Arms and Alliances

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January 17, 2018

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Introduction

How can states increase their security in international relations? States can augment their material capabilities and security through spending more on arms, or forming new alliances. Because states can use either arms or alliances to gain security, it is possible for states to replace one policy with another. Conventional wisdom holds that states will often substitute alliances for arms, reducing their own defense effort as they gain the support of other states.

Two strands of academic inquiry expect that alliance formation will lead to reduced arms spending. Theories of arms and alliances start with the premise that the two are substitute goods and therefore increasing alliances will lead to decreasing reliance on arms (Morrow, 1993; Sorokin, 1994; DiGiuseppe and Poast, 2016). Economic theories of alliances predict that small states will reduce defense effort and free-ride on the protection of more powerful actors in their alliance (Olson and Zeckhauser, 1966; Sandler and Hartley, 2001).

These predictions have some empirical backing, but they do not apply to the Triple Entente. In the early 20th century, France, Russia and the UK formed an alliance network including three of the most capable states in the international system. But even after forming an alliance with France in 1904 and Russia in 1907, UK military spending rose from £53207 thousand in 1907 to £67957 thousand in 1912. Meanwhile, French military spending rose from £38956 thousand in 1904 to £61367 thousand by 1912 (Singer, 1988). For the members of the Triple Entente, new alliances did not lead to reduced defense effort (Schmitt, 1924).

Another puzzling case for theories of arms and alliances is the behavior of the Little Entente between the World Wars. Yugoslavia, Czechoslovakia and Romania formed an alliance network to balance Hungary and secure their new independence (Beneš, 1922; Osuskỳ, 1934). France formed alliances with all these states by 1921 to secure the new status quo in Eastern Europe (Crane, 1931, pg. 142-3), but Czechoslovakian and Romanian military spending steadily increased from 1920 on before plateauing during the Great Depression and then increasing again until 1936, when the

alliance broke down. France's substantial capability should have allowed the weaker members of the Little Entente to reduce their defense effort, but there is limited evidence they did.

Furthermore there is mixed statistical evidence for the prediction that alliances lead to reduced defense effort. Some studies find a negative correlation between alliances and arms spending (Conybeare, 1992; Morrow, 1993; Kimball, 2010; DiGiuseppe and Poast, 2016), but others suggest that arms and alliances are positively associated (Diehl, 1994; Horowitz, Poast and Stam, 2017). Positive correlations between arms spending and alliances are also puzzling for theories that anticipate reduced defense expenditure as more alliances form.

What determines the combination of arms and alliances states use to seek security? I argue that different institutional designs affect the credibility of alliance promises. Those differences in credibility affect the willingness of states to invest in domestic defense capacity.

Whether international competition leads to alliances, military spending, or both has substantial ramifications for international and domestic prosperity and security. Military spending consumes resources that might otherwise be used for social welfare, creating a "guns and butter trade off." According to the Stockholm International Peace Research Institute, less than 10% of annual global military spending could fund the UN's Sustainable Development Goals for education (SIPRI, 2016). Alliances also generate externalities, including entrapment in war (Snyder, 1984) and conflict diffusion (Melin and Koch, 2010).

This research encompasses several fields of inquiry in international relations. Alliances and military spending are often examined separately. Most empirical work on alliances uses a binary dependent variable— states can either form an alliances or not. But if the alternative to an alliance is added military spending, rather than no alliance, our theories and empirical tests of alliance formation are incomplete. Any determinants of military spending cannot be addressed in isolation from a state's alliance portfolio (Nordhaus, Oneal and Russett, 2012).

Understanding how states use arms and alliances to seek security also contributes to scholarship on the political economy of armed conflict. War has shaped state coercive capacity (Bean, 1973;

Tilly, 1990), tax policy (Dincecco, Federico and Vindigni, 2011; Scheve and Stasavage, 2012), and central banking (Poast, 2015). Military spending and alliances determine the economic burden of providing security, making them integral concerns in the political economy of armed conflict.

Trade offs between arms and alliances are relevant to the efficacy of different security policies. How states can mix arms and alliances will determine whether particular policy combinations can provide enough security at an acceptable economic burden. Clarifying the academic debate can therefore provide guidance about the future of international politics, including the viability of current alliance arrangements.

US policymakers often complain that few of NATO's 28 members meet the defense spending obligation of at least 2% of GDP. In 2011, US Secretary of Defense Robert Gates warned that NATO was becoming a "two-tier alliance." If states consistently reduce arms spending after forming alliances, these warnings will have little effect. Most contemporary theories predict that states will use alliances to maintain their security while reducing spending on arms.

Arms versus Alliances

Altfield (1984) and Morrow (1993) noted that states can use arms or alliances to produce security, making them substitute goods. Preferences over arms or alliances depend on the marginal costs of adding an additional unit of arms or an additional unit of alliances. In accordance with these expectations, Allen and DiGiuseppe (2013) find that states facing an sovereign debt crisis are more likely to form an alliances to maintain their security while reducing the economic burden of military spending. Substitution theory has a clear logic, but the empirical evidence is mixed.

Diehl (1994) finds that arms and alliances are positively associated, and Horowitz, Poast and Stam (2017) show that states can use conscription to complement their efforts to form an alliance. However, states may only substitute arms for alliances with particular allies. DiGiuseppe and Poast (2016) argue that states are more likely to reduce military spending when they have a democratic

ally, whose promises of support are more credible.

States want to replace arms with alliances because of the guns and butter trade off in the domestic economy. Military spending consumes resources that could be used to provide other goods to society. Kimball (2010) tests whether states with high levels of social demand use substitution and finds a positive correlation between infant mortality rates and alliance formation. The economic theory of alliances predicts that smaller allies will "free-ride" on the security provided by their larger partners (Sandler and Hartley, 2001; Lake, 2009), but free-riding is absent in the Arab League (Chen, Feng and Masroori, 1996).

In microeconomics, consumption of two goods depends on the marginal rate of substitution and the relative prices of those goods. The basic result in this framework is that individuals will consume as much as possible at the point where their indifference curves are tangential to the budget constraint. This point occurs when the marginal rate of substitution is equal to the ratio of the prices of these goods. The price ratio depends on the market price of each good, which in this case are the costs of arms and alliances.

Most effort has been devoted to understanding the price of arms through the guns-butter trade off in the domestic economy. As arms become more costly, states are more likely to produce security through alliances. States with high costs of alliances will have more arms and less alliances. This framework cannot explain why some states maintain high levels of both alliances and arms. What motivates states to carry a heavy economic and foreign policy burden through investment in both arms and allies?

Theoretical Framework

States can only reduce their defense effort if they believe that the promises of aid during war are credible. The regime type of allies is one possible source of credibility (DiGiuseppe and Poast, 2016). However, that is not the only possible source of credibility.

Not all alliances are equivalent in their construction. Treaties contain a wide range of terms, conditions, and obligations for signatories (Benson, 2011; Chiba, Johnson and Leeds, 2015). The content of an alliance treaty informs the parties of its credibility, as not all commitments are equally credible. Put differently, the institutional design of alliances has consequences for their credibility, and subsequent investment in arms. Defense effort, the outcome of interest, encompasses military spending and personnel.

I make three assumptions about the connection between alliance design and defense effort. The first assumption is that states are risk-averse over conflict, due to the consequences of losing a war. The next two assumptions are drawn from (Morrow, 1993). I assume that arms are a more reliable source of military capability, but that they are slower to develop than alliances. Alliances provide an immediate capability boost, but they are less reliable than domestic arms. Due to these differences, arms and alliances are imperfect substitute goods for states seeking security.

The scope of this theory is limited to the junior partners of major power states. These small states have strong incentives to reduce defense effort and "free ride" on the protection provided by larger states. By contrast, major powers have less incentive to free ride, limiting their ability to trade off between arms and alliances.

Alliance Design

There are several important facets of alliance treaties. In general, treaties must balance between abandonment and entrapment (Snyder, 1984; Benson, 2012). General commitments to a robust intervention are highly credible, and reduce partner's fear of abandonment. However, general commitments also come with a risk of entrapment by creating a moral hazard for partners.

Entrapment captures how alliance commitments can be used by states to drag their partners into conflicts they would rather avoid. Divergent foreign policy interests create a situation where one alliance partner sets the level of risk, but the other partners bear the costs. Greater foreign policy divergence makes states more likely to make limited alliance commitments, out of fear that

their partners will entangle them in a war they have no interest in fighting (Benson, 2012).

Alliances provide for security cooperation, usually during or in anticipation of conflict. Once some conditions are met, the signatories are obligated to aid their treaty partners in conflict. Therefore treaty design informs both the probability of aid, and how much aid signatories can expect. Treaties that make high levels of aid more likely are therefore more valuable as a source of security.

The conditions that trigger intervention by partners in an alliance vary widely across treaties and many are quite specific. Some pacts are open-ended, requiring engagement after any sort of hostilities commence. Other treaties stipulate narrow conditions, such as the set of belligerents and which state started the conflict. The scope or breadth of these conditions has important implications for understanding of whether a treaty has been honored (Leeds, Long and Mitchell, 2000).

Beyond the conditions for intervention, not all alliances stipulate a partner will become a belligerent in the conflict. For example, some alliances only promise consultation with the affected state instead of military intervention. These limits on intervention help determine the value of the support to other partners, as participation in the fighting is usually more valuable than other types support.

Design and Credible commitments

Arms and alliances are policy tools states use to gain security given some threat. Material capabilities can offset that threat, and domestic arms or external alliances are two key sources of capability. Domestic arms are a guaranteed means of offsetting a threat, so the expected contribution of arms to security is simply a states total capabilities. The capability gains from alliances are more uncertain, as they depend on the credibility of the treaty commitment.

What makes an alliance commitment more credible? Credible commitments have some costs associated with them, which allows observers to distinguish them from less meaningful "cheap talk." Alliance treaties derive their credibility from the costs of violation and the costly risks of joining a war that states incur upon joining an alliance.

Violating treaty commitments is costly due to lost reputation, spill-overs to other commitments, and audience costs (Fearon, 1997; Tomz, 2007; Chiba, Johnson and Leeds, 2015; Levy et al., 2015). Therefore, the greater the breadth of the commitments in an alliance, the more opportunities a state will have to violate those commitments, and the higher the potential cost. Broad commitments with few conditions attached to promises of military support also reflect high congruence in foreign policy interests.

The other cost of an alliance treaty is the type of intervention it promises. An iron-clad promise to join a war is costly, due to the economic and political demands of war-fighting. Promises of consultation, or retaining the option to avoid fighting are less costly in expectation. Limited commitments allow an alliance partner to hedge its bets by withholding guarantees of full support. To the other members of an alliance, this commitment with less expected costs is not as reassuring.

Alliance treaties that only promise support under a narrow set of circumstances, or do not guarantee active military support, are less credible. These alliances are less costly in expectation because they only cover a limited set of commitments, or they do not promise military engagement. As a result, partner states will view these security commitments more as "cheap talk" and adjust their defense policies accordingly.

Less credible alliances will be seen as less reliable, increasing the extent of imperfect substitution with arms. In expectation, states gain less capability from unreliable alliances, because they do not expect to receive the promised support. As a result, they must provide the capability to offset whatever threat they face by increasing or maintaining their defense effort.

All alliance members must hedge against the prospect of abandonment— that their allies will not come to their aid in conflict. States that fear abandonment must plan for the worst and continue to maintain high levels of defense effort. Less credible alliance promises stoke fear of abandonment, as states have less confidence that they will receive the promised support. Conversely, greater confidence in allied support frees states up to reduce defense effort. More credible promises of support increase the expected capability gains from an alliance, allowing states to shift domestic arms

spending into other goods.

The main empirical implications of this theoretical framework concern differences in how member's defense spending changes across alliances. Substitution of arms for alliances is obvious when states reduce their defense effort after forming an alliance. So where some types of alliances will lead to reductions in defense spending, others may not.

Predictions

What types of alliances are most likely to reduce defense spending? And which alliance designs will lead to no change or an increase in spending? Benson (2011, 2012) divides alliances into unconditional, conditional, and probabilistic commitments. Unconditional commitments offer support during conflict irrespective of how the war began. Conditional commitments only offer support when conflict began under certain circumstances— usually when the treaty partner did not start the conflict. Probabilistic commitments do not guarantee a given level of support, and can allow the possibility of escape.

Relative to unconditional or even conditional pacts, probabilistic alliances will have little impact on signatories' defense effort. Because probabilistic commitments often remove the final decision on whether to support a treaty partner and how much support to offer, partners must maintain their defense effort to hedge against abandonment. The conscious effort of the other states to reduce their costs from the alliance limits the credibility of the treaty. Therefore, relative to other deterrent alliances, probabilistic alliances will be associated with higher defense effort.

> HYPOTHESIS 1: Probabilistic alliances will be associated with no change or increases in defense spending by member states.

This framework also generates predictions about other classifications of alliances characteristics, such as that of Leeds et al. (2002). The ATOP project divides alliances into offensive, defensive, neutrality, non-aggression and consultation treaties. Consultation pacts do not guarantee

military support, reducing their credibility. Thus, alliances that promise only consultation should will be less likely to lead to reduced defense effort.

> HYPOTHESIS 2: Alliances that only promise consultation will be associated with no change or increases in defense spending by member states.

Alliance designs are are non-random as states balance credibility with moral hazard. Because they face higher audience costs for reneging on their commitments, democracies are more likely to form alliances that only obligate them to consult with a partner, or specify limits to their defensive obligations (Chiba, Johnson and Leeds, 2015). These and other strategic considerations such as shared interest and the level of threat faced by a client state (Yarhi-Milo, Lanoszka and Cooper, 2016), imply that the characteristics of partner states determine whether and what type of alliances they form. Accounting for the process of alliance formation is essential if we are to understand the consequences of alliances.

One objection to these predictions builds on the idea that weak commitments are designed to avoid generating entrapment and moral hazard (Benson, 2012). Ambiguous commitments restrain protege states from aggressive foreign policies by generating uncertainty about whether the patron state will support them. But if a protege states is restrained by an uncertain treaty, might they reduce military effort? States seeking conflict have every reason to increase defense spending, but if they can only rely on alliances for protection, they have more incentives to free ride.

For this alternative explanation to hold, the increased risk of conflict from an uncertain commitment must be less than the decreased risk of conflict from mitigating moral hazard. Otherwise, the overall risk of war will increase, and the members of an alliance will maintain or increase their defense effort. The strategic imperatives of alliance design make these changes unlikely.

States that receive a highly uncertain commitment are likely to be in rivalry or some ongoing dispute that generates the moral hazard. Irrespective of the lost moral hazard from an ambiguous commitment, that rivalry is likely to continue. As a result, while they may lose the ability to pro-

voke a favorable conflict, states with uncertain commitments will still value deterrence. However, the credibility of deterrent promises from their allies will be weakened, and these states will need to maintain higher levels of defense effort.

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