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

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Abstract

Bargaining scholars predict rapid power shifts cause preventive war. But cases with rapidly shifting power 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 where past research uniquely predicts war, a grand bargain emerges. In it, 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. Our grand bargain can occur with delay. It also survives war-causing hazards, some latent shifts, and the absence of structural constraints necessary in nuclear cases. We show that the end of the Great Game fits our grand bargain, but that British elites seriously considered war. We illuminate a novel war-causing commitment problem with small, repeated power shifts.

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China's rise has heightened concerns about great power conflict (Allison, 2017). These concerns are established by scholars that use bargaining models to study power transitions. When power shifts slowly, declining powers prefer appeasement—incremental, minimalist concessions that avoid war as power shifts—to war. When power shifts rapidly, declining powers prefer a preventive war instantly, to a large concession in the next period (Powell, 1999, p123). Variation in regimes (Schweller, 2004), uncertainty (Reed, 2003), and alliances (Benson and Smith, 2022) complicate incentives for war. Nevertheless, the prediction—large and rapid power shifts cause war—is robust (Souva, 2017).

The evidence, however, is mixed. Scholars identify specific cases where rapid power shifts caused war (Streich and Levy, 2016; Copeland, 2015). But well-designed cross-national studies find that high rates of economic growth or military spending explain little variance in war onset; even controlling for regime type and other confounding factors (Bell, 2017; Kim and Morrow, 1992; Lemke, 2003).[1] One important study finds the expected rate of shifting power predicts conflict (Bell and Johnson, 2015). But even their measure explains less than 1% of the variance in conflict. Quantitative studies struggle to fit the dogs that don't bark: cases of rapidly shifting power that end peacefully. For example, during the 1800s, the United States sought to expel British influence from the Western Hemisphere. When American power grew most rapidly, Britain withdrew from key economic interests and ceded influence to the United States—the opposite of preventive war (Schake, 2017). In recent years, Japan (1980s) and Germany (1990s) experienced rapid economic growth, but did not provoke war.

Why do power transitions that seem destined for war often end peacefully? To answer this question, we add one assumption to Powell (1999)'s infinite horizon bargaining model with repeated power shifts: each power shift is endogenous and costly (Powell, 1993). This generates two new and interconnected results. First, the opportunity to repeatedly consume

[1] Schweller (1992) shows domestic politics matters, but does not analyze variation in the rate of shifting power, or account for selection into arming.

generates a novel commitment problem (Powell, 2006) when power shifts are long[2] (unfold over many periods) but not rapid or large (per-period).[3] The rising power could fight today and consume the resources she would have spent on militarization tomorrow (Coe and Vaynman, 2019). If the rising power militarizes, the declining power must compensate it for arming when it could have fought and consumed instead. The size of compensation depends on the rising power's opportunity cost for consumption, and not the rate of shifting power. Thus, declining powers prefer preventive war to many costly concessions.

Second, the declining power has a strategy other than war to stop power from shifting: a grand bargain. In it, the declining power concedes more than it must under appeasement, and promises to repeat this generous offer in future periods if the rising power does not militarize again. This generous offer is backed by a threat of war if the rising power militarizes again. The rising power consumes henceforth because she prefers this generous offer and consumption to costly militarization and war.

Critically, we rationalize a grand bargain when the declining state prefers war to appeasement. Why is the declining power willing to make a large grand bargain offer, but not a small appeasement offer? From the declining power's perspective, the grand bargain serves the same purpose as war: it stops power from shifting. Since both strategies serve the same purpose, the declining power prefers them both to appeasement under the same conditions. In parameter ranges where past models uniquely predict war, we find both grand bargains and war are equilibria.[4]

Multiple equilibria are consistent with the weakly positive relationship between power and war commonly observed in quantitative evidence (Bell and Johnson, 2015). If states do consider multiple equilibria in real life, then factoring in case selection (Lemke and Reed,

[2]Long-Cycle Theory begins with empirical claims about duration (Modelski, 1987). Krainin (2017) finds war can exist with multi-period shifts. Unlike Krainin, our war equilibrium is Markov-Perfect and cannot be overcome with efficient side-payments. We also find increasing the number of potential shifts creates incentives for war.

[3]The prevailing prediction in "the bargaining model, [is] a credible commitment problem is *only* triggered by an expected, large, and rapid shift in relative power" (Souva, 2017, p18).

[4]Following Schelling (1957), we do not refine because both are attractive for different reasons. War is Markov-perfect but grand bargains are efficient.

2001), better measures (Carroll and Kenkel, 2019), and salient controls may marginally increase the significance, but not the size of shifting power's beta coefficient, nor the amount of variance that power explains in statistical studies of war.

Grand bargains have recently been popularized by China-focused researchers (Glaser, 2015).[5] However, they focus on large offers that generate re-assurance under uncertainty (Haynes and Yoder, 2020). These arguments have lost salience as China has revealed aggressive motives. Our grand bargain relies on a one-way transfer in exchange for a stable future. This advances the incoming US-China debate because we start with the premise that China's aggressive motives are known, but still find that shifting power does not pre-destine war (Allison, 2017).

Existing bargaining models with conventional shifts cannot rationalize grand bargains (McCormack and Pascoe, 2015; McBride, Milante, and Skaperdas, 2011).[6] Nuclear scholars can by imposing proliferation-specific restrictions: nuclear research is imperfectly observed, and affects power only after delay; and re-negotiations are restricted once a nuclear program is exposed (eg Debs and Monteiro, 2014; Bas and Coe, 2016). Because these assumptions do not fit conventional shifts (Monteiro and Debs, 2020), scholars conjecture that grand bargains mainly apply during proliferation (Spaniel, 2019) or other major innovations (Coe and Vaynman, 2019). This is limiting because there are only 17 nuclear proliferation cases (Debs and Monteiro, 2016). However, latent and conventional factors often create long power shifts (Modelski, 1987). We find a grand bargain during conventional shifts through a new mechanism: many repeated power shifts create both incentives to settle, and opportunities to enforce compliance. These differences are policy relevant. Diplomats who face conventional (not nuclear) power shifts will seek out grand bargains under different conditions, and must negotiate two-sided threats across time to sustain them.

We illuminate differences between nuclear and conventional grand bargains, and other

[5] See also Ripsman and Levy (2008).

[6] Treisman (2004) multi-actor result does not capture bipolar interactions (Cold War, US-China), and does not intersect with war.

unappreciated features using Anglo-Russian competition in Central Asia (1869-1907), which ended in a grand bargain. Internal debates among British elites reveal how they wrestle with the difficulties in forming grand bargains that are unique to conventional power shifts. They also reveal that bureaucratic differences are strongest when multiple equilibria exist. Thus, disagreements may reflect that multiple rationalist baselines exist, and not a deviation from a unique baseline (Schub, 2022; Schweller, 2004).

We contribute to research into the sources of state-power (Barnett and Duvall, 2005; Kugler and Tammen, 2012) by exploring the strategic implications of the latent-actual power distinction. Our grand bargain explains the international origins of large, rapid, territorial transfers, and therefore shifts in governance given latent power shifts. These transfers have lasting distributional consequences for millions of inhabitants (Robinson, Acemoglu, and Johnson, 2005), and impact World Order. Our novel commitment problem illuminates a novel cause of major war (Weisiger, 2013; Debs, 2020). It overturns Powell (1999, p188)'s finding that there is "nothing special about power transitions;" and partly reconciles the bargaining framework with Power Transition Theory (PTT) (Organski and Kugler, 1980) because it supports preventive wars in the middle of power transitions.[7] But the mechanism is general. It could illuminate bargaining failure whenever one actor can repeatedly improve its bargaining position. This includes power-consolidation in autocracies (Svolik, 2012), or post-civil conflict (Walter, 1999); and war termination after repeated costly battles (Reiter, 2009).

1 Two types of peace: grand bargain, appeasement

We distinguish between peace as appeasement, and 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, many have argued that the answer was no

[7]PTT predicts war at parity. Cross-framework reconciliation is valuable because differing assumptions have made the predictions difficult to compare (Kadera, 1999), and the evidence for each framework is mixed (Organski and Kugler, 1980; Morey and Kadera, 2021; Tammen, Kugler, and Lemke, 2017).

(e.g Mearsheimer, 2001, p163-164).[8] In contrast, bargaining theorists find that appeasement is sometimes rational because incrementally increasing offers can avoid war as power shifts (Haynes, 2015).

Appeasement assumes rising powers repeatedly militarize. This assumption is implicit when scholars assume exogenous power shifts (Powell, 1999). We assume endogenous shifts. Thus, we define appeasement as a pair of strategies that characterize both militarization choices and offers:

Appeasement is any strategy pair with 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.

This intuitive definition is intentionally broad. We define *rationalist appeasement* as any strategy pair that both fits our intuitive definition of appeasement, and that is supported in equilibrium. Our model confirms Powell (1999)'s logic for rationalist appeasement. 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 can 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 power to accept a settlement and consume her surplus instead. We call this a grand bargain. Like appeasement, we define a grand bargain as a pair of strategies.

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

Our model supports many grand bargain equilibria that vary in their timing (allow for delay) and the scope of concessions. 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). First, nothing prevents

[8] cf Rock (2000), Kennedy (1976).

the rising power from accepting a large offer today and militarizing to coerce even more concessions tomorrow. As we detail after we present equilibria, 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. Second, 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 will show that the declining power still offers generously because the rising power can credibly promise to deviate to militarization in every future period following a low-ball offer. This generates a seemingly paradoxical result that departs from nuclear grand bargains: grand bargains are rational when war is rational because the two-sided commitment problem is surmountable with strong incentives for war.

2 Model

A **D**eclining and **R**ising state bargain over a pie, standardized to value 1, over an infinite horizon. Like Powell (1999), the pie represents all the territories that both R and D have a common interest in controlling. The power transition arises because the rising power's economy is growing at a faster rate than the declining power's. Our innovation on Powell is that R has a per-period economic surplus that it can invest (to instantly shift power), or consume.[9]

The game begins in a power transition phase. In it, each period unfolds as follows. R chooses whether to militarize or not. If R militarizes, power immediately shifts in $R's$ favor. Otherwise, $R's$ power does not change. Regardless of $R's$ choice, D chooses between war or demanding an $x_t \in [0,1]$ share of the pie ($t \in \{1,2,...\}$ denotes the period).[10] Initiating a war ends the game. If D proposes x_t, R chooses to accept or reject it. If R rejects, the game

[9] Multi-period investments with instant affects differs from nuclear models (eg Spaniel, 2019).

[10] Our results hold no matter who demands or receives

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; so there are no more militarization decisions. Each period after $n = T$ truncates the interaction to the negotiations. D proposes $x_t \in [0, 1]$, and R accepts or rejects.

In the power transition phase, $R's$ militarization choice affects the balance of power.[11] Let $p \in (0, 1)$ be $D's$ probability of victory in war when $n = 0$. Each time R militarizes, we subtract $\Delta > 0$ from this value. Thus, $D's$ probability of winning in period t equals $p - n\Delta$.[12]

For convenience, let $T\Delta = p$. This assumption means that if R militarizes T times, she guarantees herself victory in war.[13] Returning to our definitions, this assumption means that appeasement equilibria must transition from p to 0 in the first T periods of the game.[14] However, grand bargain equilibria must converge to a stable period before the balance of power reaches 0.

Payoffs are as follows. States are risk-neutral with a common discount factor $\delta \in (0, 1)$. For each period that ends in a settlement, D receives x_t and R receives $1 - x_t$. R pays $k > 0$ each period it militarizes. k represents $R's$ opportunity cost of armament. This opportunity could include competition in another region with another rival, spending on domestic welfare or elite rents. Thus, a high k represents that R has something more salient to dedicate resources to than the pie.

War costs the respective parties $c_D, c_R > 0$. $D's$ payoff for fighting a war from that period forward is $\frac{p-\Delta n-c_D}{1-\delta}$. $R's$ payoff for fighting a war from that period forward is $\frac{1-p+\Delta n-c_R}{1-\delta}$. A

[11] Following bargaining theory, power represents expectations of victory in war (Carroll and Kenkel, 2019).

[12] To be clear, a constant p over time could mean that both states invest proportionately, or any shifts in $R's$ favor are offset by foreign policy commitments in other regions. It does not mean states stop military spending.

[13] We assume an initial p and Δ so power transitions sum to one. Adjusting this complicates the final transition period but does not alter our conclusions.

[14] Our results hold for exogenous T that restrict $p - \Delta T > 0$.

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

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

R's payoff equals:

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

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

Our introduction of endogenous, repeated, and costly power shifts makes two substantive advances over existing bargaining theory with conventional power shifts. First, it highlights an often overlooked fact: militarization is inefficient (Coe and Vaynman, 2019), and these inefficiencies accumulate each time R militarizes. $R's$ inefficient militarization appears necessary to increase bargaining leverage over the contested issues. We'll explore what R can extract even absent this inefficient spending. Second, it parses shifts in latent productivity that give R the opportunity to rise from $R's$ conscience political choice to mobilize resources to compete with D. Following the nuclear literature (Spaniel, 2019), we initially assume that latent shifts in $R's$ favor create an opportunity to shift power, but R must invest to shift actual power. This isolates the independent strategic affects for different sources of actual power. We investigate latent-actual interactions more in section 2.5.

Our intuitive definition of a grand bargain assumed R *wants* to militarize. Thus, we assume:

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

When C1 is violated our model matches existing predictions (Debs and Monteiro, 2014). R is unmotivated to militarize because the opportunity cost k is large relative to the bargaining leverage it produces Δ.[15]

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

We solve for sub-game perfect equilibria (SPE). We generate a novel mechanism for war driven by long (increasing in T) and not rapid (Δ) power shifts. We detail this novel mechanism because it is intrinsically interesting and empirically plausible. It also helps us establish our core claims: (1) a grand bargain can act as a substitute for war[16] because it also stops power from shifting; and (2) appeasement is not rational under the same conditions. To satisfy these claims, we need to identify all the conditions 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 isolate the conditions where existing bargaining theories predict peace:[17]

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

In analogous models where militarization is exogenous (e.g., Powell, 1999), this condition ensures that D prefers appeasement-style concessions to preventive war. In appeasement, D

[15] We assume $c_R < 1$ to avoid corner solutions.

[16] Meaning that preventive war and grand bargain are equilibria in the same parameter ranges.

[17] As we detail more below and in Appendices, we can support both grand bargains and war when C2 is violated. As just stated, we focus on this condition because it provides the minimal power shift necessary to cause war and allows the clearest contrast between war and appeasement—the focus on existing research.

offers R her minimum demand each period and keeps the surplus.[18]

The conventional wisdom is that appeasement is an equilibrium and war is not when C2 holds. However, we identify a novel war equilibrium that dominates appeasement. This mechanism is especially important because it defines the threshold for which war is an equilibrium but appeasement is not. As we explain after we present the equilibria, whether we observe war or appeasement depends on if the duration of the power transition (T) exceeds a critical threshold T^*:[19]

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

Proposition 2.1 ***Appeasement equilibrium:*** *Suppose C1 and C2 hold but C3 does not. Then 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 2.2 ***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 that correspond with those defined in Proposition 2.1.*

We jointly prove these equilibria in Appendix A.1. Here we describe how their logics

[18] In the exogenous shift models, C2 ensures that the surplus is sufficiently large that D prefers appeasement to preventive war **for any** c_D. When C2 is violated, preventive war is an equilibrium based on rapidly shifting power (Powell, 1999) (see also Debs and Monteiro (2014) and other nuclear models). Since this logic for war is well-known, we derive the equilibrium in Appendix A.7.

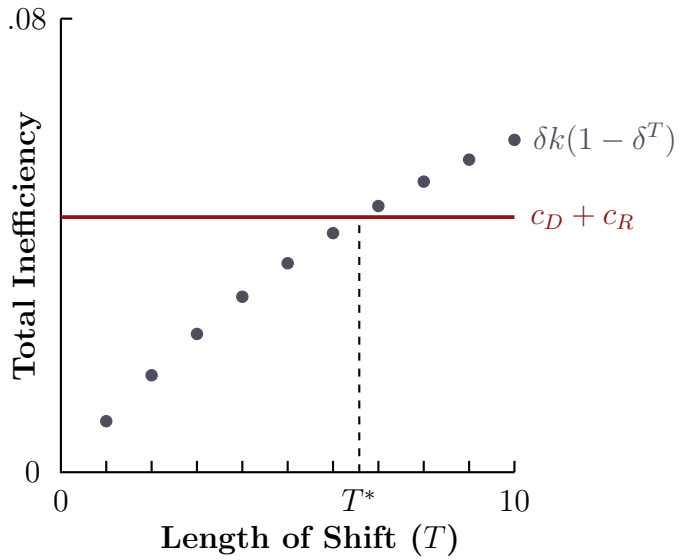
[19] To be clear, $T^* = p/\Delta$. We can re-write the following condition as $\Delta < \frac{pln(\delta)}{ln(1-\frac{c_D+c_R}{\delta k})}$. This emphasizes war when Δ is small enough to allow many shifts. Our presentation emphasizes the important role of multiple shifts.

are connected, and explain why T^* determines whether we see war or appeasement. The appeasement equilibrium is similar to that described by Powell (1999) and others. D offers R enough to leave R indifferent to 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 $\frac{\Delta}{1-\delta}$ less than $R's$ present value for war because R anticipates that it will be stronger in the next period.

Inconsistent with standard results, $R's$ minimum demand is δk larger than $R's$ present value for war because militarization deprives R of 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 war mechanism 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 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 shift. The solid line represents the total inefficiency from first-period war. It is horizontal because the cost of instant war is insensitive to the unrealized power shifts. The dots represent the time-discounted cost to D from playing T periods of appeasement. If power can shift more than T^* times, then $R's$ accumulated opportunity costs generate more inefficiency than fighting an instant war. In this case, D reverts to war to avoid paying δk for $T > T^*$ periods.[20]

[20]Based on the figure, one concern is that k must exceed $c_D + c_R$. This is 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 $\frac{k}{1-\delta} > \frac{\delta(c_D+c_R)}{1-\delta^T}$, which permits k to be substantially smaller than $c_D + c_R$. Coe (2011) makes a related "costly peace" argument. However, we show it is possible to negotiate a grand bargain



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

Figure 1: Contrasting cumulative inefficiencies from appeasement and war.

Substantively, our mechanism for war matches the concerns of many foreign policy experts in the early 2000s. Those that called for war argued that China would militarize slowly over many years and not that China would rapidly rise in the next year.

2.2 Analysis: Grand Bargain Equilibrium

We focus on the conditions defined in Proposition 2.2. 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

where Coe finds war, explain how the cost is endogenously established, and find war with long, slow shifts.

because it allows states to avoid both inefficiencies.

We introduce one final condition:

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

As we explain later, this assures the per-period power shift is smaller than the combined inefficiencies of war and (time-adjusted) armaments.[21]

We now report the simplest (i.e. first period) grand bargain equilibrium to focus on the novel mechanism and contrast it with war. Later we report delayed grand bargains and other novel results.

Proposition 2.3 *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 2.2:* R *arms at every opportunity and* D *reverts to preventive war.*

See Appendix A.2. In the manuscript, we complete two tasks. We informally explain how the grand bargain's mechanism is supported by war reversion. We explain that the grand bargain is never unique because it requires a credible threat of war reversion. Thus, for this grand bargain to hold together, war must also be an equilibrium strategy.

2.2.1 The grand bargain's mechanism

The central feature of any grand bargain is that D makes an offer larger than $R's$ minimum demand for war under appeasement. Then, D repeats that offer and R never militarizes again. Both states face incentives to deviate. All else equal, R wants to accept it, then militarize in the future; D wants to offer less. The grand bargain holds together because

[21] This condition is not necessary for grand bargains. It helps us understand the interesting case: grand bargains and war share parameter-space. If we violate it, we find grand bargains and appeasement share parameter-space.

each player promises punishment if the other deviates from their commitment. D punishes $R's$ choice to militarize by reverting to war. R punishes $D's$ choice to reduce the offer by militarizing (which triggers D into war in the next period).

The promise of punishment is credible for two reasons. First, the grand bargain is both more fair and efficient than both war and appeasement. Efficient means that the cumulative expected utilities are larger because resources are not wasted on either militarization or war. Fair means 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 because the other complies with the grand bargain's terms. Once one state exploits its incentive to deviate, 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. 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 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 clarifies why incentives for war help the grand bargain hold together when militarization has an instant effect on 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.

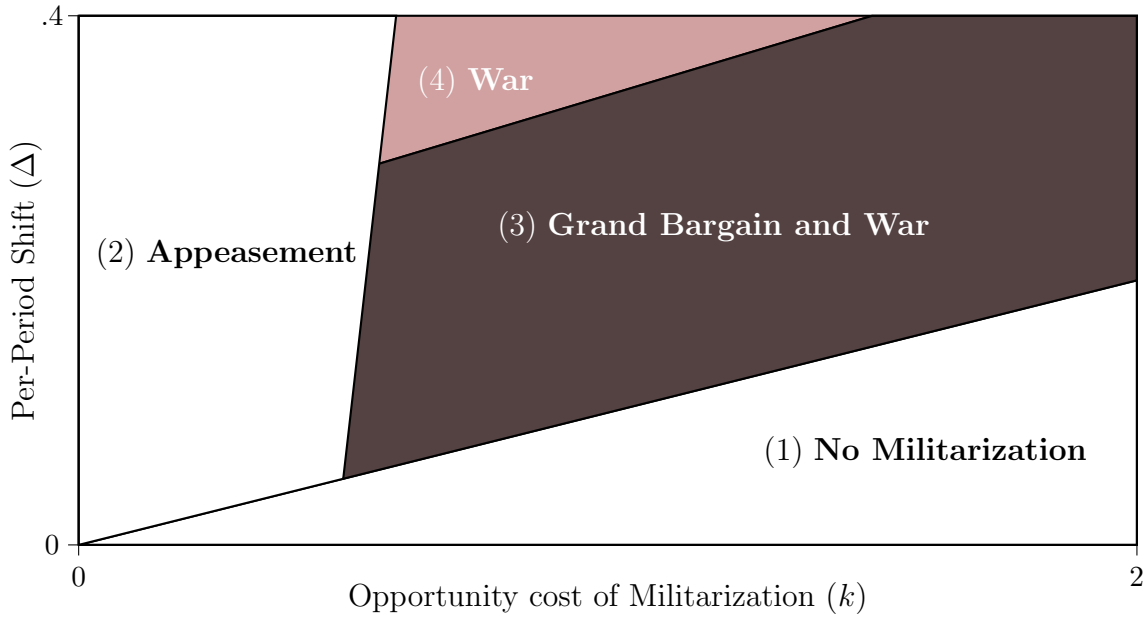


Figure 2: Equilibrium Plot.

2.2.2 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).[22] In region (3) both war and a grand bargain backed by the threat of war (Proposition 2.3) 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? A grand bargain backed by the threat of war must overlap with the war because 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 shifts against him. War imposes a final

[22]The figure finds region (3) when $k > .65$. As stated above, this is because we amortize w but not k. If we amortize both, we support region (3) with $k > .1$. We can support war/grand bargains for broad k-values when power transitions are long because the fact that k is incurred repeatedly is most salient.

resolution to the contest on both states based on the current level of relative power. The grand bargain ensures a stable balance of power by encouraging R to consume its surplus. Once D decides that it wants to stop power from shifting, D can use either a grand bargain or war to do it.

2.3 Other novel grand bargain equilibria

The grand bargain in Proposition 2.3 assumed no-delay. But given conditions in Proposition 2.3 we can support delayed grand bargains so long as D can still credibly threaten to revert to war (a variant of condition C3).[23] Proposition 2.3 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. See Appendix A.3.

2.4 Delayed grand bargains as a solution to hazards

Historians argue that incentives for war are heightened if states locked in a power transition confront a hazard[24]— shocks to the rate of shifting power, an immovable status quo, indivisibilities, accidents, and third-party competitors (Treisman, 2004).[25] Do grand bargains survive these hazards?

We assume states confront a hazard during the power transition in Appendix A.6. Consistent with past studies, we find hazards increase conditions where war is an SPE. Inconsistent with past studies, hazards also increase the conditions where a grand bargain backed by the threat of war is an SPE. Declining powers that anticipate hazards want to stop power from shifting. Since both war and a grand bargain stop power from shifting, they can use either.

This highlights our substitution logic. Our grand bargain requires that D can credibly threaten to revert to war if R accepts the offer and militarizes anyway. It does not matter

[23] Demonstrating another difference from Spaniel (2019) and others, in parameter ranges where war is driven by a liquidity problem, we only support a no-delay grand bargain backed by the threat of war.

[24] Any constraint on bargaining that generates incentives for war.

[25] Fearon (1996) shows peace persists if concessions today raise Δ tomorrow. Our grand bargain alleviates this concern by reducing the aggregated concession.

where the threat of war comes from, only that D can promise to turn to it if R shirks on the grand bargain.

2.5 Latent versus Actual Power

Power shifts involve latent factors and strategic choices (Kugler and Tammen, 2012). Can the grand bargain survive if latent growth shifts actual power absent $R's$ investment? We illuminate two mechanisms in Appendix A.4. First, we allow D to pay a per-period cost to off-set latent shifts.[26] $D's$ cost could represent new alliances or modernization (Mearsheimer, 2001). D is willing to pay almost the cumulative cost of war to off-set latent shifts and sustain a grand bargain. This twists the guns-butter finding by showing states may desire militarization to keep power roughly constant not shift it (Powell, 1993).

Second, we assume that latent shifts are inevitable. We still find grand bargains hold if cumulative latent shifts do not exceed $c_D + c_R - \Delta + (1-\delta)k$. Larger latent shifts require renegotiation. Recall that size of the grand bargains is in a range $x \in [p - c_D, p - \Delta + c_R + (1-\delta)k]$. The grand bargain $x = p - \Delta + c_R + (1-\delta)k$ can survive the most latent shifts against D. You many wonder how long real-life grand bargains can survive latent shifts? Mathematically, the latent shifts can exceed several Δ-sized shifts if $c_R + c_D$ is large. A recent review of empirical research into latent power finds "over time, wealth as a static measure of power was found wanting, because all aggregate indicators, including GDP, fail to account accurately for political performance" (Tammen et al., 2017), and analyses of CINC-score components suggest military investments predict victory more than latent factor (Carroll and Kenkel, 2019). But in any specific case, the precise interactions depend on historical and strategic context.

[26] As stated next, p_t need not remain exactly constant.

3 Empirical Implications and Illustrative Evidence

We generate expectations about: (1) when we should observe grand bargains during conventional power shifts, and (2) the real-world features of grand bargains that distinguish them from appeasement. We argued that war and a grand bargain backed by the threat of war (but not appeasement) occur under the same structural conditions. Based on the hazards examined in section 2.4, 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 large or frequent demands, they select either a grand bargain or war.*

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

Our model also illuminates qualitative differences between grand bargains and appeasement negotiations. We summarize them in Table 1. We search for these qualitative differences in internal deliberations between elites in the declining power, and diplomatic negotiations between different states.

3.1 The Anglo-Russian Great Game, 1869-1907

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

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

	Grand Bargain	**Appeasement**
Structural conditions	Power transitions are long, rapid, or hazardous	Power transitions are short, slow, and hazard-free
D's reason for concessions	Generous concessions to entice stability.	Minimalist concessions to barely avoid war.
Settlement terms	D demands concessions are conditional on arms limitation. R believes that D will revert to war if R violates the agreement.	Peace is not conditional on future militarization/arms control.
Relative size of territorial concession	Larger than appeasement concessions that came before.	Smaller than grand bargain concessions that come later
Post-settlement dynamics	R diverts resources to domestic spending and/or military adventures in other regions. R makes no future demands.	R continues to militarize and make future territorial demands.

Our case material draws from an extensive review of primary documents, specialized works on the cases, and general works of diplomatic history and political science. We 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, how did elites justify their choices?

3.1.1 Coding concessions

We identified four major British concessions to Russia in Central Asia, summarized in Table 2. For more details, see section B.4. Based on our review of deliberations and diplomatic negotiations, we code the 1873, 1885, 1895 concessions as appeasement and the 1907 concession as a grand bargain.

Notably, the 1907 Anglo-Russian convention conceded much more territory to Russia

than previous agreements. The 1907 convention covered Afghanistan, Tibet, and Iran, an area of roughly 3.5 million square kilometers, covering all Anglo-Russian disputes in Central Asia and the Middle East.[27] In contrast, previous concessions dealt with individual disputes. For instance, the 1884-5 Panjdeh Crisis concerned the delineation of a quarter of the Russo-Afghan border.

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

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

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

At the turn of the century, several factors led Britain to estimate that Russia's rate of expansion into Central Asia would soon increase. The main factor was Russian railroad building into the region. When these lines were complete, Russia could 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 understood these implications. A 1907 War Office study argued that with only a few additional connecting lines, Russia could deploy a "practically unlimited" number of men anywhere in the region.[28]

[27] Britain traditionally opposed Russian naval access to the Mediterranean through the Turkish Straits, but increasingly dropped this opposition.

[28] *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 the 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 the western Russo-Afghan border in 1888, the 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 gives up its 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.			

To be clear, there were complicating factors. One surrounded Russia's poor military performance and defeat during the Russo-Japanese War. Although Russia's naval losses mattered little in Central Asia, it losses of manpower, ammunition, and finances did (Hermann, 1996, 37-58). Nevertheless, the British continued to see Russia as a rising power in Central Asia because of its railroad building. In 1907, the War Office still believed that Russia's rise meant "it will remain a question of practical politics whether it is worth our while to retain India or not."[29] British policymakers also feared that Russia's loss could contribute to the rate of Russia's rise in Central Asia because Russia would shift focus from East to Central Asia.[30] This concern was amplified because Russia's temporary military weakness encouraged alignment with Germany. Berlin offered Russia an alliance in late 1904 (Taylor, 1954, 419-423) and in 1905 Nicholas II and Wilhelm II signed the Russo-German Treaty of Björkö. Russia did not ratify the treaty, but continued Russo-German negotiations distressed London (White, 1995, 242-293).[31] The Russo-Japanese War also amplified Britain's risk of accidental war, particularly during the 1904 Dogger Bank Crisis. This came in addition to the 1898 Fashoda Crisis with France. The fear was sufficiently serious that until 1906, all British plans for major war were directed against France and Russia (Tomes, 1997, 131-132). In summary, while the Russo-Japanese War helped to facilitate the Anglo-Russian Convention, it did not over-determine it (White, 1995, 241).[32]

Britain was also concerned that a rising Germany would force it to balance two great power rivalries simultaneously (Williams, 1977, 133-134). Some political scientists contend that Germany's rise is the sole cause of Anglo-Russian peace (Mearsheimer, 2001, 300). At the other extreme, Taylor argues that the Anglo-Russian entente had "little to do with Germany" (1954, 442). This view stems from the fact that the topic of Germany rarely came up during Anglo-Russian negotiations and that the Anglo-Russian Convention did not create any mutual defense commitments. Most historians take a middle ground, arguing that the

[29] Ibid., p. 295.
[30] *BD*, Vol. IV, No. 26, pp. 33-35.
[31] *BD*, Vol. IV, No. 195, pp. 205-207; *Ibid.*, No. 231, pp. 244-245; *Ibid.*, No. 243, pp. 256-258.
[32] See Appendix C for more details.

Anglo-Russian Convention had many causes (Siegel, 2002). Our theory helps to reconcile these empirical positions. It is consistent with a balance of power explanation because the rise of a third-party competitor (Germany) acts as a hazard by causing rapid relative power shifts that may encourage a grand bargain. It also explains why extensive negotiations and British concessions were necessary to ensure Anglo-Russian cooperation.

3.1.3 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 drives states from appeasement to war (Powell, 1999). We argue that a grand bargain and war are both rational. Consistent with our theory, deliberations after 1900 illustrate these multiple equilibria.

In 1902, future Foreign Secretary and architect of the Anglo-Russian Convention, Edward Grey, proposed three 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.[33] This corresponds to a grand bargain. Third, Britain could continue to make individual concessions in response to Russian moves, which corresponds to appeasement.[34]

Consistent with our theory, Grey thought that both a grand bargain and war were good options. Conversely, appeasement was a "a policy which [Britain] must not pursue"[35] because appeasement combined "in a most extraordinary way the disadvantages both of yielding and of resistance without getting the advantages of either course". Under appeasement,

[33] He was not specific. Presumably, he envisioned terms like the Anglo-Russian Convention (Steiner, 1969, 236).

[34] *Parliamentary Debates*, Commons, 22 January, 1902, pp. 609-610.

[35] Ibid., p. 610.

Britain would make "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".[36] Grey's contrast of appeasement and grand bargains highlights another aspect of our theory: militarization and bargaining continue after appeasement; a grand bargain provides lasting peace.

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."[37] Following our theory, Grey's reasoning reflects how grand bargains are efficient, but require mutual consent.

Most British policymakers agreed that a grand bargain and war were Britain's main options. However, they disagreed about the preferred strategy. For example, Foreign Secretary Lansdowne supported a grand bargain and initiated discussions with Russia for this aim in 1903 (Monger, 1963). Other policymakers argued for war because they believed that Russia's demands in Central Asia and the Middle East were too extensive to make a satisfactory agreement 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 Russia. Proponents of war wanted to take advantage of the growing Russo-Japanese tensions in East Asia. Chancellor Austen Chamberlain 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). Calls for war became even louder in October 1904, when the Russian Baltic Fleet en route to Asia accidentally opened fire on British trawlers at the Dogger Bank. The British public and press responded with outrage,

[36]Ibid., p. 610.
[37]Ibid., p. 611.

and several cabinet members argued for war (Monger, 1963, 172). The Royal Navy prepared to intercept 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".[38] However, Lansdowne ultimately prevented the crisis from escalating into war by securing a Russian apology and reparations.[39]

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".[40] 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 differed from the logic of appeasement in the previous decades. As our theory predicts, policy-makers favored appeasement prior to 1904. Their goal was to make the smallest possible concessions and avoid war believing that power would shift slowly. The Panjdeh Crisis, which began in March 1885 when the Russians defeated an Afghan force at Panjdeh, illustrates this. This attack could have forced Britain into war because Britain 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".[41]

Most British policymakers shared Gladstone's desire to avoid war with Russia over a

[38] Ibid, No. 26, pp. 33-35.
[39] Ibid, No. 25, pp. 28-33.
[40] Selborne to Curzon, January 4 1903. Quoted from Monger (1963, 110).
[41] *Parliamentary Debates*, Commons, 27 April, 1885, pp. 884-886.

remote and sparsely populated corner of Afghanistan. Nevertheless, we find no evidence that Gladstone or his critics seem to have considered accepting Russia's possession of Panjdeh, let alone broader concessions in Central Asia.[42] Indeed, British policymakers did their best to minimize their concessions. After the initial war-scare, Britain reluctantly agreed that Russia would keep Panjdeh, but had to withdraw from Zulfiqar further east.[43] Then they quickly resurrected the crisis by disagreeing with Russia about Zulfiqar's geographic extent.[44] It was only in September the Anglo-Russian Protocol finally averted the risk of war.

3.1.4 Terms of the Concessions

Consistent with our expectations, the Anglo-Russian convention explicitly limited Russian militarization in Central Asia and the Middle East. 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.[45] Russian power continued to grow in Europe, again particularly due to railroad expansion. However, this did not threaten Britain.[46]

Russia also understood that continued militarization would result in war. For instance, the Russian Foreign Minister Izvolsky stated to the British 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".[47]

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 deployments or railroad building.[48] Following this agreement,

[42]Parliamentary Papers "Further Correspondence Respecting Central Asia, Vol. 2-4 (1885)" London: Harrison and Sons, 1885.
[43]Ibid, No. 16, (C.4389), p. 27, (1885).
[44]Ibid, No. 26, (C. 4389), p. 31, (1885).
[45]*BD*, Vol. IV Appendix I, pp. 618-621.
[46]It also fits our condition that Russia's opportunity costs were high.
[47]*BD*, Vol. IV, No. 504, p. 563.
[48]Ibid., No. 108, pp. 74-76.

Russia continued to expand its military presence and make demands elsewhere in Central Asia. However, Britain did not assess that Russia violated the protocol.

3.1.5 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".[49] Russia also increasingly shifted its focus to opposing Austria-Hungary in the Balkans, which Britain encouraged.[50] Previously, Russia had cooperated with Austria-Hungary on Balkan affairs following the 1897 Austro-Russian Entente.

Consistent with the logic of our grand bargain, Russia consulted Britain on future construction in Persia and adapted its plans to accommodate British interests beyond the Anglo-Russian Convention's stipulations (Spring, 1976). When planning to build a Trans-Persian railway through the neutral zone, Russia decided to build it in cooperation with Britain and France. According to Grey, this "will enable us to say where and when a Trans-persian line would be made"[51]. Thus, such railroad building would not threaten India. Critically, Russia abandoned plans to construct the railroad from Tashkent to the Termez because the decrease in Anglo-Russian tensions removed its strategic rationale (Becker, 2004, 148-149). This railroad had been a major concern to British policymakers.

The decrease in tensions in Central Asia helped to facilitate Britain's alliance with France and Russia during WWI. Unfortunately, we cannot know how durable the Anglo-Russian Convention was because the Soviet Union denounced treaties made by the Tsarist govern-

[49] Ibid, No. 549, pp. 612-616.
[50] Ibid, No. 258, pp. 279-280.
[51] *BD*, Vol IX, No. 803, p. 754.

ment in 1918.[52] However, the Anglo-Russian Convention did have an important impact while the Tsar remained in power.

The consequences of the Anglo-Russian Convention are different from all earlier agreements. For instance, Prime Minister Salisbury expressed hope that the 1885 Anglo-Russian Protocol would solve a specific border crisis, but did not express hope for lasting peace. Almost immediately Britain and Russia became embroiled in a dispute over Bulgaria (Langer, 1931, 323-364). An Anglo-Russian crisis in Central Asia soon followed over the undelineated eastern part of the Russo-Afghan border. The contrast between the 1885 Protocol and the 1907 Convention was noted by contemporaries. In 1911, Grey himself argued that "the Anglo-Russian Agreement has been of enormous relief" to the defense of India highlighted the lower tensions it brought compared to the Panjdeh and Pamir incidents.[53]

4 Conclusion

Bargaining theorist find that large and rapid power shifts cause preventive war (Souva, 2017). We showed that this is not necessarily the case. The same conditions can also drive 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. Wars and grand bargains serve the same purpose: they prevent power from shifting. Thus, declining powers turn to them under the same conditions. This insight helps clarify why so many conventional power shifts destined for war end in peace. Declining powers offer grand bargains under conditions past scholars predict preventive war. This fits the persistent but puzzling cross-national finding that measures of shifting power weakly predict war.[54]

We use our mechanism to analyze the Great Game. British elites seriously consider both war and a grand bargain (but not appeasement) when our theory rationalizes both equilibria

[52] Some historians contend that Russia might have made further demands if WWI had not broken out (Siegel, 2002).

[53] *BD*, Vol. VI, No. Appendix V, pp. 788-789.

[54] Another important finding is a novel commitment problem when power can shift over many periods.

simultaneously. Further, the Anglo-Russian Convention illuminates the complex threats and promises necessary to support a grand bargain with conventional shifts, and clarifies real-world differences between appeasement and a grand bargain. In Appendix B we contrast the Anlgo-Russian Convention with the Russo-Japanese War to show how comparative cases could plausibly support multiple equilibria. We conjecture that scholars have not looked for grand bargains during conventional shifts because there was no theoretical support for them (Spaniel, 2019). In Appendix C, we provide a blueprint for future researchers to code grand bargains distinctly from appeasement, and discover how they influence other cases. We review all of Allison (2017)'s great power transition cases and find preliminary evidence that declining powers consider grand bargains concurrently with war in a diverse set of cases. Some of these cases end in war and others end in peace.

Our indeterminate prediction is valuable for Sino-American relations. In the next decade, hazards—The Taiwan question, disruptive military technologies—will exacerbate Sino-American conflict. Many researchers believe that these hazards, coupled with the pressures of shifting power, destine us for war. Our multiple equilibria suggests war is not pre-determined in this case because a grand bargain is also rationalizable. We do not argue that a grand bargain with China is necessarily optimal. However, we argue that policymakers should look beyond military tools when assessing the best way to respond to China's rise. We also clarify the specific threats and incentives necessary to hold a grand bargain together given that China's rise is primarily conventional. Thus, our theory provides a framework for how the United States can strategically use concessions to minimize the cost of Sino-American competition.

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Appendix

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A Formal Appendix

A.1 Proof of Proposition 2.1 and 2.2

To better structure the proof, we now give a proposition of the full equilibrium strategies that imply both Proposition 2.1 and Proposition 2.2. 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.[55] 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 $n = T$.[56]

[55] Whatever 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.

[56] Moreover, 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.[57] 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 $\frac{\Delta-c_D}{1-\delta}$ in total. This is not a profitable deviation if:

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

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:

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

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:

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

[57] When 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 $n > T - \frac{ln\left(1-\frac{c_D+c_R}{\delta k}\right)}{ln(\delta)}$.[58] What remains unproven is all actions where $n < T - \frac{ln\left(1-\frac{c_D+c_R}{\delta k}\right)}{ln(\delta)}$.

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

The proof is again by induction. Let $\overline{n}$ 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 $\overline{n}$ as the base step for the induction proof.

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

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

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

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

This is true because $\overline{n}$ 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 $\frac{1-\Delta(T-(\overline{n}+1))-c_R}{1-\delta}$. If it rejects, it earns its war payoff under $\overline{n}$. Thus, it is optimal for R to accept if:

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

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

This is the equilibrium decision rule.

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

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

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

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 $n-1<\overline{n}$, 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 2.3

Like before, to better structure the proof, we now give a proposition of the full equilibrium strategies. Those strategies imply Proposition 2.3.

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:

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

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:

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

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?[59] 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:

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

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.

A.4 Latent power shifts

In the manuscript we assume R's deliberate investment shifts the balance of power. In real life, latent shifts in productivity or population may shift the balance of power also. Can a specific grand bargain remain stable if latent power shifts p_t? We consider two answers. First, D is willing to pay a price to keep the balance stable. Second, D is unwilling to pay a price to keep the balance stable, but latent shifts are limited. In both cases, we find conditions under which a single grand bargain survives. The basic insight in both cases is that grand bargains can fall into a range defined in proposition 2.3. This range gives D some slack that will keep the grand bargains stable for a while.

A.4.1 Is D willing to pay to keep power stable?

Recall that we conceptualized p_t as the balance of power given the status of forces and the military investments necessary to maintain those forces. Thus, and as stated in the manuscript, a stable p_t assumes that R and D continue military investments to maintain their expectations of victory in war.[60] In real life p_t is influenced by many variables including population, economic factors, alliances, and technological changes. The latent factors cause a concern for our theory: R may continue to rise even if R does not invest. But the other deliberate factors could provide a solution: D can simply pay a militarization cost to off-set shifts in R's favor.

[59] There 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.

[60] Any shifts in R's favor come from investments to shift and sustain a shift in the balance of power.

Specifically, consider an adjustment to the model that only applies in the case R does not militarize. In this case, D is given the opportunity to pay a cost ρ. If D does not pay it in that period, power shifts by Δ anyway. If D does pay it, power does not shift (as in the model we study). This is an extreme case because it implies latent shifts are just as strong as deliberate shifts.

To sustain a constant grand bargain, all we need to show is that in the period that the grand bargain is struck, D prefers to sustain the grand bargain and pay ρ for all future periods, than revert to war. We focus on the binding constraint (the grand bargain that is most favourable to D). Thus, D is willing to pay to keep power constant if:

$$\frac{p_t - \Delta + c_R + (1-\delta)k}{1-\delta} - \frac{\rho}{1-\delta} > \frac{p_t - c_D}{1-\delta}$$

$$\rho < c_R + c_D + (1-\delta)k - \Delta$$

Notice that the right hand side includes $c_D + c_R$. Thus, D is willing to pay ρ even if it is close to the cumulative cost of major war

A.4.2 Consistent Grand Bargains with Exogenous Shifts

In some cases, latent shifts may be too much, and D may not be willing to pay them. What happens if the baseline power exogenously shifts from period to period in favor of the rising state? Can a constant deal be maintained through that amount of time? The answer is yes if the exogenous shift is not too large.

To see this, suppose that moving from the first period to the second results in R becoming ϕ more powerful regardless of any other actions taken. By Proposition 2.3, any constant deal x is sustainable provided that $x \in [p - c_D, p - \Delta + c_R + (1-\delta)k]$. Given that power exogenously moves in R's direction, the agreement with the most slack is $x = p - \Delta + c_R + (1-\delta)k]$.

When would both sides be satisfied with $x = p - \Delta + c_R + (1-\delta)k]$ in the previous period given that they know power will exogenously shift by ϕ? The binding constraint here is D, as R benefits from waiting for the exogenous shift. In the period previous to the exogenous shift, if D fights, it earns $p + \phi - c_D$. Thus, it prefers such an agreement if $p + \phi - c_D > p - \Delta + c_R + (1-\delta)k]$, or $\phi > c_D + c_R - \Delta + (1-\delta)k$.

Its alternative is to make a more onerous demand. Using the post-exogenous-shift period's punishment strategies from earlier, D cannot do better than take everything from the period and fight a war in the next period.[61] That is still insufficient if $1 - \delta + \delta(p - \Delta - c_D) < p - \Delta + c_R + (1-\delta)k$, or $\Delta < \frac{c_R + \delta}{1-\delta} - (1 - p - k)$. When these conditions hold, an exogenous shift can occur while the distribution of the agreement remains constant.

A.5 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:*

[61] If R were to reject, D receives its war payoff. The previous condition already gave the circumstances where that is not profitable for D.

- *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.[62] 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:

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

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:

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

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:

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

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:

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

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

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

A.6 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:

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

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

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

$$p - \Delta + c_R + (1-\delta)k \leq p + \tilde{\Delta} + c_R - \tilde{k}(1-\delta)$$

$$\Delta - (1-\delta)k + \tilde{\Delta} - (1-\delta)\tilde{k} \geq 0$$

This is true. It is the condition that both such investments are worthwhile.[63]

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.[64]

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:

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

[63] Because $\Delta - (1-\delta)k > 0$, 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.

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

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

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 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.7 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:

$$\Delta > 1 - \delta + c_D + \delta c_R \tag{C5}$$

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 $x_t \leq \overline{x}$ 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 $\frac{1-c_R}{1-\delta} - k$.[65] 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:

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

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

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:

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

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 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 Contrasting Anglo-Russian Peace with Russo-Japanese Conflict

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). 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.

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.[66]

In the manuscript we examined the Anglo-Russian case. Here we present the Russo-Japanese case on its own terms. We then connect the two cases together

B.1 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.1.1 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. We summarize our coding in Table B.1.

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

[66] In appendix B.2 we also consider the interaction of the two cases.

Table B.1: Coding Japanese Strategy Towards Russia

Year	Russian Advance	Japanese Concessions	Aftermath
1895	Russia together with France and Germany demands that Japan surrender the Liaodong Peninsula, which Japan had just gained in the First-Sino Japanese War.	Japan surrender Liaodong Peninsula, but secured bigger indemnity from China.	War averted, Russian influence in Manchuria grows.†
1897-1898	Russia secures a 25-year lease of Port Arthur from China.	Japan accepts the lease in return for Russian recognition of Japan's predominant economic position in Korea.	Russia develops Port Arthur as the main base of the Pacific Fleet. Expansion of Russian navy.
1900-1902	Russia occupies Manchuria in response to the Boxer Rebellion.	Japan protests diplomatically, but no military action to expel Russia.	Russia ignores Japanese protests and continues occupation.
1903-1905	Trans-Siberian Railway close to completion, expansion of Russian Pacific Fleet, Russian infiltration of Korea through the Yalu Concession.	Japan offers Russia a grand bargain dividing mainland Northeast Asia in 1903. According to the proposal, Manchuria would become a Russian sphere of influence in return for Russian acceptance of Japanese influence in Korea.	Several rounds of negotiations, but Russia displays a lack of interest in the Japanese offer. Japan instead launches a surprise military attack in February 1904. Defeats Russia. Both Korea and Manchuria falls under Japanese influence.
Other Relevant Events			
1891-1905	Building of the Trans-Siberian Railroad.		

† Technically Russia did not gain any territory from the Triple Intervention. However, it was clear to Japanese policymakers that Russia demanded the return of the Liaodong Peninsula because it had its own designs on the area.

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 Corea and Russia's special interest in the railway enterprises in Manchuria and on the right of Japan to take in Corea, 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.1.2 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 distances 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.[67]

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.

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

B.1.3 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 periods. 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.[68] 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 an 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).[69]

Japan's proposed terms were consistent with our rationalist grand bargain. Japanese policymakers 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 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 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 was 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

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

[69] Such 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).

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,[70] 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 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 overestimated 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).[71] From the perspective of our theory, 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 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

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

[71] Consistent with our theory, both accounts point out that the logic for war still follows from Japan's fear of repeated militarization.

policymakers feared that Russia would then intensify its efforts to expand in Central Asia,[72] 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.2.1 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 its end of the bargain by diverting resources to other regions.

B.3 Coding Events in Anglo-Russian and Russo-Japanese Case

This appendix offers detailed information about the historical background for our coding choices of British and Japanese strategies summarized in tables 2 and B.1 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 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

[72] *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.

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, 2020). 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"[73]. 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 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.[74] However, Britain soon contested this interpretation.[75] 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).[76] 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.[77] 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.[78]

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

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

[75] Ibid., (C.2164), p. 59 (1878).

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

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

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

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.[79]

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.[80] 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.[81] Last, Britain agreed to drop an article recognizing its special interest in Tibet.[82] Accordingly, Britain gave up the predominant position in the region it had achieved during the 1904 British Expedition.[83] 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 offer preliminary investigations of Allison's (2017) eight remaining (i.e. those in addition to the Russo-Japanese, and Anglo-Russian) cases of major power transitions after 1815. We focus on the key prediction that our theory highlights: 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. In particular, we are interested in whether different policymakers pressed for these two solutions simultaneously.

Given that our model has to make a number of simplifications to be tractable, we do not expect it do explain every aspect of such a broad range of cases. Instead, we merely aim to provide a blueprint for further empirical investigations by pointing to aspects of the case that appear to fit our logic. We hope that future scholars will start with the periods we identify and interrogate them to (a) better understand these cases; and (b) test the implications of our argument.

In four out of eight cases, we find preliminary evidence 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

[79] 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*.

[80] *BD*, No. 253 F.O. 371/382, pp. 275-276.

[81] *BD*, No. 472, F.O. 371/320, pp. 525-526.

[82] *BD*, No. 314, pp. 336-349.

[83] *BD*, No. 298, pp. 314-317.

in two cases, one which ended in war and one which ended in a grand bargain.

Our theoretical model is abstract and minimalist. Since it does not impose restrictive assumptions, we see no theoretical reason that it should not apply across cases. However, we accept that real life cases are complex. One limitation of a model and case design is that we cannot systematically test generalizability in that single case. Given our paired cases are designed to illustrate a novel way to search for multiple equilibria, they also do not help in this regard. We hope future scholars will utilize the vignettes below to probe how our theory generalizes in detail. To that end, we provide one example of how to do it in the Soviet-American vignette. Notably, our theory found that if the rising power's opportunity cost of arming k is above a threshold, appeasement is not an equilibrium but the grand bargain backed by the threat of war (and war) are. We preliminary contrast the Anglo-Russian Convention discussed with the Soviet-American case to explain how researchers might interrogate this implication in detail.

C.1 Britain and France (rising powers) vs Russia (declining 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 (Anderson, 1966). 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 (Goldfrank David, 1994). Contrary to Allison's coding, it is unlikely that Russia was the rising power in the 1850s. While Britain and France were growing rapidly due to the industrial revolution, Russia was a stagnating feudal and agrarian country. The Russian Army remained very large, but was falling behind its western rivals in terms of key technologies, such as rifled muskets. Thus, it was undoubtedly relatively weaker than in 1815, when it had played the main role in defeating Napoleon. The Correlates of War Composite Index of National Capabilities also show that Russia declined relative to Britain.

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 both at sea and on land with the fall of Sevastopol. 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 (Goldfrank David, 1994, 292). In addition, Russia had to make minor territorial concessions to the Ottoman Empire.

Did the declining power consider a grand bargain? Yes, simultaneously. In accordance with our coding, this was initiated by Russia. Ten months prior to the outbreak of the war, Emperor Nicholas I proposed a partition of the Ottoman Empire with Britain (and Austria) (Baumgart, 2020, 14-15). The background was Nicholas' belief that the collapse of the Ottoman Empire was imminent, and he wanted to avoid conflicts with Britain from resulting from such an event. Apart from denying any desire for territorial expansion, it is hard to say with certainty what 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 (similar to the 1878 Treaty of San Stefano). 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. This was both due to a booming economy due to industrialization and a large expansion of the army as a part of War Minister von Roon's reforms (Steinberg, 2011, 159-160). In addition, Prussia defeated Denmark (1864) and Austria (1866) in quick wars, seizing significant new territories in northern Germany. This rapid rise heightened tensions with France, which was the leading power in continental Europe at the time.

How did the case end? War, in 1870-1. France's goal was to arrest or even reverse Prussia's rise. However, the much larger Prussian conscript army inflicted a string of losses on the French at Gravelotte, Metz, and Sedan. This led to the fall of Napoleon III's empire, but the new French Republic continued to resist until the fall of Paris in 1871. This allowed Prussia to unite Germany and take the province of Alsace-Lorraine from France (Wawro, 2003).

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 (Pottinger, 1966). Napoleon did not ask for any specific concessions in return, including limits on German militarization. However, such demands would presumably have come during formal negotiations, which Bismarck successfully evaded.

Several 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 proponent of such a course 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 unable to make Napoleon III change course in 1866 (Pottinger, 1966).

This case offers an interesting example of how k, meaning the cost of militarization, can change. Prussia started the 1860s in a political stalemate. Liberal forces in the Landtag (the Prussian parliament) refused to fund an expansion of the army without liberalizing reforms which were anathema to King Wilhem I. Bismarck was eventually able to solve this deadlock through constitutional loopholes and by dividing the liberals (Steinberg, 2011, 258-259). This allowed the king and Bismarck to increase the army without accepting democratic reforms. By defeating Austria and keeping close relations with Russia, Prussia was also increasingly able to focus on its conflict with France (Mosse, 2014).

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). However, both the army and the navy of the United States remained minuscule. In the 1880s this started to change, as the United States embarked on a major naval expansion, which allowed to play a more assertive role in foreign affairs (Cohrs, 2022). 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 the strategic and economic interests of Britain, which had until then had been the leading power in South America and the Caribbean. Things came to a head in 1895, when the United States interfered in a boundary dispute between British Guyana and Venezuela (Bourne, 1967).

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 and 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 (Rock, 2000, 25-48). 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.

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" (Bourne, 1967, 339).

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" (Orde, 1996). 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 necessary to avoid competition with the United States.

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 rapid economic growth due 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), these agreements did not include a mutual defense clause. Nevertheless, Britain also declared war on Germany after the German invasion of Belgium. After four 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. During the July Crisis of 1914, some members of cabinet opposed joining the war against Germany. Morley and Burns, who resigned from cabinet in protest. Some cabinet members were reluctant to join the war but changed their mind after the German invasion of Belgium, most notably Lloyd George. 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, Britain did not consider making significant concessions to Germany at that point either (Charmley, 1999, 277-293).

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, dividing up Eastern Europe. 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 war with Germany through a strategy through making major concessions to Germany. The 1936 German re-militarization of the Rhineland and the 1938 Anschluss of Austria were relatively uncontroversial. However, 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, even if that infamously would not turn out to be true. 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 and he 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 (Steiner,

2011, 867-922). 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 1941.

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 (Goldstein and Maurer, 1994).

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" (Howarth, 1983, 167). However, an anti-treaty faction resented any limitations to the Japanese navy. While initially in a clear minority in 1922, the anti-treaty would eventually dominate the navy and the government, leading to the Japanese attack on Pearl Harbor in 1941 (Nish, 2002).

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

Domain: Global power.

Background: While Allison views the Cold War as a single case. We view it as two power transition cases because 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 and relative weakness in the regions surrounding the Soviet Union. 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 increasingly 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.

As a result, we split the case into two: the period of Soviet rise from the 1940s to the mid 1970s (the Soviets are the relative riser) and a second period from the late 1970s to the fall of the Soviet Union (the US is the relative riser). These periods roughly correspond to the what many historians categorize as the First and Second Cold War.

How did the case(s) end? The First Cold War ended in détente, which resembles our strategy of appeasement. The United States made a series of concessions to the Soviet Union, by recognizing the Soviet sphere of influence in Eastern Europe at the Helsinki Accords and allow more trade. In return, the United States did secure various disarmament treaties limiting the growth of Soviet capabilities, most notably SALT I.

The Second Cold War ended in something that resembled a grand bargain. Under Gorbachev, the Soviet Union willingly surrendered its control over the Eastern European countries. Moreover, it also conducted huge unilateral conventional disarmament in addition to bilateral disarmament agreements with the United States. 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.

Did the declining power ever consider a war? Yes, to some extent. Few explicitly argued for a preventive war, due to the risk of an all-out nuclear escalation. However, détente and Gorbachev's concessions came under serious criticism from neoconservatives and hardliners respectively. Both camps believed that the leadership granted the enemy far too big concessions, without gaining sufficient compensation in return. In order to avoid this, hawks in both countries wanted to pursue a confrontational foreign policy that increased the risk of war, even if nobody sought that outcome.

Contrasting the opportunity cost of arming with the Anglo-Russian Case A deeper look at this case can help scholars parse another implication of our theory. While the cases are complex, our preliminary review suggests that k is higher for Russia in the pre-Cold War era than the Soviet Union First Cold War[84] for two reasons. First, Russia faced several distinct foreign policy contests in the 1800s. Thus, choosing to dedicate resources to the Great Game in Asia cost St. Petersburg the opportunity of a decreased ability to compete in other regions, such as East Asia and the Balkans. In contrast, the Soviets had one major rival: the United States.[85] That contest covered almost the entire globe. Thus, focusing on that rivalry posed a lower opportunity cost in terms of what other foreign policy areas the Soviet Union could focus on.

Second, we see preliminary evidence for differences in domestic pressures. Across both periods, we do not think Russia cared much about the welfare of its citizens relative to elites and foreign policy goals. Nevertheless, this need was lower during the Soviet period. This was both because there was greater acceptance of the need for a high military spending after the destruction of World War II and the Soviet political system allowed no outlets for dissent. Accordingly, the Soviet leadership was able to devote a unusually large share the economic surplus to military spending. In contrast,

[84]Notably, the Soviet Union was the declining power in the later Cold War.

[85]The only exception was China following the Sino-Soviet split. However, China's limited military, economic, and technological capabilities made the threat it posed far smaller than that of the United states.

Russians circa 1900 were far more dissatisfied with the slow rate of economic development. This became particularly clear with the 1905 Revolution, which highlighted the fragility of the Russian monarchy. To maintain his position, the Tsar had to make extensive political concessions, for instance by forming the Duma and allowing elections for the first time. In this political climate, it was much harder to increase military spending.

Consistent with our findings, the cases of a rising Russia in the 1800s end in a grand bargain backed by the threat of war (see manuscript for details), or war (see Appendix B). But our preliminary review of the rise of the Soviet Union suggests it follows the logic of appeasement.

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 is as Europe's strongest economy. The fall of the Berlin Wall made German reunification possible. 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 or try to delay it. 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 Bozo (2010).

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. Thus, Britain ended up doing nothing to avoid German reunification.

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