

# Power, proximity, and democracy: Geopolitical competition in the international system

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Journal of Peace Research  
2018, Vol. 55(1) 78–93  
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sagepub.co.uk/journalsPermissions.nav  
DOI: 10.1177/0022343317727328  
journals.sagepub.com/home/jpr



## Abstract

Why do only some powerful states choose to develop power projection capabilities? To answer this question, we test the proposition that states choose to develop power projection capabilities when they face a competitive geopolitical environment. This proposition is derived from our theory, which is used to construct a new measure of the level of geopolitical competition that every state in the system faces. This measure incorporates each state's relative geographic position to every other state in the international system, the relative amount of economic power of those other states, and the degree to which their interests are compatible. We then apply this unique country-year measure to test the proposition that competitive environments are associated with the development of power projection capabilities, as measured by the tonnage of naval ships maintained by each country in each year. We demonstrate that our measure helps explain the degree to which states choose to invest in power projection capabilities. This provides an explanation for why the world has been economically multipolar, but military unipolar, for the past quarter century, and why this might change in the future, as rising powers with incompatible interests are increasing their investment in power projection capabilities.

## Keywords

democratic institutions, international security, interstate conflict, liberal peace, military power

## Introduction

In the late 19th and early 20th centuries, European powers continued in what had become a long tradition of building and projecting military force to compete over access to and control of territory, trade, and resources. However, over the past eight decades, a remarkable decline in the number of European states building and projecting military power has occurred. This development contrasts with the recent trend in Asia, where the diffusion of economic and military power has resulted in a number of states rapidly modernizing their naval, air, and expeditionary warfare capabilities (Horowitz, 2010). Recently, China issued its first defense white paper, announcing its intent to project power beyond its littoral waters as part of a broader strategy of defending Chinese interests abroad.<sup>1</sup>

What is puzzling about these contrasting trends is that both regions contain states with large and growing economies capable of supporting the development and deployment of power projection capabilities. *Why is it that most European states have purposefully decreased their ability to project power, while states in Asia are now increasing these capabilities?* The answer we offer is a simple one: the effect of each state's economic power on their decision to build power projection capabilities is influenced by the level of geopolitical competition they face. However, developing an appropriate measurement strategy to assess this claim is complex and represents the motivation for this article.

We focus on why states build power projection capabilities to explain why states choose to invest in the means to coercively bargain over foreign policy interests.

<sup>1</sup> The white paper was produced by China's Ministry of National Defense.

Note that we define power projection as the deployment of military force beyond a state's borders or territorial waters and projection capabilities as the force structure required to deploy military force over distance.

Power projection has important implications for understanding conflict. Research on war focuses on two principal mechanisms – credible commitment and information (Fearon, 1995: 379–414; Powell, 1999: 115–149). However, these mechanisms only come into play once states have entered into coercive bargaining interactions. If politics is a bargaining process and war is politics by other means, then coercive bargaining is politics with the threat of war. For states to credibly threaten war, they must first choose to invest in the capabilities to project power. This understudied precondition for conflict – the acquisition and projection of military power – has the potential to enhance our ability to explain patterns of war and peace.

#### *States cannot engage in gunboat diplomacy without gunboats*

To understand why coercive bargaining occurs, we need to first understand why states acquire and project military power. Why would some states choose to bargain over their interests in the shadow of military power (Powell, 1999), while others choose to bargain without the threat of military coercion? States that operate within competitive geopolitical environments are incentivized to build power projection capabilities, whereas states within cooperative geopolitical environments can safeguard their interests and bargain effectively without relying on power projection capabilities. Thus, states stop experiencing bargaining failure that leads to war because they stop employing military coercion when bargaining. Today, states in North and South America and most of Europe bargain with one another over a variety of contentious issues; however, military coercion is rarely used in these interactions. Since these bargains do not involve military coercion, they cannot end in war.

We seek to build a theory that can explain this first step in the causal chain of coercive bargaining and conflict: a state's choice to build the capabilities necessary to coercively bargain over its interests. We argue that economically powerful states, when faced with a competitive geopolitical environment, are more likely to build power projection capabilities. We define a state's geopolitical environment as the set of countries with whom it can interact. Geopolitical competition is defined as the potential for coercive bargaining interactions between each state and the other states in its geopolitical

environment. For each state, as the potential for coercive bargaining interactions increases, so does the level of geopolitical competition. Operationally, the level of geopolitical competition that each state faces is defined by a function that combines three components: the geographic position of the state, relative to other states; the relative economic power of each other state; and the degree to which it has compatible interests with each other state. The higher the level of geopolitical competition a state faces, the greater its incentive to invest in power projection capabilities. States expect that if they do not invest in these capabilities, they will be outgunned by other states when coercively bargaining.

We make three contributions in this article. First, we develop a state-level theory of why states find their strategic environment threatening and how they respond to geopolitical competition. Second, we construct a unique measure of the level of geopolitical competition that each state faces in the international system. Third, we apply the measure to explain why only some powerful states invest in the capabilities to project military force. Our approach represents an improvement over existing explanations, such as structural realism and democratic peace theory, because it can make predictions regarding whether individual states like China, Russia, India, or Brazil will choose to develop power projection capabilities.

Below, we discuss existing explanations and how our theory addresses shortcomings with these competing theories. We then develop the logical foundations of our theory and our measure of geopolitical competition. Next, we provide empirical evidence for our claim that economically powerful states, when faced with a competitive geopolitical environment, develop power projection capabilities. We conclude with a discussion on the theoretical and policy implications of our findings.

#### **Existing explanations and missing pieces**

Two schools of thought represent our strongest theoretical competition. The first suggests that states stopped projecting power because it became obsolete. Rosecrance (1986) argues that states stopped projecting power because it is no longer worthwhile for advanced states to militarily seize the means (usually territory) to generate wealth. Other scholars suggest that war has become obsolete as a means for advanced industrial states to deal with their disputes (Mueller, 2009: 297–321). For Mueller, public opinion has so turned against war that its initiation is considered unthinkable by virtually all economically developed states.

The second school, structural realism, argues that the puzzle of why states start and stop building power projection capabilities can be explained by shifts in the distribution of power – in two variants. Adherents to the power preponderance theory claim that hegemony creates stability. Gilpin (1981) contends that the hegemonic power of the United States not only deters other states from investing in power projection capabilities, but also allows weaker powers to free-ride off public goods provided by the hegemon. Both mechanisms reduce the incentives of states to invest in power projection capabilities. Based on this theory, states stopped investing in power projection capabilities because weaker powers either realized that they could not stand up to the USA's hegemonic power or they felt no need to balance against its power (Wohlforth, 1999; Ikenberry, 2001).

This is a compelling explanation of why non-hegemonic states stopped building and projecting power. However, as the world has shifted away from economic unipolarity towards economic multipolarity, rising powers have started to develop power projection capabilities, especially naval capabilities. Adherents to balance of power theories argue that they have predicted this development and that the rise of Asian powers only confirms the veracity of their claims (Mearsheimer, 2010). For those who ascribe to balance of power realism, capabilities drive intentions and as power shifts to a new set of states, they too will build power projection capabilities (Morgenthau, 1948; Kennedy, 1987; Mearsheimer, 2001).

Existing structural explanations of how the international system conditions state behaviors are insufficient for explaining when states will choose to build power projection capabilities for several reasons. First, by combining economic and military power into a single theoretical construct of power, structural theories of international politics have obscured this choice, and made it impossible to explain one in terms of the other. To explain when and why changes in the distribution of economic power will result in changes in the distribution of power projection capabilities, we must define and operationalize the two concepts separately.

Second, structural theories have relied on the unrealistic assumption that the distribution of power is exogenously determined. According to structural explanations, states cannot alter the level of polarity in the system – they can only react to it (Wagner, 1993). The degree to which this is a reasonable assumption depends on how the distribution of power is conceptualized. If polarity is characterized by the distribution of economic power, then it is useful to suggest that polarity is

exogenously determined. Therefore, governments would attempt to maximize the size of their economy to remain in power and exogenous factors often determine how successful they are at accomplishing this goal. However, if polarity is conceptualized as also capturing the distribution of military power, then it is neither useful nor appropriate for explaining states' decisions to build power projection capabilities, which is itself a type of military power. A state's choice to invest in power projection capabilities is endogenous, not exogenous, to the level of competition in the international system, depending on the degree to which they find other states threatening.

Third, structural realists have assumed that all states find each other threatening. Therefore, as states gain economic wealth, they must also create military power to defend that wealth and will become more threatening to other states as a result (Waltz, 1979; Mearsheimer, 2001). Thus, for structural realists, there is little difference between economic and military polarity: as the world becomes more economically multipolar, it must become more militarily multipolar as well. However, the empirical record suggests that the level of military polarity does not necessarily flow from the level of economic polarity. As Posen (2011: 322) notes, in 1937, the world was economically unipolar, but militarily multipolar because the USA spent so little of its wealth on its armed forces, while other great powers spent prolifically. Moreover, the distribution of power cannot explain why states in Asia today are investing in power projection capabilities, while states in Europe are not, despite the fact that states in both regions possess the economic potential to do so and face a multipolar environment. This empirical pattern is linked to two central puzzles in IR theory: why has there not been more hard balancing against the United States (Ikenberry, 2001), and why, as the world has become more economically multipolar, have more states not chosen to invest in greater power projection capabilities?

#### *Missing pieces: Geography and regime type*

What is needed is a theory that explains when the nature of the geopolitical environment will be threatening to individual states and when it will not. We assume that threat is a function of geopolitical competition. Geopolitical competition occurs when states possess the economic power to develop and the political will to deploy military forces capable of threatening other's interests. Our model offers a counterpoint to structural realism, which focuses on power and proximity, and theories of

the democratic peace that privilege political will (i.e. regime type, which is a type of interest compatibility) and ignore the distribution of power and geography. By incorporating insights from both schools of thought, we develop a theory of threat that begins with a state's assessment of the economic power and geographic proximity of other states and is conditioned by their regime type. In our model, regime type determines the level of interest compatibility between states, which conditions the effect of economic power and proximity on perceptions of threat.

*A theory of geopolitical competition: Combining insights from structural realism and the democratic peace*

Our theory of geopolitical competition incorporates insights from both (1) structural realism, which focuses on how geographic proximity and changes in the distribution of power influence the level of geopolitical competition in the system, and (2) democratic peace theory, which focuses on how domestic political institutions affect the level of interest compatibility between states.

We argue that two variables influence the degree to which states choose to build power projection capabilities: the relative size of their economy and the level of geopolitical competition they face. As the size of the state's economy grows, the more geographically expansive its economic interests become. Economically powerful states tend to trade and interact at greater distances. A larger economy is also likely to be associated with the ability to afford expensive power projection capabilities. However, even if a state has a large economy and geographically distant interests, it will only be incentivized to invest in power projection capabilities if the geopolitical environment threatens its interests. The higher the level of geopolitical competition, the more likely that such states will build power projection capabilities. The level of geopolitical competition a state faces is determined by three components: the relative economic power of other states, their geographic proximity, and the degree to which they possess compatible interests. The level of geopolitical competition a state faces will be higher when other states are more economically powerful, proximate, and possess incompatible interests. Next, we define the three components that collectively determine the level of geopolitical competition faced by individual states.

*The distribution of economic power*

The level of geopolitical competition is partially a function of the relative economic power of other states in

the system. The more economically powerful other states are, the greater their ability to invest in military forces that are capable of threatening others. The more powerful countries a state faces, the more threatening they will find their geopolitical environment. Because economic multipolarity does not necessarily result in military multipolarity, this relationship is conditioned by two additional components, the geographic proximity of other states and the degree to which they possess compatible interests.

*Geographic proximity*

Distance influences the degree to which states must consider the interests and capabilities of other states in the international system. Research on military competition and conflict has concentrated on the relationship between geographic proximity and conflict.<sup>2</sup> As distance increases, relative power decreases, because of the loss of strength gradient (Boulding, 1962). Russett & Oneal demonstrate that 'distance is the most important constraint' on power projection (2001: 87). Thus, geographic proximity conditions the distribution of potential power. States that are close to one another should be more concerned about each other's intentions relative to distant states.

The rise of German economic power in the 19th century illustrates this dynamic. Germany's economic rise threatened Britain because British economic and strategic interests were increasingly within reach of Germany's potential power. Were Germany to build a powerful navy, it would be able to threaten British access to sea-lanes and its trading empire. Japan's economic rise posed less of a threat to Britain's core interests because it was a distant nation. Japan did eventually threaten Britain's colonies, but it could not mount a blockade of the British Isles. Therefore, London constructed a naval force structure and foreign policy doctrine designed to counter Germany instead of Japan.

The more geographically proximate states are, the greater the potential competition between them, and the heavier they weigh in each state's strategic calculation of the nature of their geopolitical environment. We are not arguing that rising German power was the only factor that motivated Britain to invest in further augmenting its power projection capabilities. We argue only that German economic growth threatened Britain when the two states had interests that threatened one another. Today,

<sup>2</sup> See Gleditsch (1995), Lemke (1995), Vasquez (1995), Enterline (1998), Gleditsch & Ward (2000), Braithwaite (2006).

Britain and Germany have interests that are less threatening to each other and therefore have lower levels of geopolitical competition.

### *Interest compatibility*

We define interest compatibility as the degree to which states possess interests that are *not* inherently threatening to one another. The less the interests of a given state threaten other states, the more compatible their interests and vice versa. It is important to clarify that we do not consider interest compatibility to necessarily mean that states have identical interests, but only that their interests are not threatening. States that possess compatible interests with other states in their geopolitical environment face *lower* levels of geopolitical competition. In contrast, states with interests that are incompatible with the other states in their geopolitical environment face *higher* levels of geopolitical competition.

Though there are many factors that influence whether states have compatible interests, there is theoretical and empirical reason to expect that pairs of democracies tend to have interests that are more compatible than pairs of countries that include at least one autocracy. Thus, we assume that pairs of democracies possess compatible interests. We are not suggesting that all democracies have the same interests, but only that they tend to not threaten one another's interests. We do not view interest compatibility between democracies as an ironclad law; rather, we believe that regime type is a useful starting point for developing a measure that incorporates the degree to which states find one another threatening. Additionally, we are not claiming that the finding that democracies do not fight one another is necessarily caused by democracy alone. As previous research suggests, there are other factors that co-vary or interact with democracy such as trade, financial integration and economic interdependence, and domestic economic structure and development (Gartzke, 2007; McDonald, 2009).

Despite these limitations, we believe that regime type represents a fruitful starting point for three reasons. First, rigorous theory suggests that states should perceive autocracies as more threatening because of their preference to seek rents through territorial expansion. Second, a large body of research on the relationship between regime type and conflict suggests that democracies should be less likely to engage in coercive bargaining and conflict with one another. Third, regime type is one of the only publicly available measures of states' interests with the temporal data coverage

needed to test the validity of our measure over a long time period. However, as we discuss in greater detail in the conclusion, regime type is a starting point and future research will be able to incorporate more sophisticated estimates of interest compatibility into our measure of geopolitical competition.

Scholars working in the democratic peace literature have produced several explanations for why democracies do not fight one another. We focus on explanations for why democracies have fewer serious disagreements with one another – disagreements that could lead to war – rather than why their disagreements are less likely to end in war. Two sets of explanations have used interests to justify why democratic dyads have fewer significant disagreements. The first relies on democratic political institutions (Lake, 1992; Bueno de Mesquita et al., 2003) and the second on shared norms (Tomz & Weeks, 2013). We focus on the institutional explanation to illustrate why democracies will have more compatible interests, but we recognize that there is empirical support for both sets of explanations and this article does not assess which is superior.

Research suggests that democratic political institutions influence states' foreign policy interests in two ways: first, by constraining incentives to pursue rents and territory (Lake, 1992) and second, by shifting preferences to pursue public goods rather than private goods (Bueno de Mesquita et al., 2003). Both mechanisms make it costlier for democracies to engage in threatening conflict: wars of conquest and expansion for material gain. States that share a weaker preference to predate others' goods, such as territory, should also find each other less threatening and subsequently have more compatible interests. In contrast, states that have a strong preference to take goods from one another should have less compatible interests. It is important to note that we do not assume that democracies have the same interests or that they will never go to war, but only that their interests are less threatened by one another in general.

Lake argues that democratic political institutions explain why autocracies are less constrained in their rent-seeking than democracies. Democratic states that engage in rent-seeking that harms society are punished via electoral institutions, while autocrats face no such constraints (Lake, 1992). Democratic states must maintain the support of broad sections of society. Thus, they have stronger incentives to distribute goods broadly. Public or club goods are more efficient at achieving this policy goal.

Governments in autocratic states, in contrast, seek to maintain the support of a small number of individuals,

which makes private goods a more efficient means for delivering benefits to supporters of the regime. The degree to which a regime seeks rents or private goods matters for two reasons: first, it affects their propensity to pursue territory as a source of land rents (Lake, 1992) and private goods (Bueno de Mesquita et al., 2003), and second, it affects their propensity to pursue exclusionary policies to extract monopoly rents by restricting economic competition. Theoretical work on the effect of democratic political institutions suggests that democracies should be less likely than autocracies to pursue territory because the private goods generated from conquest are more likely to dilute when redistributed to a larger winning coalition (Bueno de Mesquita et al., 2003). Empirical work finds that democracies are indeed less likely to pursue expansionist policies to take territory (Bueno de Mesquita et al., 2003; Huth & Allee, 2003; Lake, 1992; Wright & Diehl, 2016).

Research also finds that pairs of democracies are more likely to maintain free trade with one another in comparison to dyads that include autocracies (Mansfield, Milner & Rosendorff, 2000). Thus, because democracies have stronger incentives for securing non-rival goods, such as sea-lanes, or goods that can be positive sum, such as trade, they should be more likely to pursue foreign policies designed to generate such goods. Once sea-lanes have been secured, their consumption is non-rival for citizens of a state. Market access is a similar, if less pure, form of public good, in that its consumption is sometimes rival. However, market access benefits society at large, as consumers have access to cheaper goods and producers have more customers for their exported products.

Generally, it is easier for states to cooperate over the provision of non-rival and positive sum goods in comparison to rival and zero-sum goods. Non-rival goods are easier to share because their benefits do not decrease as they are consumed by a larger number of individuals. Positive sum goods increase incentives to cooperate because they generate surpluses that can be redistributed to make both parties better off. In comparison, private goods that are zero-sum, such as control over territory, resources, or rents, increase the incentives to compete, as one side's gain necessitates another side's loss. Democracies have stronger incentives to cooperate over the provision of non-rival or positive-sum goods and weaker incentives to exclude one another from accessing markets or sea-lanes when compared to autocracies (Graham, Gartzke & Fariss, 2015). Thus, economic multipolarity will not result in military competition between these states because democratic states have compatible interests.

In contrast, autocratic states possess stronger incentives to pursue exclusionary foreign policies and these policies are inherently threatening to all other states. Autocratic states possess domestic political institutions that incentivize them to seek rents by excluding other states from markets and sea-lanes (monopoly rents), or directly controlling territory or resources (land rents). Because these states have stronger incentives to pursue exclusionary policies, they pose a greater threat to the interests of all other states. The presence of autocratic states in the international system increases the incentives of all states to invest in power projection capabilities. Thus, if the only powerful states in the region are democratic, then the geopolitical environment should be less threatening to other democratic states. This is because democratic states are less likely to employ military force to exclude one another from accessing territory, markets, and resources.

For democratic states, if no other state seeks to limit their access to goods, then maintaining power projection capabilities is a costly burden rather than a valuable asset for achieving policy objectives. European powers, because of their high level of interest compatibility, do not find each other, or the United States, threatening. These states happily free-ride off the security provided by Washington, rather than building their own capabilities. Many of the goods that European states want are already being provided by the foreign policy of Washington, which is why a return to economic multipolarity in Europe is not associated with European states investing the capabilities to project power. Even if states are powerful and geographically proximate, they should not necessarily find one another threatening. For the security dilemma to obtain, states must have incompatible interests (i.e. differences that are great enough to lead to disagreements that could end in war). If states have compatible interests and can identify this compatibility *ex ante*, then they will have little incentive to waste valuable resources investing in the capabilities to project power against one another (Glaser, 2010). Interest incompatibility lies at the heart of security dilemma (Glaser, 2010). Without interest incompatibility, there should be no security dilemma, and thus changes in relative power should not be associated with changes in the level of geopolitical competition between states.

The level of geopolitical competition each state faces is a function of the relative economic power, geographic proximity, and interest compatibility with other states. The level of geopolitical competition influences states' incentives to build power projection capabilities. From this set of assumptions, we derive the following hypothesis:

*Competitive geopolitical environment hypothesis:* The more competitive a state's geopolitical environment, the more likely it will be to build power projection capabilities.

Next, we operationalize these theoretical constructs to evaluate this hypothesis.

## Research design

Previous scholarship has evaluated the level of geopolitical competition between pairs of states by identifying enduring rivalries and dangerous dyads (Bremer, 1992; Thompson, 2001). Our hypothesis predicts a country-level response – development of power projection capabilities – and thus we develop a country-level measure of geopolitical competition. We base our measure on the argument that the threat one state faces from other states is a product of interest compatibility, relative economic power, and geographic distance. The level of threat a state faces is the spatially weighted level of threat it faces from all other states in the system. For each state, we estimate the threat posed by every other state in the system and then combine these dyad-level threat estimates into a single, country-level measure of the geopolitical competition faced by that state. In the Online appendix, we discuss the trade-offs associated with this measurement approach.

### Measuring geopolitical competition

To operationalize the  $Competition_{it}$  variable, let  $i = \{1, \dots, N\}$  index countries,  $j = \{1, \dots, J\}$  index all states in country  $i$ 's geopolitical environment (no matter the distance between  $i$  and  $j$ ), and  $t = \{1816, \dots, 2010\}$  index years.  $Competition_{it}$  is a country-year variable which makes use of information from all of the other states in the international system in a given year, indexed by  $j$ . The information from each of the other  $j$  states is weighted by the distance from a specific state  $i$ .

$d_{ijt}$  measures the distance between the capital city of state  $i$  and the capital city of state  $j$  in year  $t$ . Note that  $i \neq j$ ; that is, we do not consider the influence of a country on itself.  $d_{ijt}$  is defined for each country-year pair in each year using the longitude and latitude coordinates for each state's capital city. The equation  $d_{ijt} = \text{acos}(\sin(lat_{it}) * \sin(lat_{jt}) + \cos(lat_{it}) * \cos(lat_{jt}) * \cos(lon_{it} - lon_{jt})) * \text{radius}$  captures the shortest distance over the globe.  $lat_i$ ,  $lat_j$ ,  $lon_i$ , and  $lon_j$  are the latitude and longitude locations for state  $i$  and state  $j$ , respectively. These data are from the Distance Between Capital

Cities dataset (Gleditsch & Ward, 2001a; Gleditsch & Ward, 2001b).

Close states are more threatening than states that are far away because of the loss of strength gradient, which results in power dissipating over distance (e.g. Boulding, 1962; Markowitz & Fariss, 2013). The inverse distance creates a weight,  $w_{ijt}$ , which captures this intuition. It is defined as  $w_{ijt} = \frac{1}{\ln(d_{ijt})}$ . In words,  $w_{ijt}$  is the inverse of the natural log of distance  $d_{ijt}$  in km between state  $i$  and state  $j$  in year  $t$ . The measure operationalizes the insight that states that are geographically proximate to country  $i$  are more influential on the behavior of that country than states that are far away.

Only certain states are potentially threatening to others: two democratic states are not threatening to one another, which follows from the argument put forth above (we consider other measures of interest compatibility in the context of our measure of geopolitical competition in another article). We therefore define  $p_{ijt}$  as 0 if state  $i$  and its neighbor, state  $j$ , are both democracies in year  $t$ .  $p_{ijt}$  is otherwise coded as 1 when this is not the case. A coding of 1 captures potentially threatening relationships between democracy-autocracy dyad-years and autocracy-autocracy dyad-years. To operationalize this component, we use the Polity scores of the country-year pairs. If both states have a Polity score greater than 6, then they have compatible interests and are not threatening to one another and are thus coded 0.<sup>3</sup> All other country-year pairs are considered potentially threatening and coded 1.

States with the largest economies in the system are the most potentially threatening adversaries to other states because they can develop and deploy power projection capabilities. Conversely, states with small economies do not have such potential and are relatively less threatening. To express this as a component of the measure, we define  $g_{jt}$  as the potentially threatening state's economic capacity measured by gross domestic product (GDP) in year  $t$ .

Economic power is measured using GDP data from the World Development Indicators (World Bank, 2016), and supplemented with historic GDP data developed by Gleditsch (2002) and the Maddis on-Project (2013). These three measures of GDP are highly correlated over the period when all data series exist (1960–2010). We use a Bayesian measurement model to estimate a GDP series that covers the entire period of observation 1816–2011 (Fariss et al., 2017). For this component of the  $Competition_{it}$  variable, we transform

<sup>3</sup> Polity values range from fully autocratic (–10) to fully democratic (+10) (Marshall, Gurr & Jaggers, 2014).



the total *GDP* of each of state *i*'s *j* neighbors into a proportion by dividing it by  $\sum_j g_{jt}$ , which is the total *GDP* of all other *j* states in a given year *t*. This captures the relative importance of large economies consistently over time. For example, proportionally large economies like Imperial Japan or contemporary China are potentially threatening to their contemporaries in the system but not across several decades.

Geographic competition for country *i* in year *t*, based on all other *j* states in the international system is defined as

$$Competition_{it} = \frac{\sum_j \left( \frac{g_{jt}}{\sum_j g_{jt}} * p_{ijt} * w_{ijt} \right)}{\sum_j w_{ijt}} \quad (1)$$

In other words,  $Competition_{it}$  captures the geographic proximity of economically powerful states that have incompatible interests with state *i* in year *t*. If a given state is not a democracy, then all economically powerful states are potentially threatening. China today considers potential threats from democracies such as Japan and the United States and autocracies like Russia. However, if the state is a democracy, then only non-democracies are of concern. Contemporary Japan considers potential threats from China and Russia, but not the United States. Figure 1 shows the values of the  $Competition_{it}$  variable each year. In the next section, we assess the explanatory power of this variable using a measure of power projection. In the Online appendix, we provide some additional discussion of why we developed country-level, rather than dyad-level of geopolitical competition.

#### *Geopolitical competition and the development of power projection capabilities*

The dependent variable of the analysis is the relative power projection capability of a state. Following previous research (Bolks & Stoll, 2000; Lemke, 2002), we use a state's naval capabilities as a proxy measure for its choice to invest in power projection capabilities. We recognize that there are other measures of power projection, especially in the contemporary era. Due to space constraints and data availability, we focus on naval capabilities. In other research, we focus on how the level of geopolitical competition explains the choice to build other weapons systems that are associated with power projection, such as aircraft, missiles, and nuclear weapons. Focusing on naval capabilities has limitations, but it is still a useful and informative indicator for several reasons.

First, measuring naval capabilities provides several advantages for cross-national comparison. States vary in

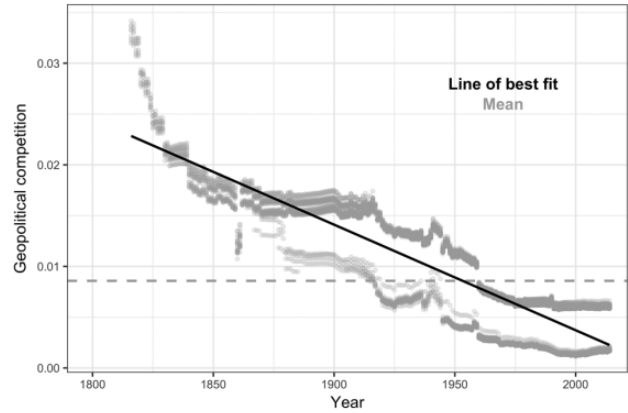


Figure 1. Yearly estimates of the level of geopolitical competition faced by each state over time

Recall that we measure geopolitical competition based on the relative economic power, distance and interest compatibility between all states in the system. Given this, it is remarkable how well this measure predicts observable behaviors associated with geopolitical competition, such as investments in power projection capabilities and military conflict. Note the downward trend in the level of geopolitical competition over time with an increase just before and during WWII, as autocratic states like Germany, Japan, Italy and Russia became more powerful. Additionally, there is a steep drop off after WWII and the Cold War, as these autocracies collapsed economically or were conquered. These changes reflect the relative changes to the level of geopolitical competition that states face as more and more democracies emerged in the system and controlled an ever-greater share of global economic power. However, there is a noticeable increase in the level of geopolitical competition over the most recent decade (2001–2010), as autocratic states like Russia and China have increased their relative economic power.

terms of what is considered to be part of the military budget because of different national accounting standards, which makes military expenditures much less comparable than measures of naval tonnage or capital ships (Bolks & Stoll, 2000).

Second, the concept that we are fundamentally interested in measuring is a state's choice to invest in the capabilities to inflict harm on other states by projecting military force. No state has ever projected a substantial amount of power globally without first building the capabilities to project power over water. A state's decision to build and maintain naval forces is a costly signal that they seek to build the capabilities to project military force beyond their immediate borders.

Third, ships, unlike land armies, are much less useful for domestic security and repression. We might observe states investing in their armies and conclude that their decision was driven by their geopolitical environment, when their primary motive was domestic suppression, an especially relevant concern with autocracies. By focusing on capabilities that are more useful for projecting power



outside the state, rather than within the state, we alleviate a potential confounding factor that might otherwise bias the results in our favor.

The fourth reason is substantive. Oceans have increased in importance over time due to increased maritime trade and discovery of deep-sea maritime resources. The result has been heightened competition over maritime space, as in the Arctic and South China Sea. As territorial borders stabilize and the number and intensity of maritime disputes increase, predicting which states will be likely to enhance their naval capabilities will have important implications for governance of global commons.

One potential downside of a naval measure is that it may underestimate the power projection investments of land powers relative to sea powers. In the Online appendix, we discuss this potential bias in detail, and describe why, to the extent bias exists, it makes it more difficult for us to find support for our theory.

Following Lemke (2002), we use data on naval ship tonnage as an operational measure for power projection capabilities. For data on naval ship tonnage, we use a dataset on naval power developed by Crisher & Souva (2014). The dataset records the naval tonnage for all states possessing at least one frigate class ship or submarine of at least 1,000 tons. Seventy-three countries enter the dataset from 1865–2011.

We also run our analysis using the number of capital ships that a state builds. We estimate eight models in which the dependent variable is operationalized as a count of the number of capital ships a state possesses (see Table I and Figure 1 in the Online appendix). Our results are generally robust when using Modelski & Thompson's (1988) and Crisher & Souva's (2014) data on capital ships. For the main results (see Table II), we have opted to use Crisher and Souva's (2014) tonnage data because they provide naval tonnage for a broader set of states and the data extend to 2011, as opposed to Modelski & Thompson's (1988) data, which end in 1993.

Each ship's tonnage is recorded if it possesses a minimum level of armament, is deployable to areas beyond the state's own littoral waters, and surpasses the minimum level of tonnage. This minimum criterion changes over time to consider changes in naval technology. For more on the selection criteria, see Crisher & Souva (2014). We recognize that this is an imperfect measure, as a heavier navy is not necessarily a more capable one, however, a ship's capabilities and tonnage tend to be highly correlated.

We measure a state's relative level of tonnage compared to its total GDP by dividing the level of tonnage in that year by the GDP. This transformation creates an index in which values represent the number of tons of

naval equipment in service per unit of GDP generated in that same year. The GDP values are in constant 2011 purchasing power parity dollars. Thus, larger values indicate a relative increase in the economic capacity being devoted to a state's naval capabilities. These values are useful for comparisons over many decades and across different states, as seen in Figure 2.

If we look at absolute levels of Chinese military spending, they appear to be growing at break-neck pace, however, military spending as a percentage of GDP has remained relatively constant at around 2.5% of GDP over the past decade. Similarly, China's absolute naval tonnage has been increasing. However, considering this metric alone would bias towards finding a relationship between the level of geopolitical competition and this variable. Hence, we examine whether states such as China are increasing their naval tonnage relative to their economic power. We find that from the end of the Cold War in 1991 to 2011, the total naval tonnage for China grew from 173,491 tons to 447,280 tons, which represents approximately a 250% increase in China's total tonnage. However, during the same period, the economy of China grew by 265% (Gleditsch, 2002). Thus, while China's absolute tonnage is growing and its ability to project power has increased, its tonnage to GDP ratio has fallen. The fact that we still find these results, despite using this more conservative measure of a state's choice to build power projection capabilities, increases the robustness of our findings.

In comparison, Japan's navy grew from 212,065 tons in 1991 to 312,890 tons in 2011, an increase of approximately 50%, while its economy increased by approximately 40% over the same period (Gleditsch, 2002). Thus, Japan's total tonnage increased faster than its GDP, indicating its GDP ratio has increased, consistent with our theoretical predictions. This reflects Japan's prioritization of its navy even during a period of economic hardship, suggesting that China's economic rise should increase the level of geopolitical competition that Japan faces (and it does, increasing by approximately 24% from 1991 to 2011).

The contrast in this ratio is especially clear when looking at Europe. European states have witnessed a decrease in total tonnage while their economies have grown. For example, Britain's navy decreased from 422,477 tons in 1991 to 177,108 tons in 2011 – a decrease of approximately 58.0% – while its economy increased by approximately 23.5% over the same period. Consistent with our theory, the tonnage to GDP ratio of European states has fallen much more steeply than in Asia, suggesting that European states decline to invest in power projection capabilities because their geopolitical

Table I. Negative binomial count models for capital ships, using geopolitical competition, the natural log of GDP, and a lagged dependent variable as controls

	<i>Dependent variable</i>							
	<i>Pre-Dreadnoughts</i> (1)	<i>Dreadnoughts</i> (2)	<i>Aircraft carriers</i> (3)	<i>Battleships</i> (4)	<i>Aircraft carriers</i> (5)	<i>Diesel submarines</i> (6)	<i>Nuclear attack submarines</i> (7)	<i>Ballistic submarines</i> (8)
Geopolitical competition <sub><i>i,t-1</i></sub>	205.18*** (4.44)	185.49*** (4.62)	102.76*** (9.23)	297.62*** (13.20)	50.50*** (13.74)	8.05 (6.69)	157.41*** (6.38)	55.41*** (9.93)
ln GDP <sub><i>i,t-1</i></sub>	0.82*** (0.02)	0.93*** (0.02)	0.91*** (0.03)	0.60*** (0.04)	0.91*** (0.04)	0.32*** (0.02)	1.05*** (0.02)	1.16*** (0.02)
Pre-Dreadnoughts <sub><i>i,t-1</i></sub>	0.13*** (0.001)							
Dreadnoughts <sub><i>i,t-1</i></sub>		0.15*** (0.001)						
Aircraft carriers <sub><i>i,t-1</i></sub>			0.18*** (0.003)					
Battleships <sub><i>i,t-1</i></sub>				0.34*** (0.01)				
Aircraft carriers <sub><i>i,t-1</i></sub>					0.19*** (0.004)			
Diesel submarines <sub><i>i,t-1</i></sub>						0.05*** (0.001)		
Nuclear attack submarines <sub><i>i,t-1</i></sub>							0.04*** (0.0005)	
Ballistic submarines <sub><i>i,t-1</i></sub>								0.05*** (0.001)
Constant	-13.58*** (0.29) MT	-14.58*** (0.27) MT	-14.40*** (0.40) MT	-11.83*** (0.51) CS	-13.16*** (0.53) CS	-3.17*** (0.24) CS	-14.99*** (0.26) CS	-16.53*** (0.33) CS
Observations	10,907	10,907	10,907	4,806	4,806	4,806	4,806	4,806
Log likelihood	-3,242.43	-3,297.80	-1,735.09	-2,054.95	-2,433.88	-10,287.65	-3,697.85	-2,258.15

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . In all models, except for diesel submarines, higher levels of geopolitical competition are associated with statistically significantly higher counts of capital ships, all else equal. Figures plotting the predicted effects of geopolitical competition for low and high values of GDP can be found in the Online appendix. Estimates from two sources of data: Modelski and Thompson (MT) and Crisher and Souva (CS).

Table II. Linear regression models (1865–2011)

	<i>Dependent variable</i>											
	<i>Panel linear</i>						<i>OLS</i>					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\ln \text{Competition}_{i,t-1}$	1.06*** (0.02)	1.23*** (0.02)	1.23*** (0.02)	1.22*** (0.02)	0.43*** (0.03)	0.36*** (0.04)	0.38*** (0.04)	0.35*** (0.04)	0.06*** (0.01)	0.10*** (0.01)	0.10*** (0.01)	0.10*** (0.01)
$\text{Democracy}_{i,t-1}$		0.03*** (0.003)	0.03*** (0.003)	0.03*** (0.003)		-0.01 (0.004)	-0.005 (0.004)	-0.004 (0.004)	0.005*** (0.001)	0.005*** (0.001)	0.005*** (0.001)	0.005*** (0.001)
$\text{GDP ratio}_{i,t-1}$			5.28*** (0.84)				2.45** (0.79)			0.19 (0.11)		
$\ln \text{GDP ratio}_{i,t-1}$				-0.22*** (0.04)				-0.26*** (0.04)				0.004 (0.003)
$\ln \text{Naval tonnage index}_{i,t-1}$									0.97*** (0.003)	0.96*** (0.004)	0.96*** (0.004)	0.96*** (0.004)
Constant												
Fixed effects	C	C	C	C	C-Y	C-Y	C-Y	C-Y	None	None	None	None
Observations	4,518	4,449	4,449	4,449	4,518	4,449	4,449	4,449	4,423	4,354	4,354	4,354
Adjusted R <sup>2</sup>	0.46	0.48	0.48	0.48	-0.01	-0.02	-0.01	-0.005	0.97	0.97	0.97	0.97

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ . Geopolitical competition is associated with statistically significantly higher levels of investment in power projection capabilities across all models. The estimated size of the effect varies with the model that is used in the estimation. A 10% increase in the level of geopolitical competition that a country faces is associated with on average 1% (including a lagged dependent variable), 3.8% (for the model with country and year (C-Y) fixed effects), to 12.3% (using just country (C) fixed effects) increase in the naval tonnage index for a model with the Polity 2 score and the GDP ratio as controls.

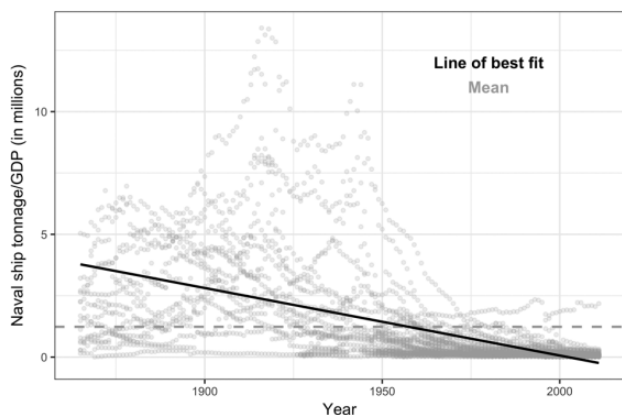


Figure 2. Yearly estimates of each state's relative level tonnage compared to its total GDP in that year

This measure gives a state's total tonnage divided by its GDP and is analogous to using military expenditures as a percentage of GDP, instead of absolute levels of military spending. The y-axis represents the number of tons per unit of GDP.

environment has become less competitive. Conversely, prior to the World Wars, the level of geopolitical competition in Europe was high and so was the ratio of tonnage to GDP for most European states, suggesting that states used their growing GDP to make greater investments in power projection capabilities.

### The relationship between geopolitical competition and power projection

To assess the statistical association between the above variables, we estimate linear models with either a lagged dependent variable or with fixed effects. In these models, we regress the level of the naval tonnage index variable on the geopolitical competition variable. We consider models that include naval tonnage from the previous year, a measure of democracy (Marshall, Gurr & Jagers, 2014), and the level of economic capacity.<sup>4</sup> All models exclude landlocked country-years.<sup>5</sup>

<sup>4</sup> *Economic Capacity<sub>it</sub>* is measured using GDP data from the World Bank, and supplemented with historic GDP data developed by Gleditsch (2002) and the Maddison-Project (2013). We transform *Economic Capacity<sub>it</sub>*( $g_{it}$ ) for each of state  $i$  into a proportion by dividing by  $\sum_t g_{it}$  which is the total world GDP of all  $i$  states in a given year  $t$ . This allows us to capture the relative importance of economic size consistently over time.

<sup>5</sup> In the Online appendix, we also consider: (1) models that include a binary indicator coded 1 if the country-year is an island and 0 otherwise; (2) alternative formulations of the naval tonnage dependent variable; and (3) models split for the period 1865–1945 and 1946–2011. The primary results are generally robust to these alternative specifications.

Across model specifications, the coefficient for the geopolitical competition variable is positive and statistically significant. The results suggest that the higher the level of geopolitical competition states face, the more likely they are to build power projection capabilities, even when conditioning on existing naval capacity and the level of democracy. This means that states are likely to ramp up the development of their naval capabilities to counter an increasingly threatening geopolitical environment and conversely, to draw down as the level of geopolitical competition decreases. A one standard deviation decrease from the mean level of geopolitical competition is associated with a 0.99 [95% CI: 0.94–01.05] decrease in the dependent variable, which is equivalent to a 57,415 ton decrease in the total tonnage produced or maintained (approximately one carrier or half of a super carrier) in a country, holding the level of GDP fixed at the 1990 average over the period of change. The magnitude of this change increases as the relative amount of GDP the country maintains in a given year increases.

The relationship with the geopolitical competition variable is also robust to out-of-sample cross-validation tests when comparing a model with all control variables, which excludes geopolitical competition, to a model that includes geopolitical competition and all the other control variables.<sup>6</sup> Though we recognize that the models we use are not suitable for causal inference, the results represent strong evidence of the construct validity of our new geopolitical competition variable. Moreover, the regression results, supplemented with the cross-validation test, are informative of important patterns of world politics.

### Conclusion

Overall, this research makes three important contributions: one theoretical, one empirical, and one oriented towards policy. First, we develop a deductively valid theory of the origins of geopolitical competition and its effects on state behavior. The theory is novel because existing theories are not capable of predicting how

<sup>6</sup> Following Ward, Greenhill & Bakke (2010) and Hill & Jones, (2014), we generate 1,000 K-fold cross-validated regression models, which are each estimated on randomly divided datasets. The divisions produce K=10 random subsets. We then fit the model using the observations from nine of the subsets of data and predict the value of the dependent variable for the one remaining out-of-sample data subset. We repeat this process for each of the ten data subsets so that we predict a value of the dependent variable for every one of the original observations when they are in one of the out-of-sample data subsets. This process corroborates the main regression results.

individual states will react to two contemporaneous global trends: the shift in the distribution of economic power and the spread of democracy. Though structural realism explains how the distribution of power influences the level of stability in the international system, it cannot explain how individual states are likely to behave, given their interests and geographic position. Moreover, neither structural realism nor monadic, dyadic, or systemic theories of the democratic peace explain how individual states will react to these two global trends. Our theory can make such predictions.

Second, we use our theory to develop a unique measure of the level of geopolitical competition faced by every state in the international system. This measure is especially useful for researchers who study phenomena that are sensitive to the level of geopolitical competition and require a variable designed to measure the level of potential threat faced by individual states. Strategies for measuring changes in the distribution of power were initially limited by a focus on the structure of the system which is constant across countries in each year and changes slowly over time. Our measure of geopolitical competition captures the relationship between the structure of the international system and the compatibility of interests of individual states instead of system-level outcomes. Moreover, our measure captures the level of geopolitical competition a state faces *ex ante*. That is, our measure of geopolitical competition improves on existing measurement approaches (Bremer, 1992; Thompson, 2001), which only assess rivalry or competition between states after those states compete or behave in a threatening manner towards one another. Rather than relying on observed interactions between states, our theory incorporates previous research on the relationship between the interests and domestic political institutions of states to explain why they should be compatible with one another. This allows us to deduce the states' interests, and the degree to which they are compatible, from assumptions regarding how their domestic political institutions influence foreign policy interests.

Although we believe that our measure improves our understanding of international politics, we recognize that there are limitations that we will seek to address in future research. First, using regime type to operationalize interest compatibility requires several trade-offs. As some research suggests, it may be that regime type interacts with other variables to influence states' interests and their level of interest compatibility with one another. Previous work has utilized additional variables to explain why some autocracies possess interests that are less threatening both to one another and to democracies (Weeks,

2012). In contrast, some democracies may possess interests that make them inherently more threatening to others (McDonald, 2009). Additionally, it is likely the case that variables such as economic development, integration, and trade may interact with or have independent effects on states' preferences (Gartzke, 2007; McDonald, 2009). In sum, there may be greater heterogeneity between pairs of states than is assumed in the current version of the measure.

The question of which variables best account for state interests and their compatibility with one another is an empirical. Additional research should seek to incorporate more nuanced measures of state interests and compatibility. In many cases, generating these measures for the temporal period of interest will require collecting, coding, and combining additional data – a task we take on in future research. Our measure of geopolitical competition can be used to evaluate which operationalization of interest compatibility can best explain individual state's choices across a broad range of foreign policy issues. In this article, we have explored a state's choice to build power projection capabilities, but future work can utilize this measure to assess additional state behaviors that are sensitive to the pressures of the international system.

Finally, our article makes several potential policy contributions by applying our theory and measurement strategy to predict which states will be likely to build power projection capabilities. These predictions have implications for the probability of future interstate conflicts in the system and for US foreign policy. We begin with a discussion of the degree to which past US foreign policy behavior is consistent with our theoretical predictions and end with the implications of our model for the future of US foreign policy.

When the US first chose to build power projection capabilities, it did so in a world populated by autocratic or pseudo-democratic colonial powers that sought to exclude the USA from accessing markets in Asia and maintain their colonial empires in Latin America. The USA invested in these capabilities because it had incompatible interests with other powerful states in the international system. One might ask why, if our theory is correct, did the USA continue to build such expansive power projection capabilities, given that after 1945 it was the 900 lb gorilla in a region populated by relatively weak, democratic states. The answer is that as the United States grew economically, so did its interests, which expanded far beyond its own region into other areas of the globe, such as Europe, Asia, and the Middle East. By 1945, the USA had become far and away the world's largest economy with global interests that it sought to

protect from a powerful and autocratic Soviet Union. The USA invested in a strategy of forward-deployed defense to protect its allies and advance its interests in these distant regions.

After the Soviet Union collapsed economically, the level of geopolitical competition decreased. Because of this change, so did the relative level of investment in power projection capabilities made by the United States. To be clear, the United States did and still does possess unparalleled power projection capabilities, given that it spent 40 years investing in this stock of military power. However, since the end of the Cold War, US defense spending as a percentage of GDP has decreased, as has its investment in the force structure required to deploy force over distance. To illustrate the shift: during the 1980s, the United States Navy owned 600 ships, whereas today the number has declined to 237, despite the USA GDP having increased by a factor of three (in constant dollars) over the same time period. In short, the post-Cold War world is one in which the United States has faced a much lower level of geopolitical competition and, consistent with our theoretical predictions, it has chosen to invest less in power projection capabilities than in the past.

If, however, autocratic states such as Russia and China grow more economically powerful, the level of geopolitical competition faced by Washington will increase. As economic power shifts to states in Asia, some states are working to increase their ability to project power. Our findings suggest that this trend is likely to continue and that as countries in Asia rise economically, they will also rise militarily, unless a new wave of democratization occurs there, particularly in China. States in this region face an increasingly competitive geopolitical environment and are therefore likely to continue to invest in power projection capabilities to defend their interests. The implication of this trend in Asia is that states increasingly possess the capabilities to enter coercive bargaining interactions farther from their borders and with a greater number of states. This trend is illustrated by a rise in coercive bargaining interactions over the governance of sea-lanes and the distribution of maritime resources in both the East China Sea and the South China Sea. Whether this coercive bargaining will lead to more conflict is indeterminate. However, the greater the number of coercive bargaining interactions, the greater the opportunity for bargaining failures that end in war.

In contrast, the diffusion of economic power to regions like Europe and Latin America is unlikely to be associated with states investing in greater power projection capabilities, as states in these regions have compatible interests and therefore face a relatively

unthreatening and much more cooperative geopolitical environment. These states are unlikely to coercively bargain over their interests or build the capabilities to do so. Thus, there will be fewer opportunities for bargaining failure and peace is more likely to prevail.

Our theory also has implications for the debate over the future of US grand strategy and how Washington should respond to shifts in the global distribution of economic power. Some argue that the USA should remain engaged globally and that US forces must 'lean forward' (Brooks, Ikenberry & Wohlforth, 2013). Others suggest that the USA should 'pull back' and engage in offshore balancing (Posen, 2013). Our theory and findings suggest that neither position is quite right.

Assuming US interests are served by deterring conflict among major powers in Eurasia, and that US security guarantees backed by a forward-deployed military presence prevent instability, Washington should 'lean forward' to deter threats to its interests in geopolitically competitive regions. However, the USA should 'pull back' from less competitive regions. The pivot to Asia represents a move in this direction, but the USA still maintains forces in regions that are likely to remain cooperative even if those units were redeployed elsewhere.<sup>7</sup>

Russia's recent annexation of Crimea has led some to conclude that the USA cannot afford to pivot to Asia (e.g. Kelly, 2014). However, even without a US military presence, NATO's European members are much more powerful than Russia and have the wealth to further invest in defense. More importantly, were Western European states to make larger investments in their defense, this would not lead to greater military competition between European democracies, despite predictions made by some of our theoretical competitors (e.g. Mearsheimer, 1990). One of the primary policy implications of our theory and findings is that the United States should 'pull back' from Europe and 'lean forward' in Asia.

### Replication data

All data and code necessary to replicate the analyses performed in this article are publicly available at the *Journal of Peace Research's* own data repository: <https://www.prio.org/JPR/Datasets> and on a dataverse archive maintained by the authors: <http://dx.doi.org/10.7910/DVN/5QA9YS>.

<sup>7</sup> Washington maintains the United States Sixth Fleet in Naples, which ties up scarce Aegis-equipped destroyers, nuclear submarines, and amphibious assault ships that could further support US commitments in Asia.

## Acknowledgements

For helpful comments and suggestions, we would like to thank Paul Avey, Megan Becker, Alex Braithwaite, Scott Bennett, Stephen G Brooks, Tai Ming Cheung, Erik Gartzke, Benjamin Graham, Kelly Greenhill, Miles Kahler, David Lake, Doug Lemke, Blake McMahon, Richard Nielsen, and Keith Schnakenberg. We are especially grateful for the all the work put in by Therese Anders and the undergraduate members of the SPEC Lab for their excellent research assistance.

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