The Pearson Institute Discussion Paper No. 7

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September 2013

Journal of Conflict Resolution, 57: 739

THE PEARSON INSTITUTE
FOR THE STUDY AND RESOLUTION OF GLOBAL CONFLICTS

Article

Journal of Conflict Resolution
57(5) 739-764

DOI: 10.1177/0022002712449323
jcr.sagepub.com

Can Issue Linkage Improve Treaty Credibility? Buffer State Alliances as a "Hard Case"

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Abstract

Can issue linkage, the combining of multiple issues into a single agreement, enhance the credibility of an agreement? I use the alliance relations of buffer states (states located between two recently or currently warring rivals) to test the claim that issue linkage enhances compliance with treaty obligations. The alliance relations of buffer states create a "hard case" for treaty compliance because, by being prone to invasion and occupation, buffer states have difficulties inducing states to remain committed to an alliance agreement. Hence, if linkage provisions can enhance the credibility of alliance commitments for buffer states, then linkage provisions should improve treaty compliance in nearly any context. I find that buffer states in alliances with trade provisions experience fewer opportunistic violations of the alliance terms, avoid occupation and invasion at a higher rate, and experience fewer third-party attacks than buffer states in other alliance arrangements.

Keywords

issue linkage, alliances, buffer states, treaty credibility, treaty compliance

Can states form credible commitments amid anarchy? As Tomz (2007) asks, "Without a world government to enforce commitments, though, why should anyone take

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foreign leaders at their word?" (p, 3). Time and again scholars point to *issue linkage*—the simultaneous discussion of two or more issues for joint settlement—as a tool for enhancing the credibility of negotiated international commitments (Tollison and Willett 1979; Stein 1980; Axelrod and Keohane 1985; McGinnis 1986; Bernheim and Whinston 1990; Mayer 1992; Morrow 1992; Eichengreen and Frieden 1993; Lohmann 1997; Spagnolo 1999). When negotiating on an issue for which states have an incentive to cheat, adding issues can entice all parties to continue honoring the final agreement (Oye 1979; Sebenius 1983; Aggarwal 1998; Koremenos, Lipson, and Snidal 2001). For example, including a free trade provision in a greenhouse gas reduction treaty may induce all parties to comply with their codified environmental obligations.

Do linkage provisions actually enhance compliance with treaty obligations? While studies have explored treaty compliance (Simmons 2000; Von Stein 2005) and linkages' ability to secure negotiated agreements (Davis 2004; Poast 2012), there is little direct and systematic empirical evidence that including linkage provisions bolsters treaty credibility.[1] Leeds and Savun (2007), with respect to the inclusion of nonmilitary cooperation provisions in alliance treaties, find that linkage is associated with a reduced risk of a treaty's terms being violated. However, since linkage is not their focus, Leeds and Savun do not seek to verify the causal effect of linkage on credibility. Similarly, Long and Leeds (2006) theorize that economic linkages in military alliance treaties can be used to clinch and maintain agreements, but they do not test whether economic cooperation provisions fulfill either of these roles.[2] Hafner-Burton (2005), by showing that explicitly tying human rights standards to preferential trade concessions compels governments to honor those standards, finds that issue linkage can induce compliance with international legal obligations. Unfortunately, Hafner-Burton evaluates how issue linkage impacts government behavior *within its state*, not how linkage impacts cooperation between governments.

Building from the alliance data used by Long and Leeds (2006) and Leeds and Savun (2007), this article directly tests the ability of linkage provisions to enhance the credibility of treaty commitments. I use the alliance relations of *buffer states* as a "hard case" for the ability of linkage provisions (specifically, provisions calling on the states to engage in trade cooperation) to create credible alliance commitments.[3] A buffer state, such as Poland during the 1700s, the 1920s and 1930s, and the cold war, is a state located between two states that recently engaged one another in militarized conflict or view one another as hostile strategic rivals. States are reluctant to honor alliance commitments with buffer states because buffer states are likely to be invaded. In an extensive study of buffer states, Fazal (2004, 2007) argues that "states—especially threatened states—must balance to survive. But threatened states are unlikely to be able to balance precisely because they *are* threatened" (Fazal 2007, 230). Thus, if linkage can enhance the credibility of alliance commitments to buffer states, then linkage should enhance treaty credibility in nearly any context.

The Issue Linkage and Credibility section briefly reviews how issue linkage can solve enforcement problems that reduce the credibility of international commitments. **The Research Design** section details how trade provisions in military alliance treaties operationalize the use of issue linkage and how buffer states operationalize the presence of an enforcement problem within a military alliance. In **The Testable Hypotheses** section, I present four hypotheses regarding the alliance relations of buffer states. Support for these hypotheses will show that linkage provisions can enhance the credibility of alliance treaties.

The Empirical Analysis section tests these hypotheses and generates four key results. First, compared to buffer states in other alliance arrangements, buffer states in alliances with trade provisions experience fewer opportunistic violations of alliance terms by their alliance partners. Second, buffer states in alliances with trade provisions avoid occupation and invasion at a higher rate than buffer states in other alliance arrangements. This is important, as Morrow (1994), Smith (1995), and Fearon (1997) argue that credible alliances should more effectively deter attacks than noncredible alliances. Third, and related to the second finding, buffer states in alliances with trade provisions are attacked at a lower rate than buffer states in other alliance arrangements. Finally, the likelihood a buffer state is attacked in the first place has no statistically discernible impact on which buffer states are able to form an alliance with a trade provision. This addresses concerns over potential selection effects.

The Identifying the Mechanism section explores the mechanism by which trade linkage provisions enhance alliance credibility. Specifically, the 1921 Franco-Polish alliance illustrates how trade provisions result from buffer states seeking to improve alliance credibility. In this particular case, promising access to coal enabled Poland to form a stronger alliance with France. The final section provides our conclusions.

Issue Linkage and Credibility

Cooperation Problems

The difficulties states face when forming agreements are labeled *cooperation problems*. Koremenos, Lipson, and Snidal (2001), building from Oye (1979), identify the two most important cooperation problems (particularly when studying issue linkage) as the *distribution* and *enforcement* problems.[4] I describe each in turn.

The distribution problem (also called a bargaining problem) arises when actors have different preferences over alternative possible agreements. For instance, the benefits of an issue could accrue primarily to a few actors, while the costs fall disproportionately onto others. Theoretically, the classic battle of the sexes game illustrates a distribution problem. This game contains two pure strategy equilibria: one equilibrium producing an outcome that favors one actor

and another equilibrium with an outcome favoring the other. For example, state B and state A may agree to create a missile defense system, but disagree on the location of the interceptor missile launcher—states A and B may both want the launcher placed on their respective territories.

The enforcement problem arises when one state believes the other state is susceptible to reneging on the agreement. This occurs when actors find (current) unilateral noncooperation so enticing that they sacrifice long-term cooperation (Koremenos, Lipson, and Snidal 2001, 776). The standard prisoner's dilemma game illustrates the enforcement problem. Both actors know that the other has an incentive to defect from mutual cooperation, even if the outcome from mutual cooperation is collectively beneficial. States A and B may, for example, agree to develop a rapid reaction defense force and may agree on the number of troops to contribute to such a force. However, once the agreement is signed, state B may decide to free ride on the contributions of state A by undercontributing toward the force. Though the enforcement problem most clearly relates to enforcement, Fearon (1998), by showing how distribution and enforcement problems are linked, illustrates that even enforcement problems can prevent agreement. For instance, if two states rectify the enforcement problem (thereby suggesting that the agreement will be longer lasting), these two states will subsequently bargain harder for a favorable allocation of the treaty's benefits.

When studying treaty credibility, the enforcement problem is most relevant. If one party has an incentive to defect, then the agreement lacks credibility. This means any study seeking to isolate the ability of particular treaty provisions to improve alliance credibility must isolate the enforcement problem. **The Research Design** section explains how buffer states can operationalize the existence of an enforcement problem as it relates to the creation of military alliances.

How Issue Linkage can Help

When facing an enforcement problem, a variety of tools can enhance the agreement's credibility. The tools include restricting treaty membership and increasing treaty centralization (perhaps by creating a dispute settlement institution or a joint command structure). One of the tools scholars most frequently highlight is expanding the treaty's scope via *issue linkage*, which Sebenius (1983) defines as the simultaneous discussion of two or more issues for joint settlement (Tollison and Willett 1979; Oye 1979; Stein 1980; Axelrod and Keohane 1985; McGinnis 1986; Bernheim and Whinston 1990; Mayer 1992; Morrow 1992; Eichengreen and Frieden 1993; Lohmann 1997; Aggarwal 1998; Spagnolo 1999; Koremenos, Lipson, and Snidal 2001; Davis 2004, 2009).

According to this literature, issue linkage enables states to simultaneously reach and maintain agreements. If two sides cannot reach agreement when negotiating on one issue, adding a second issue increases the probability of

agreement. For instance, if the states face a distribution problem, expanding the treaty negotiations along another dimension can redistribute the benefits, thereby allowing all participants to experience gain. Returning to the example of two states agreeing where to place a missile defense launcher, if the launcher is placed on state A's territory, a provision could be added to the treaty calling on state A to compensate state B with development aid.

Alternatively, and most relevant for this article, if the states face an enforcement problem, adding a second issue to the treaty can incentivize all parties to commit to the final agreement. This is because a state that might defect on the primary issue will not wish to lose the linked issue's stream of benefits. In the above example of states contributing troops to a rapid reaction force, tying a second issue to the maintenance of troop contributions (such as the offer of preferential trade access) could incentivize a state to remain committed to the overall agreement.

Consider the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer. Article 4 links the treaty's main focus on prohibiting production of these substances to a ban on imports of controlled substances, products composed of controlled substances, and products made using controlled substances from nonsignatories.[5] As the chief US negotiator to the negotiations explains,

> the objective of such restrictions was to stimulate as many nations as possible to participate in the protocol by preventing nonparticipating countries from enjoying competitive advantages and by discouraging the movement of CFC production facilities to such countries. These provisions were critical, since they constituted the only enforcement mechanism in the protocol. (Benedick 1991, 91)

In short, for states facing an enforcement problem, linkage provisions should enhance the agreement's credibility. This rather broad expectation contains two concepts that could be difficult to operationalize over a large number of cases: *the presence of issue linkage* and *the presence of an enforcement problem* (Koremenos, Lipson, and Snidal 2001, 771). In **the Research Design** section, I explain how trade provisions in alliance treaties can overcome the difficulty of identifying when issues are separable and how buffer states can capture an enforcement problem.

Research Design

Empirically evaluating if issue linkage can enhance treaty credibility requires operationalizing issue linkage and the enforcement problem. This section begins by explaining how trade provisions in alliance treaties operationalize issue linkage. The section then explains how the alliance relations of buffer states operationalize the enforcement problem.

Operationalizing Issue Linkage: Trade Provisions in Alliance Treaties

It can be difficult to identify if the issues in a given treaty could have been addressed in separate negotiations. If the issues cannot be addressed in separate negotiations, then the issues were likely not linked for the purpose of enforcing an agreement.

Data on military alliance treaties can overcome this difficulty. The Alliance Treaties Obligations and Provisions (ATOP) database codes the various provisions of each known military alliance treaty from 1815 to the present (Leeds et al., 2002). Consequently, we know that some alliance treaties contain explicit economic cooperation provisions. These provisions call for the granting of foreign aid or for reducing trade restrictions between the parties (such as the granting of Most Favored Nation status).

Economic provisions in alliance treaties are captured by the ECAID variable in ATOP. ECAID is an ordinal variable taking on a value between 0 and 3: 0 if no such provision is found in the treaty, 1 if general or nonspecific obligations for economic aid are found in the treaty, 2 if one or more members promise economic support for postwar recovery, and 3 if one or more members commits to trade concessions, including the granting of most favored nation (MFN) status.[6] Of the 648 military alliance treaties formed since 1815, 75 include economic cooperation provisions.[7] For example, article 9 of the 1946 mutual defense pact between the United Kingdom and Jordan (ATOPID 3040) proclaims that "Neither High Contracting Party will extend to the nationals or commerce of the other treatment less favorable in any respect than that which he accords to the nationals and commerce of the most favoured foreign country." Article 3 in the 1953 alliance between Britain and Libya (ATOPID 3235) states, "In return for facilities provided by His Majesty The King of Libya for British armed forces in Libya on conditions to be agreed upon, Her Britannic Majesty will provide financial assistance to His Majesty The King of Libya, on terms to be agreed upon as aforesaid."

Trade cooperation provisions (ECAID = 3) are of particular interest. Though there is a trend in the developing world to view economic and military security as inherently linked (Powers 2004, 2006; Powers and Goertz 2006), states, particularly industrialized states, still frequently negotiate alliance agreements and trade agreements separately from one other. For example, the United States and Canada are members of an alliance (the North Atlantic Treaty Organization) that was negotiated separately from and long before its current trade treaty (the North American Free Trade Agreement). Since there is no inherent reason that the two issues must be linked to one another, the explicit tying of trade cooperation to a military alliance is an obvious form of issue linkage.

To ensure that I am isolating, to the extent possible, the effect of issue linkage on treaty compliance, I concentrate on treaties with trade cooperation provisions (56 of the 648 alliances), as the issue of trade is most clearly separable from the issue of alliance formation. Since aid provisions commonly call for

money to be spent on strengthening the military of the other party, the aid dimension is not always clearly separable from the alliance dimension of the negotiation.

Operationalizing the Enforcement Problem: Buffer States

Buffer states are states located between two recently warring rivals or two states with hostile relations. Poland is a classic example of a buffer state as it was located between Austria, Prussia, and Russia during the 1700s, between Russia and Germany during the 1920s, and between the Soviet Union and Western Europe during the cold war. Fazal (2004, 2007) codes a state as a buffer when it is geographically located between two states engaged in an interstate rivalry, as classified by Goertz and Diehl (1992) and Bennett (1997).[8]

Buffer states and foreign invasion. According to Fazal, buffer states are especially prone to violent *state death*, which is "the formal loss of foreign policy control *to another state*" via military invasion (Fazal 2007, 17). From 1816 to 1992, Fazal identifies fifty cases of violent foreign occupation and, using survival analysis, Fazal finds strong empirical evidence that buffer states experience violent foreign conquest at a rate disproportionately higher than other states.[9] For Fazal, buffer states experience violent foreign conquest at a higher rate than other states because the rivals on either side of the buffer fear that its opponent will conquer the buffer state, thereby gaining a strategic advantage. Though maintaining the sovereignty of the buffer state is ideal for both rivals (as it creates a barrier between the rivals that decreases the probability of war), each rival knows the other has an incentive to invade the buffer. This commitment problem leads inevitably to the buffer states' demise.

Fazal also identifies a sharp decline in violent state death (invasion and occupation) since 1945. Of the fifty instances of violent state death identified by Fazal from 1816 to 1992, just two occurred after 1945: South Vietnam in 1975 and Kuwait in 1990. It is beyond the scope of this article to determine if the decline in violent invasion and occupation is due to a rising nonconquest norm (Fazal 2007, 170), a cessation of great power war (Mearsheimer 2001), a combination of the two (Mueller 2004), or some third factor (Jervis 1988; Gaddis 1992, 1998). Instead, the virtual end of violent foreign invasion and occupation of buffer states after 1945 means any study that considers the need of buffer states to deter foreign military invasion and occupation should focus primarily on the pre-1945 period (when the threat of invasion is most salient).

Buffer states and alliances. Buffer states' high propensity to experience foreign invasion and occupation leads them to seek military alliances. Unfortunately, buffer states have difficulty inducing states to form alliances. For example, Persia (a buffer between the British and Russian empires) continually sought alliance with Britain, but Britain, unwilling to commit itself to Persia's defense, refused each attempt (Fazal 2007, 129). Similarly, Hungary, after declaring independence from the Hapsburg Empire in 1849, faced possible invasion by Russia. Hungary appealed for

Table 1. Buffer States and Alliance Commitment, 1815–1945.

Group	Number of alliances	Percentage that end due to violations
Alliances with no buffer state	113	41
Alliances with at least one buffer state	132	52

Note. Difference statistically significant at $p < .10$ (two-tailed).

assistance from Britain, but Britain rejected the offer (Albrecht-Carrie 1958, 73). This was due to Russia already having troops stationed and mobilized in neighboring Transylvania. After the British refusal, Hungary was invaded and occupied by Russia. For these reasons, Fazal argues that buffer states face a *catch-22* situation: "States—especially threatened states—must balance to survive. But threatened states are unlikely to be able to balance precisely because they *are* threatened" (Fazal 2007, 230).

The constant threat of invasion also means buffer states fortunate to secure an alliance face difficulties retaining their partners' commitment. For example, after forming an alliance with Prussia in 1790, Poland (the classic buffer state) appealed for protection against Russia. The Prussian ambassador notified Poland's King Stanislas in January 1792, "My master does not consider himself bound by the treaty of 1790 to defend his army the hereditary monarchy, as established by the Constitution of May 3, 1791" (quoted from Fazal 2007, 115). Consider also Table 1, which uses Fazal's identification of a buffer state and the *Term* variable of the ATOP data set. The *Term* variable categorizes the way an alliance ends. For alliances that remain in effect as of December 31, 2003, and for alliances that are censored due to the loss of independence of one or more alliance members in action unrelated to the alliance, $Term = 0$. If the alliance ends when its provisions are fulfilled (either because its specified term has been completed or the goals of the alliance have been accomplished), $Term = 1$. If the alliance ends due to violation of provisions by one or more members, including willful abrogation before the scheduled termination date, $Term = 2$. If the alliance ends when some or all of the members negotiate a new relationship, $Term = 3$.[10]

Table 1 shows two groups of alliances: those in which at least one member is a buffer state and those in which no members are buffer states. Table 1 also reports the percentage of alliances in each group for which $Term = 2$ (i.e., one of the members committed a willful violation of the treaty's terms). One should immediately notice that alliances with buffer states experience violations of the alliance treaty at a substantially higher rate compared to alliances without buffer states (52 percent compared to 41 percent). Moreover, a two-sided *t*-test shows that this rate of violation has a *p* value of .07. This simple test suggests that alliances with buffer states do indeed face a significantly higher risk of alliance treaty violation.

The inability of buffer states to form credible alliance commitments makes them ideal for studying if issue linkage provisions can improve alliance credibility—if issue linkage can enhance the credibility of alliance commitments for these particularly vulnerable states, then issue linkage should work for any state in any type of treaty.

Combining Alliances, Trade Linkages, and Buffer States

I operationalize issue linkage with trade provisions in military alliance treaties and operationalize the enforcement problem using buffer states. To what extent do the two phenomena—trade provisions in alliances and buffer states in alliances—overlap? The combination of trade provisions and buffer states in alliances is indeed rare, but not nonexistent (and the data are not created by only one or two countries). Consider data on European states from 1815 to 1945 (which will be used to conduct the regression analysis in Test Four: Buffer States and Invasion Risk at Time of Formation subsection). There were 4,391 European country-years from 1815 to 1945, in 503 of which a state is classified as a buffer. Of these 503 buffer state-years, in 147 country-years (representing ten different countries) the buffer state was not a member of an alliance, in 236 country-years (representing eleven different countries) the buffer state was a member of a military alliance with no trade provision, and in 120 country-years (representing six different countries) the buffer state was a member of a military alliance with a trade provision.

For the overall data set, there are 1,022 country-years in which a state is a buffer and not a member of an alliance, 404 country-years in which a state is a buffer and a member of an alliance without a trade provision, and 167 country-years in which a state is a buffer and a member of an alliance with a trade provision. Though none of these figures account for data availability, they highlight how my inferences will not be driven by a handful of observations.

Testable Hypotheses

If issue linkage induces states to remain committed to an alliance agreement, then several empirical regularities should emerge. Having described how the alliance relations of buffer states can operationalize the enforcement problem and how trade provisions in alliance treaties can operationalize the use of issue linkage, I now describe four such empirical implications: compared to buffer states in other alliance arrangements, buffer states in alliances with trade provisions should (1) experience fewer willful violations of treaty terms, (2) experience fewer attacks, (3) experience lower rates of invasion, and (4) not have a lower likelihood of being invaded in the first place. I elaborate on each of these implications.

First, if trade provisions enhance the credibility of alliances in which buffer states are members, then issue linkage provisions should make leaders less likely to willfully violate the treaty's terms. Stated differently, buffer states in alliances with trade provisions should experience fewer violations of alliance treaty provisions by

alliance partners compared to buffer states in alternative alliance arrangements. This can be stated as Hypothesis 1:

> **Hypothesis 1:** Buffer states in alliances with trade provisions should experience alliance treaty provision violations at a lower rate than buffer states in alliances without trade provisions or buffer states in no alliances.

Second, a primary function of alliances is to deter attacks. In the broader literature on conventional and nuclear deterrence, the credibility of a promised response to attack (either a promise by the target of the attack or a promise of assistance by a third party defender) is fundamental to determining if deterrence will succeed (Schelling 1960; Maxwell 1968; Jervis 1970; George and Smoke 1974; Mearsheimer 1983). According to Smith (1995), if third parties perceive an alliance as credible, this raises the deterrence capability of the alliance. Morrow (1994) and Fearon (1997) argue that the perceived credibility of an alliance can be increased if states engage in costly peace time actions that demonstrate their commitment to one another and their willingness to defend one another. Such costs are typically conceived as prewar military coordination, such as joint planning and basing troops on an ally's territory. Such coordination is credible because it is a costly signal of a state's willingness to support its allies (e.g., coordination between allies will limit the flexibility of each ally in the event of a war).

Trade provisions in alliance treaties also produce costly peacetime signals. Since the trade provision is placed in the alliance agreement, the legal basis for the alliance cannot be nullified if a party defects from the trade agreement, but the legal basis of the trade agreement is nullified if a state defects from the alliance. In other words, the basis for trade—the trade agreement—is made explicitly contingent on adherence to the alliance agreement (and not the other way around). Hence, to maintain the trade relationship, states must uphold the alliance commitment. In this way, the trade provisions serve as a strong form of "hands tying": signals that impose costs on leaders because domestic political audiences will punish any perceived failing in the management of foreign policy (Fearon 1997). Thus, trade provisions should add a layer of credibility to the alliance which, in turn, deters threat. This leads to Hypothesis 2:

> **Hypothesis 2:** Buffer states in alliances with trade provisions should experience fewer attacks than buffer states in alliances without trade provisions or buffer states in no alliance.

Third, buffer states form alliances, not just to reduce the rate of attack, but to ensure that attacks do not result in state death. Thus, trade provisions should enhance the credibility of the alliance to such an extent that the surrounding rivals are less likely to invade and occupy the buffer state. Stated as a hypothesis,

Table 2. Buffer States, Trade Provisions, and Willful Violations, 1815–1945.

Group	Number of Buffer state-years	Percentage of years that witnessed a violation
Alliance with trade provision	61	0
Alliance with no trade provision	898	17

Note. Difference statistically significant at $p < .01$ (two-tailed).

> **Hypothesis 3:** Buffer states in alliances with trade provisions should experience foreign invasion and occupation at a lower rate than buffer states in alliances without trade provisions or buffer states in no alliance.

Fourth, Downs, Rocke, and Barsoom (1996) argue that states only sign agreements they think are going to work. Thus, perhaps a buffer state is only able to form an alliance with a trade provision when this buffer state, compared to other buffer states, is unlikely to be attacked in the first place. This might also explain any findings of enhanced deterrence (Hypothesis 2) or survival (Hypothesis 3). In a sense, this criticism calls on the analyst to consider preexisting conditions. If trade provisions enhance an alliance's credibility, then the likelihood of survival for buffer states entering alliances with trade provisions should not be systematically higher than buffer states in other alliance arrangements. Stated as a hypothesis,

> **Hypothesis 4:** When entering the alliance, the preexisting likelihood of attack and invasion should not be lower for buffer states that form alliances with trade provisions compared to buffer states that form alliances without trade provisions.

The next section presents the procedures for and results from testing each of these hypotheses.

Empirical Analysis

Test 1: Buffer States and Opportunistic Violations

Recall the first hypothesis: buffer states in alliances with trade provisions should experience alliance treaty provision violations at a lower rate than buffer states in alliances without trade provisions or buffer states in no alliances. Table 2 again uses the *Term* variable of the ATOP data set to capture if the alliance ends due to willful abrogation of the treaty's provisions by one or more members before the scheduled termination date. It also uses the ATOP *ECAID* variable to identify when an alliance contains a trade cooperation provision. The unit of observation in Table 2 is the buffer state-year prior to 1945. Table 2 reports the percentage of buffer state-years in two alliance arrangements that witnessed treaty violations: for alliances that

contained no trade cooperation provisions and alliances that contained trade cooperation provisions.

Table 2 shows that no willful violations occurred when a buffer state was a member of an alliance with a trade provision. In contrast, 17 percent of the years in which a buffer state was a member of an alliance with no trade provisions witnessed a willful violation of the alliance's terms. The difference in these percentages is statistically significant at above the 0.99 confidence level of a two-sided *t*-test. Moreover, due to the lack of violations for buffer states in alliances with trade provisions, there is no need (or possibility) to conduct regression-based survival analysis using, for example, a Cox proportional hazard model. These simple comparisons of percentages offer rather strong support for the claim that the trade linkage provisions enhanced the alliances' credibility.

Fewer willful violations should also be associated with longer lasting alliances (assuming that alliances with trade provisions are not, on average, written with exceptionally short duration clauses). Indeed, the evidence bears this out. Over the pre-1945 period, the average amount of time a buffer state was in an alliance with a trade provision is twenty-one years (eight buffer states), compared to just thirteen years for buffer states in alliances without trade provisions (thirty-one buffer states).

Test 2: Buffer States and Attacks

Recall Hypothesis 2: buffer states in alliances with trade provisions should experience fewer attacks than buffer states in alliances without trade provisions or buffer states in no alliance. Testing this hypothesis requires identifying attacks on buffer states. I do this using Fazal's identification of buffer states and Militarized Interstate Dispute (MID) data for the 1815 to 1945 period (Ghosen, Palmer, and Bremer 2004). A MID is an event in which one state (a sender) threatens, displays, or initiates military force short of war, or initiates war against another state (a target).

It is important to clarify when the onset of a MID tests my argument. Suppose forming an alliance emboldens a buffer state, leading it to initiate a MID against a target state. If that target state subsequently initiates a MID against that buffer state, this case does not disconfirm my hypothesis. Instead, I must determine if alliances with trade provisions deter *unprovoked* MIDs. Therefore, for all state-years in which a buffer state is part of an alliance with a trade provision, part of an alliance with no trade provision, or not part of an alliance, I count the number of state-years that witnessed the onset of a MID against a buffer state that had *not* initiated a MID against the attacker in the previous five years.[11] In other words, I code the number of buffer state-years that witnessed an unprovoked MID and then use this to compute three measures: the percentage of buffer state-years alliances with trade provisions witnessed an unprovoked attack; the percentage of buffer state-years an alliance with no trade provisions witnessed an unprovoked attack; a percentage of buffer

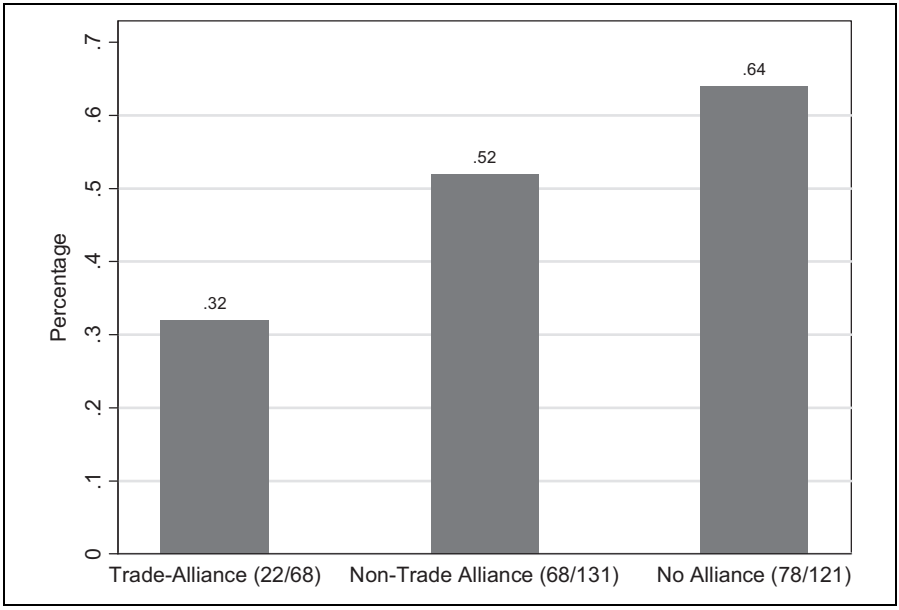

Figure 1. Percentage of buffer state-years that witnessed an unprovoked MID.
Note. Pearson χ^2 comparing Trade-Alliance group and Non-Trade-Alliance group = 6.7500 (*p* value .019). Pearson χ^2 comparing Trade-Alliance group and No Alliance group = 21.1724 (*p* value .000).

state-years of no alliance witnessed an unprovoked attack. Of course, alliances in the second category could include scope expansion provisions on issues other than trade. Though I do not directly account for this possibility, not doing so bias the test toward the null of no difference in the rates of attack between alliances with trade provisions and alliances without trade provisions.

The findings from this test are summarized in Figure 1, where the results for alliances with trade provisions are depicted in the ''Trade Alliance'' column, results for alliances without trade provisions are depicted in the ''Non-Trade Alliance'' column, and the results in the absence of an alliance are depicted in the ''No Alliance'' column. Though alliances with trade provisions do not perfectly deter unprovoked MIDs (32 percent of buffer state-years in alliances with trade provisions witnessed the onset of an unprovoked MID), they appear to do so much more effectively than alliances with no trade provisions (52 percent of buffer state-years in alliances with no trade provisions witnessed the onset of an unprovoked MID) or no alliance (64 percent of buffer state-years in no alliances witnessed the onset of an unprovoked MID).[12] These results support Hypothesis 2: buffer states in alliances with trade provisions are attacked at a much lower rate than buffer states in other alliance arrangements (alliances without trade provisions or no alliance).

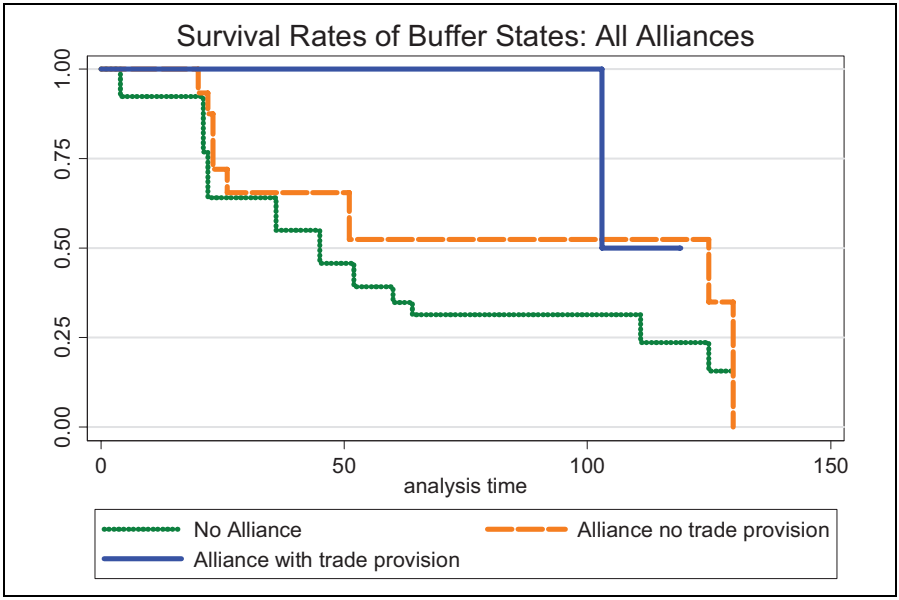

Figure 2. Survival rate of buffer states, different alliance arrangements.

Test 3: Buffer States and Survival

If trade provisions enhance the ability of alliances to deter threats, then buffer states in alliances with trade provisions should avoid invasion and occupation at a higher rate compared to buffer states in other alliance arrangements. To test this hypothesis, I operationalize invasion and occupation using the Fazal (2007) coding of violent foreign takeover (see above). The longer a buffer state avoids violent foreign takeover, the longer that state "survives." Figure 2 shows, for the 1815 to 1945 period, the Kaplan–Meier survival estimates of buffer states that are part of an alliance with a trade provision, part of an alliance with no trade provision, and part of no alliance. Survival rates are computed as

$$\text{Survival Rate at time } t = \frac{\text{Number of buffer states surviving at time } t}{\text{Number of buffer states entering time } t}. \quad (1)$$

For example, if four cases enter time t, but only three survived during time t, then the survival rate at time t is 0.75. If the overall (or cumulative) survival rate entering time t is 100 percent (i.e., no deaths occurred in any prior period), then the new cumulative survival rate at the end of period t is $1.00 \times 0.75 = 0.75$.

Figure 2 shows that, by and large, buffer states in alliances with trade provisions have a higher survival rate than buffer states in alliances with no trade provisions and

buffer states in no alliance. For the majority of the graph, buffer states in alliances with trade provisions simply do not experience foreign invasion and occupation. Consider a state that has been a buffer for 75 years. According to Figure 2, such a buffer state has a 30 percent survival rate if it is a member of no alliance (ten observations entering the 75th year), a 55 percent survival rate if it is a member of an alliance without a trade provision (two observations entering the 75th year), and a 100 percent survival rate if it is a member of an alliance with a trade provision (five observations entering the 75th year). Eventually, one buffer state in an alliance with a trade provision does die (just after 100 years of existence). This one instance is Austria-Hungary in 1918, which, along with Germany and Italy, formed a defensive alliance that included a trade provision in 1882 (atopid treaty 1350). In a sense, this is an exception that supports my argument: a buffer state that remained a member of an alliance with a trade provision for nearly thirty-six years until it died at the end of the second most devastating war in human history! After this one failure, the survival rate of buffer states in alliances with trade provisions falls to just above that of alliances without trade provisions. Thus, the results suggest that, by and large, buffer states that join alliances with trade provisions survive at a much higher rate than buffer states outside trade alliances.[13]

Test 4: Buffer States and Invasion Risk at Time of Formation

Recall the fourth hypothesis: when entering an alliance, the likelihood of attack and invasion should not be lower for buffer states that form alliances with trade provisions compared to buffer states that form alliances without trade provisions. In light of my findings for Hypotheses 2 and 3, testing this hypothesis can identify if a selection process drives my results. If the preexisting likelihood of attack and invasion is indeed lower for buffer states that form alliances with trade provisions, this suggests that the observed enhanced deterrence offered by trade provisions is due to outside states choosing buffer states that are less likely to be attacked and invaded in the first place. I now describe my research design for testing this final hypothesis.

The dependent variable. My dependent variable is Alliance Type, which equals 0 if a buffer state is not part of an alliance in year t, equals 1 if a buffer state is part of an alliance with no trade provision in year t and not part of an alliance with a trade provision in year t, and equals 2 if a buffer state is part of an alliance with a trade provision in year t.

The independent variable. I must operationalize the preexisting likelihood that a buffer state is about to be attacked and/or invaded. Given Fazal's theory for why buffer states are susceptible to invasion and occupation (i.e., the rivals on either side invade the buffer in order to gain a strategic advantage against the other rival), the likelihood a buffer state is invaded can be measured using the probability the surrounding rivals attack one another. Following Fazal, I use the power asymmetry of the rivals to measure the probability of the rivals going to war. Fazal argues that

asymmetry between rivals leads to stability and peace, but symmetry between rivals leads to instability and war. Whether symmetry leads to conflict because of uncertainty in the outcome of a war (Fearon 1995; Blainey, 1988) or because the rising state wishes to speed up the process of surpassing the established hegemon (Organski and Kugler 1980; Bueno de Mesquita and Lalman 1992) is a discussion beyond the scope of this article. Instead, it is sufficient to recognize that invasion of the buffer state is particularly likely when the surrounding rivals are relatively equal in power (Fazal 2007, 92). Relatedly, if the rivals are relatively asymmetric in capabilities, the buffer state faces a low risk of invasion.

The variable *Rivals' Asymmetry* captures the power asymmetry of the rivals surrounding each buffer state by computing, for each rivalry, the proportion of iron and steel production, energy consumption, total population, urban population, military expenditure, and military personnel held by each rival.[14] The average value of these six shares becomes each rival's *rival capability* score. For each rival dyad, the higher *rival capability* score is subtracted from the lower *rival capability* score, which is then divided by 2. This bounds the *Rivals' Asymmetry* variable between 0 (complete symmetry) and 0.5 (complete asymmetry). I then compute the average *Rivals' Asymmetry* score for the buffer states in each alliance.

Control variables. I must also account for factors correlated with the probability of a buffer state forming an alliance and with the probability that the surrounding rivals will invade the buffer state. First, the underlying value of tradable goods within a buffer state may compel other states to form an alliance with the buffer state and make the buffer even more strategically important to the surrounding rivals. There are several options for determining, over a large number of cases, when one state will value trading with another state. One option is to adopt a broad measure of "trade attractiveness,"' such as economic "gravity" common to studies of international trade (Tinbergen 1962; Pöyhönen 1963; Frankel and Rose 2005). However, there are major disadvantages to using gravity in the present study. First and foremost, the size and distance of two countries—the principle components of economic gravity—are also critical to decisions of security. For example, countries with large economies (either population or land mass) have more to protect. This could indicate a greater need for an alliance.[15] Second, distance is also correlated with a country's decision to form an alliance. In short, gravity is a broad measure that cannot distinguish possessing valuable trade from simply the need to form an alliance.

I instead use a precise measure of when one country will value trading with another: a state's coal production. I use coal for two reasons. First, though coal is still a critical resource today, it was absolutely vital to many European economies prior to and immediately after World War II. Second, coal deposits prior to 1945, much like oil today, provide a clear and direct indicator of the extent to which one state has a tradable good valuable to another state. One limitation of coal production data is they constrain the domain of my analysis—other countries may be valuable trade partners for reasons other than their coal deposits. Yet, as already mentioned,

coal has the advantage of allowing me (and the reader) to know exactly what a variable represents (which is not the case with gravity). Another limitation is that coal constrains my analysis to European states. With the exception of a few non-European countries (such as the United States and Canada), coal production data are most accurate for the European nations during this period.[16] Coal production data are drawn from B. R. Mitchell's (1998) *International Historical Statistics: 1750–1993*. Using the coal production output (in thousands of metric tons) for twenty European countries, I create the variable *Coal*, which captures the average recorded coal production of the buffer states in the alliance.[17]

Second, I control for the military capabilities of the buffer state relative to the surrounding rivals. This variable was created by Fazal, and it captures the ratio of the buffer state's military personnel over the combined capabilities of the buffer and the two rivals. The larger the value of this variable, the less likely are the rivals to invade the buffer and the less incentive a buffer has to seek alliance partners. Finally, I control for the buffer state being a member of an existing alliance. Summary statistics for the control variables and *Alliance Type* are in the online appendix.

Analysis method and results. Since my dependent variable has multiple unordered categories, I estimate the model using a multinomial logit.[18] A multinomial logit estimates the probability that the actual outcome Y will take on each of a set of discrete possible outcomes given a set of independent variables. Given $J + 1$ outcomes, a multinomial logit estimates J equations showing the effect of the variables on the likelihood of each particular outcome. Estimates are relative to a base category (*Alliance Type* $= 0$).

Using the buffer state-year as the unit of analysis, I regress *Alliance Type* on the above-mentioned variables. The results are reported in Table 3. The association between *Rivals' Asymmetry* and the probability of a buffer state being part of an alliance with no trade provision is positive and statistically significant at the 0.99 confidence level. Thus, the less likely invasion becomes (i.e., the more asymmetric the rivals), the *more* likely the buffer state is to form an alliance without a trade provision. Additionally, *Rivals' Asymmetry* has no statistically discernible association with the probability of a state forming an alliance with a trade provision. This suggests that the probability of conflict between the rivals surrounding the buffer state does not impact the probability of buffer states forming alliances with trade provisions. Combined, these findings strongly suggest that the results from the above tests are not explained by a selection effect.

Identifying the Mechanism

Though the above quantitative analysis supports my hypotheses, I have not identified the exact role played by the trade provisions. A case study can more precisely identify the mechanism leading buffer states to join alliances with trade provisions. The case of the 1921 Franco-Polish alliance is suitable for exploring the mechanisms

Table 3. Buffer States and Alliance Membership, 1815–1945.

Variables	Coefficient
Alliance without trade provision	
Rivals' Asymmetry	3.69***
	(1.37)
Coal Production	−0.01**
	(0.00)
Alliance in Previous Period	−0.10
	(0.34)
Buffer strength	1.69**
	(0.68)
Constant	−2.84***
	(0.43)
Alliance with trade provision	
Rivals' asymmetry	0.30
	(2.48)
Coal production	−0.01
	(0.01)
Alliance in previous period	1.48*
	(0.81)
Buffer strength	1.53***
	(0.59)
Constant	−4.52***
	(0.56)
Number of observations	511
Pseudo-R^2	0.06
Log likelihood	−268.94

Note. Standard errors in parentheses.
*p < .10. **p < .05. ***p < .01.

at work since (1) it is an alliance that contains a trade provision and (2) Poland is the classic example of a buffer state. When exploring this case, I need evidence showing that Poland included trade linkage provisions into the alliance treaty as a means of enhancing the alliance's credibility.

Polish and French Interests in an Alliance

Reemerging as an independent state after World War I, Poland faced threats on either side—Germany to the West and the Soviet Union to the East. The Germans and Soviets fought one another during World War I and the Soviets fought a separate war against Poland in 1920. Given this environment, Poland sought an alliance with one of the remaining major powers—France, the United Kingdom, or the United States. France proved to be the most suitable (and perhaps only) candidate, as the United States had withdrawn into isolation and the

British sought to avoid specific commitments.[19] The Polish minister of foreign affairs in 1920, Prince Estachy Saphieha, approached his French counterpart to broach the idea of the alliance, but, as he states, initially "found the Quai d'Orsay [French Foreign Ministry] very reserved" (quoted in Wandycz 1962, 213).

French reluctance to form a binding alliance with Poland was expressed well in this diplomatic correspondence: "[Poland had] neither frontiers, nor a government, nor an army" (quoted in Wandycz, 1962, 214). The French also knew that Poland's Eastern frontiers were liable to Russian invasion and, therefore, were hesitant to obligate French forces to protect Poland if attacked by Germany or Russia (Wandycz, 1962, 218). Nevertheless, the French recognized value in cooperating with Poland. Both countries wished to contain Germany. Moreover, France had assisted Poland in its 1920 war against Russia. Therefore, the French foreign ministry expressed an interest in assisting Poland with strengthening and enlarging its military (Wandycz, 1962, 218).

Incorporating Trade Cooperation

The Quai d'Orsay eventually agreed to complete an agreement in which France would "provide mutual aid in case of German aggression," but only on one condition: the alliance must include commercial provisions (Wandycz 1962, 217, 219). To secure French protection, any alliance treaty had to contain a commercial provision granting France MFN trading status and giving France access to coal from the Upper Silesia region acquired by Poland from Germany as part of the post–World War I settlement treaties. This coal was particularly important to France, as French industry was highly dependent on imports of British coal (which enabled Britain to exert influence on France). As expressed in a correspondence between Polish diplomats in Warsaw and Washington, D.C., in October 1920:

> if Poland obtains Silesia her influence on France will increase because of the coal which will allow France to become more independent of the imports of English coal. England, because of her coal can [currently] exercise political pressure on France and Italy (quoted in Wandycz 1962, 212).

For its part, France lowered tariffs (but did not grant MFN status) on fifty Polish items, mainly raw materials and agricultural products. This led the *rapporteur* assigned to investigate the treaty to inform the Polish Parliament that the commercial component "gives to France more than France gives to us," but such discrepancies were acceptable because of the "advantages which Poland obtained in another field . . . [namely] a close alliance with France" (quoted in Wandycz 1962, 221). The final treaty was signed on February 19, 1921.

Did the Trade Provision Work?

One might contend that the trade provision did not improve the credibility of France's commitment. First, even though Poland was a buffer state, the rivals surrounding Poland (Germany and Russia) were severely weak: Germany was under the Treaty of Versailles' constraints, while Russia was rebuilding from internal collapse. Hence, Poland was in no *imminent* danger of experiencing an invasion when France signed the alliance treaty. Such a counterargument, however, fails to explain why France was willing to form the alliance with Poland, as Poland had been attacked by Russia the previous year (thereby demonstrating that Poland still lived in a dangerous neighborhood).

Second, one could argue that Poland was invaded by Germany in 1939 and subsequently divided between Germany and the Soviet Union. But diplomatic historians contend that because Poland was only *eventually* invaded and partitioned, as opposed to *immediately* invaded and partitioned, points to the high credibility of the Franco-Polish alliance. As the historian Steiner states, "Given its geographic situation, between Germany and a still unsettled and unrecognized Bolshevik Russia, Poland's future was bound to be fraught with difficulties . . . Given the circumstances of its birth, it is almost surprising that the boundaries of the Polish state survived intact until the Fourth Partition in 1939" (Steiner 2005, 52). It is very likely that Poland would have been invaded and partitioned *sooner* than 1939 without a credible alliance with France. In fact, Albrecht Carrie suggests that one of the goals of Germany forming a nonaggression pact with Poland in 1934 was precisely to weaken the credibility of the Franco-Polish pact (Albrecht-Carrié 1958, 469–70).

Conclusion

Can issue linkage improve the credibility of treaty commitments? With respect to trade provisions in alliance treaties, the answer appears to be "yes." Since buffer states are highly susceptible to foreign invasion and occupation (which makes other states reluctant to honor alliance commitments with the buffer state), buffer states in military alliances are an ideal "hard case" for the ability of linkage provisions to improve compliance with alliance commitments. Compared to buffer states in alliances without trade provisions, I find that buffer states in alliances with trade provisions experience fewer willful violations of alliance obligations, experience fewer attacks, and almost never experience invasion and occupation. I find no evidence that these results can be attributed to selection effects. The 1921 Franco-Polish alliance illustrates how the inclusion of trade provisions in alliance treaties indeed result from buffer states seeking to improve the credibility of the alliance.

These results are important for three reasons. First, they provide direct and systematic evidence that issue linkage can improve compliance with treaty obligations. Alliances, particularly those involving buffer states prior to 1945, deal with the fundamental concern of protecting against external threats. Relatedly, alliances with

buffer states carry a very real risk of dragging its members into a conflict at an inopportune time. Thus, one would expect the willingness to comply with treaty obligations to be lowest for states in alliances with buffer states prior to 1945. Finding that issue linkage improves compliance under these most inhospitable of conditions suggests that linkage provisions can enhance treaty compliance in nearly any context, historic or contemporary.

Second, the results further illustrate how trade enhances the effectiveness of deterrence. Huth and Russett (1984) and Huth (1988) highlight how deterrence attempts by a defender are more likely to succeed if the defender has important but indirectly related trade interests with the target. Aysegul (2010) finds that trade between the target and a third-party defender enhances the success of extended general deterrence only when the trade is within an institutional setting (such as a regional economic institution). Unlike this article, these previous studies did not consider instances when trade cooperation is directly linked to security cooperation.

Third, the results show that some buffer states can indeed ''cheat death.'' While one may suppose that the presence of a valuable commodity could make buffer states even more susceptible to invasion, these findings suggest quite the opposite: buffer states endowed with a valuable tradable good can use it to ward off invasion and occupation.

Three points deserve further reflection. First, if issue linkage provisions can induce compliance, why are they rarely used? The answer perhaps lies in their costliness. According to Morrow (1992), linkage offers during a negotiation can be interpreted as a sign of bargaining weakness, thereby undermining their effectiveness. Additionally, frivolous or extraneous use of linkage can create ''brittle'' agreements, whereby failure in one area can ''unravel'' an entire agreement (see McGinnis 1986; Koremenos, Lipson, and Snidal 2001). Moreover, linking unrelated issues can be costly simply because it requires bureaucrats to ensure that the state is in compliance with the new provision.

Second, though I did not find evidence of a selection effect, one might still exist. Since the negotiation participants chose to include trade cooperation provisions, perhaps only the most difficult alliance negotiations result in treaties with trade provisions. Of course, this possibility bias against finding an effect for linkage provisions, as alliances with linkage provisions are perhaps more likely to fail in the first place. Future research can tease out this possibility by applying methods designed to address selection effects, such as Heckman selection models or matching techniques.

Third, by focusing only on trade provisions, I am ignoring other issues that might be linked to alliance treaties. For instance, territorial exchanges were often discussed during pre-1945 alliance negotiations. However, land swaps/colonial exchanges are not useful for exploring issue linkage because these were often the key reason for the alliance's formation. For example, there were frequent discussions in the late 1820s and early 1830s of forming alliances for the purpose of invading and dividing the Ottoman Empire's territory.

Future empirical research should identify other "hard cases" for treaty compliance. Though buffer states and the occurrence of foreign invasion and occupation have not disappeared from the international system, much could be gained from cases that are of greater contemporary relevance. This could include, for example, considering the incentives of states experiencing major regime shifts. Regardless of the exact "hard case" chosen by future research, the findings of this article—that linkage provisions improved the credibility of alliance treaty commitments for buffer states prior to 1945—means issue linkage provisions should improve the credibility of other treaty commitments.

Acknowledgments

The author thanks William Roberts Clark, David Davis, Barbara Koremenos, Ashley Leeds, Michaela Mattes, William MacMillian, Walter Mebane, John Mearsheimer, James D. Morrow, Allan Stam, Johannes Urpelainen, Gary Uzonyi, Lisa Wedeen, Alton Worthington, and particularly two anonymous reviewers and the editor of *JCR* for helpful comments on earlier versions of this article. The author thanks Tanish Fazal for sharing her data. The author also thanks panel participants at the 2009 American Political Science Association annual meeting and the 2010 International Studies Association annual meeting. Replication materials are available at http://jcr.sagepub.com. All errors are the sole responsibility of the author.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author received no financial support for the research, authorship, and/or publication of this article.

Notes

1. Simmons (2010) reviews the empirical compliance literature.
2. Powers (2004, 2006) and Powers and Goertz (2006) explore the linkage of trade provisions and security arrangements in the reverse direction. They observe how many regional economic institutions exclusive to developing countries frequently incorporate security cooperation provisions.
3. Waltz 1979, 123 described a "hard case" as a situation in which parties have strong reasons to behave contrary to the predictions of one's theory.
4. Koremenos, Lipson, and Snidal (2001) identify a third problem (a large number of actors with divergent preferences), but this is nearly identical to distributional problem since both deal with expanding the negotiation's winset.
5. Montreal Protocol (pp. 20–24), available at www.unep.org/OZONE/pdfs/Montreal-Protocol2000.pdf.
6. See the ATOP Codebook available at http://atop.rice.edu/.

7. Each example is from the respective treaties' answer to question 55 of the ATOP code sheets. Question 55 reads, "55. Does the treaty include provisions for economic aid or other enticements (include trade concessions, post war recovery, etc.)? (Yes, No) If Yes, describe these provisions." These code sheets are available at http://atop.rice.edu/.
8. Goertz and Diehl and Bennett use an MID density approach for identifying rivals. According to Diehl and Goertz (Bennett), two states are rivals if they engaged one another in at least six (5) MIDS in the previous twenty (25) years. In addition to these rivals, Fazal includes the imperial rivalry dyads of the UK–Russia and UK–France. Data on buffer state identification provided by Fazal upon request. See also table B.1 of Fazal (2007).
9. A complete list of state deaths are found in Fazal (2007, 21–23).
10. Description of the *Term* variable is drawn from the ATOP codebook, p. 18.
11. The following results are robust to lower and higher number of years.
12. The distribution of the "no alliance" and the "non-trade alliance" groups in Figure 1 are statistically distinguishable at the 0.99 confidence level.
13. Computing a Cox model with only one instance of failure is unnecessary, as one should simply study the circumstances contributing to the single case of failure.
14. This variable is computed in the same manner as the Correlates of War CINC score, except the "international system" is only the two rivals.
15. More mass also means a greater ability to internally balance (hence less need for an alliance). In either case, country size is correlated with alliance formation, not just trade.
16. Measurements of coal production, even in Europe, are still suspect, especially for the nineteenth and early twentieth centuries. Statistics prior to the mid-twentieth century came from taxation or military preparedness records and, as a result, some countries would inflate their population or wealth figures to impress potential enemies. Additionally, government statistical services change the details of coverage and concepts from one yearbook to the next. This leads to breaks in the time series (missing data) and/or changes in the unit of measurement.
17. The listing of countries and years is in an online appendix.
18. To apply a multinomial logit, I assume the independence of irrelevant alternatives.
19. See Albrecht-Carrié (1958, 406–411) for a discussion of the interwar "French system" of alliances directed toward balancing German (and Russian) power.

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