Sources of Alliance Treaty Depth

Joshua Alley*

Abstract

Why do states form deep alliances? Depth adds defense coordination and cooperation to promises of military support in alliances. I argue that symmetric alliances between non-major powers are especially likely to include high treaty depth. In these alliances, members use treaty depth to support the implementation of unconditional military support and coordinate defense efforts.

*Graduate Student, Department of Political Science, Texas A&M University.

1 Introduction

When do states form deep or shallow alliances? While some alliance treaties include only a promise of military support, others go beyond that by committing to extensive defense cooperation. For example, a 1962 alliance between Jordan and Saudi Arabia supplements defensive and offensive obligations with a planned military union and joint high command. Other alliances, such as a 1951 pact between the US and the Philippines, only include military support.

There is substantial variation in how much depth states incorporate in their alliance treaties. Many alliances have some depth. At least half of all ATOP alliances with offensive or defense obligations have at least one source of treaty depth and the prevalence of deep alliances increased after 1945.

The institutional design choice to add formal treaty depth to an alliance has important consequences. Deep alliances encourage reduced military spending by non-major power members because treaty depth increases alliance credibility. Figure 1 shows this relationship. Therefore, depth exerts a substantial impact on alliance politics by shaping treaty credibility and the distribution of military spending burdens among members.

Despite the consequences of alliance treaty depth, we know fairly little about when states add depth to their alliances.[1] In this paper, I explain when states form deep alliances, which clarifies when states design alliances that facilitate free-riding and require additional cooperation.

My argument uses the alliance negotiation process to predict treaty depth. I argue that alliance member characteristics shape the obligations on military support in the treaty, which in turn affect the use of treaty depth. Alliance negotiations start by determining whether prospective members will offer military support and conditions on that support (Poast, 2019). After establishing defensive or offensive support, alliance members negotiate over the use of treaty depth. In this process, alliance member characteristics shape the direct need for reassurance in this second stage, but also

[1] Mattes (2012) examines a related measure of military institutionalization.

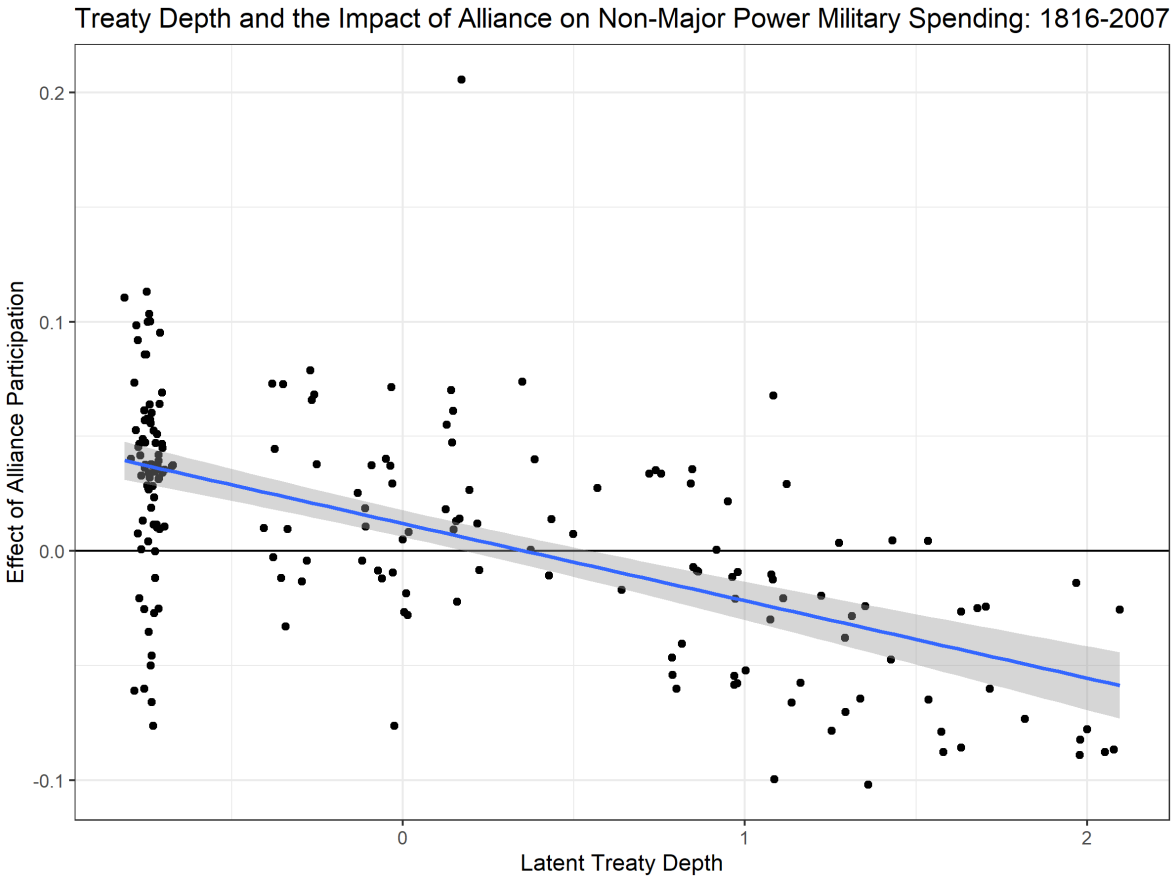

Figure 1: This scatter plot shows that the impact of alliance participation on non-major power military spending falls as treaty depth increases. I created this measure of depth measure using a latent variable model. Values around -0.8 are alliances with no depth, so larger values imply the treaty has at least some depth.

have an indirect effect on depth by affecting conditions on military support.

Several alliance member characteristics could affect depth in this way, and I focus on symmetric alliances between non-major powers. Most studies of alliances examine famous alliances between major powers e.g. (Snyder, 1997) or asymmetric treaties between major powers and non-major powers e.g. (Morrow, 1991; Yarhi-Milo, Lanoszka and Cooper, 2016). However, this approach pays little attention to the 42% of ATOP military alliances that only involve non-major powers. After 1945, 60% of all alliances are symmetric pacts between non-major powers. Thus, my argument elucidates dynamics within a large number of understudied alliances.

Symmetric alliances between non-major powers have greater depth than other alliances as depth is used to support promises of unconditional military support. Due to limited concern over entrapment and an emphasis on regional concerns, alliances between non-major powers are more likely to have unconditional military support. Non-major powers then add depth to these alliances to facilitate implementation of military support. Depth also helps non-major power allies maximize their limited coercive capacity, which establishes a direct path between non-major power alliances and depth.

I test this argument with a series of statistical models and an illustrative case studies. The statistical models employ multiple equations to approximate the alliance negotiation process. The case study checks the theoretical process and statistical results (Seawright, 2016).

The paper proceeds as follows. In the next section, I lay out the argument and hypothesis. Then I describe the data and research design

2 Argument

In this argument, I start by defining treaty depth. Then, I briefly review existing work on alliance treaty design to establish that depth is under-studied. After that, I describe a general model of the process of alliance treaty negotiations. Finally, I describe how alliance negotiations

between non-major powers tend to lead to higher treaty depth.

Alliance depth is the extent of defense cooperation formalized in the treaty. Deep alliances require additional military policy coordination and military cooperation. While shallow alliances stipulate more arms-length cooperation between members, deep treaties lead to closer cooperation through intermediate cooperation. Defense cooperation in a deep alliance takes many forms. Allies can form an integrated military command, provide military aid, commit to a common defense policy, provide basing rights, set up an international organization or undertake companion military agreements.

Depth is therefore an important part of alliance treaty design. In general, alliances can be thought of as self-enforcing contracts or institutions (Leeds et al., 2002; Morrow, 2000). Given external threats in an anarchic international system, states form treaties to aggregate military capability and secure their foreign policy interests (Altfield, 1984; Smith, 1995; Snyder, 1997; Fordham and Poast, 2014).

Potential alliance members can design a wide range of treaties (Leeds, Long and Mitchell, 2000; Leeds et al., 2002; Benson, 2012; Benson and Clinton, 2016). Design considerations shape the costs and benefits of treaty participation. Beyond the benefit of potential military support, alliances also clarify international alignments (Snyder, 1990), support trade (Gowa, 1995; Long, 2003; Fordham, 2010; Wolford and Kim, 2017). The costs of alliances include lost foreign policy autonomy (Altfield, 1984; Morrow, 2000; Johnson, 2015), as well as the risk of opprtunistic behavior. Potential opportunism in alliances includes abandonment, or the failure of alliance members to honor their commitments (Berkemeier and Fuhrmann, 2018), entrapment in unwanted conflicts (Snyder, 1984), and free-riding (Morrow, 2000). Treaty design usually emphasizes the first two concerns as alliance members attempt to ensure the alliance is reliable and free from the risk of entrapment.

The process of alliance treaty design is understudied in general (Poast, 2019). Mattes (2012) offered an early study of alliance treaty design by using symmetry of capability and history of

violation to explain conditionality, issue linkages, and military institutionalization in bilateral alliances. She argues that these three design considerations counter concerns about treaty reliability. Benson (2012) shows that foreign policy disagreements and revisionist protege states increase the likelihood of limited military support commitments. (Chiba, Johnson and Leeds, 2015) added to this by showing that democracies are more likely to form alliances with conditional military support or consultation. Other work by Poast (2012, 2013) establishes that states often use issue linkages to facilitate alliance formation.

None of these works directly study depth. Mattes (2012) uses a similar measure of military institutionalization, but does not connect alliance conditionality with the use of depth. Rather, she treats depth and institutionalization as independent. Because states can use different foreign policy instruments as substitutes or complements (Starr, 2000; Morgan and Palmer, 2000), these different sources of reliability are probably related. My argument builds in part on Mattes (2012), but extends it by placing depth and conditions on military support in a unified theoretical and empirical framework. I now describe the general framework

2.1 Alliance Negotiations and Obligations

Observed alliance treaty designs are the outcome of negotiations between members (Poast, 2019). Negotiation proceeds in two stages: first by determining the type of military support in the treaty, then by adding depth to the treaty as needed. Both stages address the benefits and costs of alliance participation, along with the risk of opportunism, each in different ways.

Establishing if and when military support will be offered is the primary task of potential alliance partners. Promises of military intervention are the essence of alliances. To form an alliance, the members must have sufficient overlap in foreign policy interests, especially their proposed war plans (Morrow, 1991; Smith, 1995; Fordham and Poast, 2014; Poast, 2019).

Promises of military support in an alliance are not all or nothing, however. The extent of shared foreign policy interests shapes whether alliance members offer unconditional or conditional mili-

tary support. Many alliances limit promises of intervention to particular regions, conflicts, or instances of non-provocation (Leeds, Long and Mitchell, 2000). For example, if alliance members fear entrapment in unwanted conflicts, they will only offer military support in specific circumstances (Kim, 2011; Benson, 2012).[2] Conditional treaties reflect less overlap in foreign policy interests.

On the other hand, offering unconditional military support is a strong signal of shared foreign policy interests. Attaching no conditions to a potential intervention means alliance members might hazard the reputational (Gibler, 2008; Crescenzi et al., 2012) and audience (Fearon, 1997) costs of treaty violation in a variety of potential conflicts. Accepting these potential costs implies that conflict participation is acceptable; there is less fear of entrapment and many shared foreign policy interests. As a result, unconditional alliances are a key source of reliability.

Having established parameters of military support, alliance partners then negotiate over how to reinforce those promises and put them into action. This second stage of the alliance negotiation is where alliance members determine the depth of the treaty. Depth shapes the perceived reliability of the treaty, by providing intermediate opportunities for states to fulfill treaty obligations in peacetime. Implementing costly depth-enhancing treaty provisions can also signal treaty credibility and enhance the ability of allies to fight together.

Treaty depth depends on member characteristics and conditions on promises of military support from the first stage of the negotiations. First, the presence of unconditional military support shapes formal treaty depth by increasing the need for policy coordination and intermediate signals of treaty reliability.[3] Time-inconsistency problems due to changing foreign policy interests are a major threat to alliance fulfillment (Leeds and Savun, 2007). Although unconditional promises of military support are more credible, they are also more vulnerable to changing foreign policy interests. Under a deep alliance treaty, members can use implementation of defense cooperation

[2]Such deliberate design of alliances means clear instances of entrapment are rare (Beckley, 2015).

[3]A counterargument is that states could use treaty depth to bolster the perceived reliability of conditional alliances.

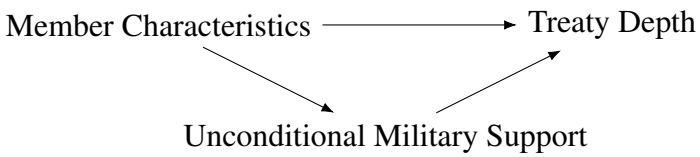

Figure 2: General summary of the theoretical process. Alliance member characteristics affect treaty depth by changing the use of unconditional military support and directly changing the use of depth to boost treaty reliability.

and policy coordination to assess allied reliability.

While alliance member characteristics shape conditions on military support, which then affect treaty depth, they also have a direct impact on treaty depth. Though states often make promises they intend to fulfill (Downs, Rocke and Barsoom, 1996; Chiba, Johnson and Leeds, 2015), allies may still have greater reliability concerns with some states even after observing their promises of military support. This additional demand for reassurance increases the use of alliance treaty depth.

Figure 2 summarizes the process in the argument. Alliance member characteristics have a direct effect on treaty depth and an indirect effect through the use of unconditional military support. This pattern is especially clear for symmetric alliances between non-major powers, which tend to have higher depth.

2.2 Alliances between Non-major Powers

Symmetry of capability in an alliance means all the members have roughly similar capabilities. Asymmetric alliances include both major and non-major powers, which generates an imbalance in military capabilities and foreign policy interests. Many of these treaties feature exchanges where the larger partner provides protection in exchange for foreign policy concessions (Morrow, 1991; Johnson, 2015). As such, alliance members often receive different foreign policy goods in asymmetric treaties.

Unlike asymmetric alliances, symmetric pacts between states of similar capability share a com-

mon foreign policy goal or good.[4] Symmetric treaties between major powers are concerned with global balance of power (Walt, 1990), especially in multipolar international systems (Snyder, 1984, 1990; Christensen and Snyder, 1990). These major power alliances are unlikely to include much depth, because substantial autonomy costs provide ample incentives for reliability, and very few major power alliances offer unconditional military support.

Alliance negotiations between non-major powers are more likely to produce alliances with substantial treaty depth. Non-major power treaties are more likely to include substantial depth because these alliances between non-major powers emphasize regional or local concerns. Conversely, alliances with major power participation are linked with global concerns. Though asymmetric alliances between major and non-major powers immediately address particular regional issues, they are part of major powers' expansive foreign policy concerns.

The limited scope of non-major power foreign policy ambitions attenuates concerns about entrapment. Where major powers are leery of being drawn into local conflicts, which increases their fear of entrapment. Non-major power alliances often address these shared local conflicts. These alliances are often a form of local balancing, as they cannot usually offset a major power. Non-major powers also lack the power projection capabilities to entangle their partners in distant concerns. As a result, unconditional alliances between non-major powers still enhance credibility, but this obligation has different implications. Because there is less risk of entrapment in unwanted conflicts, non-major powers will be more likely to include unconditional military support in their alliances.

Their tendency to offer unconditional military support increases the depth of symmetric non-major power alliances. Depth backs unconditional military support by allowing alliance members to provide regular proof of their commitment to the alliance. Adding treaty depth also facilitates plans to provide military support in multiple contingencies. Deep cooperation indicates that unconditional promises of military support are believable.

There is also a direct path between non-major power alliances and treaty depth. As non-major

[4]Potential foreign policy goals include maintenance or change of the status quo (Morgan and Palmer, 2006).

powers have more limited military capabilities, they may benefit more from policy coordination and defense cooperation. Deep alliances allow non-major powers to maximize the foreign policy benefits of their defense efforts. Rather than duplicate allied efforts, non-major powers can focus on particular issues.[5]

Non-major powers' use of unconditional military support and desire to maximize their limited military resources both increase the depth of alliance treaties. Of these two mechanisms, the indirect path through unconditional military spending may be more important. The sequence of alliance negotiations indicates that most of the effect of symmetric non-major power membership on treaty depth will operate through the establishment of unconditional military support.

Many non-major power alliances combine unconditional military support and high treaty depth. For example, a 1976 alliance between Egypt and Sudan (ATOPID 3785) commits to unconditional military support, reinforced with a joint defense council and a joint staff command. This alliance grew out of shared regional concerns, especially disagreements with Libya. By promising to military support without restrictions on how or where the conflict began, Sudan and Libya increased their need for joint military planning. To give another example, many regional collective security organizations such as the African Union Common Defense and Security Pact (ATOPID 5055), also supplement unconditional defense promises with formal organizations and defense cooperation.

An important caveat: this argument predicts institutional design, not implementation, let alone successful implementation. There are alliances where non-major power aspirations in alliance design are not fully realized, or work poorly. To give one example, several deep Pan-Arab alliances never realized their full intention due to internal political divisions.

Based on the argument and these cases, I expect that alliance negotiations between non-major powers will produce deeper alliance treaties. The main mechanism behind this relationship is the use of unconditional military support, because treaty depth supports unconditional obligati-

[5]Such policy coordination, coupled with the credibility from a combination of depth and unconditional military support, is the primary cause of free-riding in alliances by non-major powers.

ons. Non-major powers also use depth to maximize their limited military capabilities. In the next section, I describe how I will test this claim about the association between non-major power membership and treaty depth.

3 Research Design

My research design estimates how unconditional military support mediates the relationship between non-major power alliances and treaty depth. I start by describing the key variables in the analysis. Then I provide more detail on the estimation strategy.

To examine my prediction that symmetric alliances between non-major powers often have greater depth, I employ data on alliance treaty design from the Alliance Treaty Obligations and Provisions dataset (Leeds et al., 2002). I focus on 289 alliances with either offensive or defensive obligations, which are treaties with military support. All results in the paper use these 289 alliances as the sample, and I assess robustness to adjusting for non-random selection into alliances in the appendix.

Using the ATOP data, I used a mixed factor analysis to measure alliance treaty depth (Murray et al., 2013).[6] This measure of depth is weighted combination of ATOP's defense policy coordination, military aid, integrated military command, formal organization, companion military agreement and bases variables. Each of these individual indicators increases alliance treaty depth, but defense policy coordination and an integrated command have the largest positive association, as shown in the top panel of Figure 3.

Based on these factor loadings, the measurement model predicts the likely value of treaty depth. The distribution of depth is summarized by the bottom panel of Figure 3. There is substantial variation in alliance treaty depth. Around half of all formal alliance treaties have an least some depth, and once states add some depth, there is a wide range of how much they include.

[6] See **this paper** for more details on the measure.

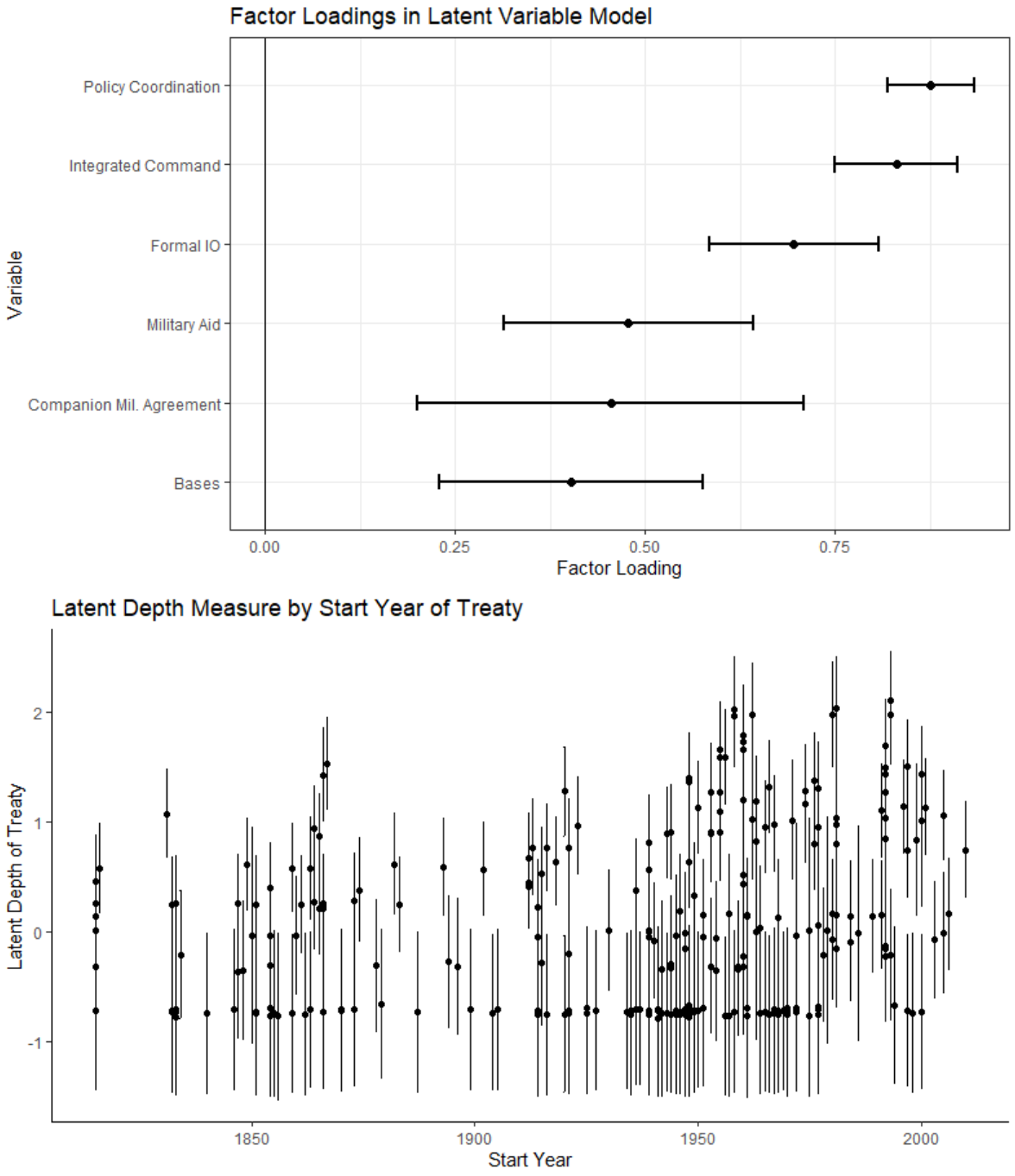

Figure 3: Factor Loadings and posterior distributions of latent alliance treaty depth measure.

I measure alliance treaty depth in three ways. First, I take the posterior mean of the latent depth posterior for each alliance. I also fit a statistical model that accounts for posterior uncertainty in the latent measure. Last, I measure alliance treaty depth with a dummy indicator of whether the alliance has greater than median depth. Results from these three measures are very similar.

The key independent variable is a dummy indicator of whether the alliance only has non-major power members. I classify alliance participants as major or non-major powers using data from the Correlates of War project (Singer, 1988). I also control for asymmetric alliances between major powers and non-major powers with a separate dummy variable which is equal to one if an alliance has major and non-major power members. Therefore, the base category is 22 alliances only between non-major powers.[7]

The mediator is an dummy indicator of unconditional military support. Using ATOP's information on whether defensive or offensive promises are conditional on specific locations, adversaries, or non-provocation, I set this variable equal to one if the treaty placed no conditions on military support. 123 of 289 alliances in the data have unconditional military support. I now describe how I estimate the way this variable mediates the association between non-major power alliances and treaty depth.

3.1 Estimation Strategy

Mediation analysis is a common estimation strategy for examining causal mechanisms (Imai et al., 2011). But to model treaty depth with the appropriate distribution, I cannot employ common sensitivity tests, which makes assessing the value of causal inferences from these results difficult. Therefore I corroborate correlations from the statistical models, through case study evidence that shows how the sequence of alliance negotiations matches my theoretical argument and the empirical results.

[7]Results are weaker if I omit the asymmetric capability variable, thereby including asymmetric alliances in the base category. Asymmtertic alliances are another source of depth (Mattes, 2012).

Mediation models generally have two equations: one to predict values of the mediator and other to predict the outcome of interest. The key independent variable is included in both equations, but the dependent variable is not included is the mediation model. The mediator also predicts the dependent variable. Because mediation approximates a process where changes in the mediator proceed shifts in the dependent variable, this is not a model with reciprocal causation. For this project, I specify two models- one where non-major power alliances predict unconditional military support, then a second where unconditional military support and non-major power alliances predict treaty depth.

To model unconditional military support, I fit a binomial model with logistic link function. The non-major power alliance dummy is the key independent variable, and I also control for a range of other factors. All of these variables could be correlated with unconditional military support and uno Key controls based on existing literature include a dummy for asymmetric capability (Mattes, 2012) and average alliance democracy at the time of formation (Chiba, Johnson and Leeds, 2015). I also control for foreign policy similarity (Benson, 2012) using the minimum value of Cohen's κ in the alliance (Häge, 2011). Using the ATOP data (Leeds et al., 2002), I also control for asymmetric treaty obligations, the number of alliance members, whether any of the members were at war and the year of treaty formation. To capture the role of issue linkages in facilitating alliance agreements (Poast, 2012, 2013), I also include a dummy indicator of whether the alliance addressed economic issues. Last, I include a count of foreign policy concessions in the treaty, because concessions can facilitate alliance negotiations (Johnson, 2015).

The model of treaty depth retains all of the above control variables and the non-major power variable. All these variables could conceivably alter the need for additional reliability from treaty depth. I then add the unconditional military support dummy to this specification. Modeling depth itself is more complicated because the latent measure is a extremely skewed. To facilitate model fitting, I transformed latent depth by transforming the variable to range between zero and one, then

modeling depth with a beta distribution.[8]

I fit the mediator and outcome models simultaneously using BRMS (Bürkner, 2017). BRMS is an interface to STAN, a probabilistic programming language for Bayesian estimation (Carpenter et al., 2016). Joint Bayesian estimation has the flexibility to incorporate the logistic and beta models and can be easily extended to account for uncertainty in the depth measure. To facilitate interpretation of effects with a binary mediator, I rescaled all continuous independent variables by dividing by two standard deviations (Gelman, 2008). Standard diagnostics suggest that the models converged and the chains adequately explored the posterior distribution.[9]

4 Results

4.1 Case Study

5 Conclusion

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[8] I also considered skew-normal, normal and t-distributions for the outcome, but the skew model had poor credible interval coverage, while the normal and t-distributed models made poor posterior predictions.

[9] Results are based on 1,000 Hamiltonian Monte Carlo iterations from four chains.

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