

INTERNATIONAL LAW AND INTERNATIONAL RELATIONS

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compliance from noncompliance; both sides must be reassured about each other's intentions, especially if there is a military advantage to striking first; and accidents must be prevented from triggering another war. These requisites suggest both the obstacles to peace and strategies for overcoming them.

Cease-fire agreements can employ three types of strategies to ensure that peace lasts: changing incentives by making it more costly to attack; reducing uncertainty about actions and intentions; and preventing or controlling accidental violations. These strategies suggest specific observable mechanisms, the effects of which are tested below.

Altering Incentives

*** [There] are steps belligerents and the international community can take to increase the costs of an attack. These steps widen the bargaining space between belligerents and make another bout of war less likely. Adversaries can tie their own hands by physically constraining their ability to attack. Withdrawal of troops from the front line, creation of a demilitarized buffer zone, and arms control make remobilizing for war more difficult. These actions also make a successful surprise attack much less likely.

Belligerents may also be able to alter incentives by declaring their cease-fire formally. By signing a formal agreement, states invoke international law. Of course, with no higher authority to enforce it, international law is not binding in the way that domestic law is. International agreements can be broken, but breaking them risks losing international aid and military support, and legitimizes retaliation by the other side. Formal and public declaration of a cease-fire thus invokes international audience costs. *

Actors may also turn to outsiders to help them enforce a cease-fire. Commitment by a third party to guarantee the peace serves as a deterrent, again by raising the cost of noncompliance. An external guarantor takes on some of the responsibility for retaliation in the event of defection. The presence of peacekeeping troops interposed between forces may also serve as a physical and reputational buffer to ensure the cease-fire.

Reducing Uncertainty About Actions and Intentions

Agreements can reduce uncertainty by specifying the terms of a cease-fire. Marking the exact location of the cease-fire line provides a focal point that can help prevent "salami tactic" attempts to push the line to

either side's advantage. Spelling out the rules of the cease-fire explicitly helps to define compliance and noncompliance, which serves to prevent misunderstandings and avoid unnecessary tension. The more specific the agreement, the less uncertainty there will be about what constitutes compliance.

Verification mechanisms can alleviate concerns about detecting aggressive moves by the opponent in time to respond. Monitoring may be less important in cease-fire agreements than other sorts of agreements, because states are likely to rely on national intelligence for warning of an attack, and it is difficult to hide aggression once it starts. However, neutral referees can play an important role in fostering stable peace. Because it is costly to be seen as the aggressor, states will try to blame the other side for any fighting that starts. Without neutral observers, claims of being the victim of aggression are not credible and there are bound to be disputes over "who started it." Monitors to investigate incidents and provide unbiased information on compliance are therefore important for distinguishing unprovoked aggression from legitimate retaliation. The international audience costs of breaking a cease-fire, therefore, often depend on impartial monitoring.

Physical constraints, audience costs, and third-party guarantees or peacekeeping efforts change belligerents' incentives, but also serve as important signaling devices that can reduce uncertainty about intentions. Willingness to accept measures that make war more costly is a credible signal of benign intent. States contemplating an attack will be less willing than those with nobler intentions to sign on to measures that increase the physical or political cost of fighting. Critics might argue that this concedes the point that agreements are epiphenomenal; only those who intend to abide by the cease-fire will agree to strong mechanisms, but it is the intentions, not the mechanisms, doing the causal work. This argument is unfalsifiable, as is there is no way to measure intentions a priori (if there were, international relations would be very different and war might not exist at all). But it also misses the point. Of course intentions matter. One of the ways in which agreements affect the durability of peace is by providing credible ways of signaling these intentions and overcoming the security dilemma.

In the abstract, there are two distinct causal pathways possible: one in which agreement mechanisms influence peace directly by constraining states or providing information, and another in which mechanisms simply signal intentions. However, the two pathways are not so easily distinguished in reality. As the literature on signaling and "cheap talk"

suggests, if there are incentives to misrepresent, as there surely are among deadly enemies, signals are only credible if they are costly. For a state to limit its ability to wage war, or to open itself up to verification is costly, and therefore credible. That is, the indirect signaling function depends in large part on the more direct effects of agreement mechanisms. *

Controlling Accidents

Reciprocal strategies can be very vulnerable to accidents and misunderstandings. If troops stray over the cease-fire line, or fire accidentally, and the other side retaliates, the situation can quickly spiral back into full-blown war. If leaders do not exercise full control over their troops (or in some cases over civilians), rogue groups opposed to peace can easily upset it by violating the cease-fire and provoking retaliation.

Ongoing negotiations and dispute resolution procedures can alleviate this danger by preventing misunderstandings and providing a forum for resolving differences before a spiral of retaliation is triggered. However, because both sides have an incentive to blame violations on accidents or rogue factions, communication by itself may not always be credible.

Withdrawal of forces, buffer zones, and arms control can help prevent accidents and misunderstandings from occurring in the first place.⁹ "Confidence-building measures" to regulate and make transparent behavior (such as military exercises) that is likely to cause tension can also prevent misunderstandings and alleviate suspicions. Cease-fire agreements often hold each state responsible for violations coming from its own territory, to prevent these violations from being used as an excuse for intentional defection. Agreements may also include concrete measures for internal control to deal with this problem of "involuntary defection."¹⁰ In addition to acting as referees, international monitors investigate and mediate small clashes and disputes to keep them from escalating.

The theory put forth here is an institutionalist argument about mechanisms to overcome the obstacles to cooperation. I hypothesize that agreements can enhance the durability of peace by raising the cost of breaking a cease-fire, reducing uncertainty, and preventing and controlling accidents. While these three strategies for maintaining peace are

⁹ On the role of arms control in providing stability, see Jervis 1993.

¹⁰ For example, irregular forces were disarmed after the Football War between El Salvador and Honduras. The United Nations Emergency Force was given responsibility for pursuing *fedayeen* (guerrillas) in the Sinai after 1956.

presented separately, their functions are intimately connected, and specific mechanisms often serve several purposes. For example, monitoring by peacekeepers reduces uncertainty by ensuring that defectors will be caught. This also raises the cost of reinitiating war. In practice, much of peacekeepers' day-to-day work entails mediation and the prevention of small clashes from spiraling out of control. Physical constraints that alter the incentives for war also necessarily reduce fears of impending attack and reduce the likelihood of accidents. Belligerents' willingness to implement measures to tie their own hands and raise the cost of attack serves as a credible signal of commitment and thereby reduces uncertainty and makes accidents easier to control.

While analytically distinct, the strategies of raising costs, reducing uncertainty, and controlling accidents therefore overlap in practice. The strategies themselves cannot be observed directly. But the specific mechanisms discussed above can be observed and their effects tested empirically. I focus on the following measures: withdrawal of forces, establishment of demilitarized zones, arms control, measures to control potential rogue groups, third-party involvement, peacekeeping, confidence-building measures, dispute resolution procedures, the specificity of agreements, and whether agreements are formal or tacit.

I use the term "strength of agreement" to refer to the number and extent of the measures implemented as part of a cease-fire. Agreement strength varies from none, if a cease-fire takes place with no agreement or without implementing any of the measures listed above (as when the second war between China and Vietnam simply fizzled out with no real cease-fire agreement), to very strong if the agreement implements significant buffer zones, peacekeepers, confidence-building measures, is formal and very specific, and so on. (The agreements reached between Israel and Egypt after the Yom Kippur war, as well as the Korean Armistice, are examples.) If the cooperation theory spelled out here is correct, peace should last longer, *ceteris paribus*, the stronger the agreement implemented. Furthermore, each of the individual measures should be associated with more durable peace. Both together and separately, these mechanisms are hypothesized to increase the stability of peace.

Political Settlement

Altering incentives, reducing uncertainty, and controlling accidents are all rather apolitical strategies for avoiding war. But the political content of an agreement should also be important. Resolving the underlying issues

of conflict, if it is possible, is a way of removing the reason to fight. Whether an agreement purports to settle the political issues over which the war was fought, rather than simply to stop hostilities, should affect stability. I focus on the more mechanical tools for maintaining peace, because settlement of the basic political issues, whether by agreement or by force, is quite rare in the post–World War II era. *** Nevertheless, when a settlement of substantive political issues is reached, whether imposed or agreed to, one should expect it to be associated with stable peace.

The Counterargument: Agreements Are Epiphenomenal, Merely “Scraps of Paper”

All else being equal, stronger agreements should lead to more durable peace. All else is not equal, however. The agreement aside, peace will be easier to maintain in some cases than in others. The counterargument to the hypothesis that agreements can foster peace is that when cooperation is relatively easy, parties will be able to draft strong agreements. These are the very cases in which peace will last in any case. Conversely, when cooperation is difficult and the chances of peace falling apart are high for other reasons, belligerents will be unable to conclude agreements that do anything more than paper over differences. According to this argument, agreements are merely epiphenomenal; they reflect other factors that determine the duration of peace but have no independent effect of their own.

*** [It] is thus crucial to control for other variables that might affect the baseline prospects for peace (the “degree of difficulty,” as it were) to test accurately the effects of cease-fire agreements.¹¹ In the empirical tests below, I control for a series of factors that make peace more or less difficult to maintain, [including whether the war ended in a decisive military victory or a stalemate,¹² the cost of war, the belligerents’ history of conflict before the war, whether the war threatened a state’s very existence,¹³ contiguity¹⁴ changes in relative military capabilities, and democracy.¹⁵]

¹¹ Downs, Rocke, and Barsoom 1996.

¹² Wars that end with a victor-imposed regime change are particularly stable. Werner 1999. There are only a few such cases in the data examined here, however. Controlling for this variable by dropping these cases makes no change to the results presented.

¹³ See Powell 1991; Fearon 1998; and Smith and Stam 2001. ***

¹⁴ See Bremer 1992; and Hensel 2000.

¹⁵ See Russett 1993; and Brown, Lynn-Jones, and Miller 1997. Leadership changes do not have a significant effect on the resumption of war. Werner 1999.

If the counterargument that cease-fire agreements are epiphenomenal is correct, the strength of agreements should have no bearing once these other factors are taken into account.

METHOD: MODEL AND DATA

The Econometric Model

This article examines the duration of peace; why some cease-fires fall apart quickly while others last longer. * * *

* * * Duration models (also known as hazard rate or survival time models), [such as the Weibull model used here,] estimate the effects of independent variables on the length of time something lasts, and the models can incorporate our uncertainty about how long the phenomenon, (in this case, peace,) will continue into the future [(i.e., the issue of censored data).]¹⁶

The Cease-Fires Data Set

To test the hypotheses laid out above, I constructed a data set that includes information on cease-fires and how long they lasted; on the situation between the belligerents at the time of cease-fire (their history of conflict, the decisiveness of military victory, etc.) as well as changes over time (in relative capabilities, regime type, etc.); and detailed information on the nature and content of any agreement and peace mechanisms that accompanied or followed the cease-fire.

The data set covers cease-fires in international wars ending between 1946 and 1997. Each case is a cease-fire between a pair of principal belligerents in the Correlates of War Version 3 (COW) data set's list of interstate wars. I split multilateral wars from the COW data set into separate dyads and eliminated minor participants.¹⁷ A cease-fire is defined as an end to or break in the fighting, whether or not it represents the end of the war. It need not be accomplished through an explicit agreement. COW wars in which fighting stopped and started again are divided into separate cases, one for each cease-fire. During the first Arab-Israeli

¹⁶ [The findings are no different in a Cox proportional hazard model. The Weibull is preferred because it gives more precise estimates in a small data set like the one used here. Box-Steffensmeier and Jones 1997, 1435. For a technical explanation of duration models, see Greene 1993.]

¹⁷ Defined as those contributing less than one-tenth the number of troops committed by the largest provider of troops.

war in Palestine, for example, there was a break in the fighting in 1948 in accordance with a United Nations (UN) Security Council resolution ordering a cease-fire. Three months later, the cease-fire failed when Israel launched an offensive to seize the Negev. Another cease-fire ended the war in 1949. I treat these as distinct cases. History tends to forget the failed cease-fires, focusing only on the ones that succeeded in ending the war. Breaking these into separate cases is therefore crucial to avoid selecting on the dependent variable.¹⁸ Cease-fires range in length from two weeks (the first Turco-Cypriot cease-fire) to fifty years and counting (Korea).

Because wars that start and stop again are treated as separate observations, and because multilateral wars are split into dyads, not all of the cases in the data set are independent of one another. I correct for the statistical problem of autocorrelation by calculating robust standard errors,¹⁹ but a substantive caveat should also be noted. Because the Arab-Israeli conflict has been both multilateral and oft-repeated, much of the data set thus consists of Middle East cases. Domination of the data set by one conflict raises issues of generalizability. However, in neither the quantitative work, nor related case-study research have I found significant differences between the Middle East cases and others that would skew results.²⁰

There are forty-eight cease-fire cases in the data set. *** Each of these cease-fires is a subject for which there are multiple observations over time, each of a year or less, for a total of 876 observations. This allows me to record changes in military capabilities over time, the arrival or departure of peacekeepers, or the fact that a new agreement has been reached implementing new measures. These are known as “time-varying covariates” in the duration analysis lingo. For each subject, the time spans run continuously to the start of a new war or the end of the data at the beginning of 1998. The duration model treats each subject as a history, focusing on whether peace survived each time period in the

¹⁸ I used COW data on when states “left” and “reentered” the war, supplemented by my research, to determine these breaks in the fighting. It is possible that I have missed some very short-lived cease-fires. This selection bias should work against my own argument, however, as brief cease-fires are much more likely to be reported if accompanied by strong agreements than by weak ones.

¹⁹ These are calculated using Huber’s method, with cases clustered by conflict. All of the Arab-Israeli cases are one cluster, all of the India-Pakistan cases another, and so on. Cases are assumed to be independent between clusters but not necessarily within clusters.

²⁰ Where controlling for Arab-Israeli Cases made a significant difference in the results, it is discussed below.

history. Peace is considered to fail at the start of another COW war between the same two belligerents. The data set is censored at the end of 1997.²¹ War resumes eventually in twenty-one cases ***.

Data on the various aspects of agreements come from my research on each case.²² I investigated and coded the following aspects of agreements: the extent of withdrawal of forces, demilitarized zones, arms control measures, peacekeeping (whether a monitoring mission or a peacekeeping force, and whether the mission was new or was left over from a previous mission before the war broke out), third-party involvement in peacemaking or guarantees of the peace, the specificity of any agreement, whether it was formal or tacit, dispute resolution procedures, confidence-building measures, measures to control possible rogue action, and whether the political issues over which the war was fought were settled. ***

Not all of the cease-fires are accompanied by agreements, of course. The data set includes a number of cases in which fighting stopped with a unilateral withdrawal, in which war simply fizzled to an end with no explicit cease-fire, or in which fighting ended with the installation by one side of a “friendly” government for the other (as in Hungary in 1956). In such cases, the mechanisms under discussion here are coded as zero unless measures were implemented in the absence of an agreement.

Agreement strength is measured in two ways. One is simply an index of the mechanisms implemented, with a point for a demilitarized zone, another for arms control measures, half for a monitoring mission or one for an armed peacekeeping force, and so on. This measure is crude but has the benefit of being objective and replicable by others. It ranges from 0 to 10. The other is a more subjective coding of the extent of the measures implemented. This measure is a five-point scale ranging from none for cease-fires with no mechanisms *** to very strong for formal, detailed agreements with peacekeeping contingents, demilitarized zones, dispute resolution procedures, and so on ***. It is derived from a qualitative comparison of all of the cases in the data set.²³ The objective and subjective measures

²¹ The North Vietnam–South Vietnam case is censored immediately because South Vietnam ceased to exist.

²² Sources included references surveying international conflict in the postwar era (including Bercovitch and Jackson 1997; Brogan 1992; Butterworth 1976; Goldstein 1992; Miall 1992; and Tillemma 1991), secondary sources on each conflict, and primary documents, including cease-fire agreement texts.

²³ Note that neither measure includes whether the agreement settled the political issues over which the war was fought, which I consider separately.

are highly correlated (.88). Using both helps ensure that the subjective coding is not biased and that the objective coding is fairly accurate.

Data on situational or control variables come from existing data sets. A dummy variable marks whether the war ended in a tie or in a military victory for one side. The COST OF WAR measure is based on battle deaths. HISTORY OF CONFLICT measures the extent to which the belligerents' shared past is marked by serious disputes. I include measures noting whether one side's very existence was threatened by the war, *** and whether belligerents are contiguous ***. Following Werner, I use the COW material capabilities data to measure changes in relative capabilities.²⁴ [Other control variables, including whether the fight was over territory, whether the war involved more than two states, and] measures of expected utility, were tested, but found to have no significant effect (results not shown).^{25,26}

FINDINGS

Baseline Prospects for Peace

*** Table 20.1 shows the statistical results. Coefficients indicate the effect of variables on the hazard of war resuming. Positive coefficients indicate variables associated with peace that falls apart more quickly (a higher hazard of failing), and negative coefficients mark variables associated with more durable peace (a lower risk of another war). To give a sense of the relative size of effects, the right-hand column presents estimated hazard ratios for variables found to have a significant effect. Hazard ratios are interpreted relative to a baseline of one: a ratio of 0.50 indicates that the hazard is cut in half, while a ratio of 2.0 indicates a doubling of the risk of another war.

²⁴ [Werner 1999.] Because democratic dyads never fight, there are no cease-fires between democratic states, but some dyads become jointly democratic after a cease-fire is in place (for example, Britain and Argentina after 1983). Joint democracy may make peace more durable, but the finding depends largely on how one codes Cyprus during the extremely short-lived cease-fire in 1974. It is also called into question by the 1999 Kargil War between India and Pakistan (which occurs after the data used here are censored). For further discussion of these cases and the relationship between democracy and the durability of peace, see Fortna 2004, chap. 3. Here, I control for the possible effects of the democratic peace by dropping those few observations in which both states are democracies (based on Polity data) in some tests.

²⁵ Bueno de Mesquita and Lalman 1992.

²⁶ Coding details and the data are available online at <<http://www.columbia.edu/~vpf4/scraps.htm>>.

TABLE 20.1. *Agreement Strength (Weibull Estimates)*

Variables	1		2	
	Agreement strength (subjective measure)		Index of strength (objective measure)	
	Coefficient (RSE)	Hazard ratio	Coefficient (RSE)	Hazard ratio
AGREEMENT STRENGTH				
None	0.32 js (0.52)	1.38		
Very weak	0.40 js (0.38)	1.50		
Weak	(omitted category)			
Moderate	-0.83*** js (0.21)	0.43		
Strong	-1.70 js (1.50)	0.18		
INDEX OF AGREEMENT STRENGTH			-0.25*** (0.06)	0.78
TIE	3.53*** (0.61)	34.28	3.63*** (0.33)	37.58
COST OF WAR	-0.55*** (0.21)	0.58	-0.68*** (0.18)	0.50
HISTORY OF CONFLICT	0.90*** (0.31)	2.46	0.95*** (0.26)	2.59
EXISTENCE AT STAKE	2.10*** (0.31)	8.13	2.31*** (0.31)	10.10
CONTIGUOUS	1.38*** (0.44)	3.99	1.20*** (0.24)	3.31
CHANGE IN RELATIVE CAPABILITIES	0.82*** (0.20)	2.28	0.85*** (0.19)	2.33
Constant	-8.37*** (2.44)		-6.60*** (1.72)	
Shape parameter <i>p</i>	0.90 (0.08)		0.91 (0.06)	
<i>N</i>	727		727	
Subjects	47		47	
Log likelihood	-39.78		-40.62	

Note: Cases of joint democracy are dropped. Negative coefficients and hazard ratios <1 indicate decrease in risk of another war (increase in duration of peace). Positive coefficients and hazard ratios >1 indicate increase in risk of another war (decrease in duration of peace). RSE = robust standard errors, js = jointly significant.

*** $p \leq .01$.

** $p \leq .05$.

* $p \leq .10$. Two-tailed tests used.

[Consider first the control variables that shape the baseline prospects for peace.] Wars that end in a tie are much *** more likely to be repeated than those that end with a decisive victory for one side. More costly wars are followed by substantially more durable peace, all else being equal. Peace is significantly more fragile between belligerents with more acrimonious shared histories, and is almost six times more precarious when one side's existence is threatened by the conflict.²⁷ *** Neighboring states are [more likely] to fight again, but [note that] this finding is not always statistically significant.²⁸

As Werner's argument would predict, changes in relative capabilities over time do seem to be associated with the resumption of war.²⁹ ***

* * *

These findings suggest that it will be much harder to maintain peace in a case like the 1948 cease-fire in the Arab-Israeli War – which took place without a clear victor, between states whose entire history was marked by violence, and with the very existence of one side at stake – than in a case such as the Falklands War, fought by states a long distance from each other with little previous history of militarized conflict, ending in a very lopsided victory for Britain, with a relatively low death toll.

* * *

Agreement Strength

[Turn now to our primary variables of interest, the measures of agreement strength at the top of Table 20.1.] *** The subjective coding of agreement strength is a categorical variable (none, very weak, weak, moderate, strong). Model 1 shows the comparison to the omitted middle category (weak). As expected, the strongest agreements yield the most durable peace, and moderately strong agreements perform better than

²⁷ The latter finding is driven largely, but not entirely, by the Arab-Israeli cases.

²⁸ While neighbors are more likely to fight in the first place, all of the states in these data have proven themselves to have both reason to fight and the ability to reach each other militarily. It is thus not surprising that the effects of contiguity are weaker for the resumption of war than for propensity to fight in the first place.

²⁹ [But it is not entirely clear from this finding which way the arrows run. Do changes in relative capabilities lead to war, or does war lead to changes in relative capability? For example, was the India-Pakistan war over Bangladesh caused by Pakistan's falling capabilities, or did the war, which severed Pakistan in two, cause our measures of capability to drop? A lagged measure of the change in relative capabilities has no positive effect on the risk of war, casting significant doubt on the finding that changes in relative capabilities cause peace to break down.]