

Containing Rogues: A Theory of Asymmetric Arming

Online Appendix

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This appendix contains proofs of the propositions stated in the paper (Section 1), empirical evidence on the calibrating assumptions and costs of containment and war (Section 2), and a complete list of all sources on Iraq consulted for this study (References), including those not cited in the body of either the main paper or this appendix.

1 Proofs of Propositions

We begin by defining exactly what constitutes an equilibrium “in the absence of a deal,” referred to here as a no-deal equilibrium. A no-deal equilibrium is one in which, at any decision node for A , A ’s strategy prescribes a choice that is the same regardless of the signals received up to that point about whether B has invested. By contrast, a deal equilibrium is one in which A ’s choice at at least one node depends on whether B has been observed to invest in past periods. This dependence enables A to react to a signal that B is investing in order to enforce a deal.

Next we prove a simple lemma that determines equilibrium once B has acquired the unconventional means to power.

Lemma 1. *Suppose that B has acquired the unconventional means. In equilibrium, A ’s continuation value will be $V_u^A \equiv W_u^A + D_u^{war}$ and B ’s will be $V_u^B \equiv W_u^B$. No war will occur.¹*

¹We assume throughout that $W_u^B > 0$. If this did not hold, then B would have no bargaining power, with

Proof. Subgame perfection implies that B will accept any $q < V_u^A(1 - \delta)$, because rejecting it yields his war value, while accepting it and going to war in the next round guarantees a higher payoff. Because of this, A would strictly prefer offering any $q \in (W_u^A(1 - \delta), V_u^A(1 - \delta))$ to war. For any such q that is less than $V_u^A(1 - \delta)$, there is a higher q that both A and B would strictly prefer to war. Thus, in equilibrium A makes the offer that renders B indifferent to war ($q = V_u^A(1 - \delta)$) and B accepts this or any higher offer and rejects any lower offer. \square

Proposition 1

For the case in which A tolerates B , first suppose that $k < \delta\lambda_t [W_u^B - W_t^B]$. Suppose also that, in some period prior to B obtaining the unconventional means, his equilibrium continuation value is at least $\frac{-k}{\delta\lambda_t} + V_u^B$. This implies that A 's own value is at most $\frac{1}{1-\delta} - \frac{-k}{\delta\lambda_t} - V_u^B$. But then A could profitably deviate by offering some

$$q \in \left(\left[\frac{1}{1-\delta} - \frac{-k}{\delta\lambda_t} - V_u^B \right] (1-\delta), \left[\frac{1}{1-\delta} - W_t^B \right] (1-\delta) \right)$$

in all rounds prior to B acquiring the unconventional means, which subgame perfection requires B to accept. The supposition that $k < \delta\lambda_t [W_u^B - W_t^B]$ implies that this interval is well-defined and non-empty, so that such a q is guaranteed to exist. This violates the supposition of equilibrium, so B 's pre-acquisition continuation value must always be less than $\frac{-k}{\delta\lambda_t} + V_u^B$.

Because, in a no-deal equilibrium, A does not react to signals of investment, an investment that fails gives B the same continuation value starting from the next period as not investing. Let this value be X . Then the continuation value of investing is $-k + \delta [\lambda_t V_u^B + (1 - \lambda_t)X]$, while that of not investing is δX . Since, by the argument above, $X < \frac{-k}{\delta\lambda_t} + V_u^B$, it follows that B always strictly prefers to invest, given the chance.

or without the unconventional means, and so no incentive to acquire them, and A would have no reason to try to stop B from getting them. We discard this uninteresting case.

Now suppose that $k > \delta\lambda_t [W_u^B - W_t^B]$. Then B 's continuation value for investing is $-k + \delta [\lambda_t V_u^B + (1 - \lambda_t)X]$, while that of not investing is δX , for some X . In equilibrium, it must be that $X \geq W_t^B$, since B could always guarantee himself at least this value by rejecting any offer A made in the period. But then we have $k > \delta\lambda_t [W_u^B - W_t^B] > \delta\lambda_t [V_u^B - X]$, which implies that B strictly prefers not to invest.

Next we deal with the case where A contains B . The proof is identical to that of the above, with λ_t replaced by λ_c , W_t^B by W_c^B , and suppositions about the inequality between k and $\delta\lambda_t [W_u^B - W_t^B]$ replaced by the analogous suppositions about the inequality between k and $\delta\lambda_c [W_u^B - W_c^B]$.

Proposition 2

We proceed by calculating the equilibrium continuation values of war, toleration, and containment for A , and then transform these values into the quantities listed in the proposition.

It was assumed in the model setup that $W_c^A > W_t^A$, so that if A attacks in equilibrium, he must have first elected to contain B . Hence A 's continuation value for war must be $W_c^A = \frac{1}{1-\delta} - D_c^{war} - W_c^B$.

By Proposition 1, in the absence of a deal, B 's choice to invest in a given period is determined entirely by whether A tolerates or contains B in that period. So, if A prefers to tolerate B in one period, she will prefer to tolerate him in every period, and the same is true for instead containing B . Thus we can calculate the continuation values of toleration and containment for A by assuming that A will employ each in every future period until B obtains the unconventional means.

Observe that in any no-deal equilibrium featuring toleration, B must receive a continuation value of at least $V_t^B \equiv \max \left\{ W_t^B, \frac{-k + \delta\lambda_t W_u^B}{1 - \delta(1 - \lambda_t)} \right\}$. If he received less than the first term, he would do better by starting a war. He cannot receive less than the second term even if A offers $q = 1$ and B invests in every round before B gets the unconventional means. If B 's

continuation value were higher than V_t^B , then A could profitably deviate by reducing at least one offer she will make to him, without that offer or any other being rejected and without altering B 's investment behavior. It follows that B 's continuation value must equal V_t^B . If B does not invest, the expected cost of his investments is zero. If B invests, then the expected cost of B 's investments is given by $X \equiv k + \delta [\lambda_t \cdot 0 + (1 - \lambda_t)X] = \frac{k}{1-\delta(1-\lambda_t)}$. Because any investments reduce the value of the game, A 's continuation value from toleration must be $\frac{1}{1-\delta} - K_t - V_t^B$, where:

$$K_t \equiv \begin{cases} 0 & \text{if } k > \delta \lambda_t [W_u^B - W_t^B] \\ \frac{k}{1-\delta(1-\lambda_t)} & \text{if } k < \delta \lambda_t [W_u^B - W_t^B] \end{cases}$$

Similarly, in any no-deal equilibrium featuring containment, B 's continuation value must be at least $V_c^B \equiv \max \left\{ W_c^B, \frac{-k-c^B+\delta\lambda_c W_u^B}{1-\delta(1-\lambda_c)} \right\}$, and cannot be any more than this or A will have a profitable deviation to offering less in at least one round. The value of the game is reduced both by the expected cost of B 's investments and by the expected costs for both sides of containment. Analogously to under toleration, the former is:

$$K_c \equiv \begin{cases} 0 & \text{if } k > \delta \lambda_c [W_u^B - W_c^B] \\ \frac{k}{1-\delta(1-\lambda_c)} & \text{if } k < \delta \lambda_c [W_u^B - W_c^B] \end{cases}$$

Defining C as the cost of containment along with B 's investments, we have:

$$C \equiv \begin{cases} \frac{c^A+c^B}{1-\delta} & \text{if } k > \delta \lambda_c [W_u^B - W_c^B] \\ \frac{c^A+c^B}{1-\delta(1-\lambda_c)} + K_c & \text{if } k < \delta \lambda_c [W_u^B - W_c^B] \end{cases}$$

Hence A 's continuation value will be $\frac{1}{1-\delta} - C - V_c^B$.

Now we can transform the continuation values for A 's three options into the values stated

in the proposition. Equilibrium requires that A choose an option with the maximum continuation value, or, flipping the signs of these values, the option with the minimum negated value. Adding $\frac{1}{1-\delta} - W_c^B$ to each of these negated values, A must choose an option whose negated value is equal to $\min \{D_c^{war}, K_t + V_t^B - W_c^B, C + V_c^B - W_c^B\}$. This corresponds to the quantities stated in the proposition.

Proposition 3

A “viable deal” is defined as an equilibrium in which A never contains or attacks and B never invests along the equilibrium path. First we suppose such a deal exists, and demonstrate that the two conditions stated in the proposition must hold. Then we assume those two conditions hold, and prove that a deal exists.

Suppose a viable deal exists. Then in any given period along the equilibrium path, B must prefer not investing to investing or starting a war. Let B 's continuation value from abiding by the deal be $1 - q_d + \delta V_d^B$, where q_d is the equilibrium offer A makes under the deal. The analogous value if he instead invests in the current period is $1 - q_d - k + \delta [\lambda_t W_u^B + (1 - \lambda_t) [\tau V_p^B + (1 - \tau) V_d^B]]$, where V_p^B is B 's continuation value if his investment is unsuccessful and detected by A . His value if he instead goes to war is W_t^B . Thus, for the deal to be viable, it must be that:

$$V_d^B \geq \max \{1 - q_d - k + \delta [\lambda_t W_u^B + (1 - \lambda_t) [\tau V_p^B + (1 - \tau) V_d^B]], W_t^B\}$$

For her part, A must prefer abiding by the deal to attacking or containing B or tolerating B but making a different offer. By Proposition 2, the no-deal equilibrium will feature whichever of these has the highest continuation value for A , so that $V_d^A \geq \widehat{V}_{nd}^A \geq W_c^A$. It follows that we must have $V_d^B \leq \frac{1}{1-\delta} - \widehat{V}_{nd}^A$, and by the above inequality, $V_d^B \geq W_t^B$, so that we have $\frac{1}{1-\delta} - \widehat{V}_{nd}^A \geq W_t^B$, which establishes the first condition stated in the proposition.

Observe that the worst punishment A could credibly impose on B for investing is the no-deal equilibrium. If this equilibrium features war, then it is the worst punishment for B that could possibly be credible, since any prospective punishment worse than that would give B a profitable deviation to attacking. If the no-deal equilibrium features containment, war might be worse for B , but A cannot credibly threaten to attack because containment must offer A a higher continuation value to be featured in the no-deal equilibrium.² Similarly, if the no-deal equilibrium features toleration, then A cannot credibly threaten to do anything worse to B . Hence $V_p^B \geq \widehat{V}_{nd}^B$, so that the inequality above implies

$$\begin{aligned}
V_d^B &\geq 1 - q_d - k + \delta [\lambda_t W_u^B + (1 - \lambda_t) [\tau V_p^B + (1 - \tau)V_d^B]] \\
&\Rightarrow \delta V_d^B \geq -k + \delta [\lambda_t W_u^B + (1 - \lambda_t) [\tau \widehat{V}_{nd}^B + (1 - \tau)V_d^B]] \\
&\Rightarrow \delta \left[\frac{1}{1 - \delta} - \widehat{V}_{nd}^A \right] \geq -k + \delta \left[\lambda_t W_u^B + (1 - \lambda_t) \left[\tau \widehat{V}_{nd}^B + (1 - \tau) \left(\frac{1}{1 - \delta} - \widehat{V}_{nd}^A \right) \right] \right] \\
&\Leftrightarrow \delta \left[S + \widehat{V}_{nd}^B \right] \geq -k + \delta \left[\lambda_t W_u^B + (1 - \lambda_t) \left[\tau \widehat{V}_{nd}^B + (1 - \tau) \left(S + \widehat{V}_{nd}^B \right) \right] \right] \\
&\Rightarrow \delta [\lambda_t + (1 - \lambda_t)\tau] S \geq -k + \delta \lambda_t \left[W_u^B - \widehat{V}_{nd}^B \right]
\end{aligned}$$

This establishes the second condition stated in the proposition.

Now instead suppose that the two conditions are true, and consider the following strategy profile as a candidate for a deal equilibrium. Along the equilibrium path, A tolerates B and offers q^* , which B accepts and then does not invest. If A ever contains B or makes an offer $q \neq q^*$, or B ever invests, the two players subsequently play the no-deal equilibrium for the rest of the game. The equilibrium offer is given by:

$$1 - q^* = \frac{1 - \delta}{\delta} \max \left\{ \delta W_t^B, -k + \delta \left[\lambda_t W_u^B + (1 - \lambda_t) \left[\tau \widehat{V}_{nd}^B + (1 - \tau)V_d^B \right] \right] \right\}$$

²This ignores the knife-edge case in which containment and war have the exact same continuation value for A .

with $V_d^B = \frac{1-q^*}{1-\delta}$.

By construction, B has no profitable deviation to either rejecting an offer or investing, so we need only check that A does not wish to renege on the deal by attacking or containing B or tolerating him but then making him a stingier offer.³

First suppose that $1 - q^* = (1 - \delta)W_t^B$. Then the value of the deal for A is $\frac{1}{1-\delta} - W_t^B$, which the first condition guarantees is no more than \widehat{V}_{nd}^A , so that A has no incentive attack or contain B , or to reduce his offer to B , since each of these would yield at most \widehat{V}_{nd}^A by Proposition 2.

Now suppose that $1 - q^* = \frac{1-\delta}{\delta} \left[-k + \delta \left[\lambda_t W_u^B + (1 - \lambda_t) \left[\tau \widehat{V}_{nd}^B + (1 - \tau) V_d^B \right] \right] \right]$. Then the value of the deal for A is $\frac{1}{1-\delta} - \frac{1}{\delta} \left[-k + \delta \left[\lambda_t W_u^B + (1 - \lambda_t) \left[\tau \widehat{V}_{nd}^B + (1 - \tau) V_d^B \right] \right] \right]$. It is easily shown that the requirement that this value be at least \widehat{V}_{nd}^A is equivalent to the second condition in the proposition. This completes the proof.

2 Empirical Evidence for Calibration and Costs

Calibration

For the purposes of this calibration, I focus on Iraq's pursuit of nuclear weapons. Iraq pursued all of the unconventional means to power discussed in this paper at various points. It undertook programs to develop biological, chemical, and nuclear weapons; sponsored terrorist organizations that sought to overthrow US-allied regimes in Kuwait and Saudi Arabia (Woods, 2007); and engaged in regional aggression against Iran and Kuwait. However, while US policy toward Iraq was designed to address all of these threats, the US considered Iraq's development of nuclear weapons the most dangerous of these (Pollack, 2002, Ch. 5). Moreover, it is clear that Iraq saw nuclear weapons as the most important of the unconventional

³Note that we can treat A making an offer she knows B will reject as equivalent to A attacking B ; if either deviation is profitable, both will be, so it suffices to check only the latter.

means it might pursue (Brands and Palkki, 2011).

Assumption 1. $k < \delta\lambda_t [W_u^B - W_t^B]$: *in the absence of a deal, if the US would tolerate Iraq's program, then Iraq would try to get nuclear weapons.*

Evidence: Empirically, it is clear that Iraq saw benefits to acquiring nuclear weapons that exceeded the cost of developing them free from outside interference, as it pursued a nuclear weapons program from the mid-1970s on.⁴ Even when Israel attacked and destroyed a principal asset of this program, the nearly complete Osirak reactor, Iraq responded by redoubling its efforts.⁵ By the Gulf War, when the US ceased to tolerate its program, Iraq was very close to mastering the technological prerequisites for nuclear weapons, so that the probability of success given further investment was relatively high.⁶ Consistently with the model, there is strong evidence that Saddam anticipated that nuclear weapons would enable him to do better in a regional war and to extract concessions from his enemies.⁷ While some argued before the war that Iraq would not be able to secure “offensive” gains with nuclear weapons, both Saddam himself and US policymakers believed otherwise.⁸

Assumption 2. $K_t + V_t^B - W_c^B > D_c^{war}$: *in the absence of a deal, the US would not just tolerate Iraq's nuclear weapons program.*

Evidence: Elsewhere in the appendix, it is shown that B 's equilibrium continuation value under toleration is $V_t^B = \max \left\{ \frac{-k + \delta\lambda_t W_u^B}{1 - \delta(1 - \lambda_t)}, W_t^B \right\}$. Because V_t^B is defined as a maximum over

⁴Singh and Way (2004).

⁵Reiter (2005).

⁶Based on its investigation of Iraq's pre-Gulf War nuclear program conducted soon after the war, the US concluded that Iraq had been within two or three years of getting the bomb (Richelson, 2007, 464).

⁷Pollack (2002, 266-267, 270), Brands and Palkki (2011), Iraq Survey Group (2004, Key Findings, 24-28, 33). Narang (2014) offers evidence that other proliferants had similar beliefs and that these were objectively correct.

⁸For the argument that Iraq would not get offensive gains from nuclear weapons, see Mearsheimer and Walt (2003). For US policymakers' views on the consequences of proliferation, see Gavin (2012), and on Iraq's proliferation specifically, see Pollack (2002, 175-177, 249-253, 268-270, 272-276) and Central Intelligence Agency (1991c). For a model that demonstrates how nuclear weapons can lead to offensive gains, even when the issues at stake are not worth fighting a nuclear war over, see Powell (2015).

two quantities, there are two ways the inequality can be satisfied. If $V_t^B = W_t^B$, the inequality becomes $W_t^B - W_c^B > D_c^{war} - K_t$. This implies that the value of the military advantage B derives from being tolerated rather than contained exceeds the value lost to war, net of the investments in developing nuclear weapons that war would prevent. For V_t^B to instead equal $\frac{-k+\delta\lambda_t W_u^B}{1-\delta(1-\lambda_t)}$, λ_t must be high enough, so that B will acquire nuclear weapons rapidly under toleration. Then the inequality is approximately $W_u^B - W_c^B > D_c^{war}$. This means that the value of the military advantage B derives from having nuclear weapons rather than being contained exceeds the value lost to war.

Consider the values of these parameters in the US-Iraq case. First, just before the Gulf War, Iraq was close to success in its nuclear weapons program. After the war, much of the infrastructure of this program was destroyed or dismantled, but Iraq was careful to maintain the human capital necessary to quickly reconstitute the program.⁹ By late 2002, the US estimated that Iraq was probably only five to seven years away from acquiring the bomb, and that this might be reduced to as little as one to two years if Iraq was able to obtain fissile material abroad, perhaps from the A. Q. Khan network.¹⁰ Though the estimate remains controversial, it was shared by virtually all the world's intelligence services, including those of countries that opposed the Iraq War.¹¹ Moreover, post-war assessments of the evidence found the estimate to be reasonable and roughly accurate.¹² Thus, λ_t was likely high.

Second, Saddam's anticipated value of war under containment was surely much lower than that with nuclear weapons. US analysts were confident that defeating Saddam's military

⁹Pollack (2002, 62, 168–169), Iraq Survey Group (2004, Key Findings, 24, 44, 49, 51).

¹⁰Central Intelligence Agency (2002).

¹¹Jervis (2006, 18).

¹²Betts (2007, 114–123) and Jervis (2006) argue that the estimate was the only plausible one given the information the US had available. While it was wrong in that Iraq had not yet restarted its nuclear program, its judgment of how long it would take such a program to succeed has not been contested and was identical to previous estimates made in 1995 and 1997 (Iraq Intelligence Commission, 2005, 54). Moreover, the US misperception that Iraq was continuing its WMD programs under containment dated back to 1992, well before any serious consideration of invasion, suggesting this judgment was not a result of politicization. See Ritter (2005, 72–73, 112–113).

would be a “cakewalk,” as proved to be the case.¹³ In captured documentation of Iraq’s pre-war planning, Saddam appears to believe Iraq still had a chance to exhaust the US and force a stalemate or withdrawal.¹⁴ However, these derive from meetings between Saddam and his senior officials, who would have posed a serious coup threat had Saddam admitted that the war was unwinnable.¹⁵ Saddam thus would have incentives to exaggerate Iraq’s chances in a war.¹⁶ Reports that Saddam made eleventh-hour offers to the US to go into exile suggest Saddam secretly shared the US view of his military prospects.¹⁷ Thus it seems that $W_c^B \approx 0$. As argued previously, both Saddam and US policymakers believed that the value of war for Iraq would be substantial if it had nuclear weapons, so that $W_u^B \gg W_c^B$.

Finally, there is ample indirect evidence that the threat of a nuclear-armed Iraq was considered enough to justify war, if it were the only way to prevent Iraq getting the bomb. The US proved willing to run a serious risk of war with North Korea to stop it acquiring nuclear weapons, even though the military situation in the Korean peninsula in the 1990s was much less favorable to the US than that in Iraq.¹⁸ The US threatened Iran and Libya with preventive attack in 2003, and the latter viewed these as credible.¹⁹ Saddam’s entreaties for exile suggest he did, too.

It therefore seems that the second inequality held between the US and Iraq, so that the assumption is empirically accurate.

Assumption 3. $\delta [\lambda_t + (1 - \lambda_t)\tau] S < -k + \delta \lambda_t [W_u^B - \widehat{V}_c^B]$: *Iraq would covertly pursue nuclear weapons under any deal the US would be willing to offer.*

¹³The term comes from Adelman (2002), but more serious analyses came to comparable conclusions. See Cordesman (2002), Pollack (2002, Ch. 11).

¹⁴Woods et al. (2006, vii–ix, 28–32, 96–97, 112).

¹⁵Woods et al. (2006, vii–viii, 7, 26, 31, 82) emphasize Saddam’s obsession with the threat of a coup, even from his senior officials, and the lengths to which he went to protect himself.

¹⁶Woods et al. (2006) does not appear to consider this possibility. Pollack (2002, 352) recognized this possibility before the war, as did the post-war Duelfer report (Iraq Survey Group, 2004, 67).

¹⁷See Associated Press (2003); Borger, Whitaker and Dodd (2003); Rennie (2003); Risen (2003).

¹⁸Debs and Monteiro (2014).

¹⁹On Iran, see Corera (2006, Ch. 6), Kerr (2016, 41), Nuclear Threat Initiative (2011, 185), Volpe (2015, 212–217). On Libya, see Bowen (2006, 64), Corera (2006, 182), Jentleson and Whytock (2005/06, 73).

Evidence: While it is plausible that neither condition for a viable deal specified in Proposition 3 held with the US and Iraq, analytically it suffices if only one did so, so I focus on the second condition. This condition is less likely to be satisfied when λ_t is higher and S and τ are lower. It was previously argued that Iraq’s nuclear weapons program was expected to succeed quickly in the absence of containment, and it will be argued in detail in the next section that the costs of war under containment—which are at least as large as S —declined substantially from 1991 to 2003. Most importantly, there was every reason to believe that τ was very small. Iraq had come close to acquiring nuclear weapons before the Gulf War, without the US intelligence community or IAEA noticing.²⁰ Even after years of containment, intense surveillance, and unprecedentedly intrusive inspections, the US and international inspectors were unaware of major elements of Iraq’s WMD programs, and only discovered them upon the chance defection of these programs’ director.²¹ More generally, I found no discussion of even the possibility of such a deal in expert commentary before the war, and many analysts expected Iraq to resume its nuclear weapons program if containment ended, correctly it seems.²²

Assumption 4. $k > \delta\lambda_c [W_u^B - W_c^B]$: *containment slows Iraq’s program enough that Iraq is not willing to continue it under containment.*

Evidence: We now know that Iraq halted all its WMD programs by late 1995.²³ The international community had proven able to ferret out hidden facilities and then compel Iraq to destroy them during the first years of containment.²⁴ As a result, the chance of a nuclear weapons program succeeding under containment was too low to be worth the

²⁰Iraq Intelligence Commission (2005, 53).

²¹Pollack (2002, 75–77), Iraq Survey Group (2004, 44–51). This defection was motivated not by foreign enticement but rather by an improbable quarrel within Saddam’s family that threatened the director’s personal safety. Thus, this unlikely revelation should not be taken as indicating that monitoring of Iraq’s programs was working well.

²²Pollack (2002, 244), Iraq Intelligence Commission (2005, 54–55), Iraq Survey Group (2004, 24, 44, 49, 51, 57, 59).

²³Iraq Survey Group (2004, Key Findings).

²⁴Pollack (2002, 62–63, 171), Iraq Survey Group (2004, Key Findings).

considerable investment it required, so that Iraq saw ending containment as a prerequisite to further investment.²⁵ The US understood this to be the case by the mid-1990s, and it was only once containment began to be relaxed (after 1998) and the inspectors ejected that the US intelligence community began to seriously suspect that Iraq might have restarted its program.²⁶

Initially, Containment Was Cheaper

The administration was confident that Saddam would soon be overthrown even if the US ended the war.²⁷ Saddam's disastrous, humiliating defeat in the Gulf War, together with the bite of the comprehensive sanctions imposed at the outset of the war and continued under containment, created an opportunity and a strong motive to replace Saddam. The administration hoped and expected that this would be undertaken by Saddam's own generals, who would likely be less antagonistic to US interests.²⁸ Thus, the administration believed that containment would achieve the same result as war, relatively quickly and without the costs of war. While the costs of comprehensive sanctions and of remaining mobilized to deter Saddam from further aggression were considerable, these would only have to be borne until Saddam was overthrown, which they thought wouldn't be long.²⁹

Moreover, the costs of containment were to be widely shared. Continuing the sanctions on Iraq had strong, wide support within the region and the broader international community, as did coercing Saddam into accepting inspections and dismantling his WMD programs.³⁰ Saddam's neighbors were happy to host US forces that would protect them from Iraq's

²⁵Iraq Survey Group (2004, 34).

²⁶Iraq Intelligence Commission (2005, 54–57).

²⁷Pollack (2002, 47, 49, 52–55). See also Central Intelligence Agency (1991*a*) for the contemporaneous estimate of the US intelligence community.

²⁸Bush and Scowcroft (1998, 488), Pollack (2002, 47, 49, 282).

²⁹Pollack (2002, 53, 55).

³⁰Pollack (2002, 64, 212).

still-considerable military might and enforce the sanctions.³¹ This meant the diplomatic, political, and economic costs of containment for the US were modest.

By contrast, an expanded war to overthrow Saddam was anticipated to be very costly for all concerned. Saddam's military forces were severely weakened during the Gulf War, but still sizable.³² Iraq retained large stocks of chemical and biological weapons, which the US believed it was willing to use against the US.³³ Such a war might therefore result in large numbers of US and Iraqi casualties and severe damage to the relatively prosperous Iraqi economy. The real price of oil doubled during the Gulf War, contributing to a US recession, and might have stayed elevated as the war continued, inflicting severe damage on the US and other economies. Such a war also risked further SCUD attacks on Iraq's neighbors, possibly with chemical or biological weapons.³⁴ These attacks could inflict many civilian casualties, dramatically worsen the economic consequences of the war, and precipitate Israel's involvement, which might split the coalition against Saddam.³⁵ Perhaps most importantly, this war had little regional or broader international support, precisely because other countries recognized that containment might solve the problem without the costs and risks of war.³⁶ Finally, an expanded war would raise the question of what to make of Iraq after, at a time when the US had little recent experience of national-building and feared the spread of Islamic revolution from Iran.³⁷

The Clinton administration regarded these options similarly.³⁸ Over the course of the years of containment, many attempts to overthrow Saddam were made, some with the active support of the US and some which nearly succeeded.³⁹ Saddam took great pains to protect

³¹Pollack (2002, 186–187).

³²Pollack (2002, 42–46).

³³Central Intelligence Agency (1991*c*, iii, iv, 10).

³⁴Iraq had this capability and was estimated to be willing to attack Israel, Kuwait, and Saudi Arabia with it (Central Intelligence Agency, 1991*c*, iv, 9, 23, 27–28).

³⁵Pollack (2002, 324–326).

³⁶Bush and Scowcroft (1998, 488–490), Pollack (2002, 187–188).

³⁷Pollack (2002, 47, 48–49).

³⁸Pollack (2002, 65–66).

³⁹Pollack (2002). There were coup, revolt, or assassination attempts in March 1991 (47–49), May 1991

himself, even sometimes at the cost of impeding inspections, indicating the seriousness of the perceived threat.⁴⁰

Containment's Costs Rose over Time

The many costs of containment and their evolution over time are described in Table 1. The table is an original compilation, but relies heavily on Pollack (2002) and Davis, Murphy and Topel (2006). It is divided into six components of the total cost: economic, humanitarian, diplomatic, political, military, and security costs. For each component, the principal costs are listed. To the left of each component is a symbol that indicates whether it generally rose (+), fell (−), or was approximately constant (0) over the course of containment from 1991 to 2003.

Much of the change in the total anticipated cost of containment arose from growing expectations of how long it would have to be continued. The US invested substantial resources in covertly organizing, training, and equipping networks of officials and sectarian organizations and encouraging their attempts to overthrow Saddam.⁴¹ It also maintained sanctions that were aimed at inciting regime change.⁴² Unfortunately, the numerous resulting assassination attempts, military coups, and popular revolts all failed to remove Saddam. Worse, the regime reacted to each plot by annihilating its members and supporters.⁴³ Thus, over the course of the 1990s, the number and strength of elements within Iraq that might plausibly

(59), June 1992 (59), December 1993 (68), January 1994 (68), March 1995 (72–73), May 1995 (75), June 1996 (79–80), December 1996 (84–85), January 1999 (93), and February 1999 (93). The CIA was involved with the associated groups in the cases of March 1995 and June 1996 and continued its efforts thereafter (91, 97–98). The attempts in December 1993 and June 1996 came close to success.

⁴⁰Pollack (2002, 285–286), Iraq Survey Group (2004, 11, 12, 19, 21, 34, 51–53, 64).

⁴¹Pollack (2002, 59, 63, 91, 97–98).

⁴²The primacy of being rid of Saddam was explicit, public policy in the Bush, Sr. administration and in the latter part of the Clinton administration (Pollack, 2002, 58, 94). Ritter (2005, 4–5, 30, 47, 66, 72–73, 163–164, 290) maintains that the US was utterly devoted to regime change, even at the cost of undermining Iraq's disarmament, throughout the 1990s. He also argues that Saddam was aware of this (155), as does Blix (2004, 267). Using evidence recovered after the war, Koblentz (Forthcoming) shows that Saddam believed this was true.

⁴³Pollack (2002, 50–51, 59, 80, 81–82, 96–97).

Trend	Component	Specific Costs
+	Economic	trade and investment opportunities lost due to sanctions, including US access to oil; loss of US market share to defectors from sanctions; contraction of Iraqi economy
+	Humanitarian	impoverishment of Iraqi people; repression of Iraqi people; deterioration of Iraqi civil society; casualties inflicted by strikes
+	Diplomatic	recurring negotiations over maintaining sanctions; influencing international responses to lack of compliance
+	Political	unpopularity and perceived illegitimacy of sanctions; appearing to persecute Muslims; corruption of UN bureaucracy by oil-for-food program; deterioration of US relations with defectors from sanctions; domestic unpopularity of basing troops in hostile areas; inducement of terrorism by US military presence in holy lands
+	Military	commitment of forces to region; Iraqi operations to undermine, and US operations to enforce, sanctions; US strikes to compel compliance with inspections and Iraqi defense against them; enforcement and resistance of no-fly-zones; sporadic Iraq mobilization and US counter-mobilization; exposure of US troops to terrorist attack
+	Security	of Iraqi support for terrorism and US combating of it; foregone opportunity for catalyzing regional liberalization; borne risk of terrorist use of Iraqi WMD; induced vulnerability of Iraq to Iran

Table 1: The Costs of Containment and Their Trends

overthrow Saddam dwindled, undermining the US belief that Saddam would soon be gone.⁴⁴ By the late 1990s, the US intelligence community estimated it would be at least a decade until another viable attempt could be made, which might fail even then.⁴⁵ Correspondingly, the US came to believe that containment would have to be maintained indefinitely. This would greatly raise its expected total cost even if its per-period costs were to remain constant.

Instead, the per-period costs of containment for both the US and Iraq also ballooned over time. Economically, the continuation of severe sanctions led to a long, deep depression in Iraq that reduced its economy to a shadow of its pre-Gulf War prosperity: per-capita income plummeted from \$2,304 in 1989 to \$495 in 1995.⁴⁶ For the US and many other states, the costs of lost access to Iraq's economy increased dramatically from 1999 as the price of oil rose.⁴⁷

Iraq's economic contraction, combined with the regime's mounting oppression of its domestic opposition, led to a humanitarian catastrophe.⁴⁸ As Iraq's economy declined, much of its ebbing surplus was appropriated by the regime to pay for the military, for illicit procurement, and for undermining sanctions enforcement.⁴⁹ The Iraqi people were rendered increasingly destitute, and their immiseration was universally viewed as undeserved and caused by the sanctions.⁵⁰ To combat the ever-present threat of overthrow and retaliate against the attempts that were made, Iraq's regime is estimated to have killed at least a hundred thousand Iraqi civilians, raped or tortured hundreds of thousands more, and pur-

⁴⁴Pollack (2002, 112). See also Central Intelligence Agency (1991*b*, 1992, 1993) for a sense of how the perceived prospects for Saddam's overthrow receded over time.

⁴⁵Pollack (2002, 290), Tenet (2007, 304).

⁴⁶The figures are from Iraq Survey Group (2004, Regime Finance and Procurement, 9). See also Nordhaus (2002, 58) and Pollack (2002, 60–61, 68–69, 75, 77, 131–133).

⁴⁷See Iraq Survey Group (2004, 36), Figure 1.

⁴⁸Gordon (2010, Ch. 5), Graham-Brown (1999, Part II).

⁴⁹Pollack (2002, 134), Iraq Survey Group (2004, Regime Finance and Procurement, Key Findings).

⁵⁰Pollack (2002, 125–131, 134, 185). This was in part the result of a propaganda campaign by Iraq to emphasize the awful consequences of sanctions. See Pollack (2002, 74, 85–86, 137–138), Iraq Survey Group (2004, 35).

posely malnourished millions during the years of containment.⁵¹

Regional and broader international support for containment collapsed in the face of these economic and humanitarian consequences.⁵² As a result, the diplomatic costs for the US of maintaining containment increased substantially over time. It became more challenging to gain international approval for punishing Iraq's military and diplomatic provocations and other countries' cheating on the sanctions.⁵³ In response, more countries defected from containment to take advantage of illegal access to Iraq's economy, furthering the downward spiral.⁵⁴ The United Nations bureaucracy that oversaw the implementation of sanctions became corrupted, undermining its effectiveness and increasing further the costs of enforcement for the US.⁵⁵ US relations with the defecting countries deteriorated over their cheating.

As the international coalition supporting containment narrowed, the US bore an increasing share of its growing costs. Its firms were made to respect the sanctions, while their competitors were given ever-increasing leeway to violate the sanctions in exchange for exclusive contracts from Iraq under the Oil-for-Food program.⁵⁶ The US increasingly bore the blame for the suffering of Iraq's people inflicted by sanctions and occasional military strikes in response to Iraq's provocations, increasing the political costs of containment.⁵⁷ This fed perceptions, especially after the 9/11 attacks and the beginning of the Second Intifada, that the US was engaged in widespread persecution of Muslims. These perceptions further reduced regional support for containment and especially for the stationing of US forces in the

⁵¹Pollack (2002, 50–51, 122–125, 134, 138–139).

⁵²Pollack (2002, 71–72, 74, 85–86, 187–188, 225).

⁵³Pollack (2002, 82–83, 88–91, 100–101, 188). Iraq awarded contracts under the Oil-for-Food program on the basis of a recipient's willingness to violate sanctions or undermine their enforcement. See Pollack (2002, 85, 215, 217–218), Iraq Survey Group (2004, Key Findings, 35–40, 60–61). In particular, Iraq attempted to manipulate Russia, France, and China into supporting its interests at the UN Security Council, which was responsible for enforcing sanctions. See Pollack (2002, 100–101, 204–206), Iraq Survey Group (2004, Key Findings, 36, 39–40).

⁵⁴Pollack (2002, 101, 214–220). Iraq Survey Group (2004, Regime Finance and Procurement) exhaustively documents the countries and individual firms that violated sanctions.

⁵⁵Independent Inquiry Committee (2005, 1–2).

⁵⁶Iraq Survey Group (2004, Regime Finance and Procurement, 31).

⁵⁷Pollack (2002, 185, 189).

region.⁵⁸

Even the military costs of containment increased over time. The US had ever more difficulty gaining support for the threat or use of force to compel Iraq's compliance with sanctions and inspections.⁵⁹ The unpopularity of US deployments to the region exposed its forces to a growing risk of terrorism. This risk was realized in the Khobar Towers attack in 1996, and again in the bombing of the *USS Cole* in 1998. By undermining domestic support for stationing forces in the Middle East, these attacks also increased the domestic political costs of containment for the US.

Finally, the negative security externalities caused by containment also rose. Iraq increased its support to Palestinian terrorism as a means of bolstering its public image with the region's Muslims.⁶⁰ In part because of this, the continued survival of Saddam's regime was viewed by some as a major impediment to peace between Israel and the Palestinians. As the region's most domestically unpopular regime, its survival entailed foregoing the best available opportunity to catalyze democratization and liberalization and, some thought, a more durable peace in the region.⁶¹ Last, after 9/11, prior beliefs about the risk of extreme terrorist attacks were revised upward, and the possibility that whatever WMD Iraq had might

⁵⁸Pollack (2002, 188–189, 191, 192–193, 195).

⁵⁹Pollack (2002) describes this in the context of a number of Iraqi provocations and US attempts to organize forceful responses. Iraq harassed patrols of the no-fly zones (NFZs) in December 1992 (64), impeded inspectors and infiltrated Kuwait in January 1993, leading to US strikes (64), attempted to assassinate George Bush, Sr. leading to US strikes in spring 1993 (67), mobilized against Kuwait leading to US counter-mobilization in October 1994 (69–70), mobilized leading to US counter-mobilization in August 1995 (76), invaded northern Iraq leading to US strikes in fall 1996 (81–83), impeded inspectors leading to US mobilization in fall 1997 (88), impeded inspectors leading to US mobilization in January 1998 (89), impeded inspectors leading to US mobilization in fall 1998 (90–91), impeded inspectors leading to extensive US strikes in December 1998 (92), harassed patrols of the NFZs in December 1999 (95–96), mobilized forces to move into Syria in October 2000 (103–104).

⁶⁰Pollack (2002, 156–157, 379). The post-war evidence of Iraq's relations with various terrorist organizations, including its support for Palestinian terrorism, is detailed in Woods (2007).

⁶¹Pollack (2002, 338, 393–394). Rumsfeld (2011, 499) and Rice (2011, 187) deny that this was among the US motives for war; Mann (2004, 351–352) claims it was only adopted as an objective in February 2003. Only Rove (2010, 341) claims it was important to Bush. Daalder and Lindsay (2003, 46–47) attributes this motive primarily to Paul Wolfowitz and Richard Perle within the administration, while Packer (2005, 50–53) lists outside advisors to the Bush administration who advanced this motive.

Trend	Component	Specific Costs
–	Military	temporarily reduced availability of forces elsewhere; operations to support invasion and occupation; casualties and equipment destroyed in fighting; paid benefits for veterans; more difficult recruitment and retention; use of WMD
–	Economic	sharp rise in oil price; concomitant macroeconomic effects; destruction of civilian infrastructure in fighting; reconstruction of Iraq; increased risk imposed by war
–	Humanitarian	civilian suffering caused by war; potential for internal conflict after war
0	Diplomatic	marshalling international support for war and assistance with reconstruction; negotiating new US-Iraq relationship and status of forces in Iraq
+	Political	increased influence of Iran over Iraq; alienation of supporters of Iraq’s regime; potential domestic unrest or punishment of incumbents if war goes badly; perception of attack on Muslims
–	Security	risk of expansion of war to Israel; potential new training ground for terrorists; externalities of post-invasion civil conflict, possibly including partition of Iraq, for surrounding countries

Table 2: The Anticipated Costs of War and Their Trends

somehow fall into the hands of terrorists, whether inadvertently or intentionally, received greater weight.⁶²

War’s Costs Fell over Time

Now consider the anticipated costs of war, and how these changed over time, described in Table 2. The table condenses the several highly-detailed compilations of the actual and anticipated costs of war that were published before and after the war, and provides posited trends.⁶³

⁶²Suskind (2006, 122–123) attributes this concern to Donald Rumsfeld, though it is never directly stated in the latter’s memoir (Rumsfeld, 2011). Tenet (2007, 305) says “many in the Bush administration” shared this concern, as do Feith (2008, 213–214) and Rove (2010, 300, 333), but Pollack (2002, 179–180) downplays it. Bush (2010, 253, 267) emphasizes it.

⁶³See Bilmes and Stiglitz (2006); Davis, Murphy and Topel (2006); Nordhaus (2002); Wallsten and Kosec (2005).

Over the years of containment, the anticipated military costs of war declined very substantially. Sanctions drastically constrained the funds available to support Iraq's military and curtailed its access to foreign weapons purchases, so that its strength decayed rapidly.⁶⁴ By contrast, the US military became much more capable over the 1990s—the development of high-precision bombing, dramatic improvements in inter-service coordination, and the introduction of modern information technology all radically increased the US military's ability to win wars quickly and decisively.⁶⁵ The development of operational art featuring greater use of special operations forces and much-reduced manpower also promised to greatly reduce the economic and domestic political costs of war, as it had in Afghanistan.⁶⁶ Finally, the US military's ability to fight effectively against chemical and biological attack also improved substantially.⁶⁷

The economic costs of war also fell for Iraq. Oil production during the sanctions period, even after the initiation of Oil-for-Food, was only around half of production before the Gulf War, so that the world was less dependent on Iraqi oil and the oil market less sensitive to war in Iraq. War would be less damaging to Iraq's economy because there was less infrastructure to blow up and less room for income to drop due to the disruption of war, and because it would likely end quickly in a US victory.⁶⁸

The same factors led to a decline in the humanitarian costs of war. As the Iraqi people become more impoverished under containment, the room for further suffering due to war was reduced. Additionally, the increasing military superiority of the US implied a shorter, more surgical invasion which would minimize civilian casualties.⁶⁹ Finally, there is no obvious reason to believe that the potential for conflict within Iraq after the war changed substantially

⁶⁴Pollack (2002, 111, 148, 158–160, 163–165).

⁶⁵Pollack (2002, 166, 300–301, 341–342, 351–352, 373–374).

⁶⁶Pollack (2002, 295–296). Pollack argued that only 30 to 50% of the total troops used in the Gulf War would be necessary to ensure a swift victory in an invasion of Iraq (338).

⁶⁷Pollack (2002, 347–348, 377).

⁶⁸Pollack (2002, 341, 379–380), Nordhaus (2002).

⁶⁹Pollack (2002, 341).

over time.⁷⁰

By contrast, the diplomatic costs did not change much over the years of containment. Those states that bore a larger share of the costs of containment—the UK and some of Iraq’s neighbors—became more sympathetic to the case for war and restoring Iraq to working order after a war.⁷¹ However, the states that were making gains by defecting from sanctions became increasingly accommodating toward Iraq and thus more opposed to war.⁷²

There were competing trends within the political costs of war. First, the growing superiority of US forces meant less chance of international and domestic backlash from a long, destructive invasion.⁷³ But, after 9/11 and the war in Afghanistan, the risk that a war with Iraq would be seen as further attacks on Muslim society, and thereby increase Arab hostility to the US, increased.⁷⁴ Also, as Iran recovered from the long, terrible war with Iraq of 1980–88, its ability to exert influence in Iraq, especially if Saddam’s regime fell, grew. Overall, it seems plausible to assume that the political costs grew somewhat over time, but especially after 9/11.

Last, there were also competing trends within the security component. A better US military and weaker Iraqi military, especially with reduced missile capabilities, meant less risk of a war expanding to include Israel or other neighboring countries. It also implied that the US would be more able to contain any post-war civil conflict within Iraq.⁷⁵ However, a war in Iraq, especially if it were followed by civil conflict, might provide a potential training ground for international terrorists, and this risk grew with the rise of Al-Qaeda. Still, this is potentially a net benefit, if it occupies terrorists in a location distant from the US and its

⁷⁰Pollack (2002, 390–392) offers a prescient analysis of how civil conflict might unfold after a US invasion, but nothing in the analysis depends on the year being 2003 rather than 1991–2002.

⁷¹Pollack (2002, 189–191, 195, 203–205, 352–365).

⁷²Pollack (2002, 196, 197, 199, 202–206, 352–365). Pollack’s predictions about the conditions under which various states would support the war proved remarkably accurate. See Harvey (2004, Ch. 3).

⁷³Pollack (2002, 341).

⁷⁴Pollack (2002, 338, 360–361). Pollack argues that this would dissipate if the war and particularly the subsequent occupation were handled competently (362, 392–394).

⁷⁵Pollack (2002, 395, 403).

allies and provides opportunities for their killing or capture by US forces.⁷⁶

⁷⁶Daalder and Lindsay (2003, 85) attributes this concern to President Bush, as does Fallows (2006, 49). See Lowenberg and Mathews (2008) for a model of this choice.

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