Trust and Threat

The Effects of Confidence in the United States and Perceived Threat from the Russian Federation upon NATO Defense Spending

By

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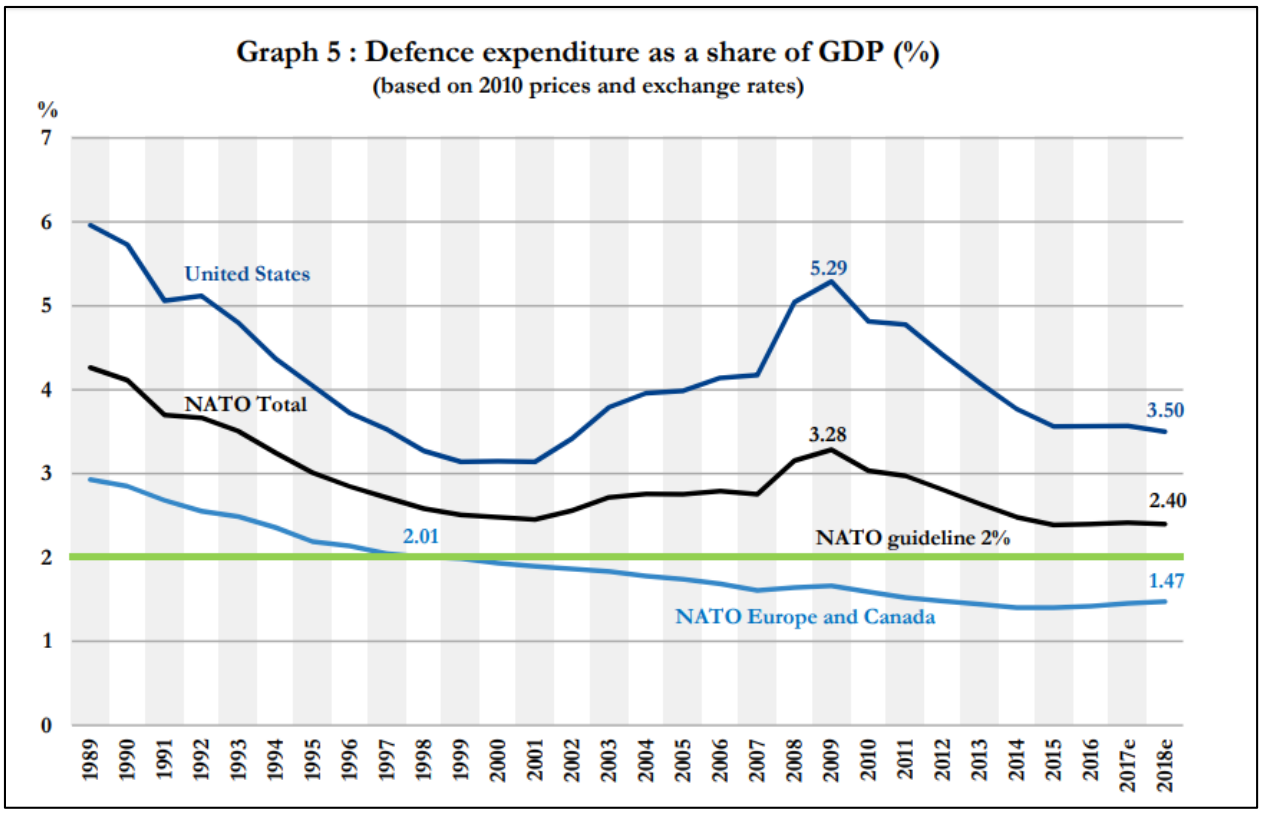
Chapter I: Introduction

The status of the North Atlantic Treaty Organization has been placed in the spotlight. As a collective defense organization borne of the Cold War to balance and contain Germany and the Soviet Union, its purpose and mission have been under question since the reunification of the former and the collapse of the latter. From an American standpoint, one of the many charges levelled against NATO is the wide imbalance of burden-sharing. European NATO members are widely seen to be "free-riding" under the American security umbrella. Since the end of the Cold War, defense spending as a percentage of national GDP has drastically decreased across the alliance, and most European NATO members do not currently reach the 2% spending goal set at the 2014 Wales Summit (Techau 2015).



Source: NATO Press Release, June 2018

Free-riding in alliances is neither a new concept nor problem, and especially not with regards to NATO. The alliance was created to guarantee European security during the Cold War and is today a cornerstone of the Transatlantic relationship. Since the end of the Cold War, NATO has engaged in peace enforcement operations in the Balkans, led the International Security Assistance Force in Afghanistan, and enforced a United Nations resolution in North Africa. Like most alliances, the burden of providing for security is split unevenly. The United States funds over 70% of NATO defense expenditure and maintains a "significant military presence" in the European theater (Béraud-Sudreau and Childs 2018). The United States maintains about 150 tactical nuclear weapons in NATO bases across Europe and keeps over 60,000 troops deployed throughout the continent (Béraud-Sudreau and Childs 2018; Bialik 2017). Finally, the United States spends about 3.6% of its GDP on defense. This translates to approximately $700 billion, over ten times the amount of the second-highest spender, the United Kingdom (NATO 2018).

Numerous US Presidents and foreign policy officials have previously criticized NATO allies for free-riding and called upon them to increase their defense spending. However, the Trump administration's rhetoric before and during the 2018 NATO summit in Brussels have thrust this issue back into the spotlight. President Trump has repeatedly criticized NATO members for failing to meet the 2% spending goal and has repeatedly singled out Germany for being "totally controlled" by Russia for its participation in the Nord Stream 2 pipeline (Herszenhorn 2018).

NATO free-riding and uneven burden-sharing in general have been explained in several different ways. One of the first and most prominent papers to examine burden-sharing within the North Atlantic alliance was published by Mancur Olson Jr. and Richard Zeckhauser in 1966. Their work, "An Economic Theory of Alliances," analyzes free-riding amongst NATO members through an economic perspective. Because common defense is a public good, one that is defined as non-

rival and non-excludable, members have an inherent incentive to undersupply the good of collective security (Olson and Zeckhauser 267-268). The economists theorize that a state's defense spending is a product of the extent to which that state values the provision of the public good. In practice, they have observed that larger states tend to shoulder a greater burden, while the smaller states are more likely to free-ride (Olson and Zeckhauser 268). They concede that there are many factors that could affect a state's valuation of the alliance and subsequent defense output, and these are further explained in Chapter 2.

As the most prominent and arguably most successful military alliance in modern history, NATO's origin and expansion can be explained by realist theory. Realists believe that the international system is anarchic, and that states are rational, self-interested actors whose primary foreign policy goal is to provide for their own security. According to this theory, states are wary of each other and will "balance" powerful, threatening states by forming coalitions against them. The Cold War serves as a classic "bipolar" model in which the international system is dominated by two superpowers, the United States and the Soviet Union. The United States and its Western European allies formed NATO in order to balance the threat of the opposite superpower, while the Soviet Union responded with the Warsaw Pact, its own military alliance. However, since the end of the Cold War, the international system is considered to be "unipolar," with the United States as the sole superpower remaining. Realists such as Kenneth Waltz argue that unipolarity appears to be the "least durable of all international configurations" and expect that the United States will eventually be balanced by other powers, thus returning the international order into a more stable, multipolar system (Waltz, *Realism and International Politics*; 213).

Realism and balance of power theory are grounded in the belief that the international system is anarchic. In a state of anarchy, countries are predominantly concerned with security and

should distrust and balance against strong powers. However, as David Lake explains in *Hierarchy in International Relations*, countries that are subordinate to the United States have not tried to balance against it. According to realist theory, states should form coalitions to balance against "those powers most likely to threaten their sovereignty" (Lake 149). Instead, states that play a subordinate role in a hierarchical relationship with the United States have consistently lower rates of defense spending compared to states outside of the hierarchy (Lake 143). The US sphere of influence extends from the Western Hemisphere, where many Latin American and Caribbean states are dependent on the US military, to Japan and Western Europe, where NATO is based. Lake posits that these states free-ride off the United States because they choose to enter hierarchical relationships.

According to Lake's theory, NATO members, which play the subordinate roles in the Transatlantic relationship, should be more likely to free-ride and decrease military spending. However, while major European powers like Germany, France, and Italy all spend less than 2% on defense, there is significant variation across the alliance. Most notably, some smaller NATO members such as the Baltic states of Estonia, Latvia, and Lithuania spend approximately 2% or more on defense; this is almost twice as much as far larger members Spain and Italy (NATO Press Release 2018). *Hierarchy* suggests that larger, richer countries should be less willing to relinquish their sovereignty by entering a militarily subordinate relationship (Lake 142). Conversely, this means that smaller members of the alliance have the most incentive to free-ride. As we see across NATO members, this does not appear to be the case, which is puzzling. Why is there so much variation in the amount of free riding that takes place amongst NATO members? And what explains why some of the smaller members seem to spend disproportionately on their defense? What factors explain variation in military spending amongst NATO member states? These are

important questions to answer and a topic that merits more research. As NATO continues to expand eastward into the former Soviet sphere of influence, American policymakers and foreign policy officials will need to determine if potential NATO members are willing to increase their national defense spending to reach the 2% goal. [1]

To address these questions, I propose a two-part theory regarding trust in the United States and perceived threat from the Russian Federation. First, I theorize that free-riding is a function of the extent to which a NATO member state trusts in the United States to provide the good of security. For example, a NATO country that is threatened by a foreign invasion would expect the United States and its allies to mobilize military forces to its defense. My first hypothesis predicts that the closer a NATO member state's UN voting record is to that of the United States, the lower it will spend on military expenditure. This reflects my theory because the more trust a state exhibits in American leadership, the more likely it will be willing to free-ride.

The second half of my theory addresses the security threat that a state perceives from Russia. I build upon Thomas Plümper and Eric Neumayer's research and operationalize perceived threat with geographic distance between capital cities. I theorize that a lower distance between a NATO state's capital city and Moscow will lead to the Russian Federation's perception as a greater security threat to the sovereignty of that NATO state. My second hypothesis predicts that the closer a NATO state is to Russia, the higher it will spend on defense. This reflects my theory

[1] The way I define "free-riding" in this paper reflects the target set at the 2014 Wales Summit, where all NATO members agreed to increase their defense spending up to 2% of GDP within a decade (Techau 2015). Therefore, a country is "free-riding" off the dominant power, the United States, if it spends less than 2% on defense. This concept will be explained in greater detail in the Research Design chapter.

because a NATO state that views the Kremlin as a larger threat to its sovereignty will be less willing to free-ride and instead prioritize its security to a greater extent than its fellow member states located further away.

To test my hypotheses, I assembled a dataset consisting of military spending, GDP, UN General Assembly Voting Data, geographic distance, and dyadic trade statistics from various sources including the Correlates of War Project and the International Political Economy Data Resource. These datasets included military expenditure since the early 19th century for most great powers, dyadic trade between most countries since the early 20th century, and Gross Domestic Product figures for most states on a yearly basis. Once I restricted the dataset to the relevant sample states post-1945, I used STATA to run a time-series cross-sectional regression with random effects. I tested four separate models and obtained statistically significant results that help support my hypotheses. NATO and European Union states that vote more closely with the United States, defined by my variable for trust in the United States, tend to spend lower levels of GDP on defense, while those same states located closer to Moscow tend to exhibit higher rates of military expenditure. In the Research Design, I explain how I operationalize trust in the United States as the closeness of a NATO state's voting record in the UN General Assembly.

This thesis seeks to explain the variation in military expenditure and thereby the degree of free-riding in the North Atlantic Treaty Organization. While NATO and most European Union states are widely considered to be security subordinates of the United States, significant variation of the extent of free-riding exists. I believe that my theory, regarding trust and threat, helps explain this variation by adding and expanding upon two new variables: a country's voting similarity with respect to the United States and its geographic distance to Russia.

Chapter II: Literature Review

In this chapter, I draw from three broad sources to explain NATO free-riding. This thesis conceptualizes free-riding as variations in defense spending, which are dependent upon the expectation that a hegemon will provide the public good of security to its subordinates. First, I summarize alliance theory that explains the origin and development of NATO. These arguments will be drawn from Balance of Power theory and realism as described by Kenneth Waltz. Next, I use David Lake's *Hierarchy in International Relations* as a counterpoint to traditional realist theory and to contrast the hierarchical nature of relationships in the international system. Lake's theory can be used to identify which countries are subordinate to the United States and therefore, which countries can be expected to lower their defense expenditures and free-ride off the hegemon. Finally, I discuss several previous approaches that attempt to explain free-riding amongst NATO members, that is, within groups of states that could be defined as part of a hierarchical relationship with the United States. These arguments will be drawn from Mancur Olson Jr. and Richard Zeckhauser's "An Economic Theory of Alliances" and Thomas Plümper and Eric Neumayer's "Free-riding in alliances: Testing an old theory with a new method."

I chose to narrow down the Literature Review to these works for several reasons. First, I want to give a broad overview of alliance theory from a dominant school of thought of international relations, using Kenneth Waltz's contributions to structural realism. Next, I use David Lake's work to help explain the questions that realist theory cannot currently answer, and to provide criteria for determining which states free-ride off the United States. I refer to Olson and Zeckhauser's work because it was one of the earliest papers published to explore free-riding within the alliance and is considered one of the foremost economic theories that explain NATO burden-

sharing. The vast majority of articles and books concerning this topic cites their work. Finally, I use Plümper and Neumayer's research because it was conducted and published relatively recently, in 2014-2015. While it may not have had enough time to reflect on the true consequences of Russia's annexation of Crimea and the increase in defense spending amongst some NATO members, it introduces a theory that I further test and expand upon in this thesis.

There have been many articles published about NATO burden-sharing since the onset of the alliance. However, many of these were published during the Cold War, when the Soviet Union was the definitive and explicit threat to European security.[2] Moreover, many of these papers do not include analysis or data for recently-joined members; the number of NATO member states has nearly doubled since 1991. One of my hypotheses measures the perceived threat from the modern Russian Federation and include all of these new members, so I exclude many papers published during that era in favor of newer analysis. Next, several papers[3] debate the designation of collective defense provided by NATO as a "public good." I refer to Plümper and Neumayer's reasoning to justify it as such. Finally, many articles regarding NATO free-riding also debate and analyze the utility of the 2% metric and delve deeper into defense spending allocations. Some of these papers divide military expenditure into equipment contributions, territorial self-defense, and alliance commitments, to name a few categories. I address the debate about the 2% metric in the Research Design chapter, but this thesis focuses on the general trust in the hegemon and perceived threat

[2] Some of these articles include:

Palmer G (1990a) *"Corralling the free rider: Deterrence and the Western Alliance."* International Studies Quarterly 34(2): 147–164.

[3] Murdoch JC and Sandler T (1984) "*Complementarity, free riding, and the military expenditures of NATO allies."* Journal of Public Economics 25(1–2): 83–101.

Sandler T and Forbes JF (1980) *"Burden sharing, strategy, and the design of NATO."* Economic Inquiry

18(3): 425–444.

from NATO's perennial adversary. Rather than entering the extensive literature and well-debated discussion of what determines rates of defense spending or constitutes free-riding, this thesis concentrates on the effects of confidence in the United States and wariness of the Russian Federation.

Realism | Balance of Power theory | Bipolarity to Unipolarity

The birth and rise of the North Atlantic Treaty Organization can be explained in part by the realist school of thought in international relations. At the core of realism is the belief that the international system is anarchic and that nation-states are the dominant entities. Moreover, states are rational, self-interested actors that hold self-preservation and security as the fundamental goals of their foreign policy. An important concept of realism is balance of power theory. In his book, *Theory of International Politics*, Kenneth Waltz explains that because "in anarchy, security is the highest end," the international system pushes states towards balancing each other (Waltz, *Theory of International Politics* 126). Weaker states are threatened by more powerful states, so they can be expected to "balance" those powerful states by forming or joining a coalition against them. Accordingly, Waltz predicts that "in the quest for security, alliances may have to be made" (Waltz, *Theory of International Politics* 166). In a bipolar international system, such as the period between 1945-1991 in which two superpowers dominated proceedings, one can expect opposing coalitions to be formed. As the post-war American grand strategy shifted to one of containment, the Truman doctrine saw the formation of NATO in 1949. The Soviet Union responded by creating its own military alliance, the Warsaw Pact, in 1955.

As the Cold War ended with the fall of the Berlin Wall and the dissolution of the Warsaw Pact, the international system became unipolar. After the Soviet Union disintegrated into 15 new republics, the United States was left as the only superpower remaining. Despite the constant

possibility of Mutually Assured Destruction throughout the Cold War, realists believe that the bipolar system created was one that was relatively stable. Due to the advent of nuclear weapons and the subsequent strategies of containment and deterrence, the Cold War between the two superpowers did not turn "hot" (Waltz, *Realism and International Politics* 63-65). On the other hand, Waltz believes that a unipolar system is the "least durable of international configurations" (Waltz, *Realism and International Politics* 213). He writes that "as nature abhors a vacuum, international politics abhors unbalanced power" (Waltz, *Realism and International Politics* 214). Finally, Waltz and realist theory predict that "balances will one day be restored," but cannot say when. They expect candidates such as a German-led European Union, China, Japan, or Russia to eventually challenge American hegemony and balance the unipolar system (Waltz, *Realism and International Politics* 213, 216). For European NATO states within the US security hierarchy, this would entail reducing levels of security subordination and regaining a higher degree of foreign policy autonomy. In turn, this would be expected to lead to high rates of defense spending and less free-riding. However, as David Lake explains, none of these states have attempted to balance the United States thus far; most are content to stay in the hierarchical relationship with the United States.

David Lake, *Hierarchy in International Relations*, 2009

David Lake approaches international relations theory differently by challenging the traditional view that the international system is anarchic. In his book, *Hierarchy in International Relations*, he also provides a new perspective on free-riding theory. Lake demonstrates that the system is not only anarchic, but also hierarchic. The international order possesses several hierarchical relationships between hegemon and subordinates. Lake divides his research into two types of hierarchical relationships: security and economic. This thesis will focus on the security

relationship. [4] The extent to which a country is militarily subordinate to another is assessed by two measures: the number of military personnel of the hegemon stationed in the subordinate country, and the number of independent alliances of the subordinate country. The existence of increased security personnel equates to increased hierarchy within the relationship. Examples include Japan and Germany since 1945, South Korea during and since the Korean War, and Saudi Arabia during the Gulf War. American military personnel in those countries deter their enemies from invasion, but also "insure their neighbors against any revival of militarism" (Lake 68). Thus, American military personnel stationed in-country translates to positive and negative control over the subordinate country's security policies. The existence of independent alliances[5] of the subordinate country indicates a level of "foreign policy autonomy" (Lake 70).

Countries are more likely to exchange sovereignty for security under three general conditions. First, as previously mentioned, if they are more threatened by others, they are more likely to enter a hierarchical relationship with the United States (Lake 142). Second, if the country is poorer and therefore less able to pay for its own security, it should be more likely to assume a subordinate role in such a relationship. Finally, democracies are more likely to be allied with other democracies and therefore may be more likely to enter such a relationship with the United States (Lake 142).

Lake finds that security hierarchy is "consistently negative and statistically significant," and that states subordinate to the United States in terms of security "spend proportionally less" on

[4] Lake finds that "security hierarchy, is, as predicted, consistently negative and statistically significant" (Lake 143). However, economic hierarchy is "never statistically significant and indeed carries the wrong sign. Countries that are economically subordinate to the United States do not enjoy lower defense expenditures." (Lake 143). I therefore focus on security hierarchy because of its statistical significance and do not discuss economic hierarchy due to its insignificance. I will use the concept of trade dependence as a control in my statistical analysis.

[5] An independent alliance is defined as a military alliance which includes the subordinate state but not the hegemon. These indicate a higher degree of autonomy on foreign and security policy for the subordinate state because the hegemon does not directly control affairs or decision-making.

defense spending (Lake 143). Furthermore, he finds that more militaristically capable states do not spend significantly more, nor do countries with larger economies; the latter model is reflected by Plümper and Neumayer's findings (Lake 148).

Lake concludes that subordinate countries trade sovereignty for security, and that this directly contradicts balance of power theory, which predicts that states will form coalitions to balance against powers that are "most likely to threaten their sovereignty" or "exercise authority over them and thereby diminish their [own] authority" (Lake 148-149). In this case, the power that should be balanced is the United States. However, the subordinate states within the US security hierarchy "clearly do not attempt to balance against the…United States," rather, they continue to "enjoy lower levels of defense effort" (Lake 148-149).

Lake conducted his research by comparing the defense spending of subordinate countries with those not included in the US hierarchy, which stretches from the Western Hemisphere to Japan and Western Europe. According to Lake's theory, NATO members, which are subordinate to the United States in the security realm, should be more likely to free-ride and lower their defense spending. While major European states such as France, Germany, and Italy all spend less than 2% of GDP on defense, significant variation exists across the alliance. Most notably, some smaller NATO members such as the Baltic states of Estonia, Latvia, and Lithuania spend more than or approximately 2% on defense; this is almost twice as much as far larger members Spain and Italy (NATO Press Release 2018). Lake's theory states that richer countries should be less likely to free ride, and conversely, this means that poorer countries should be more likely to do so. As we see amongst the NATO members, this is not always the case. "Richer" countries, or those with a higher GDP per capita, have a higher tendency to free ride: Luxembourg, Norway, Netherlands, Iceland, Germany, Denmark, Belgium, and France have the highest GDP per capita of European

NATO states (over $47,000), yet spend less than 2% of GDP on defense (IMF). Countries that reach the 2% goal include Lithuania, Estonia, and Poland, which have at least $10,000 less GDP per capita (IMF). This thesis will explain the factors behind such discrepancies.

Olson and Zeckhauser: "An Economic Theory of Alliances," 1966

One way to explain these variations in defense spending is to use free-riding theory to examine the issue from an economic perspective. Mancur Olson Jr. and Richard Zeckhauser published one of the first papers to examine the inequality of burden-sharing within the North Atlantic Treaty Organization. In their work, "An Economic Theory of Alliances," they view the alliance through an economic lens and define it as an organization that produces a public good. Public goods can be further described as non-rival and non-excludable, meaning that first, if the good is made available to one member of the group, it can be easily made available to other members, and second, if the good is made available, every member of the group will benefit assuming they value that good, regardless of their level of contribution (Olson and Zeckhauser 267). As a military alliance, NATO provides the common good of collective defense. This is defined in Article 5 of its founding treaty, which states that "an armed attack against one…shall be considered an attack against them all" (NATO 1949). The security of NATO member states is a public good because as the charter illustrates, an invasion of member state Poland, for example, is considered an invasion of its fellow member states. Therefore, the defense provided to Poland via NATO is considered defense for all other member states. Even if, for example, member state Spain does not feel the effects of a hypothetical Russian invasion of Poland, if the alliance fails to defend its member state, this would break the treaty and more importantly signal to potential aggressors that member states can be attacked without repercussions. Another way to illustrate this concept is the existence of the US nuclear umbrella. The United States stations tactical nuclear

weapons in European bases to deter potential enemies. Because the United States is obligated to defend its NATO allies, potential aggressors know that any attack could risk a response from a nuclear power. Although Spain neither possesses nor hosts any nuclear weapons on its territory, it is defended by the deterrent effect of American nuclear weapons. Thus, the collective defense of NATO is considered a public good.

It is important to note that over the course of NATO's history, many have questioned the nonrivalness of collective defense and its designation as a "pure" public good. To continue with the earlier example, if the US Army expends ammunition in Poland, fellow member states' armies, such as the Spanish army, cannot expend the same materiel on the other side of the continent. However, as Plümper and Neumayer note, "if defense spending aims at deterrence, then deterrence by the US military of its enemies will be non-rival in consumption by other alliance members," provided that those enemies believe that Article 5 of the NATO treaty will be upheld (Plümper and Neumayer 250-251).

In economic theory, the provision of public goods invites the free-rider problem. In the context of NATO, this means that some states will have access to the public good of defense while spending a minimal amount to produce that good. Olson and Zeckhauser find that defense spending depends on the extent to which a state values collective defense (Olson and Zeckhauser 268). Naturally, all NATO member states value the good of collective defense; however, some states place a greater value on defense and therefore devote more of their annual budgets towards military spending. Olson and Zeckhauser find that larger states, in terms of GDP, value the alliance more, and reflect this by spending higher proportions of their GDP on defense. They concede that there may be other factors affecting the extent to which a state values the alliance and therefore responds with increased military spending. For example, a state that directly borders an enemy

may value defense more than a state located further away, and a geographically larger country may require a correspondingly larger army to defend the greater land mass (Olson and Zeckhauser 271). Both of these situations would lead to greater defense spending. They also observe that populations in many "small and weak countries" within and outside NATO, tend to exhibit "neutralist or pacifist ideologies" (Olson and Zeckhauser 271). These ideologies translate into lower military spending, and is contrasted by larger, more powerful countries, which believe that their foreign policies can "decisively influence world events in their own interest" (Olson and Zeckhauser 271-272).

Furthermore, a state's defense spending will be negatively affected by the amount that its allies spend. According to Olson and Zeckhauser's theory, smaller members of the alliance will reduce their military spending relative to larger members. Smaller states also hold strategic bargaining advantages for two reasons. First, because a larger state values the deterrence produced by the alliance more than a smaller state, it will suffer a greater loss of utility when deterrence is underproduced. Second, a larger country will have less to gain from successful bargaining. If a larger state manages to compel a smaller state to increase its contributions, this only translates into a small overall gain for the alliance. Conversely, if a smaller state successfully compels the larger state to increase spending, the resulting contribution towards aggregate defense expenditure and the product of deterrence will be much greater than the reverse (Olson and Zeckhauser 274). In the case of NATO, the hegemon can only compel its subordinates to increase spending by credibly committing to *not* defend those subordinates. Olson and Zeckhauser deem this as highly unlikely because such a commitment "contains a strong element of irreversibility" (Olson and Zeckhauser 274). If the United States were to demonstrate that it would *not* defend NATO member Germany, for example, this would allow Russia to attack the country without facing significant

consequences. Such an invasion, once launched, cannot be undone without considerable military commitment; even after a hypothetical victory, trust in the United States and the alliance would be permanently marred. In the Cold War context, such an action in US foreign policy would never be tolerated, which explains why the smaller NATO member states calculated accurately and decreased their defense spending.

This idea also explains why President Obama's strategic "Pivot to Asia" caused ripples through European politics and academia (Armstrong 2013). It was perceived to be the first real step in shifting American strategic focus away from the European continent and may have been seen as an opportunity by Russian President Vladimir Putin to expand his aggressive and expansionist foreign policy.

Plümper and Neumayer: "Free-riding in alliances: Testing an old theory with a new method", 2015

Thomas Plümper and Eric Neumayer build upon Olson and Zeckhauser's economic theory in their work "Free-riding in alliances: Testing an old theory with a new method." They use a different metric than Olson and Zeckhauser; instead of measuring simple differences in military spending as a function of GDP, they measure the responsiveness of NATO members' defense expenditure to American and Soviet spending over a time period of 1956-1988. They test Olson and Zeckhauser's theory with this new method because they believe that many confounding factors exist for the explanation of higher defense spending. For example, the United States has far greater geostrategic interests than fellow NATO member Denmark; the Scandinavian country will not spend money on military bases in Australia (Plümper and Neumayer 248). Therefore, they naturally expect great powers like the United States to exhibit a higher rate of defense expenditure than many smaller countries.

Plümper and Neumayer also reaffirm other parts of Olson and Zeckhauser's theory. For example, if the United States increases defense spending, smaller NATO members are incentivized to free-ride by decreasing their own defense spending, or by increasing it at a lower rate than that of the United States (Plümper and Neumayer 254). Furthermore, they also state that the only way for the hegemon to eliminate free-riding is to credibly commit to "not honor her commitment towards smaller allies" (Plümper and Neumayer 252). Because American and European security interests are sufficiently aligned, this is highly unlikely to ever become a credible threat.

Their overall results contribute to overall free-riding theory. Unlike Olson and Zeckhauser, they find that country size is not necessarily a good predictor of defense spending, as "smaller and larger NATO members do not significantly differ in their degree of free-riding" (Plümper and Neumayer 265-266). Rather, they find a correlation between NATO members that border Warsaw Pact countries and lower rates of free-riding. This means that member states geographically further from Moscow and those that do not share a land border with a Warsaw Pact country are more likely to match increases in US defense spending at much lower rates or decrease their spending altogether.

This thesis further tests the link between distance and perceived threat. It expands the scope of Plümper and Neumayer's work to include the years after 1988 and reflect the post-Cold War era. Subsequently, it includes data from several former Warsaw Pact and Soviet Union states that have since joined NATO. The results show that there is a statistically significant correlation between geographic distance from Moscow and higher rates of defense spending, even after the end of the Cold War and the expansion of NATO.

Furthermore, I use UN voting patterns to measure trust in the American hegemon. I find a statistically significant correlation between closer voting patterns and lower defense spending

amongst NATO members. While many scholars have previously used Erik Voeten's UN General Assembly Voting Data as a method of measuring a state's foreign policy preferences, I apply this to my theory that greater trust in the United States leads to lower military expenditure.

Chapter III: Theory and Hypotheses

In order to explain the variation in military spending and free-riding amongst NATO members, I build upon David Lake's *Hierarchy in International Relations* and extend the scope of Thomas Plümper and Eric Neumayer's research. This thesis seeks to explain the increased defense spending amongst countries that current theory would expect to do the opposite. Furthermore, it includes data from 28 of the current 29 NATO member states; twelve of these states joined the alliance in the post-Cold War era and include several former Warsaw Pact and former Soviet states.[6]

David Lake's work found that states outside the US security hierarchy spend more on defense, while states within such hierarchy have reduced levels of defense spending. This is due to the existence of trust within the relationship. Lake takes traditional social contract theory and applies it to a broader scope: the international system. Consequently, if the United States acts as hegemon and holds authority over its subordinates, it must also uphold its end of the bargain and act as protector of its subordinates. Subordinate states trade submission to US authority in exchange for security. Only after this hierarchical relationship is established can the subordinate state decrease its defense expenditure and "free-ride" off the hegemon.

I theorize that states with a greater level of trust in the United States will free-ride to a greater extent and therefore exhibit lower levels of defense spending as a percentage of GDP. This theory applies even within existing security hierarchies such as NATO, where the current literature

[6] Montenegro, the newest NATO member, joined in 2017. Its military spending, GDP, and other data needed for my research are currently unavailable. Because of the short timeframe since its entry, it is doubtful that such data would create a significant impact in my research.

predicts that all member states free-ride off the United States. Conversely, states with a lower level of trust in the United States will free-ride to a lesser extent and therefore spend greater proportions of their GDP on military expenditure. This theory is best illustrated from the point of view of a European NATO state. As Olson and Zeckhauser explain, smaller states hold the strategic bargaining advantages within a military alliance. It is easier for subordinate states to free-ride off the dominant power than it is for the hegemon to sway its subordinates to raise defense spending. Nor can the United States coerce its allies to alter their domestic budgets. The nature of the hierarchical relationship is based on legitimacy, which as Lake describes, "originates in the opinions of subordinates" (Lake 188). If the United States were to threaten fellow NATO allies with force, it would tarnish its international legitimacy as a benign hegemon and lose authority over its subordinates. Indeed, "authority is conferred upon the ruler by the ruled" (Lake 188).

In general, NATO members' trust in the United States to provide security stems from common strategic interests. The extent to which a member state trusts in the United States is a function of shared foreign policy preferences. The Transatlantic relationship is predicated upon trade, security, and common values that espouse democracy and political liberties. The European Union is a major trading partner of the United States, and many of these states double as NATO allies. European troops have served and died alongside Americans in Afghanistan during Operation Enduring Freedom, and EU and NATO allies Great Britain, Poland, and Spain comprised part of the "Coalition of the Willing" that contributed troops towards the American-led Iraq War in 2003. The decision of these governments to join the coalition lent some international legitimacy to the widely unpopular war. With regards to NATO, the most prominent intersection of American and European security strategy is the threat posed by the Russian Federation. While it is no longer considered an international superpower, Russia's nuclear arsenal still numbers in

the thousands and rivals that of the United States (SIPRI 2018). Russia remains a strategic adversary whose foreign policy conflicts with that of the United States on a global scale. Russia opposes American-backed expansion of NATO in eastern Europe, is allied with the anti-American Islamic Republic of Iran, and backs Syrian President Bashar al-Assad, whom the United States opposes, in the ongoing Syrian Civil War. It remains a major actor on the world stage whose expansive territory spans the Eurasian landmass.

Russia challenges American hegemony by threatening European security. The United States and its NATO partners oppose Russian military aggression and expansion in eastern Europe. Therefore, it is in the interests of the United States to defend its NATO allies in the event of an attack. Failure to do so would directly challenge and damage American hegemony by undermining the faith of its subordinates in its credibility. This credibility is the basis of the hierarchical relationship of NATO.

Perhaps no other state so clearly illustrates the imbalance of burden-sharing in NATO as well as the German Federal Republic. Long considered a NATO "free-rider" for its low defense expenditure--1.2% of GDP-- Germany has repeatedly come under fire from the Trump Administration for shirking its contributions to the alliance. From an American perspective, because Germany serves as the de facto economic and political leader of the European Union and boasts the fourth largest economy in the world, it should step up and take on a larger share of responsibility within the alliance. However, from a German viewpoint, the Cold War ended with the nation's momentous reunification. The security threat from the successor state of the Soviet Union has largely diminished and an invasion is extremely unlikely for several reasons, specifically, the logistical likelihood of an event as well as confidence in the United States. First, Germany's central location on the continent insulates it from immediate military threat. Unlike

throughout European history, where it was compelled in part to enter a tenuous balance of power due to its interior position, it is today surrounded by NATO allies and European Union trading partners alike. A hypothetical Russian land invasion would have to first traverse four NATO member states[7] before reaching German soil. Moreover, in addition to this geographic buffer, Germany hosts at least 20 American nuclear weapons along with the largest concentration of US troops in Europe (NTI; Bialik 2017). Over 34,000 US troops are stationed at Ramstein Air Base, which doubles as a NATO command center (Bialik 2017). The hypothetical Russian invasion force would have to be large enough to pass through the four NATO countries to even reach German soil, and once there, the sheer size of the force would all but guarantee large casualties on all sides; with the concentration of US military personnel in Germany, American troops are bound to be included. In such a scenario, in which a Russian invasion results in American casualties, US political leaders would face domestic pressure to retaliate militarily. Thus, a Russian invasion of Germany could be taken as an attack on the United States itself. This concept is not a new one. During the Cold War, a small contingent of US service personnel were garrisoned in West Berlin, then surrounded by Soviet satellite states. These soldiers served as a "tripwire" to a potential Soviet invasion and served as a symbol of American commitment to Germany. Likewise, the American troops stationed at Ramstein today demonstrate both security subordination as well as a physical embodiment of NATO's Article 5. Lake states that a greater number of troops on the subordinate's territory reflects greater security hierarchy, which translates into a greater willingness to free-ride. Finally, domestic interests play a far more critical role in budget allocation than alliance politics. As a democratic country, German politicians must weigh the interests of their domestic constituents against those of their NATO partners. As stated earlier, the dominant

[7] Notably, those four states are Poland, Estonia, Latvia, and Lithuania, four of NATO's smaller members that all reach the 2% spending goal.

power of the alliance only has limited influence to increase its subordinates' defense spending. Domestic interests clearly weigh more heavily. German strategic culture can be characterized as "pacifist…following the traumas of the second world war" (Economist 2018). Thus, a large buildup of the German military has long been unpopular amongst its citizens and neighboring countries. To further complicate matters, the governing coalition is generally split on this issue. While Defense Minister Ursula von der Leyen, a member of Chancellor Angela Merkel's center-right CDU party, has announced a planned increase in defense spending by €17 billion from 2019-2023, Merkel's junior coalition partners[8] strongly oppose the hike (Riedel 2018). By one metric, only 15% of voters approve of the pledged increase, and the Social Democrats consider such a move "a dismal capitulation to Mr. Trump" (Economist 2018). Given President Trump's historically low approval ratings in Germany, devoting funds to international security commitments could be perceived even more negatively, especially when done at the expense of domestic infrastructure or health services. Ultimately, Chancellor Merkel's coalition partners and domestic constituents will have far greater influence over the national budget than international pressure from President Trump.

This thesis conceptualizes trust in the United States as possessing common strategic goals. The similarity of foreign policy preferences can be described by voting patterns in the UN General Assembly. I hypothesize that NATO member states which exhibit more trust in the United States will be more likely to free-ride and lower their defense spending. I expect to observe a negative correlation between voting similarities and defense spending as a percentage of GDP. My first

[8] Germany is currently governed by a "grand coalition" of the center-right Christian Democratic Union (*Christlich Demokratische Union Deutschlands,* or CDU) and its junior partner, the Social Democratic Party (*Sozialdemokratische Partei Deutschlands*, or SPD), led by Chancellor Angela Merkel. In order to pass legislation, a majority of both CDU and SPD members must agree to vote on proposed bills.

hypothesis predicts: the more NATO member states trust in the United States to provide security, the more likely they are to free ride on the United States, *ceteris paribus*.

My second hypothesis further examines Plümper and Neumayer's findings and reflects Russia's status as a major threat to European security. Despite the dissolution of the Soviet Union in 1991, the Russian Federation maintains a large, capable conventional army on NATO's eastern flank and has repeatedly shown that it remains a belligerent antagonist. In 2014, Russian special forces incited violence and helped annex the Crimean Peninsula in eastern Ukraine. This invasion drew international protest but has not been reversed and has prompted fear across other Eastern European states. In the eight months following the invasion, the European Leadership Network (ELN) has tracked nearly 40 incidents of what it deems "Dangerous Brinkmanship." These incidents include "violations of national airspace, emergency scrambles, narrowly-avoided mid-air collisions…simulated attack runs…and other dangerous actions" (Frear et. al. 1). Specifically, Russian military aircraft have simulated cruise missile launches near Canada, harassed American and Swedish reconnaissance aircraft over the Baltic Sea, "buzzed" multiple NATO warships by aggressively flying within meters of them, and most notably, nearly collided with a Swedish passenger plane (Frear et. al. 2-5). ELN classifies these incidents as "high-risk" and warn that they carry a great potential for military escalation. Russian intelligence has also played a central role in deteriorating relations between Russia and the West. One of the most serious incidents highlighted by the ELN report was the abduction of an Estonian intelligence agent from Estonian, and therefore, NATO soil (Frear et. al. 2). Multiple western intelligence agencies have attributed electoral interference to Russian cyberwarfare, and a UK investigation has linked two Russian military intelligence agents to the attempted assassination of a former Russian spy on British soil (Sanders-Zakre 35). The chemical nerve agent used in the attack failed to kill target Sergei Skripal

and his daughter but resulted in the deaths of two British citizens. In response, over two dozen countries, many of which are NATO members, expelled a combined 151 Russian diplomats from their countries (Birnbaum 2018). Finally, Russian violation of the Intermediate-Range Nuclear Forces (INF) Treaty has led President Trump to pull the United States out of the agreement (Baev 2018). This has further alarmed European nations, for whom the INF treaty was designed. American and Russian exits from the treaty would have the potential to greatly increase the number of nuclear missiles deployed on the continent.

Since 2014, Russia has annexed Ukrainian territory and engaged in numerous, aggressive military maneuvers against NATO member states. These actions have caused alarm throughout the alliance, but as in other aspects of alliance theory, the threat is not split evenly. The Baltic States of Estonia, Latvia, and Lithuania are the most isolated NATO members; they directly border the Russian mainland to the east and the Russian exclave of Kaliningrad to the southwest. Their only land border with a fellow NATO member state is the tiny Suwalki Gap, a 65-mile-long strip between northeastern Poland and Lithuania (Sokolsky 2017). These NATO members, who are also the only former Soviet states in the alliance, are at the greatest risk of a Russian invasion. I theorize that countries geographically closer to Russia perceive a far greater threat of military aggression than states located further away and therefore free-ride less. Conversely, states located further west will perceive a lesser immediate threat because a potential Russian invasion would have to pass through several of their eastern allies over thousands of kilometers. A member state's defense spending is therefore reflective of the trust it holds in the United States to provide not only strategic defense through the nuclear umbrella, but also the speed of its reaction to an immediate conventional attack. Due to geographic proximity, Russian tanks only need several days to mobilize and cross into NATO territory, whereas an appropriate number of American troops would

take longer to arrive in the Baltic theater. Therefore, I hypothesize that NATO member states located closer to Moscow will free-ride less and accordingly spend more of their GDP on defense. Conversely, countries located further from Moscow will free-ride more and spend less of their GDP on defense. I expect to observe a negative correlation between average geographic distance and defense spending as a percentage of GDP. My second hypothesis predicts: the more threatened NATO member states feel by Russia, the less likely they are to free ride on the United States, *ceteris paribus*.

Chapter IV: Research Design

My research involved testing the two empirical implications of my argument to determine their effects on the dependent variable, which is defense spending as a percentage of GDP. I theorize that variation in defense spending across NATO is a function of trust in the United States and wariness of the Russian Federation. I seek to support my theory with two hypotheses. The first predicts that NATO states that vote more closely with the United States in the UN General Assembly exhibit more trust in the dominant alliance partner and will therefore free-ride to a greater extent by reducing defense expenditures. My second hypothesis predicts that NATO members located geographically closer to Moscow will perceive a greater Russian threat and therefore free-ride to a lesser extent by increasing military spending.

To test my hypotheses, I assembled my dataset by merging data from a total of five sources. I used National Material Capabilities data from the Correlates of War Project and the International Political Economy Data Resource (IPE) from Benjamin T. Graham and Jacob R. Tucker to serve as the core of my dataset and provide statistics for my dependent variable of defense spending as a percentage of GDP. For my first hypothesis, I added United Nations General Assembly Voting Data from Erik Voeten, and for my second hypothesis, I merged Capital City Distance Data from Kristian Gleditsch. Finally, for my control variable, I used Dyadic Trade Data from the Correlates of War Project.

I began by selecting the countries and time period that I would analyze. Because I am researching NATO, the Cold War, and the United Nations, I only use data from 1945-2012. I used data for all 29 NATO member states, all 28 European Union (EU) member states, and Russia. 22 states are part of both NATO and the EU. There are 7 NATO member states that are *not* part of

the EU: the United States, Canada, Norway, Iceland, Turkey, Albania, and Montenegro. There are 6 EU countries that are *not* part of NATO: Austria, Finland, Sweden, Cyprus, Malta, and Ireland. With the exception of the United States and Russia, I will refer to all states in my dataset as the "sample" states. Thus, my statistical analysis encompasses the sample states' data from a period of 1945-2012 with respect to but not including the United States and Russia. [9] My level of analysis is the country-year.

Dependent Variable

To operationalize my dependent variable of free-riding, I proceeded in three steps. I first used the National Material Capabilities dataset to provide country codes, years, and military expenditures in real US Dollars. After dropping all non-sample state countries and data from before 1945, I created a new variable to describe military expenditure as a percentage of GDP by using the IPE data to provide GDP in constant 2010 US Dollars.

I chose to use military expenditure as a percentage of GDP as my dependent variable for several reasons. First, it is the benchmark for military spending set by NATO itself. In addition, as Jan Techau states, it is a political tool used to distinguish between "free-riders" and NATO partners that pay their "fair share" (Techau 2015). While it is criticized by some as being overly simplistic, its effectiveness lies in its simplicity. It reflects NATO members' political priorities; reaching the 2% goal satisfies NATO and US demands and serves as a reciprocation of American commitment to the continent.

[9] Many datasets use different official names and country codes for Germany. I merged all data for Germany onto Country Code 260; this includes available data from 1955-2012 and does *not* include the German Democratic Republic. Likewise, I drop data for Czechoslovakia and only use data for the Czech Republic and Slovakia, separately.

It is important to note that many experts do not consider defense spending as a measure of GDP to be a true reflection of burden-sharing. There are three main concerns that arise when measuring defense spending as a simple proportion of GDP. First, larger countries tend to have more interests on a global scale and will therefore have higher levels of defense expenditure (Plümper and Neumayer 2013). Plümper and Neumayer raise the examples of the United States and Denmark. Because the United States stations troops in bases on every continent and maintains the largest fleet of supercarriers deployed around the globe, it is naturally expected to spend a higher proportion of its GDP on defense. The cost of housing those troops and maintaining the fleets are reflected in the 3.6% of GDP that the United States spends, even if most of the aircraft carriers are *not* stationed in Europe.

Second, as Jeffrey Rathke explains and his colleagues at the Center for Strategic and International Studies (CSIS) support, the 2% metric "does not reflect the actual contributions that allies make to our security" (Rathke 2018). In a study that measured proportions of NATO members' militaries deployed in conflict zones such as Afghanistan, they found that "some of the strongest contributors…spend below the 2% level" (Rathke 2018). Denmark and Germany both spend about 1.2% yet were consistently ranked in the top quartile of military contributions and troop presence in Afghanistan over the course of Operation Enduring Freedom. On the other hand, Greece, which exceeds the goal by spending about 2.3%, has contributed far less and has remained in the bottom quartile. Furthermore, figures for military spending do not include security-related foreign assistance and development spending. These figures are led by several NATO members usually deemed "free-riders" (Rathke 2018). Harrison and Daniels concur with Rathke and further explain that Greece's relatively high percentage of defense spending is indicative that the 2% metric is flawed. Greece's economy contracted over 25% from 2007-2017, and this alone inflates

the proportion of defense spending to GDP. In reality, Greek defense spending has decreased in absolute terms (Harrison and Daniels 2018).

Finally, it is also important to note that the 2% metric used in the general analysis of NATO defense efforts and this paper is not necessarily the best indicator of capability or contribution. The simple metric does not paint the complete picture of *which* NATO partners are most militarily capable; naturally, with a much higher GDP, France has a substantially larger and more capable military than Estonia, despite the latter spending a higher proportion of its GDP on defense.

Harrison and Daniels assert that the 2% metric should be abandoned, and that NATO should place greater focus on issues such as "capability, capacity, readiness, and interoperability" (Harrison and Daniels 2018). However, Techau argues that the 2% metric will remain a politically valuable "tool of choice" in the debate over NATO defense spending, because it "boils down a complex issue into a simple numeric narrative" (Techau 2015). Accordingly, this thesis refers to the 2% metric as a rough definition for free-riding for several reasons.

First, although theory states that larger powers, such as the United Kingdom and France, are more likely to have greater interests around the globe and therefore spend a higher proportion on defense, it does not explain why their levels of spending are matched by much smaller members such as Estonia, Latvia, Lithuania, and Poland. While the United Kingdom and France are nuclear powers with bases and engagements in former colonies such as Diego Garcia and Francophone Africa, the eastern European states mentioned above have no such interests. Furthermore, both Lake's research and Plümper and Neumayer's work find that the size of a country does not hold statistical significance with regards to its defense spending nor to the degree to which it free-rides (Lake 148; Plümper and Neumayer 265-266). The fact that the larger European NATO allies do

indeed free-ride off the United States is nothing new, but the fact that the smaller allies free-ride to a lesser extent supports my theory.

Next, as Techau explains, the 2% metric is a tool to quantify burden-sharing in simpler terms. This quantitative metric "divides America's allies into the two qualitative categories of partners and free riders" (Techau 2015). This metric has been duly criticized for not adequately reflecting substantial contributions made by NATO allies, as Rathke illustrates by contrasting German and Danish involvement in Operation Enduring Freedom with that of Greece. While it is true that Germany has contributed more towards the mission than Greece, the German military remains notably underprepared and ill-equipped for a conflict on the seas, in the air, and on land. All six German Navy submarines lie in dry dock, only a fifth of its Tiger helicopters, 39 of its 128 Eurofighter Typhoon jets, and less than half of its Leopard tanks are currently operable (Economist 2018). The German Parliament's military commissioner has deemed his country's lack of military readiness "dramatic" and highlighted "big gaps" such as outdatedness of equipment and lack of spare parts, first and foremost due to a lack of sufficient investment (Deutsche Welle 2018). The lack of funding and consequent deficiency in combat-readiness reflects the German government's priorities.[10] Equipment modernization and purchases would demonstrate clear commitment towards maintaining the operational status of Germany's armed forces and would help move the country further towards the 2% benchmark whilst lessening the charges of "free-riding" frequently levelled at it.

[10] While many conservative (CDU/CSU) members of the governing coalition have called for appropriate increases to reach the 2% benchmark by 2024, their coalition counterparts have downplayed the definitiveness of the metric and blocked several efforts to boost spending (Delcker 2017).

Finally, the use of defense spending as a measure of GDP is frequently criticized because it masks the absolute spending and military capacities of NATO allies. It is a fact that France is a nuclear power that possesses significantly greater military capabilities than all three Baltic States combined.[11] Naturally, Estonia, Latvia, and Lithuania cannot and will not match France's military in terms of size and absolute spending. However, they have all called for increased numbers of American troops and missile systems and have hosted several NATO battalions on their soil (Grigas 2018; Gotev 2018). As NATO's eastern flank, they have increased their deterrent effect by leveraging alliance forces as well as troops from the hegemon. According to theory, this increased security subordination should be followed by a decrease in defense spending, yet these states have consistently boosted military expenditure since 2014. The presence of American soldiers and missile batteries offers greater security deterrence than if the smaller states had implausibly matched the absolute military spending of greater states like France. Similarly, less than two months after the Estonian President requested American troops and Patriot missiles to be deployed in her country, the Polish government offered up to $2 billion to build a permanent American military base in Poland (Żemła and Turecki 2018). Like the Baltic States, Poland is voluntarily ceding more sovereignty to the United States in exchange for increased security. Theory predicts that Poland would lower defense spending, yet it has also steadily increased defense spending up to about 2% (NATO 2018).

Most importantly, the 2% metric is an indicator of the strength of the Transatlantic alliance. From the American viewpoint, it signals credible commitment on the European side. Because the United States stations over 60,000 troops and military personnel in Europe, it considers itself

[11] According to the Correlates of War Project, the Composite Index of National Capability Score (CINC) of France is over 23 times greater than the combined CINC of the three Baltic States.

credibly committed to European security. American foreign policy leaders have long called for European states to commit to the alliance with a minimum of 2% defense spending. From the European perspective, and especially the German one, if Germany were to immediately increase its defense spending to 2%, this would nearly double its defense budget overnight, an unpopular notion in a country still reluctant to boost its armed forces due to the weight of history. However, from an American perspective, Germany is the largest NATO ally, an economic powerhouse, and the de facto leader of the European Union, perhaps even more so in the wake of the upcoming Brexit. As the strongest political and economic force in Europe, Germany should be willing to step up and play a greater role in European security affairs. This is the nature of the real issue at hand: the widening US-European security divide. While the 2% metric has some conceptual flaws, for European security, it will remain "indispensable in political discourse for the foreseeable future" (Techau 2015). In other words, the 2% metric is not a strategically complex concept, rather, it is a politically simple indicator. The 2% goal signals European political commitment to common defense and the transatlantic alliance to their American partner and will continue to be used as a benchmark.

Independent Variables

To operationalize my first independent variable of trust in the United States, I proceeded in three steps. Using Erik Voeten's United Nations General Assembly Voting Data, I dropped all data for non-sample state countries. I then kept only dyadic data between all sample states with respects to the United States and the Russian Federation. Finally, I merged the edited voting data into my existing dataset by country code and year. The variable *UN Voting with U.S.* describes the sample states' UN voting patterns with respect to that of the United States, which are measured

on a scale from -1 to 1; 1 being an identical voting record and -1 being a completely dissimilar voting record.

I chose to conceptualize trust in the United States through the similarity of voting patterns of the sample states for several reasons. First, states that choose to enter a hierarchical relationship with the United States do so if they trust in the hegemon to provide security. NATO members believe that the United States will defend them in the event of an attack because they share strategic interests with the United States. Consequently, countries that share foreign policy preferences are more likely to vote together in international fora, the most prominent of which is the United Nations. I use the similarity of states' voting with that of the United States to express their trust in the hegemon. The more similar a state's UN voting record is with that of the United States, the more likely it is to hold similar strategic goals. The more two actors' strategic goals overlap, the more likely it is for the subordinate state to free-ride off the hegemon. Likewise, the more dissimilar a state's UN voting record is with the United States, the less likely it will free-ride. For NATO countries, a more divergent UN voting record indicates diverging foreign policy preferences and therefore predicts a lower extent of free-riding.

To operationalize my second independent variable of perceived threat from the Russian Federation, I proceeded in three steps. Using Kristian Gleditsch's Capital City Distance Data, I dropped all data for non-sample state countries. I then kept only dyadic data between all sample states with respects to the Russian Federation. Finally, I merged the edited voting data into my existing dataset by country code and year. The variable *Distance from Russia* describes the distance of a state's capital city from Moscow, measured in thousands of kilometers.

I chose to conceptualize a state's perceived threat from the Russian Federation as a function of its geographic proximity for two reasons. First, Plümper and Neumayer found that during the

period of 1956-1988, NATO states located closer to Moscow tended to free-ride less; that is, they responded more positively to increases in US and Soviet defense spending. Moreover, they found that NATO states that bordered members of the Warsaw Pact also tended to free-ride to a lesser extent. Plümper and Neumayer write that they restrict their analysis to the period 1956-1988 for several reasons and note that the "end of communism in Eastern Europe fundamentally changed the East-West antagonism for which NATO was originally created" (Plümper and Neumayer 259). This is fundamentally true, as the dissolution of the Soviet Union ushered in the current unipolar international system. However, since I theorize that the perception of a security threat from Moscow has an effect on the military expenditures of NATO governments, the extent of the threat can be operationalized as geographic distance. If the fear is a conventional military invasion by the Russian army, the proximity of the targets matter.

The second reasoning for using geographic distance as an independent variable lies in the nature of recent events and in the new NATO member states not included in Plümper and Neumayer's research. Many of the NATO members added since the end of the Cold War[12] were members of the Warsaw Pact[13]; three of which are former Soviet Union states[14]. That these states have shifted their geopolitical outlooks westward is not insignificant. They are viewed by Moscow as part of the Russian "sphere of influence," and the expansion of NATO eastward is seen as an aggressive strategic provocation by the United States and its allies. Moreover, these states have also transitioned from planned to market economies; all but Albania and Montenegro are members of the European Union.

[12] NATO member states that have joined since 1991: Czech Republic, Hungary, Poland (1999); Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia, Slovenia (2004); Albania, Croatia (2009); Montenegro (2017).
[13] Warsaw Pact members included: Albania (until 1968), Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and the Soviet Union.
[14] Estonia, Latvia, and Lithuania regained independence with the disintegration of the Soviet Union in 1991.

Demographics and recent events also explain threat perception. In 2014, Russia utilized military force to annex the Crimean Peninsula from Ukraine. While only 8% of the Ukrainian population identify as ethnic Russians, Crimea's population overwhelmingly identifies as such, with over 77% claiming ethnic Russian heritage (Diamant 2017; Coalson 2014). In the weeks after the invasion, the Kremlin articulated the so-called "Putin Doctrine," a "blanket assertion that Moscow has the right and obligation to protect Russians anywhere in the world" (Coalson 2014). President Putin's spokesman claimed his boss to be the "main guarantor of the safety of the Russian world" (Coalson 2014). This immediately raises implications for some former Soviet states. A quarter of Estonia's population are ethnically Russian, while nearly a third of Latvia's population claim Russian heritage. What the Russian minorities of Estonia, Latvia, and Ukraine have in common is that they overwhelmingly claim to be less proud of and less satisfied with their respective states, agree with the Putin Doctrine, and avoid placing blame for the conflict in Ukraine on pro-Russian separatists. More tellingly, over 64% of Russian minorities in NATO members Estonia and Latvia agree that a "strong Russia is needed to balance Western influence," while less than 5% of the same demographic consider Russia a major military threat to their country (Diamant 2017). These figures stand in stark contrast to the viewpoints of their respective Estonian and Latvian compatriots, of which a strong plurality disagreed on all points (Diamant 2017).

It is evident that former Warsaw Pact members and the Baltic states have turned westward economically and strategically. These states have chosen to trade sovereignty to the United States in exchange for security through the North Atlantic alliance. It is to these states that the Putin Doctrine and Russian aggression pose the greatest threat.

For both main independent variables of *UN Voting with U.S.* and *Distance from Russia*, I expect negative coefficients to support my hypotheses. For the first hypothesis, this would indicate

a negative relationship between the closeness of a state's UN Voting record and its defense spending. Similarly, for the second hypothesis, a negative coefficient would indicate a negative correlation between further distance from Russia and military expenditure.

Control Variables

My research relies primarily on three control variables: GDP, trade dependence, and UN Voting with Russia. As stated earlier, I obtained GDP data from the IPE resource, which measures it in constant 2010 US dollars. I utilize GDP in order to control for the effects of member states with significantly higher national incomes. States with higher levels of GDP should generally be expected to spend more on defense.

I utilize trade dependence to further examine Lake's concept of economic hierarchy. A strong trade relationship with the United States may also reflect trust and political closeness, while a strong trade relationship with Russia may indicate lower perceived threat. To operationalize trade dependence, I proceeded in four steps. Using Dyadic Trade Data from the Correlates of War Project, I dropped all data for non-sample state countries. I once again kept only import and export figures between the sample states and the United States and the Russian Federation. Next, I merged the edited trade data into my existing dataset by country code and year. Finally, I created two variables to reflect a country's trade dependences on the United States and Russia. I placed the smoothed total value of a country's imports and exports with the United States over its total GDP and multiplied by 100. The variable *Trade with U.S.* describes the value of a country's trade with the United States as a percentage of its GDP. Similarly, I place the smoothed total value of a country's imports and exports with the Russian Federation over its total GDP and multiplied by 100. The variable *Trade with Russia* describes the value of a country's trade with the Russian Federation as a percentage of its GDP. I expect slightly negative coefficients for trade dependence

with regards to both the United States and Russia, but it is important to mention that Lake's research found that economic hierarchy does not carry statistical significance.

For my third control variable, I use *UN Voting with Russia* and obtained the data from the same source as *UN Voting with the U.S.* The variable *UN Voting with Russia* describes the sample states' UN voting patterns with respect to that of the Russian Federation, where voting similarity is measured on a scale from -1 to 1, with 1 being an identical voting record and -1 meaning a completely dissimilar record.

For robustness checks, I run three additional models to support my main test of NATO states. The second model regresses the same dependent variable of defense spending as a percentage of GDP and independent variables of *UN Voting with U.S.*, *Distance from Russia*, and *Trade with U.S.* However, it is restricted to EU member states. The third model is the control, which measures additional independent variables of *Trade with Russia* and *UN Voting with Russia* amongst NATO member states. Finally, the fourth and last model utilizes a different dependent variable of total military spending, with the same independent variables as in the first and second models, and is restricted to NATO member states.

Model Specification

I used STATA to run a time-series cross-sectional model with random effects. The time range is from 1945-2012. For my first model, I restrict the regression to NATO states designated with a NATO dummy[15] and include the main variables, excluding the country code for the United States. For my second model, I keep the same dependent and independent variables but restrict the

[15] I create dummy variables for NATO, the European Union, and former Warsaw Pact members. I designate a state with a dummy variable for the years that it was part of the organization; for example, the Czech Republic carries the NATO dummy from 1999 onwards, the EU dummy from 2004 onwards, and the former Warsaw Pact dummy for the entirety of its available data, from 1993 onwards.

regression to EU states designated with an EU dummy. For my control model, I restrict the regression to NATO states designated with a NATO dummy and add *Trade with Russia* and *UN Voting with Russia* as control variables. Finally, for my fourth model, I restrict the regression to NATO member states but change the dependent variable to total military spending, while keeping the main independent variables. The highly significant Wald test statistics across all models indicate that we can reject the null hypothesis that all coefficients are jointly equal to zero.

Chapter V: Results and Analysis

	(Model 1) NATO	(Model 2) EU	(Model 3) Control	(Model 4) Total Spending
UN Voting with U.S.	-0.559**	-0.450**	-0.436**	-0.810**
	(0.061)	(0.065)	(0.072)	(0.061)
Distance from Russia	-0.174**	-0.236**	-0.093	-0.242**
	(0.059)	(0.104)	(0.060)	(0.071)
Trade with U.S.	-0.004	-0.015**	-0.006	-0.010**
	(0.004)	(0.007)	(0.004)	(0.004)
Former Warsaw Pact Member	0.464**	0.334	0.409**	0.628**
	(0.190)	(0.223)	(0.186)	(0.224)
GDP (log)	0.364**	0.343**	0.340**	1.587**
	(0.032)	(0.038)	(0.032)	(0.034)
Trade with Russia			0.050**	
			(0.009)	
UN Voting with Russia			0.153**	
			(0.065)	
Constant	-7.934**	-7.290**	-7.674**	-26.212**
	(0.819)	(0.980)	(0.827)	(0.892)
Observations	842.000	638.000	842.000	793.000
R2				
Wald	713.436	318.287	774.416	6890.296

* p<0.10, ** p<0.05
Standard errors in parentheses

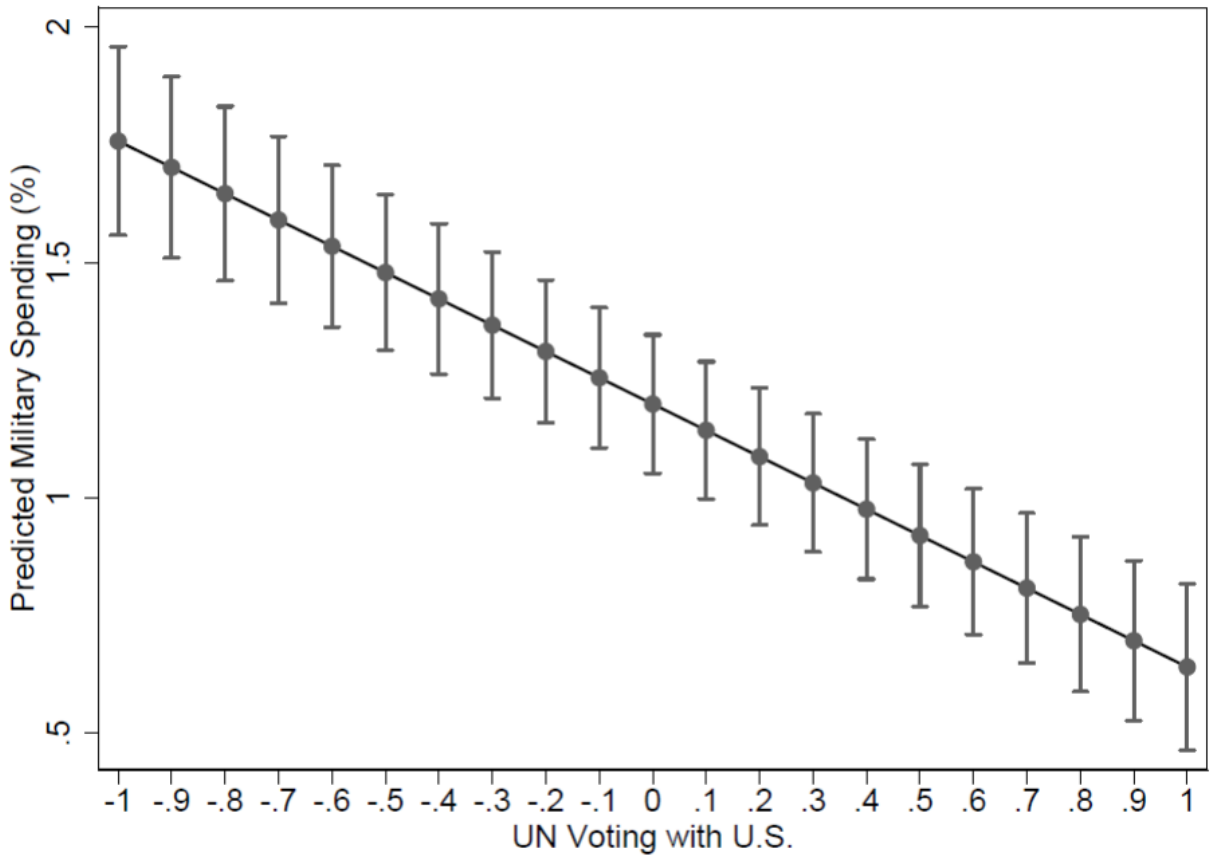
Table 1: Results

The table above displays the results of my four models. Models 1 and 2 test a total of five independent variables each, amongst different sample states. Model 3 tests two additional control, while Model 4 regresses a different dependent variable against the same five independent variables used in Models 1 and 2.

Model 1: NATO member states

Model 1 is restricted to NATO members with the exception of the United States and serves as the main model for my theory. The first coefficient shows a statistically significant negative correlation between *UN Voting with U.S.* and defense spending. *UN Voting with U.S.* is described on a scale of -1 to 1; a score of -1 conveys no similarities, while a score of 1 signifies identical records. Graph 1 helps analyze the substantive effect of this independent variable by plotting the marginal effects for different levels of UN Voting upon defense spending. The dots indicate the predicted military spending at each level of UN voting, along with their 95% confidence intervals. The confidence intervals do not overlap with zero, which indicates a statistically significant result. States with UN voting patterns far from those of the United States spend around 1.75% of GDP on defense, whereas states that exhibit greater voting similarity spend just over half a percent. The confidence intervals do not overlap, which indicates that the difference in the effects are statistically significant.

Graph 1: *UN Voting with U.S.*



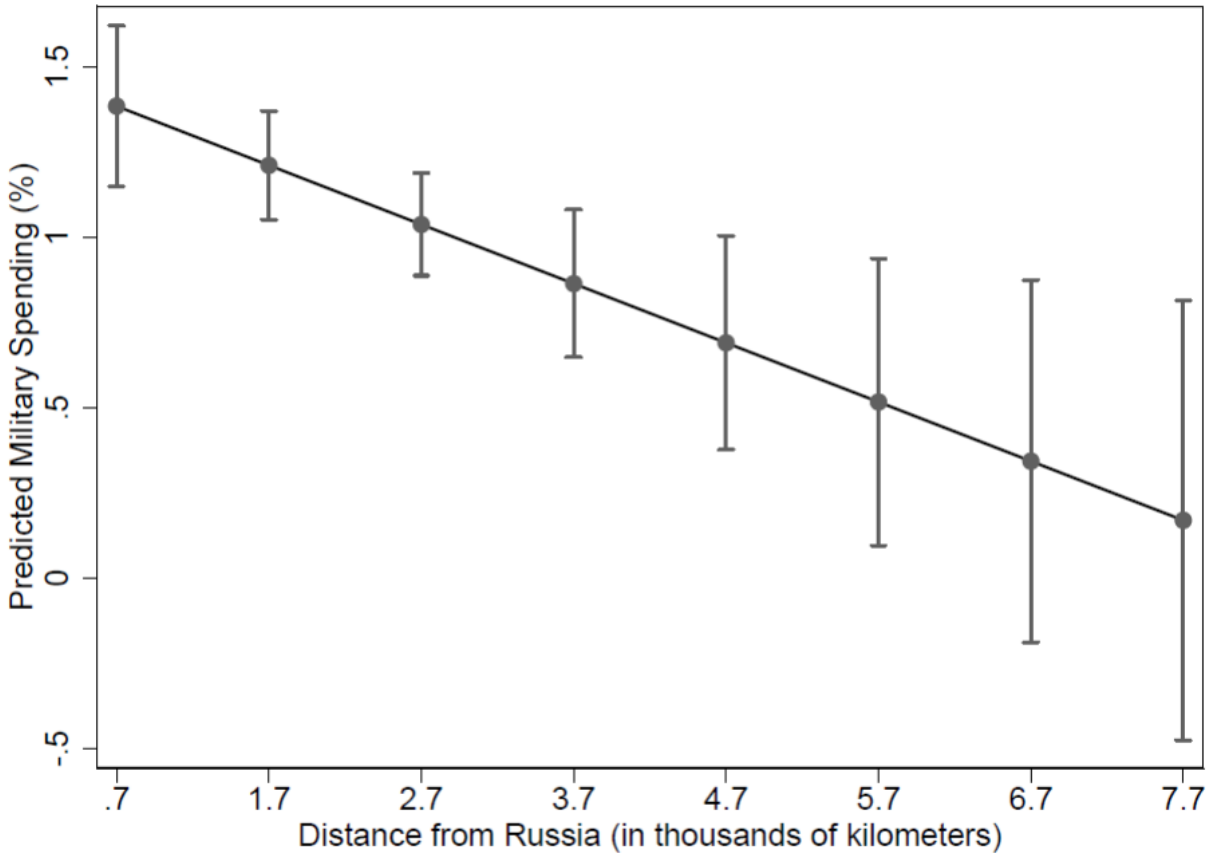
These results support my first hypothesis that predicts a strong negative correlation between a state's voting record and its defense expenditure. This reflects my theory that NATO member states which share more foreign policy preferences with the United States exhibit more trust in their dominant alliance partner to defend them. This trust further manifests itself in consistently lower defense expenditures. An alternative explanation for this trend reflects Lake's hierarchy theory and suggests that more subordinate NATO member states are expected to support their hegemon on significant votes in the UN General Assembly. Because those member states

have decreased their defense spending at a greater rate relative to others, they are expected by the United States to support its international policy.

Model 1 also displays a statistically significant negative correlation between a NATO member state's geographic distance from Russia and its military expenditure as a percentage of GDP. Graph 2 helps analyze the substantive effect of *Distance from Russia* by plotting the marginal effects for each thousand kilometers upon defense spending. The dots indicate the predicted military spending at each level of UN voting, along with their 95% confidence intervals. The confidence intervals do not overlap with zero, which indicates a statistically significant result. This supports my second hypothesis, which predicted lower rates of defense expenditure with greater geographic distance. NATO member states with capital cities located within 1,000 kilometers of Moscow would spend just under 1.5%, while states with more distance from Russia would spend under half a percent. Once again, the confidence intervals do not overlap, which indicates that the difference in the effects are statistically significant.

These results support my theory that NATO member states located closer to the Russian Federation perceive a greater security threat than its fellow members located further away. As a result of this threat, the eastern members of the alliance can be predicted to spend greater rates of their GDP on defense.

Graph 2: *Distance from Russia*



Model 1 includes trade dependence on the United States as an independent variable but finds no statistically significant correlation on the dependent variable. However, this variable will gain significance with a different set of sample states in Model 2.

Lastly, as suggested by the second hypothesis, NATO states geographically further from Moscow perceive a lesser threat and accordingly spend less on defense. Conversely, this means that states located closer to Russia spend more of their GDP on military expenditure. I added a dummy variable for former Warsaw Pact members in NATO, and as expected, there is a statistically significant correlation between these states and higher defense spending. This suggests

that the former Soviet-aligned states are the likeliest to view the successor of the Soviet Union as a military threat. While they are theoretically protected by NATO's Article 5, they credibly signal to the hegemon that they are committed to the alliance by increasing defense spending.

Model 2: European Union member states

My second model is similar to the first but is restricted to only European Union member states. This set of sample states includes several European states such as Austria and Sweden that are neutrally-aligned and not formally part of the US security hierarchy. Thus, I expected this sample to be more restrictive and exhibit less variation in military spending. The results are similar to Model 1. Both main variables of *UN Voting with U.S.* and *Distance from Russia* are statistically significant and show negative correlations. Amongst EU members, a 1 unit increase in UN voting similarity predicts a -0.45% decrease in military expenditure. Furthermore, for each 1,000 kilometers further that a European Union capital city is located from Moscow, we can predict a -0.236% decrease in overall defense expenditure. This supports both my hypotheses and my theory of trust and threat. However, the third variable of *Trade with U.S.* displayed statistical significance. Unlike for NATO member states, increased trade dependence on the United States leads to a very slight decrease in defense spending. Overall, the results from Model 2 largely reflect the results of the first model, most likely because of the great overlap between NATO and European Union states. There is some evidence amongst EU members that increased trade with the United States leads to slightly lower defense spending, but amongst NATO members this is not statistically significant. This point reflects Lake's research on economic hierarchy, which does not prove to be statistically significant for defense expenditure.

Model 3: Control Variables

My third model controlled for the effects of additional independent variables such as *Trade with Russia* and *UN Voting with Russia*. Unlike the results from the second model, in which EU states that trade more with the United States exhibit slightly lower defense expenditures, NATO members that trade more with Russia tend to spend 0.05% higher on military spending with each unit of trade dependence. I believe this is largely due to the effects of the Baltic states, whose annual value of trade with Russia ranges from 7% to 27%. As these states all spend about 2% on military spending, this might inflate the significance of trade with Russia.

UN Voting with Russia is statistically significant and displays a positive correlation between voting similarity to Russia and defense spending. Unlike *UN Voting with U.S.*, which carries a negative correlation on the dependent variable, countries that vote more often with Russia are predicted to spend more. As this model is restricted to NATO member states, it is unlikely that they view the Russian Federation as a hegemon and a potential guarantor of security. Rather, my perceived threat hypothesis predicts the opposite. States that spend more do so out of wariness of Russia, rather than trust. Similar to the alternative explanation in Model 1 for the negative correlation between *UN Voting with U.S.* and defense expenditure, the effect of *UN Voting with Russia* on the dependent variable may be explained by coercion. In 2014, after a non-binding UN General Assembly resolution was passed to declare Crimea's secession from Ukraine invalid, several UN diplomats reported to Reuters that Russia had "threatened" and "pressured" some eastern European, Central Asian, and African states to oppose the Western-backed resolution (Charbonneau 2014). A Russian spokesman flatly denied the accusations of intimidation, and no further evidence has arisen to support the UN diplomats' claims. Russian coercion, however, may reflect my theory in which a shorter distance from Moscow translates into a higher perceived

threat. In addition to higher defense spending, the threat perceived by those NATO member states may be manifested in voting patterns that more closely follow those of the Russian Federation. These states may be matching Russia's votes in the UN General Assembly in order to avoid potential conflict.

Model 4: Alternative Dependent Variable

For my fourth model, I utilize a different dependent variable of total military expenditure, rather than military expenditure as a percentage of GDP. As in Models 1 and 3, I restrict the model to NATO members with the exception of the United States, as the main independent variable of *UN Voting with U.S.* would not apply to it. Also reflecting the earlier models, my main independent variables of *UN Voting with U.S.* and *Distance from Russia* both carry statistically significant coefficients. Once again, this supports both my hypotheses and further bolsters my theory. As in Model 2, there is a slightly negative correlation between trade dependence on the United States and defense spending, and there is a stronger link between increased military expenditure amongst former Warsaw Pact members.

Potential Improvements and Future Considerations

It is practically impossible to observe perfect correlations between the dependent and independent variables of my hypotheses. While statistically significant, many of the correlations between my variables are only accurate in a majority of instances. These margins can be skewed by inaccurate or incomplete data, and the regressions run from such data could potentially lead to less than robust findings. Throughout the duration of this project, I have noted various ways that my dataset and research design can be improved upon.

First, several major sources for GDP data and military expenditure vary slightly. For example, the argument in this thesis and the numbers referenced by it are based on the NATO Press Release, which details the defense spending of its members and highlights states that reach the 2% benchmark. As of 2018, eight NATO members are within a tenth of a percent of the 2% goal. When compared to GDP data from the World Bank or SIPRI, however, military expenditure as a function of GDP is generally slightly overestimated with regards to NATO's figures. While some countries like Germany only differ by a tenth of a percent amongst the different sources, the World Bank estimates France's defense expenditure to be 2.3% of GDP, compared to NATO's figure of 1.82%. This nearly half percent boost is not only numerically significant, but politically consequential. If France surpasses the 2% benchmark as the World Bank suggests it does, it would be categorized and highlighted by NATO as one of the members that achieves that goal. As discussed earlier, meeting that objective suggests a lesser extent and subsequent designation of "free-riding." Like NATO's figures, my dataset uses GDP in constant 2010 US Dollars, but it more closely mirrors the numbers from SIPRI and the World Bank.

Next, the "Putin Doctrine" suggests that the presence of Russian minorities in a state may have an effect on that state's perception of a security threat from the Russian Federation. As Putin claims to be the "guarantor" of the safety of ethnic Russians and annexed Russian-majority Crimea, states such as Estonia and Latvia may fear similar acts in their own territory. I was unable to find widespread data on the number of Russian minorities in NATO member states, but I suspect that the greatest concentrations are, as described by Pew Research Center, in the aforementioned Estonia and Latvia. I would imagine that with the addition of such statistics to my dataset, the results would reflect my distance hypothesis, since greater numbers of Russian minorities are naturally clustered in former Soviet or Warsaw Pact members located closer to Moscow.

Finally, as my dataset spans 1945-2012, it does not reflect the most recent figures in military expenditure, UN voting, and trade. Of these variables, I expect military expenditure to have changed the most, as NATO states have on average increased their rates of defense spending since 2014. In the future, my dataset will reflect the large increases in military expenditures of states such as Estonia and Poland. Since these states already spend more on average, I expect that the additional data would further support my hypotheses with increased robustness. The addition of complete data after 2012 will help quantify the response to a perceived Russian threat and reflect the progress of NATO's pledges made at the 2014 Wales Summit. Lastly, the future data may bolster or refute the charges of free-riding levelled by the Trump Administration at NATO allies.

Chapter VI: Conclusion

The purpose of this thesis was to explain the variation in defense expenditures of states within the North Atlantic Treaty Organization. According to free-riding theory and David Lake's *Hierarchy in International Relations*, member states that are subordinate to the dominant alliance partner, or hegemon, can be expected to decrease their overall defense spending. In the case of NATO, the United States assumes the role of hegemon and utilizes its military capability and nuclear deterrence to provide security to its NATO subordinates on the European continent. Since the end of the Cold War, most NATO states have been steadily decreasing their rates of military expenditure. However, in the last few years, some of the smaller member states, who theoretically have a greater incentive and lower opportunity cost to free ride, have increased their spending to match or exceed the 2% benchmark set by NATO. Smaller alliance members such as Estonia and Latvia spend over 2% of their GDP on defense, while much larger members such as Germany and Spain barely reach half of that rate.

To help explain this variation, I formulated a theory that highlights the subordinate states' trust in the United States and their perceived threat from the Russian Federation. I operationalize trust through the similarity of the states' UN voting patterns with that of the United States on a scale of -1 to 1. I operationalize perceived threat as a function of greater geographic proximity to Moscow in thousands of kilometers. After assembling a STATA dataset with the relevant figures, I was able to test my two hypotheses. The first predicted that NATO members with more similar voting patterns to the United States would exhibit greater levels of free-riding through lower defense spending. The second hypothesis predicted that NATO members within greater proximity of Moscow would perceive a greater security threat from the Russian Federation and therefore

free-ride to a lesser extent by spending more on defense. Through the various models run through STATA, I demonstrate statistically significant correlations between my two main independent variables of *UN Voting with the US* and *Distance from Russia* upon the dependent variable of military expenditure as a percentage of GDP. These results are based on data from 1945-2012, and do not reflect the more recent increases in defense expenditure across several NATO member states. My second hypothesis is predicated on relatively recent geopolitical events in Europe. With a revanchist Russia having annexed the Crimean Peninsula and threatening former Soviet states Estonia, Latvia, and Lithuania, President Putin poses a perennial security threat to NATO and the European Union. Since the election of US President Donald Trump, whose 2016 electoral campaign and contacts are currently under investigation for alleged links to Russian electoral interference, the White House has transmitted inflammatory rhetoric across the alliance. Before Trump's election, European leaders were already wary of the US "Pivot to Asia," a strategic initiative of widely-admired President Barack Obama. With the arrival of Trump and his bombastic rhetoric towards European allies and the alliance, confidence in American leadership has plummeted amongst European citizens. Numerous foreign policy officials and political leaders have written about the importance of maintaining and improving America's strongest security asset, the Transatlantic relationship. President Trump has nearly two years remaining in his term and a potential to add an additional four with reelection. In 2018, Vladimir Putin won an unprecedented third term as Russian President after a constitutional change allowed him to seek office again and lengthened the term of the Presidency to 6 years. If current trends in rhetoric and policy continue as they are, we may see a Europe which places a greater emphasis and effort on its collective security through diminishing Transatlantic trust and escalating Russian threat.

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