization in Central Asia and the Middle East.³⁷ Russia promised not to seek a port in the Indian Ocean or build railroads in the British sphere of influence; meaning that it would not be able to extend its railroad network to the Indian Ocean.³⁸ It was also clear to the Russians that continued militarization would result in war. For instance, the Russian Foreign Minister Izvolsky stated to the British ambassador that he understood that “[i]f after the signature of the convention, Russia were to take action of any character whatsoever in Afghanistan, it would be a violation of the Convention and constitute an act of war”.³⁹

In contrast, previous agreements did not limit Russian militarization. Again, the 1885 Anglo-Russian Protocol is a good example. This agreement only dealt with defining the scope of Panjdeh and Zulfiqar, and for a commission to delineate the border, making no mention of Russian military

³³ *Parliamentary Debates*, Commons, 27 April, 1885, pp. 884-886.

³⁴ See for example Parliamentary Papers “Further Correspondence Respecting Central Asia, Vol. 2-4 (1885)” London: Harrison and Sons, 1885.

³⁵ *Ibid.*, Vol. 2, No. 16, (C.4389), p. 27, (1885).

³⁶ *Ibid.*, Vol. 2, No. 26, (C. 4389), p. 31, (1885).

³⁷ Russian power did continue to grow in Europe, where railroad expansion was rapidly decreasing the time it needed to mobilize its army. However, this did not pose a threat to Britain.

³⁸ *BD*, Appendix I, “Full Text of the Convention Between the United Kingdom and Russia Relating to Persia, Afghanistan, and Thibet, Signed at St. Petersburg, August 31, pp. 618-621.

³⁹ *BD*, No. 504, F.O. 371/320, p. 563.

deployments or railroad building.⁴⁰ Following this agreement Russia continued to expand its military presence and make demands elsewhere in Central Asia. Britain did not view this as a violation of the 1885 Protocol.

4.2.4 Post-Settlement Dynamics

We expect that the Anglo-Russian convention significantly dampened Anglo-Russian competition, while previous concessions did not. This is what we find. Following the Anglo-Russian Convention, Russia made no significant demands in Central Asia. A 1908 Foreign Office Memorandum summarized that the Anglo-Russian Convention “has successfully removed the causes of friction between Great Britain and Russia in Asia... The removal of all causes of discord in Asia would no doubt contribute to more harmonious relations between the two powers”.⁴¹ Russia also shifted its focus from Central Asia to other regions. Most notably, Russia took an increasingly confrontational policy towards Austria-Hungary in the Balkans, which Britain encouraged.⁴² This was a notable change in Russian strategy, as Russia had cooperated with Austria-Hungary following the 1897 Austro-Russian Entente.

Critical for our theory, Russia also abandoned plans to construct the railroad from Tashkent to Termez on the Afghan border because the decrease in Anglo-Russian tensions removed the strategic necessity for its construction (Becker, 2004, 148-149). This railroad had been a major concern to British policymakers. Moreover, Russia consulted Britain on future construction in Persia and adapted its plans to accommodate British interests beyond what the Anglo-Russian Convention stipulated (Spring, 1976). Last, the decrease in tensions in Central Asia would play an important role in facilitating Britain’s alliance with France and Russia during World War One.

Unfortunately we cannot know the how durable the Anglo-Russian Convention was, given that the Soviet Union denounced treaties made by the Tsarist government in 1918.⁴³ However, that was under very different political circumstances, and the Anglo-Russian Convention clearly did have an important impact while it remained in force.

This stands in stark contrast to appeasement agreements made during the 1800s. For instance,

⁴⁰Ibid., Vol. 4, No. 108, pp. 74-76”.

⁴¹BD, No. 549, pp. 612-616.

⁴²BD No. 257, F.O. 371/347, pp. 279-280.

⁴³Some historians contend that Russia might have made further demands if the WWI had not broke out (Siegel, 2002)

the new Prime Minister Salisbury expressed hope that the 1885 Anglo-Russian Protocol would solve the border issue, but made no mention of general Anglo-Russian relations. Almost immediately Britain and Russia became embroiled in a dispute over Bulgaria (Langer, 1931, 323-364), Tensions would also return to Central Asia few years later over the eastern of the Russo-Afghan border, which would not be delineated until 1895.

4.2.5 Summary

Circa 1900, Britain realized that power would soon start shifting against her because of several new hazards. Anticipating these hazards, British elites changed their strategy. During the 1800s, Britain wanted to make the smallest possible concessions. After 1900, Britain sought a permanent solution even if it meant a large up-front concession. The Anglo-Russian Convention has all of the features of the rationalist grand bargain that we identify. It involves a large concession (relative to those that came before) in exchange for arms limitations. After the agreement was struck, Russia diverted its foreign policy resources into other regions and abandoned future railroad construction in Central Asia. What is more, the agreement sustained peace until World War One.

4.3 Does our logic plausibly generalize to many cases?

Past theories predict a strong positive relationship between the rate of shifting power, or the length of a power transition, and the probability of war. In contrast, we predict a weak, positive relationship between the rate of shifting power, or the length of the power transition and war. The relationship is positive because war is an equilibrium, but weak because a grand bargain is also an equilibrium under the same conditions. If our theory is correct, adding control variables will not help because the model yields multiple equilibria under the same conditions. As we discussed in the motivation for this paper, this weak prediction fits the existing quantitative and medium-n research on power transitions. Thus, our main prediction about the prevalence of war across cases explains puzzling patterns uncovered in existing scholarship.

We expect grand bargains in other cases at around the same time that we would otherwise expect war. Having established how grand bargains look like in real-life, we conducted plausibility probes of Allison's (2017) cases of major power transitions since 1815. In each power transition, we analyze whether the declining power considered both war and a grand bargain. We report our

findings in Appendix C.

We found other cases that ended in a grand bargain at the point where power transition scholars typically predict war. For example, our theory explains why the rise of the United States did not result in war with Britain. Within a few years around the turn of the 20th century, London made a series of important concessions to the United States in the Venezuelan dispute, regarding the Spanish-American War, and the construction of the Panama Canal. These concessions meant accepting American hegemony in the Western Hemisphere. The purpose concessions was not just to avoid the immediate outbreak of war (Bourne, 1967, 339) but also to avoid an enduring Anglo-American contest (Gaddis, 2018, 257-258). Germany's failure to militarize in the 1980s is also consistent with our logic.

We also found that even in cases that ended in preventive war, declining powers seriously considered a grand bargain. One example is the power transition between France and Prussia in mid-19th-century. In 1866, France offered to accept significant Prussian expansion in Northern Germany, without demanding any compensation for itself (Pottinger, 1966, 147-148). Such proposals are hard to explain using existing power transition theory.

5 Conclusion

Theories of shifting power agree that long and rapid power shifts push the declining power to select preventive war. We showed that this is not necessarily the case. The same conditions can lead to a very different outcome: a grand bargain. In a grand bargain, the declining power offers more than he must to avoid war. In return, the rising power promises not to militarize and seek further gains. Grand bargains are stable because they capitalize on the rising power's desire to consume its surplus or expand in other theatres. We found that wars and grand bargains serve a similar purpose: they prevent power from shifting. Since they serve a similar purpose, declining powers turn to them under similar conditions. This insight helps clarify why so many cases destined for war end in peace: declining powers offer grand bargains under the conditions past scholars have predicted they should turn to war.

We use our theory to illuminate British and Japanese reasoning about how to respond to a rising Russia in the early 20th-century. We show that even though these cases appear to have radically

different outcomes, British and Japanese debates look remarkably similar. Existing theories struggle to explain this finding because they argue that wars and concessions happen under very different conditions.

Our theory has important policy implications for Sino-American relations. In the next decade, the US and China will confront many hazards: The Taiwan question, accidents in the South China Sea, disruptive military technologies, or sudden shocks to the international system, like the COVID-19 pandemic or a recession, will intensify incentives for Sino-American conflict. Many researchers believe that these hazards destine the countries for war. Our theory suggests that even if China's interests are vast this is not necessarily the case because a grand bargain is possible even between states with conflicting interests. We do not argue that a grand bargain with China is necessarily optimal. However, we do believe that policy-makers should look beyond military tools when assessing the best way to respond to China's rise. Specifically, they need to think carefully about what sort of concessions could divert China's interest towards consumption or expansion into other regions of the world, such as Central Asia. Our theory provides a framework of how the United States can strategically use such concessions to stop China from militarizing in the cheapest possible way.

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A Appendix

A.1 Proof of Proposition 3.1 and 3.2

To better structure the proof, we now give a proposition of the full equilibrium strategies that imply both Proposition 3.1 and Proposition 3.2. Let $n^* \equiv T - \frac{\ln\left(1 - \frac{c_D + c_R}{\delta k}\right)}{\ln(\delta)}$. We are now ready:

Proposition A.1 *Suppose C1 and C2 hold. The following is a subgame perfect equilibrium:*

- At each of R's armament decision nodes, it arms.
- At each of D's proposal decision nodes where $n < n^*$, D prevents.
- At each of D's proposal decision nodes where $n > n^*$, D proposes $x_t = \Delta(T - n) + \frac{\delta\Delta}{1-\delta} + c_R - \delta k$
- At each of R's accept/reject decision nodes, it accepts iff $x_t \leq \Delta(T - n) + \frac{\delta\Delta}{1-\delta} + c_R - \delta k$
- After $n = T$, D proposes $x_t = c_R$ and R accepts iff $x_t \leq c_R$ in all periods.

The equilibrium outcome is war in the first period if $T > \frac{\ln\left(1 - \frac{c_D + c_R}{\delta k}\right)}{\ln(\delta)}$ and a full, peaceful power transition if $T < \frac{\ln\left(1 - \frac{c_D + c_R}{\delta k}\right)}{\ln(\delta)}$.

We divide the proof into three types of subgames based on the number of times R has built in the past.

A.1.1 The Post-Shift Subgame

Working backward, we begin when $n = T$. We use the one-shot deviation principle to prove the claim. To begin, consider D's possible deviations. Its only alternatives are to fight, propose some $x_t > c_R$, or propose some $x_t < c_R$. The indicated strategies generate a payoff of $\frac{c_R}{1-\delta}$ for D. If D deviates to fighting in a generic period, it earns $\frac{c_D}{1-\delta}$ for the rest of time, which is strictly worse than its payoff for the rest of time for staying with the indicated strategy.⁴⁴ If D deviates to $x_t > c_R$ in a generic period, R responds by rejecting. This also generates a payoff of $\frac{c_D}{1-\delta}$ for the rest of time, which is still worse than sticking with the indicated strategy. The final option is to deviate to $x_t < c_R$ in a generic period. R responds by accepting, and the parties revert back to indicated strategies in the next period. D therefore earns $x_t + \frac{\delta c_R}{1-\delta}$. This is not profitable if $\frac{c_R}{1-\delta} \geq x_t + \frac{\delta c_R}{1-\delta}$, or $x_t \leq c_R$. This is true because the deviation is to $x_t < c_R$. Thus, D has no profitable deviation.

Now consider R's deviations. If it rejects some $x_t \leq c_R$ in a generic period, it earns $\frac{1-c_R}{1-\delta}$. This is not profitable if $1 - x_t + \frac{\delta(1-c_R)}{1-\delta} \geq \frac{1-c_R}{1-\delta}$, or $x_t \leq c_R$, which is the case for this deviation. If R accepts $x_t > c_R$ in a generic period, it earns $1 - x_t + \frac{\delta(1-c_R)}{1-\delta}$. This is not profitable if $\frac{1-c_R}{1-\delta} \geq 1 - x_t + \frac{\delta(1-c_R)}{1-\delta}$, or $x_t \geq c_R$, which is the case for this deviation. Thus, R has no profitable deviation either, and the proposed strategies are a subgame perfect equilibrium for $n = T$.⁴⁵

⁴⁴Whatever payoffs D has accrued beforehand are identical and do not factor into whether a deviation is profitable. We therefore omit those payoffs throughout this proof.

⁴⁵Moreover, the equilibrium beginning at subgames where $n = T$ is unique for the standard reason why the ultimatum game has a unique solution. If R were to randomize when indifferent between accepting and rejecting $x_t = c_R$, D would have a best response problem. As a result, no subgame perfect equilibria exist where R rejects with positive probability when indifferent.

A.1.2 When Few Shifts Remain (i.e., $n > n^*$)

Because the case where $n > T - \frac{\ln\left(1 - \frac{c_D + c_R}{\delta k}\right)}{\ln(\delta)}$ can be a subgame of a situation where $n < T - \frac{\ln\left(1 - \frac{c_D + c_R}{\delta k}\right)}{\ln(\delta)}$, we next cover the former situation.⁴⁶ We use proof by induction. For the base step consider the subgame starting with D's proposal at $n = T - 1$. We show five things about the equilibrium in any such decision nodes:

1. D cannot profitably deviate from demanding $x_t = \frac{\Delta}{1-\delta} + c_R - \delta k$
2. R cannot profitably deviate from accepting $x_t \leq \frac{\Delta}{1-\delta} + c_R - \delta k$
3. R cannot profitably deviate from arming
4. D's equilibrium payoff entering negotiations equals $\frac{\Delta + c_R}{1-\delta} - \delta k$
5. R's equilibrium payoff entering negotiations equals $\frac{1-\Delta-c_R}{1-\delta}$

First, consider D's proposal strategy. All proposals less than $x_t = \frac{\Delta}{1-\delta} + c_R - \delta k$ cannot be a profitable deviation because D could instead propose that amount, receive strictly more from the period, and not change the game's future actions. If it opts for that amount, it receives c_R in every subsequent period. Its alternatives are to propose something unacceptable or initiate war itself. Either way, it earns $\frac{\Delta - c_R}{1-\delta}$ in total. This is not a profitable deviation if:

$$\begin{aligned} \frac{\Delta}{1-\delta} + c_R - \delta k + \frac{\delta c_R}{1-\delta} &\geq \frac{\Delta - c_D}{1-\delta} \\ k &\leq \frac{c_D + c_R}{\delta(1-\delta)} \end{aligned}$$

This is true. The condition that $n > T - \frac{\ln\left(1 - \frac{c_D + c_R}{\delta k}\right)}{\ln(\delta)}$ is equivalent to $k < \frac{c_D + c_R}{\delta(1-\delta^{T-n})}$. This is a stronger condition than $k < \frac{c_D + c_R}{\delta(1-\delta)}$ because $\frac{c_D + c_R}{\delta(1-\delta^{T-n})} < \frac{c_D + c_R}{\delta(1-\delta)}$.

Second, consider R's accept/reject decision. Accepting implies that it arms at cost k in the next period, leaving its share of the division as $1 - c_R$ for the rest of time. If it rejects, it locks in its war payoff of $\frac{1-\Delta-c_R}{1-\delta}$. Thus, R accepts if:

$$\begin{aligned} 1 - x_t + \frac{\delta(1 - c_R)}{1 - \delta} - \delta k &\geq \frac{1 - \Delta - c_R}{1 - \delta} \\ x_t &\leq \frac{\Delta}{1 - \delta} + c_R - \delta k \end{aligned}$$

This was R's given strategy.

Third, consider R's armament decision. By arming, it earns $\frac{1-c_R}{1-\delta} - k$. If it deviates to not arming, by the one-shot deviation principle, D proposes $\frac{\Delta}{1-\delta} + c_R - \delta k$. R then accepts and arms in the next period, triggering the concession $1 - c_R$ for the rest of time. This is not a profitable deviation if:

$$\frac{1 - c_R}{1 - \delta} - k \geq 1 - \left(\frac{\Delta}{1 - \delta} + c_R - \delta k \right) + \delta \left(\frac{1 - c_R}{1 - \delta} - k \right)$$

⁴⁶When it is not, $n < T - \frac{\ln\left(1 - \frac{c_D + c_R}{\delta k}\right)}{\ln(\delta)}$ for all situations when $n \neq T$. In that case, building T times immediately transitions the game to $n = T$, and the remainder of the proof follows from that.

$$\Delta \geq (1 - \delta)k$$

This is true by C1.

Fourth, we can use the above to quickly calculate D's utility entering negotiations. R accepts D's demand of $x_t = \frac{\Delta}{1-\delta} + c_R - \delta k$, and D's share for the rest of time for all periods thereafter equals c_R . Thus, D's payoff entering negotiations equals:

$$\frac{\Delta}{1-\delta} + c_R - \delta k + \delta \left(\frac{c_R}{1-\delta} \right)$$

$$\frac{\Delta + c_R}{1-\delta} - \delta k$$

Fifth and finally, because the equilibrium demand makes R indifferent between accepting and rejecting, we know that R's payoff equals $\frac{1-\Delta-c_R}{1-\delta}$.

What remains is the equilibrium strategies for periods before $n = T - 1$. The induction step to prove the equilibrium strategies will require calculating the payoffs for the strategies under the hypothesized equilibrium. This itself requires a sub-proof using induction. The base step from above demonstrates that entering negotiations at $n = T - 1$, R's payoff equals $\frac{1-\Delta-c_R}{1-\delta}$. For the induction step, the claim is that if R's equilibrium payoff beginning in negotiations with n armaments equals $\frac{1-\Delta(T-n)-c_R}{1-\delta}$, then its equilibrium payoff beginning in negotiations with $n - 1$ armaments equals $\frac{1-\Delta(T-(n-1))-c_R}{1-\delta}$. By the equilibrium strategies, at $n - 1$ armaments, R will keep $1 - \Delta(T - (n - 1)) - \frac{\delta\Delta}{1-\delta} - c_R + \delta k$ and pay k in the next period. By the antecedent, it will earn $\frac{1-\Delta(T-n)-c_R}{1-\delta}$ thereafter. Thus, R's payoff beginning with $n - 1$ armaments equals:

$$1 - \Delta(T - (n - 1)) - \frac{\delta\Delta}{1-\delta} - c_R + \delta k + \delta \left(\frac{1 - \Delta(T - n) - c_R}{1 - \delta} - k \right)$$

This reduces to $\frac{1-\Delta(T-(n-1))-c_R}{1-\delta}$, which was the claim.

For D's payoff, the base step from above demonstrates that D receives $\frac{\Delta+c_R}{1-\delta} - \delta k$. For the induction step, the claim is that if D's payoff for the prescribed actions in negotiations beginning with n armaments equals $\frac{\Delta(T-n)+c_R}{1-\delta} - \delta k \left(\frac{1-\delta^{T-n}}{1-\delta} \right)$, then its payoff for the prescribed actions beginning in negotiations with $n - 1$ armaments equals $\frac{\Delta(T-(n-1))+c_R}{1-\delta} - \delta k \left(\frac{1-\delta^{T-(n-1)}}{1-\delta} \right)$. By the equilibrium strategies, at $n - 1$ armaments, D will keep $\Delta(T - (n - 1)) + \frac{\delta\Delta}{1-\delta} + c_R - \delta k$ for the period. By the antecedent, it will earn $\frac{\Delta(T-n)+c_R}{1-\delta} - \delta k \left(\frac{1-\delta^{T-n}}{1-\delta} \right)$ thereafter. Thus, D's payoff beginning with $n - 1$ armaments equals:

$$\Delta(T - (n - 1)) + \frac{\delta\Delta}{1-\delta} + c_R - \delta k + \delta \left(\frac{\Delta(T - n) + c_R}{1 - \delta} - \delta k \left(\frac{1 - \delta^{T-n}}{1 - \delta} \right) \right)$$

This reduces to $\frac{\Delta(T-(n-1))+c_R}{1-\delta} - \delta k \left(\frac{1-\delta^{T-(n-1)}}{1-\delta} \right)$, which was the claim.

Moving to the induction step for the proof of the equilibrium strategies, we now prove that if the prescribed actions constitute a subgame perfect equilibrium after n armaments, then they constitute a subgame perfect equilibrium after $n - 1$ armaments.

First, consider D's proposal strategy. If it wishes to induce acceptance, it must do so at the largest acceptable demand, or $x_t = \Delta(T - (n - 1)) + \frac{\delta\Delta}{1-\delta} + c_R - \delta k$. Its alternatives are to propose something unacceptable or initiate war itself. Either way, it earns $\frac{\Delta(T-(n-1))-c_D}{1-\delta}$. Thus, D cannot profitably deviate from the maximum acceptable quantity if:

$$\Delta(T - (n - 1)) + \frac{\delta\Delta}{1 - \delta} + c_R - \delta k + \delta \left(\frac{\Delta(T - n) + c_R}{1 - \delta} - \delta k \left(\frac{1 - \delta^{T-n}}{1 - \delta} \right) \right) > \frac{(T - (n - 1))\Delta - c_D}{1 - \delta}$$

$$k < \frac{c_D + c_R}{\delta(1 - \delta^{T-(n-1)})}$$

This is given by the condition on n .

Second, consider R's acceptance strategy. If it accepts, it receives the remainder of the proposal today. It then arms in the next period and earns $\frac{1 - \Delta(T-n) - c_R}{1 - \delta}$. If it rejects, it earns $\frac{1 - \Delta(T-(n-1)) - c_R}{1 - \delta}$. Thus, it is willing to accept if:

$$1 - x_t + \delta \left(\frac{1 - \Delta(T - n) - c_R}{1 - \delta} - k \right) \geq \frac{1 - \Delta(T - (n - 1)) - c_R}{1 - \delta}$$

$$x_t \leq \Delta(T - (n - 1)) + \frac{\delta\Delta}{1 - \delta} + c_R - \delta k$$

This is the claimed decision rule.

Finally, consider R's decision to arm. If it does so, it receives $\frac{1 - \Delta(T-n) - c_R}{1 - \delta} - k$. If it deviates to not, using the one-shot deviation principle, D's proposal remains $x_t = \Delta(T - (n - 1)) + \frac{\delta\Delta}{1 - \delta} + c_R - \delta k$. R then accepts and builds in the next period. We have previously calculated the value of entering negotiations with $n - 1$ armaments as $\frac{1 - \Delta(T-(n-1)) - c_R}{1 - \delta}$. Therefore, R does not have a profitable deviation if:

$$\frac{1 - \Delta(T - n) - c_R}{1 - \delta} - k \geq \frac{1 - \Delta(T - (n - 1)) - c_R}{1 - \delta}$$

$$\Delta \geq k(1 - \delta)$$

This is given by [C1](#). It also concludes the proof by induction. Recapping, we have now proven the equilibrium strategies for all actions where $n > T - \frac{\ln(1 - \frac{c_D + c_R}{\delta k})}{\ln(\delta)}$.⁴⁷ What remains unproven is all actions where $n < T - \frac{\ln(1 - \frac{c_D + c_R}{\delta k})}{\ln(\delta)}$.

A.1.3 When Many Shifts Remain (i.e., $n < n^*$)

The proof is again by induction. Let \bar{n} be the greatest integer such that $n < n^*$. This represents the greatest level of armaments such that the time-adjusted cost of all potential armaments is larger than the sum costs of war. We use \bar{n} as the base step for the induction proof.

First, consider D's prevent decision. The most D can extract through negotiations is $x_t = \Delta(T - \bar{n}) + \frac{\delta\Delta}{1 - \delta} + c_R - \delta k$. Proposing this induces R to accept and build. The game then shifts to a case where $n > T - \frac{\ln(1 - \frac{c_D + c_R}{\delta k})}{\ln(\delta)}$. From the previous subproof, D's payoff as negotiations begin when the number of armaments equals $\bar{n} + 1$ equals $\frac{\Delta(T - (\bar{n} + 1)) + c_R}{1 - \delta} - \delta k \left(\frac{1 - \delta^{T - (\bar{n} + 1)}}{1 - \delta} \right)$. If it proposes an unacceptable amount or fights, it instead earns $\frac{\Delta(T - \bar{n}) - c_D}{1 - \delta}$. Thus, D cannot profitably deviate to an acceptable amount if:

⁴⁷For cases where $\frac{\ln(1 - \frac{c_D + c_R}{\delta k})}{\ln(\delta)} > T$, this also completes the proof. The remaining discussion is vacuous because such circumstances do not exist for that parameter space.

$$\frac{\Delta(T - \bar{n}) - c_D}{1 - \delta} \geq \Delta(T - \bar{n}) + \frac{\delta \Delta}{1 - \delta} + c_R - \delta k + \delta \left(\frac{\Delta(T - (\bar{n} + 1)) + c_R}{1 - \delta} - \delta k \left(\frac{1 - \delta^{T - (\bar{n} + 1)}}{1 - \delta} \right) \right)$$

$$\bar{n} \leq T - \frac{\ln \left(1 - \frac{c_D + c_R}{\delta k} \right)}{\ln(\delta)}$$

This is true because \bar{n} is defined as the largest value of n such that it is less than the right hand side.

Second, consider R's acceptance decision. If it accepts, it receives $1 - x_t$ for the period. It subsequently arms. From the previous subproof, R's payoff following that armament decision equals $\frac{1 - \Delta(T - (\bar{n} + 1)) - c_R}{1 - \delta}$. If it rejects, it earns its war payoff under \bar{n} . Thus, it is optimal for R to accept if:

$$1 - x_t + \delta \left(\frac{1 - \Delta(T - (\bar{n} + 1)) - c_R}{1 - \delta} - k \right) \geq \frac{1 - \Delta(T - \bar{n}) - c_R}{1 - \delta}$$

$$x_t \leq \Delta(T - \bar{n}) + \frac{\delta \Delta}{1 - \delta} + c_R - \delta k$$

This is the equilibrium decision rule.

Finally, consider R's armament decision. If it does so, it receives $\frac{1 - \Delta(T - (\bar{n} + 1)) - c_R}{1 - \delta} - k$. If it does not, using the one-shot deviation principle, D initiates war, and R earns $\frac{1 - \Delta(T - \bar{n}) - c_R}{1 - \delta}$. Therefore, R does not have a profitable deviation if:

$$\frac{1 - \Delta(T - (\bar{n} + 1)) - c_R}{1 - \delta} - k \geq \frac{1 - \Delta(T - \bar{n}) - c_R}{1 - \delta}$$

$$\Delta \geq (1 - \delta)k$$

This is true by C1.

Now for the induction step. We must show that if the prescribed strategies are a subgame perfect equilibrium after n iterations of armament, then they are a subgame perfect equilibrium after $n - 1$ iterations of armament. This process is much simpler than the previous proof by induction because at n iterations of armament the game ends in preventive war. D therefore earns $\frac{\Delta(T - n) - c_D}{1 - \delta}$ and R earns $\frac{1 - \Delta(T - n) - c_R}{1 - \delta}$.

First, consider whether D can profitably deviate to a proposal. The best acceptable proposal it can make at $n - 1$ armaments is $x_t = \Delta(T - (n - 1)) + \frac{\delta \Delta}{1 - \delta} + c_R - \delta k$. If it chooses this, by the one-shot deviation principle, it receives that quantity for the period, R arms, and it earns its war payoff under n armaments for the rest of time. D therefore cannot profitably deviate from receiving its war payoff under $n - 1$ armaments if:

$$\frac{\Delta(T - (n - 1)) - c_D}{1 - \delta} \geq \Delta(T - (n - 1)) + \frac{\delta \Delta}{1 - \delta} + c_R - \delta k + \delta \left(\frac{\Delta(T - n) - c_D}{1 - \delta} \right)$$

$$k \geq \frac{c_D + c_R}{\delta}$$

Because $n - 1 < \bar{n}$, we have $n - 1 < T - \frac{\ln \left(1 - \frac{c_D + c_R}{\delta k} \right)}{\ln(\delta)}$. This rearranges to $k > \frac{c_D + c_R}{\delta(1 - \delta^{T - (n - 1)})}$. Because $\frac{c_D + c_R}{\delta(1 - \delta^{T - (n - 1)})} > \frac{c_D + c_R}{\delta}$, this is a stronger condition than what is required for there to be no profitable deviation.

Second, we verify R's accept/reject decision rule. If it accepts, it receives $1 - x_t$ for the period.

By the one-shot deviation principle, it arms in the next period and earns its war payoff under n armaments. If it rejects, it receives its war payoff under $n - 1$ armaments instead. R therefore accepts if:

$$1 - x_t + \delta \left(\frac{1 - \Delta(T - n) - c_R}{1 - \delta} - k \right) \geq \frac{1 - \Delta(T - (n - 1)) - c_R}{1 - \delta}$$

$$x_t \leq \Delta(T - (n - 1)) + \frac{\delta \Delta}{1 - \delta} + c_R - \delta k$$

This is equilibrium's decision rule.

Finally, we verify R's decision to arm. If it does not arm, D fights a war under $n - 1$ existing armaments. If R arms, D fights a war under n armaments. Therefore, R cannot profitably deviate to not arming if:

$$\frac{1 - \Delta(T - n) - c_R}{1 - \delta} - k \geq \frac{1 - \Delta(T - (n - 1)) - c_R}{1 - \delta}$$

$$\Delta \geq (1 - \delta)k$$

This is true by C1.

A.2 Proof of Proposition 3.3

Like before, to better structure the proof, we now give a proposition of the full equilibrium strategies. Those strategies imply Proposition 3.3.

Proposition A.2 *Suppose C1–C4 hold. For any particular $x^* \in [p - c_D, p - \Delta + c_R + (1 - \delta)k]$, the following is a subgame perfect equilibrium:*

- On the path, R does not arm, D proposes x^* , and R accepts x^* in every period.
- If at any point a state has deviated, play the strategies according to Proposition A.1.

The strategies from the second bullet point are an equilibrium by Proposition A.1. Thus, the only thing left to prove is that the cooperative strategies from the first bullet point are an equilibrium under the threat of that punishment. Note that deviating implies war at the first opportunity.

We proceed with proof by the one-shot deviation principle. First, consider R's deviation to arming. D immediately fights in response. R therefore does not have a profitable deviation if:

$$\frac{1 - x^*}{1 - \delta} \geq \frac{1 - p + \Delta - c_R}{1 - \delta} - k$$

$$x^* \leq p - \Delta + c_R + (1 - \delta)k$$

This is true by the construction of x^* .

Second, consider D's deviation to any other proposal. Depending on its size, R will either fight immediately or accept. In the former case, this is not a profitable deviation if:

$$\frac{x^*}{1 - \delta} \geq \frac{p - c_D}{1 - \delta}$$

$$x^* \geq p - c_D$$

This is also true by construction of x^* .

In the latter case, R builds in the next period, at which point war occurs. The largest such acceptable demand is $x_t = p + \frac{\delta\Delta}{1-\delta} + c_R - \delta k$. This is still not a profitable deviation if:

$$\begin{aligned} \frac{x^*}{1-\delta} &\geq p + \frac{\delta\Delta}{1-\delta} + c_R - \delta k + \frac{\delta(p - \Delta - c_R)}{1-\delta} \\ k &\geq \frac{c_D + c_R}{\delta} \end{aligned}$$

This is true because we have the stronger condition that $k > \frac{c_D + c_R}{\delta(1-\delta^T)}$.

Finally, consider R's deviation to rejecting. It earns $\frac{1-p-c_R}{1-\delta}$ for doing so. It has no profitable deviation if:

$$\begin{aligned} \frac{1-x^*}{1-\delta} &\geq \frac{1-p-c_R}{1-\delta} \\ x^* &\leq p + c_R \end{aligned}$$

This is true because $x^* \leq p - \Delta + c_R + (1-\delta)k$, which is less than $p + c_R$ whenever C1 holds.

A.3 Other grand bargains

Here we describe other grand bargains that can arise.

A.3.1 Delayed Grand Bargains

We now sketch equilibria with a delayed grand bargain. Specifically, we show how R can arm \tilde{n} times before ending the power shift. Let x^* be the division. Can we support a division of x^* during those \tilde{n} armaments, concluding with a standard grand bargain afterward?⁴⁸ For D to be satisfied, it has to prefer accepting x^* throughout to fighting. Thus, in every period after m armaments, it must be that:

$$\frac{x^*}{1-\delta} \geq \frac{\Delta(T-m) - c_D}{1-\delta}$$

Thus, D has no profitable deviation if $x^* \geq \Delta(T-m) - c_D$ for all m . The hardest condition for this to apply for all m is to set $m = 0$. This generates the condition $x^* \geq \Delta T - c_D$.

Meanwhile, for R to be satisfied, it has to prefer receiving $1 - x^*$ throughout to fighting. Thus, in every period after m armaments, it must be that:

$$\frac{1-x^*}{1-\delta} \geq \frac{1 - \Delta(T-m) - c_R}{1-\delta} - k - \dots - \delta^{m-1}k$$

Thus, R has no profitable deviation if $x^* \leq \Delta(T-m) + c_R + (1-\delta^m)k$. Because $\Delta > (1-\delta)k$, this is hardest when m is largest. This generates the condition $x^* \leq \Delta(T-\tilde{n}) + c_R + (1-\delta^{\tilde{n}})k$.

Putting this together, we can support \tilde{n} periods of delay under these strategies for any $x^* \in [\Delta T - c_D, \Delta(T-\tilde{n}) + c_R + (1-\delta^{\tilde{n}})k]$, with the requirement that $\Delta T - c_D < \Delta(T-\tilde{n}) + c_R + (1-\delta^{\tilde{n}})k$ for such proposals to exist. Note that this caps \tilde{n} because progressively larger amounts decrease the right hand side.

⁴⁸There are other equilibria in which the division changes before the grand bargain is reached. For example, see the proof on smaller initial shifts, maintaining k and Δ as constant size.

A.4 Grand Bargains under Appeasement

We now construct how a grand bargain can form when **C3** fails—that is, when the equilibrium strategies in the absence of a grand bargain are appeasement.

Proposition A.3 *Suppose **C1** and **C2** hold but **C3** fails. For any particular $x^* \in [p + c_R - \delta(1 - \delta^T)k, p - \Delta + c_R + (1 - \delta)k]$, the following is a subgame perfect equilibrium:*

- On the path, R does not arm, D proposes x^* , and R accepts x^* in every period.
- If at any point a state has deviated, play the strategies according to Proposition A.1.

The strategies from the second bullet point are an equilibrium by Proposition A.1.⁴⁹ Thus, the only thing left to prove is that the cooperative strategies from the first bullet point are an equilibrium under the threat of that punishment. Note that deviating implies appeasement and a full power shift.

We proceed with proof by the one-shot deviation principle. First, consider R's deviation to arming. By Proposition A.1, the proposal that D makes and R accepts makes R indifferent between accepting and fighting a war under the distribution of power after that armament. Here, that distribution will be $p - \Delta$. Therefore, R does not have a profitable deviation if:

$$\begin{aligned} \frac{1 - x^*}{1 - \delta} &\geq \frac{1 - p + \Delta - c_R}{1 - \delta} - k \\ x &\leq p - \Delta + c_R + (1 - \delta)k \end{aligned}$$

This is true by the construction of x^* .

Second, consider D's deviation to any other proposal. Depending on its size, R will either fight immediately or accept. In the former case, this is not a profitable deviation if:

$$\begin{aligned} \frac{x^*}{1 - \delta} &\geq \frac{p - c_D}{1 - \delta} \\ x^* &\geq p - c_D \end{aligned}$$

By construction of x^* , we have $x^* \geq p + c_R - \delta(1 - \delta^T)k$. This is more stringent condition if $k < \frac{c_D + c_R}{\delta(1 - \delta^T)}$, which is given by **C3** failing.

In the latter case, appeasement prevails throughout afterward. By Proposition A.1, the payoff for D for this is $\frac{p + c_R}{1 - \delta} - \delta k \left(\frac{1 - \delta^T}{1 - \delta} \right)$. This is not a profitable deviation if:

$$\begin{aligned} \frac{x^*}{1 - \delta} &\geq \frac{p + c_R}{1 - \delta} - \delta k \left(\frac{1 - \delta^T}{1 - \delta} \right) \\ x^* &\geq p + c_R - \delta(1 - \delta^T)k \end{aligned}$$

This is true by construction of x^* .

Finally, consider R's deviation to rejecting. It earns $\frac{1 - p - c_R}{1 - \delta}$ for doing so. It has no profitable deviation if:

$$\begin{aligned} \frac{1 - x^*}{1 - \delta} &\geq \frac{1 - p - c_R}{1 - \delta} \\ x^* &\leq p + c_R \end{aligned}$$

This is true because $x^* \leq p - \Delta + c_R + (1 - \delta)k$, which is less than $p + c_R$ whenever **C1** holds.

⁴⁹Specifically, because **C3** fails for this proposition, the case where $n > n^*$ in Proposition A.1 covers this situation.

A.5 Grand bargains where hazards emerge

We now introduce a specific hazard: fluctuations in the rate of shifting power. The proof shows that a grand bargain backed by the threat of war still emerges under these conditions.

Consider an extension where the initial instances of power growth come at a different cost \tilde{k} and different shift in power $\tilde{\Delta}$. For simplicity, we focus on the case where the first two instances follow this. Thus, the main model is now the subgame after two periods of growth. To maintain the earlier notation, p now represents the distribution of power at the transition point between the two phases. If war occurs before any of the initial growth, the distribution of power is $p + 2\tilde{\Delta}$; if war occurs after one instance of initial growth, the distribution of power is $p + \tilde{\Delta}$. We maintain the existing conditions, substituting $\tilde{\Delta}$ and \tilde{k} .

Per the main text, we now show that the game's equilibrium can support multiple periods of power growth before moving to a grand bargain:

Proposition A.4 *For the parameters where Proposition A.2 is an equilibrium, for any x^* such that conditions outlined below hold, the following is an equilibrium:*

- If R has militarized zero times, D demands $x_t = p + \frac{\tilde{\Delta}(2-\delta)}{1-\delta} + c_R - \delta\tilde{k}$, R accepts $x_t \leq p + \frac{\tilde{\Delta}(2-\delta)}{1-\delta} + c_R - \delta\tilde{k}$, and R arms at all such decision nodes.
- If R has militarized once, D demands $x_t = \frac{p+\tilde{\Delta}+c_R-\delta x^*}{1-\delta} - \delta\tilde{k}$, R accepts $x_t \leq \frac{p+\tilde{\Delta}+c_R-\delta x^*}{1-\delta} - \delta\tilde{k}$, and R arms at all such decision nodes.
- At any other decision node, the states play strategies according to Proposition A.2.

For proof, we use the one-shot deviation principle. Consider R 's armament decision after it has already armed once. If it arms, it shifts into the grand bargaining stage, where it receives $1 - x^*$ for the rest of time. If it does not, it will receive $1 - x_t$ for the current period, and it will arm in the next. R therefore cannot profitably deviate to not arming if:

$$\frac{1 - x^*}{1 - \delta} - \tilde{k} \geq 1 - x_t + \delta \left(\frac{1 - x^*}{1 - \delta} - \tilde{k} \right)$$

We know from the proposition that D will propose $x_t = \frac{p+\tilde{\Delta}+c_R-\delta x^*}{1-\delta} - \delta\tilde{k}$ if R does not arm. Substituting that and rearranging yields:

$$\begin{aligned} \frac{1 - x^*}{1 - \delta} - \tilde{k} &\geq 1 - \left(\frac{p + \tilde{\Delta} + c_R - \delta x^*}{1 - \delta} - \delta\tilde{k} \right) + \delta \left(\frac{1 - x^*}{1 - \delta} - \tilde{k} \right) \\ x^* &\leq p + \tilde{\Delta} + c_R - \tilde{k}(1 - \delta) \end{aligned}$$

Using the worst case scenario of $x^* = p - \Delta + c_R + (1 - \delta)k$, this is still holds if:

$$\begin{aligned} p - \Delta + c_R + (1 - \delta)k &\leq p + \tilde{\Delta} + c_R - \tilde{k}(1 - \delta) \\ \Delta - (1 - \delta)k + \tilde{\Delta} - (1 - \delta)\tilde{k} &\geq 0 \end{aligned}$$

This is true. It is the condition that both such investments are worthwhile.⁵⁰

⁵⁰Because $\Delta - (1 - \delta)k > 0$, there is some slack here. Thus, it is possible that the initial shifts are net unprofitable but R still goes through with them. The reason is that R sees the initial investments as necessary steps to reach the more profitable shifts.

Moving up a step, we check R's decision to accept or reject after it has armed once. If it accepts, it earns the amount described above beginning in the next period. If it rejects, it earns its war payoff at the current balance of power of $p + \tilde{\Delta}$. Thus, it is willing to accept any demand if:

$$1 - x_t + \delta \left(\frac{1 - x^*}{1 - \delta} - \tilde{k} \right) \geq \frac{1 - p - \tilde{\Delta} - c_R}{1 - \delta}$$

$$x_t \leq \frac{p + \tilde{\Delta} + c_R - \delta x^*}{1 - \delta} - \delta \tilde{k}$$

This is the given decision rule.⁵¹

Moving up another step, we examine D's proposal. Given R's decision rule, the optimal demand it can choose is $x_t = \frac{p + \tilde{\Delta} + c_R - \delta x^*}{1 - \delta} - \delta \tilde{k}$. Thus, the only deviation that could be profitable involves obtaining its war payoff, either through fighting directly or an unacceptable offer. If it strikes the bargain, the remaining share it keeps in each period is x^* . The corresponding utility is preferable to fighting if:

$$\frac{p + \tilde{\Delta} + c_R - \delta x^*}{1 - \delta} - \delta \tilde{k} + \frac{\delta x^*}{1 - \delta} \geq \frac{p + \tilde{\Delta} - c_D}{1 - \delta}$$

$$\tilde{k} \leq \frac{c_D + c_R}{\delta(1 - \delta)}$$

This is the condition that war is more inefficient than a one-period power shift.

Now we move to decision nodes where no armament has taken place. First consider R's armament decision. If it arms it shifts into the previous bargaining decision. D's equilibrium demand makes R indifferent between accepting and rejecting, and so its utility equals $\frac{1 - p - \tilde{\Delta} - c_R}{1 - \delta}$. If it does not arm, it will receive $1 - x_t$ for the current period, and it will arm in the next. This will then generate a payoff of $\frac{1 - p - \tilde{\Delta} - c_R}{1 - \delta} - \tilde{k}$. R therefore cannot profitably deviate to not arming if:

$$\frac{1 - p - \tilde{\Delta} - c_R}{1 - \delta} - \tilde{k} \geq 1 - x_t + \delta \left(\frac{1 - p - \tilde{\Delta} - c_R}{1 - \delta} - \tilde{k} \right)$$

Substituting $x_t = p + \frac{\tilde{\Delta}(2 - \delta)}{1 - \delta} + c_R - \delta \tilde{k}$ from the proposition and reducing yields $\tilde{\Delta} \geq \tilde{k}(1 - \delta)$, again given by the condition that the armaments are profitable.

Moving back to R's accept or reject decision after it has never armed, it accepts if:

$$1 - x_t + \delta \left(\frac{1 - p - \tilde{\Delta} - c_R}{1 - \delta} - \tilde{k} \right) \geq \frac{1 - p - 2\tilde{\Delta} - c_R}{1 - \delta}$$

$$x_t \leq p + \frac{\delta \tilde{\Delta}}{1 - \delta} + c_R - \delta \tilde{k}$$

This is the given decision rule.

Finally, consider D's proposal. Given R's decision rule, the optimal demand it can choose is $x_t = p + \frac{\tilde{\Delta}(2 - \delta)}{1 - \delta} + c_R - \delta \tilde{k}$. Thus, the only deviation that could be profitable involves obtaining its war payoff, either through fighting directly or through an unacceptable offer. If it strikes the bargain, the remaining share it keeps is $p + \frac{\tilde{\Delta}(2 - \delta)}{1 - \delta} + c_R - \delta \tilde{k}$ for today, $\frac{p + \tilde{\Delta} + c_R - \delta x^*}{1 - \delta} - \delta \tilde{k}$ for the

⁵¹We assume that $\frac{p + \tilde{\Delta} + c_R - \delta x^*}{1 - \delta} - \delta \tilde{k} < 1$ to avoid corner solutions.

next period, and x^* for every period thereafter. The corresponding utility is preferable to fighting if:

$$p + \frac{\tilde{\Delta}(2 - \delta)}{1 - \delta} + c_R - \delta\tilde{k} + \delta \left(\frac{p + \tilde{\Delta} + c_R - \delta x^*}{1 - \delta} - \delta\tilde{k} \right) + \frac{\delta^2 x^*}{1 - \delta} \geq \frac{p + 2\tilde{\Delta} - c_D}{1 - \delta}$$

$$\tilde{k} \leq \frac{c_D + c_R}{\delta(1 - \delta^2)}$$

This is the condition that war is more inefficient than a two-period power shift.

A.6 Traditional Preventive War and Grand Bargains

We now cover the case where D sees the power shift as sufficiently large, such that it wants to fight preventive war under the traditional mechanism. The condition for this is:

$$\Delta > 1 - \delta + c_D + \delta c_R \quad (\text{C5})$$

We structure the proof strategy as we have before. First, we describe the punishment actions that arise in the absence of a grand bargain. Then we describe how a grand bargain can arise in the shadow of those punishment strategies.

Proposition A.5 *Suppose C1 and C5 hold. The following is a subgame perfect equilibrium:*

- If $n = T$, D demands $x_t = c_R$ and R accepts $x_t \leq c_R$ in every such decision node.
- If $n < T$, R militarizes, D prevents, and R accepts $x_t \leq \bar{x}$ in every such decision node.

The subgame where $n = T$ is the same as the main text, so we have already proven the claim there. All that remains is to show the $n < T$ case.

We again use the one-shot deviation principle to demonstrate the claim. First, consider R's build choice. If $n = T - 1$, then building moves the game from the $n < T$ circumstance to the $n = T$ circumstance. As a result, building implies that D proposes $x_t = c_R$ for the rest of time, and R accepts those proposals. R therefore earns $\frac{1 - c_R}{1 - \delta} - k$.⁵² If it deviates to not building, D prevents and R earns $\frac{1 - p + (T - 1)\Delta - c_R}{1 - \delta}$. This is not profitable if:

$$\frac{1 - c_R}{1 - \delta} - k \geq \frac{1 - p + (T - 1)\Delta - c_R}{1 - \delta}$$

$$p - (T - 1)\Delta \geq k(1 - \delta)$$

Recalling that $p - T\Delta = 0$, this becomes:

$$\Delta \geq k(1 - \delta)$$

This is true by C1. Thus, R cannot profitably deviate to not building when $n = T - 1$.

If $n < T - 1$, building implies that T will prevent. R earns $\frac{1 - p + (n + 1)\Delta - c_R}{1 - \delta} - k$. Not building also implies that D will prevent. R earns $\frac{1 - p + \Delta - c_R}{1 - \delta}$ here. This is not profitable if:

⁵²As before, we omit payoffs from the previous periods' divisions because they do not affect each state's decision for the present and future periods.

$$\frac{1 - p + (n + 1)\Delta - c_R}{1 - \delta} - k \geq \frac{1 - p + \Delta - c_R}{1 - \delta}$$

$$\Delta \geq k(1 - \delta)$$

This is still true by **C1**. Thus, R cannot profitably deviate to not building.

Now consider D's prevention strategy. If it prevents, it earns $\frac{p - n\Delta - c_D}{1 - \delta}$. Its alternative is to deviate to a proposal. Any proposal that R rejects cannot be a profitable deviation because it results in the same payoff as D preventing. For any acceptable demand, R builds in the next period. If $n < T - 1$, D prevents afterward. Its payoff for doing so is therefore $x_t + \frac{\delta(p - (n + 1)\Delta - c_D)}{1 - \delta}$. Thus, D's payoff for the deviation strictly increases in x_t . As such, even if R would accept any demand, D's best possible deviation to $x_t = 1$ is still not profitable if:

$$\frac{p - n\Delta - c_D}{1 - \delta} \geq 1 + \frac{\delta(p - (n + 1)\Delta - c_D)}{1 - \delta}$$

Substituting $p = T\Delta$ and solving for Δ yields:

$$\Delta \geq \frac{(1 - \delta)(1 + c_D)}{(1 - \delta)(T - n) + \delta}$$

The right hand side strictly increases in n . Thus, the constraint is hardest to hold at the maximum of n . The largest such n that fits the requirement of $n < T - 1$ is $n = T - 2$. As such, the deviation to demanding $x_t = 1$ is not profitable in any period if:

$$\Delta \geq \frac{(1 - \delta)(1 + c_D)}{2 - \delta}$$

C5 is a more stringent requirement if:

$$1 - \delta + c_D + \delta c_R > \frac{(1 - \delta)(1 + c_D)}{2 - \delta}$$

$$(1 - \delta)^2 + c_D + \delta c_R(2 - \delta) > 0$$

This is true. Therefore, **C5** implies that D cannot profitably deviate from preventing in any $n < T - 1$.

When $n = T - 1$, making the proposal instead implies that R will build and then D will propose $x_t = c_R$ for the rest of time. Like before, proposing an unacceptable amount is not profitable because R rejecting yields an identical payoff to D preventing. Meanwhile, D's payoff for deviating to an acceptable proposal is $x_t + \frac{\delta c_R}{1 - \delta}$. But even if R would accept any demand, D's best possible deviation to $x_t = 1$ is still not profitable if:

$$\frac{p - (T - 1)\Delta - c_D}{1 - \delta} \geq 1 + \frac{\delta c_R}{1 - \delta}$$

Recalling that $p - T\Delta = 0$, we have:

$$\frac{\Delta - c_D}{1 - \delta} \geq 1 + \frac{\delta c_R}{1 - \delta}$$

$$\Delta \geq 1 - \delta + c_D + \delta c_R$$

This is also true by **C5**.

Finally, consider R's acceptance strategy. If $n < T - 1$, accepting implies that it will build in its next move and observe D prevent. It therefore earns $1 - x_t + \frac{\delta(1-p+(n+1)\Delta - c_R)}{1-\delta} - \delta k$. If it rejects, it earns $\frac{1-p+n\Delta - c_R}{1-\delta}$. Thus, R prefers to accept x_t if:

$$1 - x_t + \frac{\delta(1-p+(n+1)\Delta - c_R)}{1-\delta} - \delta k \geq \frac{1-p+n\Delta - c_R}{1-\delta}$$

Substituting $p = T\Delta$ and solving for x_t yields:

$$x_t \leq (T-n)\Delta + c_R + \delta \left(\frac{\Delta}{1-\delta} - k \right)$$

Note that D's proposal is 0-to-1 constrained, so R accepts all proposals if the right hand side is greater than or equal to 1.

If $n = T - 1$, accepting implies R will then build and D will propose $x_t = c_R$ for the rest of time. Therefore, R accepts if:

$$1 - x_t + \frac{1 - c_R}{1 - \delta} - \delta k \geq \frac{1 - p + (T - 1)\Delta - c_R}{1 - \delta}$$

Substituting $p = T\Delta$ and solving for x_t yields:

$$x_t \leq c_R + \frac{\Delta}{1-\delta} - \delta k$$

The equilibrium states that R accepts if $x_t \leq (T-n)\Delta + c_R + \delta \left(\frac{\Delta}{1-\delta} - k \right)$. Substituting $n = T - 1$ returns $c_R + \frac{\Delta}{1-\delta} - \delta k$. Therefore, the decision rule also captures $T - 1$. That covers all possible one-shot deviations and therefore establishes the specified strategies as a subgame perfect equilibrium.

We can now form the grand bargain:

Proposition A.6 *Suppose C1, C4, C5 hold. For all $x^* \in [p - c_D, p - \Delta + c_R + (1 - \delta)k]$, the following is a subgame perfect equilibrium:*

- *On the path, R does not militarize, D demands x^* , and R accepts.*
- *If at any point a player has played any other strategy, both play the strategies associated with Proposition A.5 for all remaining decision nodes.*

Note that the structure of this is similar to Proposition A.2, except the condition for preventive war frames the punishment strategies.

The proof of Proposition A.5 showed that the punishment strategy from the second point is subgame perfect. All that remains is to show that the cooperative strategies that divide the good at x^* from the first point are credible given the credible threat to shift to the punishment strategy.

Again, we use the one-shot deviation principle. Consider first R's build strategy. By sticking to its cooperative strategy, it earns $\frac{1-x^*}{1-\delta}$. If R builds, D reverts to prevent. R earns $\frac{1-p+\Delta - c_R}{1-\delta} - k$ from the deviation. This deviation is not profitable if:

$$\begin{aligned} \frac{1-x^*}{1-\delta} &\geq \frac{1-p+\Delta - c_R}{1-\delta} - k \\ x^* &\leq p - \Delta + c_R + (1-\delta)k \end{aligned} \tag{1}$$

This is true by the construction of x^* .

Now consider D's strategy. It has two deviation options: a proposal not equal to x^* and prevention. Any proposal not equal to x^* results in the punishment strategies for the rest of time. Under the most favorable circumstances where R would accept any proposal, the most attractive deviation to another demand is to take everything. This gives D a payoff of $1 + \frac{\delta(p - \Delta - c_D)}{1 - \delta}$. Meanwhile, preventing now yields $\frac{p - c_D}{1 - \delta}$. As such, even under the most favorable acceptance strategy from R, preventing is the better of the two types of deviations if:

$$\frac{p - c_D}{1 - \delta} > 1 + \frac{\delta(p - \Delta - c_D)}{1 - \delta}$$

Substituting $p = T\Delta$ and solving for Δ yields:

$$\Delta > \frac{(1 - \delta)(1 + c_D)}{T(1 - \delta) + \delta}$$

This is an equivalent or weaker requirement than $\Delta \geq \frac{(1 - \delta)(1 + c_D)}{2 - \delta}$ if:

$$\begin{aligned} \frac{(1 - \delta)(1 + c_D)}{2 - \delta} &\geq \frac{(1 - \delta)(1 + c_D)}{T(1 - \delta) + \delta} \\ T &\geq 2 \end{aligned}$$

This is true. The proof for Proposition A.5 already showed that C5 implies $\Delta > \frac{(1 - \delta)(1 + c_D)}{2 - \delta}$, which in turn means that implies $\Delta > \frac{(1 - \delta)(1 + c_D)}{T(1 - \delta) + \delta}$. Thus, preventing is the better of the two types of deviations. In turn, D does not want to deviate overall if:

$$\begin{aligned} \frac{x^*}{1 - \delta} &\geq \frac{p - c_D}{1 - \delta} \\ x^* &\geq p - c_D \end{aligned} \tag{2}$$

Combining Lines 1 and 2, such an x^* only exists when:

$$\begin{aligned} p - c_D &\leq p - \Delta + c_R + (1 - \delta)k \\ \Delta &\leq c_D + c_R + (1 - \delta)k \end{aligned}$$

This is given by C4.

The last deviation to check for are on R's accept/reject decision. If R rejects, it earns $\frac{1 - p - c_R}{1 - \delta}$. If it accepts, then the game continues with proposals at x^* for the rest of time. Thus, R does not want to deviate to rejecting if:

$$\begin{aligned} \frac{1 - x^*}{1 - \delta} &\geq \frac{1 - p - c_R}{1 - \delta} \\ x^* &\leq p + c_R \end{aligned}$$

Recall that $x^* \leq p - \Delta + c_R + (1 - \delta)k$. C1 therefore implies that $x^* \leq p + c_R$. As such, no profitable deviations exist, and Proposition A.6 is therefore an equilibrium.

B Appendix: Empirical Information

B.1 The Russo-Japanese Conflict in Northeast Asia

Japan's victory over China in the First Sino-Japanese War (1894-5) established Japan as the dominant military power in Northeast Asia. However, Japan immediately found itself challenged by a rising Russia. A decade of intense competition followed, culminating in the Russo-Japanese War (1904-1905).

Following [Streich and Levy \(2016\)](#), we code Russia as the rising power in the Northeast Asia theatre. Japan was clearly rising in terms of aggregate capabilities, which is why some scholars code Japan as the rising power ([Allison, 2017](#), 244). However, all disputes between the two states were in Northeast Asia and any war would take place there. Thus, the important factor was the share of capabilities Russia could deploy in the contested region. In this respect, long-term trends favored Russia. Before 1890, Russia could only deploy a token force, due to the huge distances from Europe. However, the construction of the Trans-Siberian Railway, beginning in 1891 and still not complete in 1905, increasingly enabled Russia to deploy its superior aggregate capabilities against Japan. Our coding also reflects the views of Japanese and Russian policymakers ([Westwood, 1986](#), 18-19).

In our survey of the literature, we found three Japanese concessions to Russia, in 1895, 1897-1898, and 1900-1902. We code these concessions as appeasement. The first two concerned control over the Liaodong Peninsula and particularly the strategically important harbor of Port Arthur. The latter concerned Russian military presence in Manchuria. The case ended with the outbreak of the Russo-Japanese War in February 1904. However, before the war started Japan offered to divide Northeast Asia. They offered to recognize Manchuria as a Russian sphere of influence if Russia would recognize Korea as being within Japan's influence. Although Russia did not accept, we code this proposal as an attempted grand bargain offer.

B.2 Coding Japanese Strategy

In this section, we establish that Japan pursued a strategy of appeasement towards Russia between 1895 and 1902. Then, we show that Japan switched to a terminal strategy in 1903. After first unsuccessfully offering Russia a grand bargain, Japan went to war in 1904.

Having easily defeated China, Japan made huge gains in the peace treaty at Shimonoseki ([Paine, 2003](#), 247-252). This included the Liaodong Peninsula, containing the strategically important Port Arthur (Lüshun). However, Russia saw this as a threat to its own interests in Manchuria ([Ferro, 1993](#), 66). Thus, together with France and Germany, Russia requested that Japan would relinquish the peninsula. Declining the demand would mean war, and Japan was not in a position to fight three great powers simultaneously. Thus, Japan surrendered the peninsula for a larger indemnity from China ([Iklé, 1967](#), 128). The Japanese mood was one of ganbaru, meaning "grim determination to try harder the next time" ([Paine, 2003](#), 288).

In 1898, Russia secured a 25-year lease of Port Arthur for itself ([Langer, 1935](#), 410-411). Seeing Russia seize the port that it had forced Japan to give up three years previously led to outrage in Japan. Voices in the military wanted to protest against the acquisition. However, doves instead sought to use the lease as a bargaining chip to gain Russian acceptance for Japanese influence in Korea ([Nish, 1985](#), 44-47). This resulted in the April 1898 Protocol on Korea, which recognized Japan's predominant economic position in the country ([Keene, 2002](#), 578).

In 1900, Russia invaded Manchuria in response to anti-Western attacks during the Boxer Rebellion ([Paine, 1996](#), 215-219). Although the occupation was ostensibly temporary, Tokyo feared that Russia would fail to withdraw. Thus, the cabinet responded by protesting to Russia. Later, Japan

also tried to coordinate its diplomatic efforts to expel Russia from Manchuria with Britain and the United States. Around 1902-1903, Japan clearly changed its strategy towards Russia. Instead of making further limited concessions, Japan initially attempted to reach a general agreement solving all its disputes with Russia in Northeast Asia. On August 12, 1903, Japan proposed a draft treaty to Russia. Article 2 called for “reciprocal recognition of Japan’s preponderating interests in Korea and Russia’s special interest in the railway enterprises in Manchuria and on the right of Japan to take in Korea, and of Russia to take in Manchuria, such measures as may be necessary for the protection of their respective interests” (White, 1964, 351-352). This meant dividing Manchuria and Korea into respective Russian and Japanese spheres of influence. Accordingly, there would have been no major remaining points of Russo-Japanese tension.

The initial draft gave Japan a slightly stronger position in Korea than Russia in Manchuria. Yet, in subsequent negotiations, Japan went far to meet Russian demands. For instance, on October 30, Japan agreed to set up a neutral zone on each side of the border between Manchuria and Korea. Tokyo also agreed to recognize Russia’s predominant commercial rights in Manchuria (White, 1964, 351-358) (White 1964, 351-358). Eventually the negotiations failed, due to Russian unwillingness to compromise. For instance, Russia changed its own proposal for a mutual neutral zone to a unilateral neutral zone in Korea. At times, Russia even refused to discuss the status of Manchuria with Japan (Nish, 1985).

Russian intransigence increasingly convinced Japan about the necessity of terminating the competition through military means. On January 13, Japan sent an ultimatum demanding that Russia accept Japan’s conditions as they stood. When Russia took several weeks to reply, Tokyo decided on war. On February 8, the Japanese Navy launched a surprise attack at the Russian Pacific Fleet at Port Arthur, starting the Russo-Japanese War.

B.2.1 Underlying Structural Conditions

If our theory is correct, then Japan’s decision to switch from appeasement to war is triggered by a hazard. This is what we find. Throughout the period of appeasement Japanese concessions came in response to Russia’s rising power in Northeast Asia. Russia’s capacity to project power increased as Russia constructed and expanded the Trans-Siberian railway.

While railway construction was ongoing throughout the entire period, it did not equally affect Russia’s ability to project power over the entire period. Initially, the construction had a limited impact on Russia’s ability to project power in Northeast Asia. The incomplete railway system could not overcome major logistical difficulties as long as Russia’s army had to traverse huge distance on foot over a sparsely inhabited and inhospitable terrain.

By 1903, railway construction had reached a point where Russia could deploy significant forces by rail to contested areas. Each new part of construction amplified Russia’s ability to project power. Thus, with each new railroad project complete, Russia was increasingly able to deploy its large army to more places across Northeast Asia (Streich and Levy, 2016, 498). This fact was not lost on the Japanese. For instance, the Japanese General Staff stressed the importance of acting immediately, arguing that “the present is the most favorable time for this purpose, bearing in mind our superiority of our forces over Russia, the fact that the Trans-Siberian is incomplete . . . If we let today’s favorable opportunity slip by, it will never come again” (Nish, 1985, 157).

Japan was also concerned by Russian naval expansion. Initially, the Russian Pacific Fleet was relatively small. However, by 1903, Russia was about to complete several battleships. This would make it difficult to challenge Russia at sea (Kiyoshi, 2007, 82-84). Russian naval superiority in East Asia would allow Russia to cut the supply line between Japan and its forces on the mainland (Evans and Peattie, 1997, 90-91). Thus, Japan had a window of opportunity for war once it had completed

its own naval expansion (the six-six fleet) following the First Sino-Japanese War (Schencking, 2005, 98-105). If Japan did not capitalize on this window, Japan would soon find it difficult to compete with Russia both at land and at sea, meaning that an appeasement strategy was no longer viable.⁵³

Consistent with our theory, this sequence of events has important similarities and differences with the Anglo-Russian case. Like the British case, Japan started out making appeasement concessions when Russia's capacity to project power grew slowly. Also like the British case, a critical period arose where Russia's power started to grow rapidly. At that point, Japan chose to change its strategy. Unlike the British case, Japan opted for war not a grand bargain at that point.

B.2.2 The logic behind Japan's attempt at a grand bargain

While Japan ended up launching a surprise attack on Russia, it did seriously consider a grand bargain instead. In this section we review the logic of this grand bargain offer. We do this for two reasons. First, by walking through Japan's logic, we provide further support for the rationalist grand bargain. We also show that the logic departs from the logic of appeasement that we observe in earlier period. Second, in this case we know that war broke out. Thus, the case allows us to further assess whether a grand bargain is a relevant strategy during the same conditions as war.

Proponents of a grand bargain dominated the *genrō*, an influential group of elder statesmen.⁵⁴ This was in contrast to the army and navy, which largely preferred war instead. At a meeting on March 15 1903, the *genrō* concluded that Japan should negotiate with Russia "to reach an agreement on Korean independence and prevent the Korean problem from becoming a cause for war between Japan and Russia" (Nish, 1985, 153). After long discussions in government, Japan made a formal offer to Russia in August 1903 to recognize "the special interests of Russian in railway interests in Manchuria and" and to take any necessary measures to protect its interests in the area (White, 1964, 351). Formal negotiations over the exact terms of such agreement continued until the outbreak of war in February 1904.

Japan's reasoning behind this proffer is consistent with our theory. Japan wanted to create a stable peace with Russia. For instance, the government and the *genrō* agreed that the goal of concessions was to "settle [the question of] Korea once and for all" (Nish, 1985, 153). This argument rested on the belief that Russia only had designs on Manchuria. For instance, Itō contended that "Russia seemed to wish no immediate clash with Japan over Korea" (Nish, 1985, 153).⁵⁵

Japan's proposed terms were consistent with our rationalist grand bargain. Japanese policy-makers were prepared to accept Manchuria as a Russian sphere of influence in exchange for limiting Russian militarization in Northeast Asia. Japan wanted strict limitations on the number of troops the two countries could station in their spheres, stating that they "should not exceed the number actually required" to protect their commercial and railway interests. Under the proposal, countries could send additional forces to quash disturbances. However, "the forces shall be withdrawn as soon as the mission for which they were sent shall have been accomplished" (White, 1964, 351-352).

Japan's proposal would have helped to preserve the military balance of power in the region. Russia would then lack a suitable base of operations in the Northeast Asia, as its sparsely populated Siberian and Far East territories could not accommodate major long-term military deployments. Accordingly, Russia would need a long time to mobilize its forces, even after the completion of the

⁵³Japan also feared Russia's covert Russian infiltration in Korea through the Yalu timber concession (McDonald, 1992, 48; Streich and Levy, 2016, 496).

⁵⁴While the majority of the *genrō* took a dovish stance, a minority, particularly Field Marshall Yamagato aligned more with the military.

⁵⁵Such a view was not shared by proponents of war, who believed Russia coveted all of mainland Northeast Asia. For instance, Foreign Minister Komura argued that argued that "it will be very hard to get Russia to agree" to a deal limiting its influence to Manchuria (Nish, 1985, 159).

Trans-Siberian Railway. This was essential for Japan, as its war plans depended on taking advantage of its temporary numerical superiority to established forward defensive positions and secure a negotiated settlement (Paine, 2017, 56), similar to the actual Russo-Japanese War. Obviously it would still be harder to defeat Russia after the completion of the Trans-Siberian railway, but this condition would at least decrease its impact.

In contrast, the logic behind Japanese concessions to Russia between 1895 and 1902 were different. In these cases, Japan had more modest aims. In 1895, Russia used an ultimatum to make Japan relinquish the Liaodong Peninsula. In 1897 and 1902, Russia presented Japan with a fait accompli by leasing Port Arthur and temporarily occupying Manchuria. In both cases, Japan was faced with a choice between a small concession or war. There was little appetite among Japanese policy and military elites for war and so they made a concession.

Also consistent with appeasement, these earlier agreements did not limit Russia's militarization in Northeast Asia. A good example is the 1898 Nishi-Rosen Agreement. In return for accepting Russia's lease of Port Arthur, the agreement affirmed the neutrality of Korea and gave Japan certain economic rights on the peninsula. In fact, Japanese elites expected that Russia would make future demands even after peace was reached. For instance, after the 1895 Triple Intervention, historian Paine described the national mood was one of *ganbaru*, meaning "grim determination to try harder the next time" (Paine, 2003, 288).

Why did Japan's grand bargain offer fail? And given that it failed, why did Japan offer a grand bargain in the first place? While these questions are outside the scope of our theory, they are useful for explaining how our theory fits with both complimentary mechanisms that relate to uncertainty; and arguments about equilibrium selection.

For a rational grand bargain to hold together, Japan had to be willing to make an offer, and Russia had to be willing to not militarize. We argue that Japan realized that a hazard was pending and wanted to enter into a grand bargain backed by the threat of war. However, they were uncertain if Russia was willing to comply by accepting a large offer in exchange for stability in the balance of power. Our theory illuminates the important role of incomplete information over the strategy that Russia had chosen to play, and not only over Russia's minimum demand from war (which would drive internal debates about the optimal size of an appeasement offer). In our telling, Japan was unsure if Russia was committed to continued militarization, which would trigger Japan to revert to war equilibrium,⁵⁶ or if Russia was willing to strike a more complex, but stable agreement.

After Japan raised a grand bargain offer, Russia delayed its response and made counter-proposals that were unacceptable to Japan. Japan eventually concluded that Russia was unwilling to play the grand bargain strategy and would instead continue to militarize and expand in Northeast Asia in the face of generous offers. On January 12, 1904, an Imperial Council summarized that "Russia had made no adequate negotiations over Korea and had even refused to enter into negotiations over Manchuria" (Nish, 1985, 206). Consequently, Japan adopted a strategy of a war instead (Nish, 1985, 208). Hostilities commenced on February 8, with a surprise attack on the the Russian Pacific Fleet at Port Arthur.

Why Russia ultimately chose continued militarization is beyond the scope of our paper. Some argue that Russia was unwilling to accept the grand bargain offer because they significantly over-estimated their own capabilities and therefore underestimated Japan's appetite for war at that moment in time (Streich and Levy, 2016, 502-507). Others point to domestic politics. As Japan made its offer, hardliners led by Bezobrazov, which had particularly wide-ranging designs in Northeast Asia, came in control of the government (White, 1964).⁵⁷ From the perspective of our theory,

⁵⁶In standard accounts, incomplete information drives Japan to offer less than what Russia is willing to accept. Thus, Russia starts the war.

⁵⁷Consistent with our theory, both accounts point out that the logic for war still follows from Japan's fear of

the most interesting question is not why Russia was unwilling to accept the grand bargain offer, but rather what it takes to hold a grand bargain together. This case illustrates that one state cannot hold it together alone.

B.2.3 Interaction with the Anglo-Russian case

The Russo-Japanese rivalry and subsequent war did take place as Britain was considering whether to strike a grand bargain with Russia. This means that there is a potential interaction between the cases. This is likely the case to some extent, as Anglo-Russian negotiations became much more serious in the wake of the Russo-Japanese War. However, Russia's loss in the Russo-Japanese War did not predetermine the Anglo-Russian convention. First, policymakers started to call for a grand bargain long before the Russo-Japanese War. For instance, Grey made his arguments almost exactly two years before the outbreak of the war. Second, before the outbreak of the war, most proponents of a grand bargain thought Russia would be victorious. Third, Russia considered responding to its defeat by forming an alliance with Germany instead of the convention with Britain. If so, British policymakers feared that Russia would then intensify its efforts to expand in Central Asia,⁵⁸ instead of focusing on the Balkans as it did in real-life. Conversely, as we showed, proponents of war with Russia wanted to take advantage of Russia's defeats against Japan to settle its scores.

B.2.4 Summary

This case is consistent with our theory both on its own, and in contrast with the Anglo-Russian case. Looking across cases, we find that the conditions that drove Japan to switch from appeasement to war are similar to the conditions that drove Britain to switch to a grand bargain. What is more, Britain's logic for a grand bargain is very similar to Japan's logic for war. Both states worried about looming hazards, and wanted to seek a permanent end to power shifts in their region. The similar conditions in these cases is consistent with the multiple equilibria we find and our logic that both grand bargains and war are appropriate strategies to stop power from shifting.

Looking within this case, Japan's attempt to strike a grand bargain helps clarify the logic of grand bargains that we observe in real life. Like the British case, Japan sought to exchange a large up-front concession for limitations to militarization that would secure a stable peace. Thus, Japan's intentions recognized the same kind of exchange that we argue is rational. The fact that the agreement failed illustrates that grand bargains are more than simply offers. They are equilibria that require two states to play compatible strategies. In this case, Japan's offer failed because Russia was unwilling to hold up their end of the bargain by diverting resources to other regions.

B.3 Coding Strategy

This appendix offers detailed information about the historical background for our coding choices of British and Japanese strategies summarized in tables 2 and ?? respectively. Our coding builds on an extensive survey of primary documents, works of diplomatic and military history, and works in political science looking at the two cases.

To distinguish between appeasement and grand bargains, we rely on several differences in theoretical expectations. The first difference lies in the size of the offers. In appeasement, D makes the smallest, cost-effective offer to avoid war in the present. As evidence for or this, we look both

repeated militarization.

⁵⁸*British Documents on the Origins of the War, 1898-1914. Vol. 6: The Anglo-Russian rapprochement, 1903-7* (henceforth *BD*), No. 26, F.O. Russia 1730, pp. 33-35.

at the size of the concessions and statements from policy elites in D that the concessions that they propose are small but necessary to avoid war with rising powers. We also expect that elites who argue for these minimalist concessions will assess that the power transition will continue and future demands will come. In contrast, under a grand bargain, D uses foreign policy concessions to entice R to consume her surplus and prevent repeated demands. Accordingly, we expect larger concessions and that policymakers focus on ensuring that the concessions are sufficient to achieve this aim. We also expect policy elites in D stating that the aim of the concessions is last peace. Accordingly, the expect on further concessions to R at a later stage. Deliberations in D would most closely fit our mechanism if elites argue that large concessions will entice a rising power to limit their militarization in the contested region and focus their efforts in other regions, or focus on domestic spending.

The second difference lies in the nature of negotiations between the rising and declining powers. To the extent that states with different objectives seek out different terms during their negotiations, our theory also explains the nature of negotiations between the rising and declining power. Under appeasement, D wants to minimize the size of the concessions that she makes. D will not offer concessions unless he must. Declining powers will not typically seek out peace-time negotiations. Rather, they will typically enter negotiations following a crisis, demands, or fait accompli that if left unresolved will cause general war. Once negotiations have started, D will stall negotiations with the intent of keeping territory until the absolute last possible moment. Further, D will keep the negotiated agreements vague so that he can manipulate them as they are being implemented.

Under a grand bargain, D wants to make sure the agreement is clear, durable and sufficiently fair to entice R to focus on other rivalries or domestic spending. Thus, D will not haggle over every issue, nor ask for sizeable foreign policy concessions in return for his generous offer. However, D may ask R to agree to arms limitations in contested areas, or other commitments to end further expansion. This is especially true in cases where monitoring is difficult (Coe and Vaynman, 2019). While negotiating the terms of a settlement, D will be eager to meet additional demands that R makes if D believes those demands will facilitate a lasting peace. We expect the terms of the final agreement will be precise to avoid conflicts over interpretation from arising later. These negotiations would most closely fit our theory if D and R discuss, or mutually understand, that breaking the agreement is likely to result in war. Another indicator of a grand bargain is that D initiates negotiations during peace-time rather than negotiates in response to a specific crisis episode.

B.4 Coding British Strategy

In this section, we establish that Britain pursued a strategy of appeasement towards Russia between 1869 and roughly 1900. Furthermore, we show that Britain's strategy between roughly 1900 and 1907 was offering Russia a grand bargain.

Until roughly 1900, Britain pursued a strategy of appeasement towards Russia in Central Asia. Britain sought to deter Russian expansion, especially by maintaining exclusive influence over Afghanistan and defending the country's northern borders. For instance, Britain invaded Afghanistan in 1878 after Russia sent an embassy to the country. After the war, Britain promised to "support the Amir against any foreign aggression with money, arms, or troops"⁵⁹. Occasionally, Britain would also pre-empt Russian expansion in other areas through expeditions of its own, such as the 1904 British expedition to Tibet. However, Britain also made a number of agreements with Russia, most notably in 1873, 1885, and 1895 to prevent disputes from escalating into war. These

⁵⁹*British Foreign and State Papers, 1878-1879, Vol. LXX, "Treaty of Peace between Great Britain and Afghanistan", pp. 49-52.*

agreements were all of a limited nature. Moreover, Britain was careful to keep concessions to Russia as small as possible.

The 1873 agreement recognized Afghanistan as outside of Russian influence and attempted to delineate its borders (Ewans, 2010, 150-152). Britain made few explicit concessions to Russia in the agreement, but Russia took it as condoning its conquest of the Central Asian khanates north of Afghanistan.⁶⁰ However, Britain soon contested this interpretation.⁶¹ This attitude quickly resulted in the return of hostility.

The 1873 agreement was also vague in its delineation of Afghanistan's northern border, leading to conflicts of interpretation. In 1884, Russia seized the fort of Panjdeh and the strategically important pass of Zulfiqar, both claimed by Afghanistan. The crisis almost escalated into Anglo-Russian war in March 1885, when the Russians defeated an Afghan force at Panjdeh, while British officers were present (Langer, 1931, 315).⁶² The British ambassador to Russia argued, "[t]here is nothing to do but to pack up; war is inevitable" (Baddeley, 1921, 217). Rather than going to war, Britain chose to surrender Panjdeh to Russia, but ensured that Zulfiqar would remain in Afghan hands.⁶³ However, a new dispute soon erupted over the geographic scope of Zulfiqar. Thus, tensions returned until September, when the two powers finally agreed that a commission would delineate the border.⁶⁴

While the commission settled the western part of the Afghan-Russian border in 1888, the border further east in the Pamir Mountains remained contested. Britain wanted Afghanistan to annex the area to prevent Russia from bordering India. However, tensions flamed up in 1892, when a Russian force wiped out an Afghan force in the area. Britain responded by pushing Afghanistan to claim the Wakhan Corridor (the Afghan panhandle) (Lowe, 1967, 188). Further south, Britain annexed the princely states of Hunza and Nagar (Huttenback, 1975). Thus, when Britain and Russia agreed on a delineation agreement in the 1895 exchange of notes, Britain had already achieved all its strategic aims (Sergeev, 2013, 226).

By the early 20th century, Britain changed its strategy from making a series of limited concessions to Russia to offering a grand bargain. The most notable change was the scope of the agreement. The bargain intended to solve all outstanding disputes with Russia, namely Russian rights in Afghanistan, spheres of influence in Persia, and the status of Tibet. British efforts culminated in the 1907 Anglo-Russian Convention.⁶⁵

Another difference from previous agreements was Britain's willingness to make major concessions to Russia without demanding comparable concessions in return. First, Britain immediately agreed to Russia's proposal for the borders of the spheres of influence in Persia.⁶⁶ This was despite Russia securing a bigger and more economically important zone. Such a concession was deeply unpopular among many important British policymakers, particularly the government of India. King Edward VII also described such big concessions as "a mistake" (Monger, 1963, 294). Second, Britain allowed Russia to have non-political relations with the Afghan government, thus fulfilling a long-lasting Russian demand.⁶⁷ Last, Britain agreed to drop an article recognizing its special

⁶⁰ *Parliamentary Papers*, Correspondence respecting Central Asia No. 29, (C.2164), pp. 25-40 (1878).

⁶¹ *Ibid.*, (C.2164), p. 59 (1878).

⁶² Commons Sitting of Thursday, 9th April, 1885, *19th Century House of Commons Hansard Sessional Papers*, Third Series, Volume 296, pp. 1150-1298.

⁶³ *Parliamentary Papers*, Correspondence respecting Central Asia, No. 16, (C.4389), p. 27, (1885).

⁶⁴ *Parliamentary Papers*, Correspondence respecting Central Asia, No. 26, (C. 4389), p. 31, (1885).

⁶⁵ Appendix I, *British Documents on the Origins of the War, 1898-1914*. Vol. 6: *The Anglo-Russian rapprochement, 1903-7*, pp. 618-620 (henceforth *BD*).

⁶⁶ *BD*, No. 253 F.O. 371/382, pp. 275-276.

⁶⁷ *BD*, No. 472, F.O. 371/320, pp. 525-526.

interest in Tibet.⁶⁸ Accordingly, Britain gave up the predominant position in the region it had achieved during the 1904 British Expedition.⁶⁹ Conversely, Russian concessions merely consisted of giving up expansionist claims, particularly a port in the Persian Gulf.

C Evidence of Grand Bargains in Major Power Transitions

In this section, we investigate Allison's (2017) eight cases of major power transitions (we omit the Russo-Japanese case, which we already covered in the main text). We focus on the key prediction that our theory highlights, namely that states resort to wars and grand bargains under similar conditions. Thus, we evaluate to what extent elite policy-makers discussed making a grand bargain when the case ended in war, and war when the case ended in a grand bargain. We also look at whether policymakers pressed for these two solutions simultaneously. Given that our model is has to make a number of simplifications to be tractable, we do not expect it do explain our aspect of such a broad range of complex cases. Instead, we merely aim to highlight aspects of the cases that other scholars overlook.

In four out of eight cases, we find that elite policymakers simultaneously debated war or a grand bargain. In two further cases, policymakers did consider both a grand bargain and war, but at different times. We only find policymakers never considering both options in two cases, one which ended in war and one which ended in a grand bargain.

C.1 Britain and France (declining powers) vs Russia (rising power): 1815-1856

Domain: Global empire, influence in Central Asia and eastern Mediterranean

Background: Russia had for a long time expanded against a declining Ottoman Empire during numerous wars. This led to fear in Britain and France that Russia would either take Constantinople or establish a protectorate over the entire Ottoman Empire. The immediate catalyst of the conflict was a conflict over protection of the holy places in the Ottoman Empire. Nevertheless, most historians see this as a pretext, and that the real cause was great power rivalry over the Balkans and the Mediterranean. However, it is important to note that contrary to Allison's coding, it is doubtful whether Russia was actually a rising power in the 1850s. While Britain and France were growing rapidly due to the industrial revolution, Russia remained a mostly feudal country. The Russian Army remained very powerful, but probably less so than it had been in 1815.

How did the case end? War. Russia attacked the Ottoman Empire in July 1853. Three months later, Britain and France entered the war on the side of the Ottoman Empire. After protracted fighting in Crimea, Russia lost. The main outcome of the war was the "Black Sea Clauses", which banned Russia from having a fleet and fortified bases in the Black Sea. This significantly weakened Russia's ability to expand in the Balkans.

Did the declining power consider a grand bargain? Yes, simultaneously, but initiated by Russia. However, given that Allison likely miscodes the case, this is in accordance with our theory. In ten months prior to the outbreak of the war, Emperor Nicholas I proposed a partition of the Ottoman Empire with Britain. The background was Nicholas' belief that the collapse of the Ottoman Empire was imminent, and he wanted to avoid conflicts with Britain from resulting

⁶⁸ *BD*, No. 314, pp. 336-349.

⁶⁹ *BD*, No. 298, pp. 314-317.

from such an event. Apart from denying any desire of territorial expansion, it is hard to say with certainty agreement Nicholas had in mind. Likely, the agreement would likely have allowed for the liberation of the Ottoman Empire's Christian subjects and a division of the former empire into spheres of influence. Britain briefly considered this proposal, but ultimately declined because they did not believe the Ottoman Empire was about to collapse.

C.2 France (declining power) vs Prussia (rising power): 1860-1871

Domain: Land power in Europe, independence of minor German states.

Background: Prussia experienced a rapid rise in the 1860s, for a number of reasons. First, the Prussian economy was booming due to the effects of the industrial revolution. Second, the military rapidly expanded after Bismarck curtailed the ability of parliament to determine military spending. Last, Prussia defeated Denmark (1864) and Austria (1866) in quick wars, seizing significant new territories in northern Germany. This increasingly put it into conflict with France, which was the leading power in continental Europe at the time.

How did the case end? War. France's goal was to arrest or even reverse Prussia's rise. However, France quickly lost, primarily due to the much larger Prussian conscript army. This allowed Prussia to unite Germany and take the province of Alsace-Lorraine from France.

Did the declining power consider a grand bargain? Yes, simultaneously. The most significant debate between French policymakers came in 1866, right before the outbreak of the Austro-Prussian War. The French Emperor Napoleon III and his supporters preferred making a grand bargain with Prussia about the future of Germany. Initially, Napoleon III had offered that Prussia could annex significant territories in northern Germany, but in return for territorial compensations to France, most notably Rhineland. However, right before the outbreak of the Austro-Prussian War, Napoleon III conceded that Prussia could annex most of northern Germany. Napoleon did not ask for any specific concessions in return, including limits on German militarization. However, it is likely that such demands would have come during formal negotiations, which Bismarck successfully evaded. Nevertheless, it is clear that Napoleon III was worried about high military spending and wanted to solve this problem by satisfying Prussia through significant concessions (Pottinger, 1966).

A number of key policymakers opposed Napoleon's policy of giving major gains to Prussia. They instead wanted to deter any Prussian gains in close cooperation with Austria, even at the risk of war. The most vocal proponents of such a course was critic was Adolphe Thiers and his supporters in Parliament (Parti Thiers). This group also had tacit support from foreign minister Drouyn de Lhys and Empress Eugénie. Although probably commanding considerable popular support, they were not able to make Napoleon III change course in 1866.

C.3 Britain (declining power) vs United States (rising power): 1890-1910

Domain: Global economic dominance and naval supremacy in the Western Hemisphere

Background: The American economy boomed after the end of the Civil War (1861-1865). Yet both the army and the navy of the United States remained minuscule. However, in the 1880s, the United States started a major naval expansion, which allowed to play a more assertive role in foreign affairs. In particular, American policymakers wanted to enforce the Monroe Doctrine (promulgated

in 1823, but rarely used) to block the European powers from interfering in the Western Hemisphere. This clashed with Britain, which had until then been the leading power in South America, where it had considerable economic interests. Things came to a head in 1895, when the United States interfered in a boundary dispute between British Guyana and Venezuela.

How did the case end? Grand bargain. Britain decided to make considerable concessions to the United States in every conflict. This included accepting mediation in the Venezuelan Crisis, maintaining an attitude of benevolent neutrality during the Spanish-American War, agreeing to the American annexation of the Philippines, accepting American construction and possession of the Panama Canal, agreeing on a settlement favorable to the United States in the Alaska boundary dispute, and withdrawing most naval forces from the Americas. Combined, these constituted an acceptance of American hegemony in the Western Hemisphere. While British concessions were not conditional on any explicit limits in American militarization, American naval spending and tonnage did slow down relative to Britain after a rapid growth at the turn of the century (Crisher and Souva, 2014). Even more importantly, the concessions helped to ensure that there were no further significant disputes between Britain and the United States.⁷⁰

Did the declining power consider war? Yes, simultaneously. The staunchly imperialist British Prime Minister Salisbury clearly saw the implications of American demands in the Venezuela Crisis, and he was angered by them. Thus, he wanted to give a strong response. While he believed that the United States would back down, he understood that such a course of action might mean war. As he put it, “a war with America... in the not too distant future – has become something more than a possibility”.

Salisbury met strong opposition from members of his cabinet who wanted to avoid conflict with the United States at all costs. For instance, Colonial Secretary Joseph Chamberlain argued that a war with the US would be “the very worst thing that could possibly happen to us”. Thus, the cabinet instead decided in 1896 to make the necessary concessions to the United States in Venezuela. After the initial debate, there was general agreement about making the concessions that Britain found necessary.

C.4 Britain, France, and Russia (declining powers) vs Germany (rising power): 1890-1918

Domain: Land power in Europe and global sea power

Background: Germany experienced a rapid economic growth due to the ‘second industrial revolution’. This led to fears among Britain, France, and Russia that Germany would become strong enough to dominate the European continent. Particularly worrisome for Britain was that Germany from 1898 initiated a major naval expansion, to construct a fleet capable of rivalling the Royal Navy.

How did the case end? War. Germany, supported by Austria-Hungary, went to war with France and Russia following the July Crisis in 1914. Britain had signed ententes with France (1904) and Russia (1907), but was not obligated to join either state in case of war. However, Britain only formally declared war August 4, after the German invasion of Belgium. After four

⁷⁰These two facts compensated for the fact that some of the concessions in themselves did help to shift the regional balance of power in the United States’ favor.

years of intense fighting, the allies defeated Germany. In the Treaty of Versailles, Germany lost considerable territories, had to pay a huge indemnity, and was only allowed to have an army of 100,000 men.

Did the declining powers consider a grand bargain? No. Some members of cabinet opposed joining the war against Germany. Morley and Burns resigned from cabinet in protest. Lloyd George was also initially opposed to Britain's entry, but changed his mind after Germany invaded Belgium. However, none of these figures argued for making major concessions to Germany. There were also no significant attempts at a grand bargain prior to the war. The closest as the Anglo-German alliance negotiations taking place between 1898 and 1902. Nevertheless, again Britain did not consider making significant concessions to Germany.

C.5 Britain, France, and Soviet Union (declining powers) vs Germany (rising power): 1933-1945

Domain: Land and sea power in Europe

Background: After Hitler's rise to power in 1933, Germany embarked on a rapid military expansion. This increasingly posed a threat to Britain, France, and the Soviet Union.

How did the case end? War. France and Britain declared war on Germany on September 3, in response to Germany's declaration of war against Poland two days prior. The Soviet Union initially made a grand bargain with Germany through the Molotov-Ribbentrop Pact in August 1939. However, Germany would attack the Soviet Union in June 1941. The war ended with the total defeat and occupation of Germany.

Did the declining powers ever consider a grand bargain? Yes, simultaneously. Britain sought to avoid with Germany through a strategy with appeasement. The 1936 German re-militarization of the Rhineland and the 1938 Anschluss of Austria were relatively uncontroversial. War became a distinct possibility when Germany demanded Sudetenland from Czechoslovakia. This was a French ally, and the Sudetenland was vital for the defense of the country. However, British Prime Minister Neville Chamberlain was determined to avoid war. First, he flew to Berchtesgaden to meet with Hitler on September 16. During the meeting, he agreed to surrender Sudetenland to Germany after a plebiscite. In return, Hitler promised not to make any further demands. Nevertheless, Hitler soon demanded the immediate annexation of Sudetenland instead. During the Munich Conference, Chamberlain agreed to this. On his return to Britain, Chamberlain announced that he had secured "peace for our time", clearly indicating that he believed the agreement to be a durable one. The Munich Agreement did not explicitly limit German militarization, but Chamberlain believed he had "secured the prospect of a future arms limitation agreement" (Steiner, 2011, 640)

The Munich Crisis also helped to crystallize the anti-appeasement movement. Prior to the crisis, the opponents primarily consisted of a small group of conservative backbencher MPs, particularly Churchill. However, after the Munich Crisis, this group was joined by more conservative MPs, the Labour Party, and the Liberal Party. Eventually, this group became powerful enough to force Chamberlain to go to war in September 1939, and resign in May 1940.

The Soviet Union also attempted a grand bargain with Germany. Stalin was concerned about German eastward expansion. He also wanted Britain and France to pay the main costs of containing

Germany. Consequently, in August 1939, the Soviet Union and Germany signed the Molotov-Ribbentrop Pact. The pact divided Eastern Europe into German and Soviet spheres. It is unclear whether Stalin intended the Molotov-Ribbentrop Pact to last, or if it was simply a short-term measure to give the Soviet Union time to strengthen its military. However, the Soviet Union at least remained committed to the pact until the German attack in June 1940.

C.6 United States (declining power) vs Japan (rising power): 1905-1945

Domain: Land and sea power in Asia and the Pacific.

Background: Japan's victories in the First Sino-Japanese War (1894-5) and the Russo-Japanese War (1904-5) made it the preeminent naval power in the Eastern Pacific. This posed a threat to the American position in the region, particularly in the Philippines.

How did the case end? War. Japan launched a surprise attack on the US Pacific Fleet in Pearl Harbor on December 7, 1941. After initial Japanese successes, the war ended in the total defeat and occupation of Japan.

Did the declining power ever consider a grand bargain? Yes, but not simultaneously. The United States tried to avoid conflict in the Pacific 20 years prior through the Washington Naval Treaty (1922). Fearing an arms race in the Pacific (and also with Britain in the Atlantic), the United States invited the other great powers to a naval disarmament agreement. According to the agreement, The Americans proposed a 5 to 3 ratio between the US and Imperial Japanese Navy. While this left Japan with a smaller navy overall, Japan would have the larger navy in the Pacific. Moreover, Japan only had 55% of the US navy in 1920 and 18% of US GDP at the time. Last, the United States also refrained from fortifying any base in the Pacific, except Pearl Harbor and the Philippines. This largely secured Japan against any American attack. Thus, the American offer was clearly a generous one. The US Navy resisted the treaty, arguing that the treaty did not give the United States sufficient compensation from Japan.

The Washington Naval Treaty was very controversial in Japan. Initially, the majority supported the treaty ('treaty faction'), because they saw that Japan's economic weakness meant that it could never compete with the US in an arms race. This included large parts of the leadership of the navy. For instance, Admiral Yamamoto (who planned the Pearl Harbor attack) argued that "the ratio works very well for Japan – it is a treaty to restrict the other parties" However, an anti-treaty faction resented any limitations to the Japanese navy. While a clear minority in 1922, the treaty would eventually dominate the navy and the government, leading to the Japanese attack on Pearl Harbor in 1941.

C.7 United States (first declining, then rising) vs the Soviet Union (first rising power, then declining): 1945-1989

Domain: Global power.

Background: Given the length of the Cold War, there was not a uniform development in the relative power between the two superpowers. The United States started the Cold War in a predominant position, producing around half of the world's industrial goods. As the Soviet Union rebuilt after the war, its relative power increased. Even after Soviet economic growth started to decelerate during the Brezhnev era (1964-1982), the Soviet Union was able to compensate by increasing

military spending. The perception of Soviet rise was also strengthened by the American defeat in Vietnam.

However, by the 1980s, it was clear that the Soviet Union was becoming unable to compete with the United States both economically and militarily. Various instances in the early 1980s, such as Able Archer, the 1983 Soviet nuclear false alarm incident, and the Soviet shooting down of Korean Air Lines Flight 007 heightened concerns about accidental nuclear war.

How did the case end? Grand Bargain. Under Gorbachev, the Soviet Union willingly surrendered its control over the Eastern European countries. Moreover, it also conducted huge unilateral conventional disarmament. The United States did not offer any comparable concessions in return. This resulted in the end of the Cold War with the fall of the Berlin Wall. Although not intentional, Gorbachev's reforms also led to the collapse of the Soviet Union.

In the early 1970s, the United States also attempted a grand bargain. Nixon and Kissinger feared that the United States was in decline, and instituted a policy of détente to decrease tensions and the risk of war. This included concessions on trade and recognizing the Soviet sphere in Eastern Europe. In return, the United States did secure various disarmament treaties limiting the growth of Soviet capabilities, most notably SALT I.

Did the declining power ever consider a war? Yes, but largely not simultaneously. During the late Cold War, few argued for a preventive war, due to the obvious risks of an all-out nuclear war. However, détente and Gorbachev's concessions came under serious criticisms from neoconservatives and hardliners respectively. Both camps believed that the leadership granted the enemy far too big concessions, without gaining sufficient compensations in return. In order to avoid this, hawks in both countries wanted to pursue a confrontational foreign policy that clearly risked war, even if nobody sought that outcome. Earlier in the Cold War some elite policymakers did argue for a preventive war, particularly during the Eisenhower administration.

C.8 Britain and France (declining powers) vs Germany (rising power): 1989-1991

Domain: Political influence in Europe

Background: West-Germany experienced rapid growth during the Cold War, establishing it as Europe's strongest European economy. The fall of the Berlin Wall began German reunification. German Chancellor Kohl pressed for a rapid integration of East Germany. However, Thatcher and to a lesser extent Mitterand feared that a united Germany would dominate the European continent.

How did the case end? Grand bargain. Britain and France decided to accept German unification, in return for deeper European integration. This resulted in the 1992 Treaty of Maastricht, which created the European Union.

Did the declining powers ever consider war? No. Nobody in Britain and France seriously considered going to war to prevent German reunification. The debate was whether to accept a rapid integration of East-Germany according to Kohl's wishes on one and, and trying to delay or minimize the level of integration on the other. Mitterand first considered the former option. However, he realized that France could not prevent German reunification as long as Kohl was determined to achieve it and had support from the United States. Moreover, he was unwilling to

risk long-standing Franco-German friendship by seeing hostile to reunification. Thus, he instead chose accept unification and deepen Franco-German cooperation through European integration.

Thatcher was more overtly hostile to German reunification and tried to oppose it, first in cooperation with France and then the Soviet Union. However, she found little support in these countries. Her policy was also unpopular with in her cabinet.