A Random Item Response Model of External Territorial Threat, 1816-2010 *

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Multiple scholars have shown that external territorial threat, conceptually the level of concern for a state that its territorial integrity is subject to violent conflict and imposed contraction by other states, has major implications for the state's domestic political environment. However, the strand of scholarship that agrees on the domestic political effects of external territorial threat disagrees on how to code this important concept. These works either rely on binary indicators that do a poor job communicating ''increasing" or ''decreasing" territorial threat, or use dyad-year indicators of conflict propensities as a stand-in for a state-year-level observation. I use this research note to offer an empirical measurement of state-year external territorial threat from a Bayesian random item response model for all states from 1816 to 2010. I assess the face validity and construct validity of the data these models generate, all of which suggest the measure does well to capture the concept in question. I close with a statement of the availability of the data and its potential applications.

Keywords: territorial threat, item response

Introduction

Disputed territory is central to international relations scholarship on conflict processes between states. Briefly, states threatened over the allocation of their territory are more likely to be involved militarized interstate disputes, those disputes are more likely to escalate to war, and those disputes are more likely to recur (e.g. Hensel, 1996; Huth, 1996; Senese, 1996; Tir and Diehl, 2002; Senese and Vasquez, 2003; Quackenbush, 2010). Scholars inspired by the robust connection between threatened territory and interstate conflict extended this work into the realm of domestic politics. Conceptually understanding "territorial threat" as a state-level phenomenon representing the level of concern for a state that its territorial integrity is subject to violent conflict and imposed contraction by other states, scholars have developed a battery of analyses showing how territorial threat influences all matters of society and governance (Gibler and Miller, Forthcoming, for a review). Briefly, territorial threat makes autocracy more likely to emerge and persist, resulting in a domestic political environment far removed from notions of what an open, egalitarian, and liberal society should resemble.

However, these analyses that agree on the effect of territorial threat on domestic politics disagree on how to measure the motivating concept. The issues here are multiple.

*This is a work in progress. Some care should be exercised here. Feedback welcome: svmille@clemson.edu.

The earliest works leaned on the `revtype1` and `revtype2` variables in the Correlates of War (CoW) Militarized Interstate Dispute (MID) data, even though recent research has shown those variables are unusable for that task (Gibler, Miller and Little, 2016; Gibler, 2017). Some researchers working in this vein acknowledged that early and manually coded MIDs for a sample of states after researching what the topic at the heart of the dispute, though these typically result in overdispersed counts requiring important sensitivity analyses. More recent work has moved from the dispute data to the strategic rivalry (Thompson and Dreyer, 2012) and territorial claims (Frederick, Hensel and Macaulay, 2017) data and code threat whether there is at least one territorial claim or a "spatial" (i.e. territorial) rivalry, but these amount to information-poor binary indicators that do not capture "increasing" or "decreasing" threat. Still others have tried to devise a continuous estimate by returning to the dispute data and measuring territorial threat as a predicted probability of conflict with neighbors. However, this measure of territorial threat is a dyad-year stand-in for a state-year-level phenomenon, often using information either unrelated to the concept or creating tautology problems for analyses that may want to estimate territorial threat's effect on important domestic political processes, like militarization.

In this research note, I offer a new data set of state-year-level territorial threat for all states in the international system from 1816 to 2010. The estimates (with uncertainty around the estimate) come from a Bayesian random item response model that leverages long-standing and familiar data sets on interstate conflict, territorial claims, territorial changes, and spatial (i.e. territorial) rivalries over the allocation of territory. The estimates are weighted by both distance and island status, creating not only an estimate of territorial threat at the high end but territorial peace at the low end for states that are islands far removed from potential sources of threat (e.g. New Zealand). I assess the validity of my state-year estimates of territorial threat in two ways. First, I do an exploratory data analysis of the data, finding that states that should score high (or low) in territorial threat across space and time approporiately do. Next, I do an assessment of the construct validity of the measure in the form of two replications of two analyses of territorial threat. The results not only suggest my measure of territorial threat is valid, but the replications also offer an important caveat on a recent analysis linking territorial threat and mass killing onsets. I close with a discussion of extensions of the data and their potential uses.

The Difficulty of Measuring Territorial Threat

The centrality of disputed territory to all phases of conflict between states was well established by the early 20th century (e.g. Hensel, 1996; Huth, 1996; Senese, 1996; Tir and Diehl, 2002; Senese and Vasquez, 2003; Quackenbush, 2010), prompting a newer focus from territorial conflict scholars interested in how disputed territory influenced the domestic political processes of these states. Rethinking "disputed territory" as "(external) territorial threat", researchers in this tradition produced multiple findings on a host of different topics. Generally, territorial threat leads to centralization of power in the executive (Gibler, 2010) and a unique set of autocratic regimes (Kim, 2019*a*). Individual-level

preferences emerge under territorial threat that are sympathetic to autocratic power consolidation (e.g. Hutchison, 2011*a*; Miller, 2017, 2018). Territorial threat leads to increased militarization of a country (Gibler, 2012) and a stronger focus on land-based armies that incentivize repression (Wright, 2014), mass-killing of regime dissidents (Hong and Kim, 2019), and disincentivize armed challenges to the central government's authority (Gibler and Miller, 2014). The effect of external territorial threat on domestic political attitudes is wide-reaching. Previous research links the war-proneness of disputed territory to increases in the willingness to fight for the country (Kim, 2019*b*), the greater ability for governments to mobilize citizens (Hutchison, 2011*b*), and a re-orientation of an individual's identity to the state under territorial threat (Gibler, Hutchison and Miller, 2012). There are greater downstream societal effects as well. Territorial threat increases political intolerance toward outgroups (Hutchison and Gibler, 2007), creates miserable conditions at home (Miller, 2013), and leads individuals to prioritize more "masculine" values over "feminine" values (Tir and Bailey, 2018). The Tir and Bailey (2018) finding would do well to explain why countries under territorial threat have fewer women in national legislatures (Kang and Kim, 2020). Overall, this scholarship tends to agree that external, territorial threat creates conditions conducive to autocracy and a domestic political environment that is a far cry from an open, egalitarian, and liberal society.

This agreement on the importance of external territorial threat for domestic politics belies the considerable disagreement on how all these individual works code the motivating concept at the core of their hypotheses. One approach codes territorial threat as the presence of a spatial rivalry (c.f. Thompson and Dreyer, 2012) for a state in a given year (Gibler and Miller, 2014; Hong and Kim, 2019; Kim, 2019*a*; Kang and Kim, 2020). Another approach codes territorial threat as either a latent (e.g. Gibler, 2012; Miller, 2017; Tir and Bailey, 2018) or observed (e.g. Hutchison and Gibler, 2007; Hutchison, 2011*b*,*a*; Miller, 2013, 2018) phenomenon based on recent conflicts coded from the CoW-MID dataset. Yet another approach looks to the Issue Correlates of War (ICOW) dataset (Frederick, Hensel and Macaulay, 2017) to code territorial threat by whether the state is a target of a territorial claim (Wright, 2014). Adding to the confusion, some works will even include two or more of these indicators in a given estimation approach to code territorial threat (e.g. Gibler, 2012; Hong and Kim, 2019; Kang and Kim, 2020).

However, all of these approaches by themselves have important limitations in capturing the concept in question. For one, binary indicators of spatial rivalries or territorial claims may not capture "increasing" or "decreasing" external territorial threat because binary indicators assume only values of 0 or 1. This bogs the measure in a debate whether the binary indicator is a special case of a nominal data akin to "yes"/"no" or "success"/"failure" with no natural ordering (e.g. Cox and Snell, 1989) or whether researchers can impose order on a variable with just two observation categories (e.g. Young and Hamer, 2013). No matter, an information-poor binary indicator could separate a spatial rivalry like Eritrea-Ethiopia (1) from a more peaceful dyadic pairing like Australia-New Zealand (0), but it would not separate particularly severe and conflict-prone spatial

rivalries like India-Pakistan from a spatial rivalry like the Argentina-UK spatial rivalry.[1] India-Pakistan have been in conflict roughly 70% of their existence from 1947 to 2010 while Argentina and the United Kingdom have not had a conflict since the Falklands War in 1982 (c.f. Gibler, Miller and Little, 2016). Further, India and Pakistan claim each other's territory whereas the spatial component of the Argentinian-British rivalry involves just a directed territorial claim from Argentina against the United Kingdom. Likewise, a simple indicator for whether a state is targeted in a territorial claim will do a poor job distinguishing a particularly important territorial claims (e.g. Syria's claim for the return of Golan Heights from Israel) from long-dormant and almost anachronistic territorial claims that appear in the data (e.g. the U.S. claim for Machias Seal Island from Canada).

The use of the CoW-MID data may better coincide with the concept in question, but there are important problems with this approach as well. First, early work on the domestic politics of territorial threat used the `revtype1` and `revtype2` variables to search for territorial conflicts that would then be aggregated or modeled into a measure of territorial threat (e.g. Hutchison and Gibler, 2007; Gibler, Hutchison and Miller, 2012), but more recent research emphasizes that the `revtype` variables in the CoW-MID data are so poorly coded that they are almost unusable for the intended task (see: Gibler, Miller and Little, 2016; Gibler, 2017). Researchers working in this tradition may have realized that beforehand, and thus scholars like Miller (2013) and Kang and Kim (2020) manually code whether a dispute is territorial (and how many disputes are territorial) for a given state in a set period of time before the observation year. However, measures of external territorial threat by reference to observed and recent MIDs over territory encounter numerous issues. These include a conflation of state-to-state confrontations with those that are protest-dependent (see: Gibler and Little, 2017) and the heterogeneity of militarized actions within and across hostitility level categories (c.f. Gibler, Miller and Little, 2020). However, researchers encounter further issues that are more about how they use the MID data and less about the limitations of the MID data. Measuring external territorial threat as the number of territorial MIDs for a state before a given observation year will result in an overdispersed count that suggests there could be influential observations requiring a sensitivity analysis of the main results (see: Hutchison and Gibler, 2007; Miller, 2013). Collapsing these counts into a binary indicator will address the issue of influential observations (see: Miller, 2018; Kang and Kim, 2020), but doing this invites the same interpretation issues as using a binary indicator for spatial rivalries or territorial claims.

These issues are not as pronounced in works using a "latent" measure of territorial threat derived from models of conflict onset (e.g. Gibler, 2012; Miller, 2017; Tir and Bailey, 2018), but issues arise in this approach as well. First, all these works understand "external territorial threat" as a state-level phenomenon, given the totality of threat sources for a state. However, this latent approach uses dyad-level predicted probabilities as a stand-in for this state-level phenomenon. Miller (2017) does this explicitly though Tir and Bailey (2018) purport to aggregate all predicted probabilities for a given state in a given

[1] Thompson and Dreyer (2012) code the India-Pakistan rivalry as a primarily (i.e. "type 1") positional rivalry with an important spatial (i.e. "type 2") component.

year. In all these cases, though, the inputs into a standard conflict onset model lean on unreliable information from CoW-MID about revision type (c.f. Gibler, 2017), or include information unrelated to the concept. For example, Miller's (2017) latent territorial threat measure includes information about militarization, the level of democracy and economic development in the dyad and Tir and Bailey's (2018) measure includes information about the state's level of militarization, defense pacts, and whether there is a civil war in the state (c.f. Gibler and Tir, 2014). The latent measures of territorial threat that emerged from this estimation approach were ultimately fine for their respective uses, but it would mean using their measures of territorial threat to explain changes in a country's militarization (for example) would be tautological in an important way.

However, these approaches to measuring external territorial threat have some merit the extent to which conflict indicators, being targeted in a territorial claim, and the presence of a spatial rivalry are in orbit of the concept. The next section proposes a method of including these indicators and more to develop a more sophisticated state-year measure of external territorial threat.

A Random Item Response Model of External Territorial Threat

The following section outlines how I will generate an interval estimate of external territorial threat for all countries from 1816 to 2010. Briefly, I understand external territorial threat as a latent phenomenon that communicates the level of a concern for a state that its territorial integrity is subject to violent conflict and imposed contraction by other states, and that this level of concern can be communicated on a continuous scale. The approach I use is a random item response modeling approach (see: De Boeck, 2008) that treats some long-standing and familiar indicators ("items") as random effects alongside random effects for individual units (here: state-years). The estimate of external territorial threat comes from the random intercepts for the state-years from this modeling approach. The remainder of this section will clarify the data sources I use to help estimate this concept along with the unit of analysis, the weighting procedure I use on these indicators to best capture the concept, and conclude with a discussion of the modeling approach.

The Sampling Frame and Sources of Data

My primary sampling frame for an approach to measuring state-year territorial threat starts with a directed politically relevant dyad sampling frame, which are all dyads that are land-contiguous, separated by 400 miles or fewer of water, or include at least one major power (see: Weede, 1976; Lemke and Reed, 2001). There are other sampling frame approaches that are useful, but political relevance does the best to identify all relevant dyad pairings without flooding the sample with irrelevant observations or using other indicators to help determine the optimal sampling frame (see: Quackenbush, 2006). The directed nature of the sampling frame is mandatory in order to isolate state-level information (here: territorial threat). The sources of data I use within this politically relevant dyad sampling frame are familiar to researchers who work in this strand of scholarship

and work more generally on territorial conflict. The inputs are multiple but my primary perspective to measuring state-year territorial threat leans on the territorial claim data from Issue Correlates of War (ICOW) (Frederick, Hensel and Macaulay, 2017) and the strategic rivalry data described by Thompson and Dreyer (2012).

For each directed politically relevant dyad in a given year, I code whether a state (i.e. `ccode1` in a typical directed dyad-year data set) is targeted in a territorial claim, how many targeted territorial claims that state has in the year in the directed dyad, and the total salience of the claim for the target at the directed dyad-year level.[2] The target-challenger distinction in ICOW's territorial claims data here is useful for these purposes because not all disputed territory is disputed in both directions. For example, Pakistan and India make comparable claims on territory in Kashmir (claim #922) and North Korea and South Korea have functionally identical claims on each other's territory for the cause of unification (claim #826) but the territorial dispute over the Golan Heights (claim #744) and Essequibo (claim #112) run in only one direction. This would make Israel and Guyana (respectively, in those cases) under greater territorial threat than the countries pressing these claims (Syria and Venezuela, respectively). For each politically relevant directed dyad in a given year targeted in at least one active territorial claim, I incorporate the GML conflict data (e.g. Gibler, Miller and Little, 2016) and estimate whether there is an ongoing conflict in a given year, whether there was an ongoing war in a given year, an estimate of how many of the state's troops died in a given conflict that year (logged), and include peace spells (c.f. Beck, Katz and Tucker, 1998) for both wars and conflicts at lower levels of severity.

I do the same for the strategic rivalry data from Thompson and Dreyer (2012).[3] I code whether the directed politically relevant dyad is part of a spatial (i.e. territorial) rivalry if the strategic rivalry that Thompson and Dreyer (2012) code is spatial in either the "type 1" or "type 2" field.[4] There is obvious overlap with ICOW's territorial claims data, but not every territorial claim leads to a spatial rivalry (e.g. Haiti's claim on the U.S. for the return of Navassa Island) and the correlation between whether Side A in the directed dyad is targeted in a territorial claim and whether the directed dyad is in a spatial rivalry is modest (r = .344). Each politically relevant directed dyad includes indicators for whether there is an ongoing conflict in the context of the spatial rivalry, whethere there is an ongoing war, an estimate of (logged) troop fatalities in a given year in these conflicts, and peace spells for both wars and disputes at lower levels of severity.

[2]For claims ongoing by the end of 2001, I look carefully at each case and code whether the claim could be extended to the end of 2010 (e.g. the Cuban claim on Guantanamo Bay) or whether there is an end date for the territorial claim between 2001 and 2010 (e.g. the Lete Island dispute between Benin and Niger, which ended in July 2005 via International Court of Justice ruling).

[3]The strategic rivalry data, often used in analyses of territorial threat, are formally not directed, per se. The assumption I use here, much like the assumption built into analyses that use the strategic rivalry data, is the rivalry relationship implies equal direction even if a case like the Argentina-UK spatial rivalry suggests why this may not be a perfect approach.

[4]Using the "type 2" category as well as "type 1" will more accurately code territory-based rivalries like the India-Pakistan rivalry, which is formally a "positional" rivalry the extent to which Thompson and Dreyer (2012) give greater weight to how Pakistan is also threatened by India's size and influence.

Finally, I add two indicators from the territorial change data (c.f. Tir et al., 1998). The first is whether Side A in the politically relevant directed dyad was subject to a violent transfer of territory to Side B in the year. The second is the number of violent transfers for Side A as a state-level input.

Weighting the Raw Data

My approach to estimating territorial threat breaks ground from other approaches by considering the role that distance between states should have in altering perceived threat. Gibler (2012) conceptualizes territorial threat (and, conversely, territorial peace) as a relationship between land-contiguous states and Gibler and Tir's (2014) approach to measuring territorial threat looks at just contiguous states (assumingly imputing 0 for states without contiguous neighbors), but territorial threat can span waters as well. Taiwan, for example, has a real territorial threat from China even though Taiwan is an island. Likewise, Cyprus could perceive a territorial threat from Turkey prior to Turkey's 1974 invasion and subsequent territorial occupation. Distance from a source of threat may dampen a territorial threat but it need not eliminate it.

Toward that end, I weight all indicators by the distance between two states in an ordinal ten-category measure. The first half of the scale leans on the CoW contiguity data (c.f. Stinnett et al., 2002), which codes dyadic members as being land-contiguous, separated by 12 miles of water or fewer, separated by 24 miles of water or fewer, separated by 150 miles of water or fewer, or separated by 400 miles of water or fewer. However useful this contiguity value is, more can be done to expand it. For example, France and Morocco are formally not contiguous by this classification scheme, but the minimum distance between them is just 524 miles (Weidmann, Kuse and Gleditsch, 2010). This would be a far shorter distance than the minimum distance of 1,656 miles that separate Malaysia and Taiwan in their dispute over the Southern Spratly Islands. Thus, I expand this scale after distance by 400 miles or fewer of water by calculating capital-to-capital distance while also considering cases where the capital moved.[5] For states that CoW's contiguity data codes as not contiguous, I code whether the states' respective capitals are separated by 401 to 750 miles, 751 miles to 999 miles, 1,000 miles to 1,999 miles, 2,000 mile to 2,999 miles, or 3,000 miles or more. Capital-to-capital distance is calculated according to the Vincenty (sphere) method, assuming a spherical earth and calculating the shortest distance between them, proverbially, "as the crow flies." This rounds out the ordinal ten-category distance measure.

Thereafter, I use this ordinal ten-category distance measure to weight the raw data. For example, the United States had a territorial claim on then-Russian Alaska from 1822 to 1867, but the distance between the Russian and American capitals at the time was 4,476 miles. This divides the binary indicator of the claim by 10 since the remote nature of the claim for Russia should represent a negligible addition to its overall level of territorial threat. However, a direct territorial claim like India and Pakistan over Kashmir receives

[5] I would ideally use minimum distance data for this, but these data are not available prior to 1946. State capital data are easier to calculate even considering cases where capitals moved.

the full value of 1 because India and Pakistan share a land border. This works in the same way for peace year variables, which otherwise go in the opposite direction of the other indicators (i.e. higher values of peace years indicate less territorial threat). In the case of the peace year inputs, a peace spell between India and Pakistan or a peace spell between Russia and the Ottoman Empire, is divided by 10 whereas a more remote territorial claim (e.g. the Denmark-USA directed dyad, in which the U.S. claimed the Virgin Islands from 1865 to 1917) receives the full value of the peace spell because the distance between capitals is over 4,050 miles. Cases where State A is an island are re-weighted again by the same method, weighting up territorial threat and inflating peace spells by distance, in order to approximate the concept that islands buffered by oceans or seas of water do not have the same kind of territorial threat as states with land-contiguous borders (Gibler, 2012). While they can still experience territorial threat (e.g. Cyprus, Taiwan), a sea or ocean buffer diminishes the scope of threat.

Scaling the Data and the Statistical Model

The weighting procedure has the effect of taking all raw inputs and expanding the number of potential responses for each input, effectively creating an interval-level estimate from even the variables that were originally on a binary scale. From there, I scale each indicator to have a mean of 0 and a standard deviation of 1 so that all indicators share a common scale. The peace year variables were multiplied by -1 prior to this scaling because, unlike the other model inputs, higher values indicate less territorial threat.

The statistical modeling procedure is a Bayesian mixed effects random item response model (see: De Boeck, 2008) implemented in the Stan programming language (Carpenter et al., 2017). Random item response models treat the model's items as random effects alongside the "person" effects (here: state-year effects) because modeling the item as a random effect improves the accuracy and stability of the model's parameter estimation (Choo et al., 2014). The model itself is fairly straightforward. Since all items share a common scale and a common direction with a mean of 0 and a standard deviation of 1, pooling the politically relevant directed dyad-year data with just the additional random effect for the state-year (e.g. USA-1816, USA-1817...) creates an estimate of a state's level of territorial threat in a given year that leverages all the observations across all politically relevant dyad-years. The state-year estimate of territorial threat is communicated as the mean of the random intercept for the state-year across all simulations. The Bayesian approach makes it easier to communicate uncertainty around this estimate by calculating the standard deviation of the draws for those random intercepts. I estimated these models in the Stan programming language running 4,000 iterations across 8 chains to produce the data that I describe below. The prior sampling distributions are weakly informative. I assume a prior distribution of $N(0, .5)$ for the random items, a more diffuse normal prior distribution of $N(0, 2.5)$ for the state-year intercepts and, since the statistical model is formally Gaussian, a prior distribution of $N(0, 5)$ for the residuals.

Assessing the Validity of the Measure

I offer two validity assessments of this measure of territorial threat. The first is a face validity assessment that explores the model's output for particular actors at particular moments of time, illustrating how the model's output communicates values of territorial threat that are intuitive estimates. The second validity assessment is a construct validity assessment, using this measure of territorial threat to replicate (and, in one case, clarify) findings about territorial threat's effect on domestic politics.

Assessing the Face Validity of the Territorial Threat Measures

An exploration of the model's output will suggest the measures of territorial threat are intuitive and capture the phenomena in question over space and time. First, Figure 1 plots the mean level of territorial threat for all states in the international system from 1816 to 2010. A few patterns emerge that are intuitive. First, there is a climb in the average level of territorial threat around the 1860s. This would coincide with several wars across the international system over the distribution of territory, including the Paraguayan War, the various wars of Italian and German unification, and the Seven Weeks' War. The average level of territorial threat in the international system spikes during World War I and is in fact higher than the average level of territorial threat during World War II. This suggests that while World War II was the deadlier war, the territorial implications of World War I in a then-smaller international system may have been larger. Finally, the graph suggests that the average level of territorial threat has been declining in the international system since World War II. There are still prominent territorial problems in places like South Asia and the Middle East, but this post-World War II trend would be consistent with the Goertz, Diehl and Balas (2016) argument that the grisly nature of World War II resulted in norms discouraging territorial conquest afterward. Certainly, zones of territorial peace emerged after that fighting, prominently in Western Europe, that can account for this trend as well (Gleditsch, 2002; Gibler, 2012).

Figure 2 is a dot-and-whisker plot of the ten countries with the highest levels of territorial threat and the ten countries with the lowest levels of territorial threat in 2010, along with uncertainty intervals around the estimate. A few interesting results appear. First, Ethiopia emerges as the state with the highest level of territorial threat in that observation year, surpassing India and Pakistan that are, in most other recent years, the No. 1 and No. 2 countries for territorial threat. This happened because Ethiopia saw an increase in conflict near the end of this temporal domain. From 2005 to 2010, Ethiopia saw action in 12 total confrontations, nine of which involved Eritrea or Sudan (which claim pieces of Ethiopian territory) or Somalia (which is in a strategic rivalry with Ethiopia). Five of these confrontations were even fatal. By contrast, India and Pakistan had a relative lull in their rivalry in the first part of the 21st century, which mostly drives the higher levels of territorial threat for both countries. The end of the Kargil War came with the post-9/11 U.S. invasion of Afghanistan, resulting in fewer hostilities between both sides for much of that time period. Indeed, there were just three confrontations between India and Pakistan

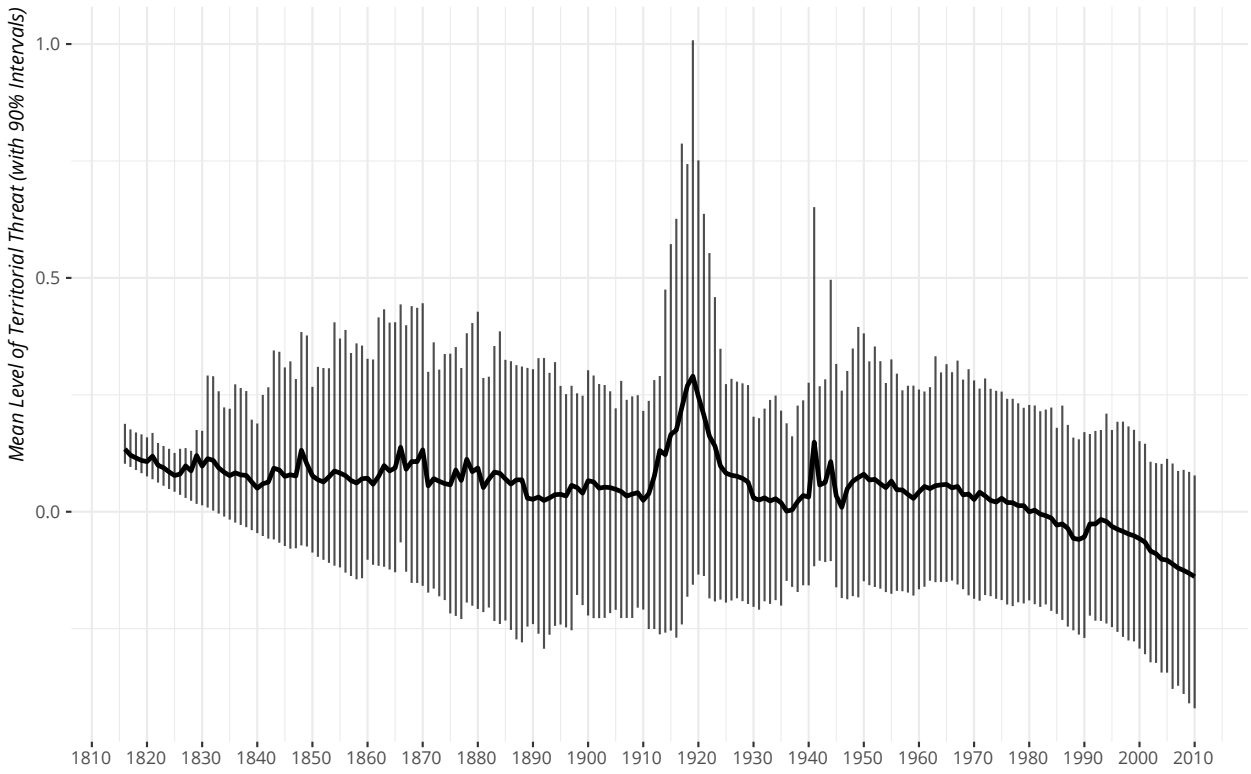


Figure 1: The Average Level of Territorial Threat, 1816-2010

at this time, only one of which resulted in fatalities. The other countries that appear in the top ten are also intuitive. The remaining countries in the top ten are involved in ongoing confrontations at this time against countries that claim pieces of its territory or are part of a spatial rivalry. The countries in the bottom 10 with the lowest levels of territorial threat are either islands far removed from other countries (e.g. New Zealand, Iceland) or are countries who have not had meaningful challenges to its borders for decades (Netherlands) or centuries (Portugal).

Figure 3 is the estimated territorial threat over time for some select state pairings. The top-left plot in Figure 3 is the estimated territorial threat for India and Pakistan. The top-right plot is the estimated territorial threat for the triad of Egypt, Israel, and Syria. The bottom half of Figure 3 is the estimated territorial threat for 19th century European great powers of Austria-Hungary, France, Germany, and the United Kingdom from 1816 to 1920 and, below them, Russia and Turkey (Ottoman Empire) during the same time frame. The estimated territorial threat for all these observations has considerable face validity. Observe that India and Pakistan, which have been in active conflict with each other for roughly 70% of the observation years between 1947 and 2010, have similar (and high) levels of territorial threat over time, though India was discernibly higher than Pakistan as a result of the Sino-Indian War in the early 1960s. The trend line for Israel in the top-right of Figure 3 is worth highlighting. Informally, no state after World War II should score higher in territorial threat than Israel shortly after its creation. Israel, much

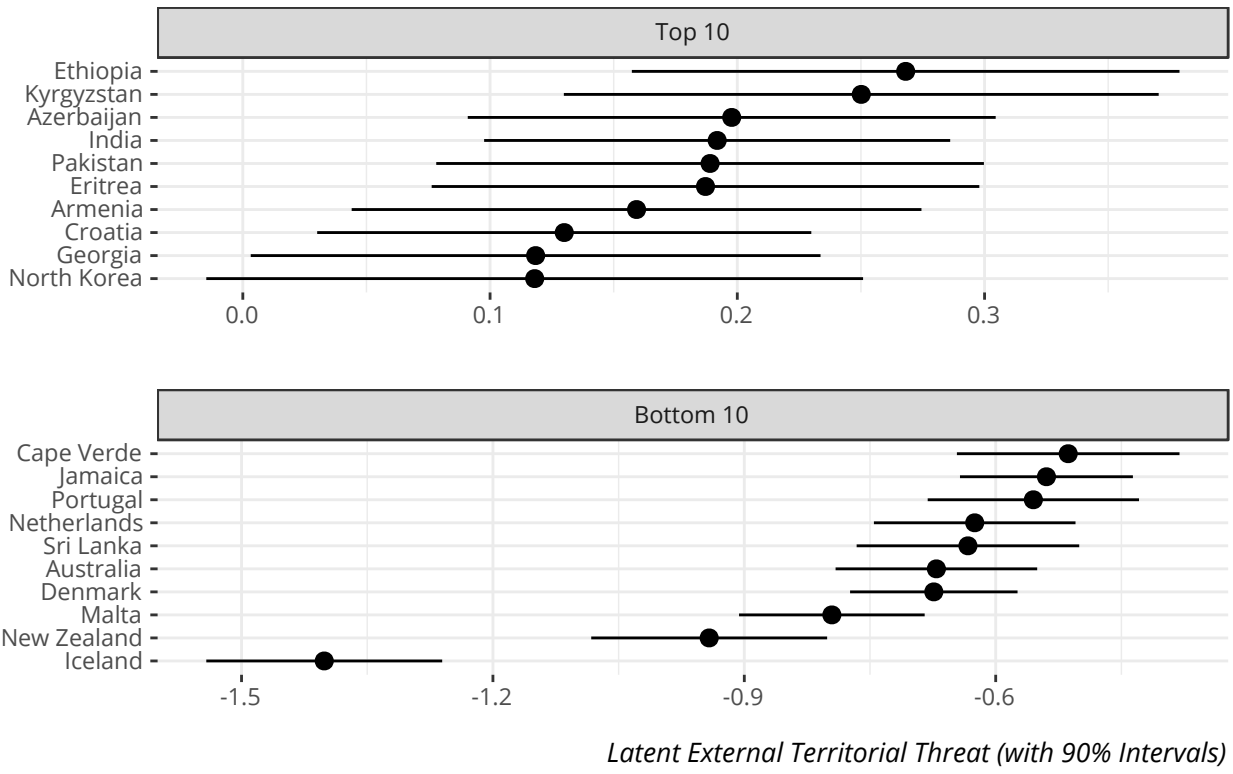
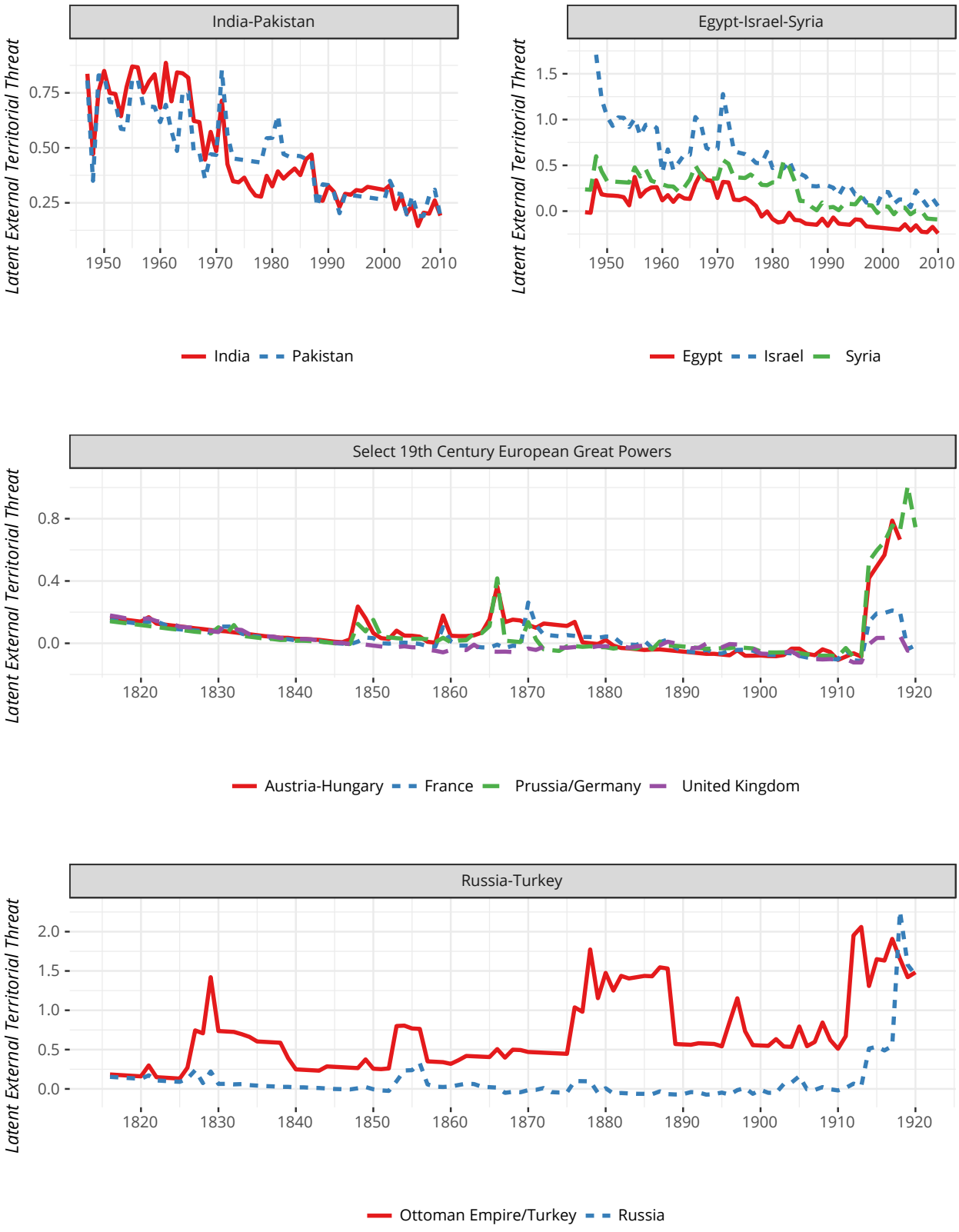


Figure 2: The Ten Highest and Lowest Levels of Territorial Threat in 2010

like India and Pakistan, was born from war, but Israel was immediately surrounded by three hostile, land-contiguous neighbors. Spatial rivalries emerged around Israel's very existence, resulting in four total wars. Israel was even the target of four territorial claims by its neighbors before 1950. That Israel would score this high in a state-year measure of territorial threat is intuitive. It is also something that using a dyad-year measure as a stand-in for a state-level phenomenon might miss. Israel's territorial threat, certainly in the early years after its formation, comes from the full scope of its rivalry relationships with its land-contiguous neighbors and not from any one state in particular.

The bottom half of Figure 3 includes the historical territorial threat estimates for six important European/Eurasian countries. The first part includes a comparison of the scores for Austria-Hungary, France, Germany, and the United Kingdom. Observe that the United Kingdom has similar levels of territorial threat as Austria-Hungary, France, and Prussia/Germany through the first half of the 19th century. Absent much context, this would be a surprising result. However, there is an explanation that is unintuitive, but makes sense given the data. Namely, no state was targeted in more territorial claims in the data than the United Kingdom. Indeed, the United Kingdom was targeted in at least ten territorial claims every year from 1841 to 1967. By comparison, no other state in a given year was targeted in more than seven territorial claims.[6] However, the United Kingdom's distance from these claimants reduces the effect of these claims and the dis-

[6]China was targeted in seven unique territorial claims from 1943 to 1945.



Estimates of uncertainty are available for all observations but are not included to make each individual plot more legible.

Figure 3: Estimated Territorial Threat Over Time for Select State Pairings

putes that emerge from them. Thus, the enormity of the British Empire and the remote challenges to it push up the UK's level of territorial threat, but reduces the effect of militarized confrontations. Changes in territorial threat for the three other countries shown alongside the UK are intuitive, coinciding with major confrontations in the context of spatial rivalries and claimed territory. These include the unification conflicts in the 1860s and 1870s and World War I.

The bottom of Figure 3 is a comparison of Russia and the Ottoman Empire/Turkey during the same time frame as the 19th century European great powers. Notably, the trend line for the Ottoman Empire visualizes how scholars understand the Ottoman Empire as the "sick man of Europe" during this period (c.f. Swallow, 1973). The Ottoman Empire's territorial threat substantially increases as a result of Greek independence and increases further because of successive territorial contractions in the Balkans and the Caucuses. Russia is largely if not exclusively responsible for the Ottoman Empire's territorial contractions during the 19th century. The losses Russia imposed on the Ottoman Empire do not manifest in the same kind of increases of territorial threat for Russia as we observe for the Ottoman Empire. However modest Russia's territorial threat vis-a-vis Turkey during the 19th century, the violent end of the Russian Empire resulted in a massive territorial contraction for the Russian rump state. Thus, Russia in 1918 has the highest recorded level of territorial threat in the whole data, which adequately reflects the one million square kilometers of its territory that it lost that year following the already destructive battles of World War I.

Assessing the Construct Validity Through Replication

The previous section suggests the estimates of territorial threat gathered from the random item response model have high face validity. The estimates do well to capture observed trends coinciding with the world wars and norms against territorial conquest that emerged after World War II. An exploratory data analysis showing multiple countries at various points in time, or over time, suggest states that should score high (or low) in territorial threat appropriately do. Next, I can assess the validity of the measure through a replication of two analyses that explore the effect of territorial threat on various domestic political processes.

Territorial Threat and Militarization

Gibler (2012) links territorial threat and militarization as an important component of his argument. Briefly, his main argument is territorial threat is a sufficiently salient form of external threat to require a mass mobilization of the military to deter the source of threat. Absent a direct threat to the territorial integrity of the state (i.e. territorial peace), we should not expect to observe states leaders engaging in this form of militarization. Table 5.1 in Gibler (2012) offers illustrative evidence to support this part of the argument. The onset of a contiguous territorial MID has a positive and statistically significant effect on changes in the number of military personnnel from the previous year, and this effect

is discernibly greater than the effect of a contiguous, non-territorial MID. The model is simple, including state-level controls for whether the state is a major power, the total state population (in thousands), the change in military expenditures from the previous year, and the size of the military from the previous year. However, this analysis appears to lean on the `revtype1` and `revtype2` variables to code whether a dispute is over territory, and follow-up analyses from Gibler demonstrate these variables are so poorly coded that they cannot be used for this kind of analysis (Gibler, Miller and Little, 2016; Gibler, 2017).

I offer a simple replication of Table 5.1 in Gibler (2012) that drops the other conflict indicators for my estimate of territorial threat. The dependent variable is the change in the size of military personnel for the state from the previous year. The control variables include whether the state is a major power, whether there is a dispute onset in the observation year using the GML MID data (Gibler, Miller and Little, 2016), the total population of the state, the difference in military expenditures from the previous year, and the size of the military personnel from the previous year (Singer, 1987). The only other change is to eschew Gibler's state fixed effects for state random effects.

I offer the results of this replication in Table 1, where Model 1 measures territorial threat as the threat level from the year prior to the observation year and Model 2 measures territorial threat as the difference from the year before the observation year and the year before that. The results are substantively the same as what Gibler provides in Table 5.1, as is the substantive takeaway from Gibler's argument. States with higher levels of territorial threat (Model 1) are more likely to see positive changes (i.e. increases) in the size of military personnel. Likewise, state-level increases in territorial threat from the previous year (Model 2) result in positive changes (i.e. increases) in the size of military personnel. Per Gibler, this form of external threat is a salient form of external threat that justifies the sweeping militarization in which leaders engage as a response. Gibler's analysis leaned on the information available in the CoW-MID data, which his follow-up analyses suggested were unusable for this kind of analysis. My measure of territorial threat, which instead leans on dispute data for states with spatial rivalries or states targeted in territorial claims, offers more confidence in Gibler's (2012) original findings.

Territorial Threat and Violent Repression

Next, I offer a replication of Hong and Kim's (2019) analysis on territorial threat and mass killing. Hong and Kim's analysis is challenging in both substance and measurement. Substantively, the territorial threat scholarship has yet to reach a consensus on the relationship between territorial threat and repression, more generally. Gibler (2012) argues territorial threat makes repression cheaper, ostensibly incentivizing state leaders to do it when faced with any form of opposition. Increased political intolerance should also make this more likely (Hutchison and Gibler, 2007). Yet, Miller's (2013; 2017) analyses suggest territorial threat draws citizens to their state leaders and makes it easier for leaders to redirect antipathies toward external rivals (see also Hutchison, 2011*b*), weakly implying that repression should be less likely under territorial threat. Wright (2014) argues for a positive relationship between territorial threat and repression, though offers

Table 1: A Mixed Effects Model of Change in Military Personnel, 1816-2010

	(1)	(2)
Territorial Threat (Lag)	33.114***	
	(7.712)	
Territorial Threat (Diff. from Prev. Year)		144.719***
		(20.680)
State is a Major Power	120.244***	115.274***
	(8.395)	(8.364)
Dispute Onset in Obs. Year	10.194**	12.555***
	(4.302)	(4.290)
Total Population (Lag)	0.0002***	0.0002***
	(0.00002)	(0.00002)
Military Expenditure (Diff. from Prev. Year)	0.00001***	0.00001***
	(0.00000)	(0.00000)
Military Personnel (Lag)	−0.112***	−0.110***
	(0.004)	(0.004)
Constant	1.933	3.081
	(2.312)	(2.341)
Number of States	216	215
sd(State)	13.695	13.722
N	15975	15750

Note: *p<0.1; **p<0.05; ***p<0.01

This is a basic replication of Table 5.1 in Gibler (2012)

several scope conditions that add more uncertainty to a simple understanding of this relationship. Amid this, Hong and Kim (2019) offer a compelling and recent analysis that suggests external territorial threats increase mass killing episodes, a particularly severe form of repression, during episodes of state failure (c.f. Colaresi and Carey, 2008) and when government elites hold exclusionary ideologies that justify efforts to exclude whole categories of people and belief systems (Harff, 2003). The main evidence in favor of the hypothesis comes in a statistically significant interaction between territorial rivalries (i.e. spatial rivalries, a la Thompson and Dreyer (2012)) and whether government elites hold an exclusionary ideology. However, the rivalry data is an information-poor metric of territorial threat since binary indicators like it do not necessarily capture "increasing" or "decreasing" the same way they capture "success"/"failure" or "yes"/"no."

I offer a replication of the main finding, best seen in Model 3 of Table 1, as Table 2 below. The first model offers a basic reproduction of Model 3 in Table 1 of Hong and Kim (2019). Therein, the only statistically significant predictors of mass killing onsets in state failure episodes are whether the observation occurs after the Cold War and, importantly, the interaction between territorial threat (territorial (spatial) rivalry in the Hong and Kim (2019) analysis) and the whether the state elites can be described as holding exclusionary ideologies. Model 2 substitutes the latent territorial threat measure for the territorial (spatial) rivalry measure in Hong and Kim (2019) and re-estimates the statistical model. Here, there is no support for the authors' hypothesis that there is a statistically significant interaction between exclusionary ideology and territorial threat on mass killing onsets. It suggests the modeling choice, absent a better measure that I provide here, drives the results the authors report. Spatial rivalries are information-poor measures of territorial threat because they are binary "yes"/"no" indicators that also lump quiet spatial rivalries like those between Bolivia-Chile and Argentina-United Kingdom with more active spatial rivalries like Armenia-Azerbaijan and India-Pakistan.

Seeing a statistically insignificant result in Model 2 suggests that the results Hong and Kim (2019) report could be better clarified by considering a hypothesis that increasing territorial threat leads to mass killing onsets in cases where there is already at least some territorial threat. To test whether that is the case, I subset Hong and Kim's (2019) data to just cases where the state is in at least one spatial rivalry (Model 3) or for states that are targeted in at least one territorial claim (Model 4). I then re-estimate Model 2 on these subsetted data and find partial support for this intuition. There is a statistically significant effect of exclusionary ideology on mass killing onsets in states in territorial (spatial) rivalries and experiencing state failure episodes. There is the same effect in Model 4 for states that are targeted in at least one territorial claim. Further, there is the positive and statistically significant of increasing territorial threat in the subset of states that are in at least one spatial rivalry (Model 3) or are targeted in at least one territorial claim. However, there is no significant interaction between them. This sugests two things about the relationship between territorial threat and mass killing onsets in cases of state failure. First, the effect of territorial threat on mass killing onsets is only observed in states with at least some level of territorial threat (operationalized here as having at least one spatial rivalry

Table 2: Territorial Threat, Exclusionary Ideology, and Mass Killing Onsets (1956-2010)

	Replication of Hong and Kim (2019) Table 1, Model 3	Latent Territorial Threat Measure	Subset: Spatial Rivalries	Subset: Target in Territorial Claim
	(1)	(2)	(3)	(4)
Exclusionary Ideology	−0.075	0.765	2.569***	2.575*
	(0.638)	(0.474)	(0.961)	(1.324)
Territorial Threat Variable	−0.824	−1.063	4.054*	5.162*
	(0.549)	(1.511)	(2.106)	(2.760)
Post-Cold War	−1.607***	−1.465***	−2.688**	
	(0.508)	(0.509)	(1.129)	
Civil War	−0.404	−0.373	0.333	0.749
	(0.536)	(0.521)	(0.816)	(1.061)
Interstate War	0.924	1.046	1.865	1.343
	(1.138)	(1.166)	(1.522)	(1.508)
GDP per Capita	−0.202	−0.276	0.334	0.039
	(0.277)	(0.296)	(0.403)	(0.508)
Liberal Democracy Index	−2.461	−2.055	−5.734**	−3.943
	(1.836)	(1.857)	(2.651)	(3.087)
Ethnic Fractionalization	0.142	−0.087	0.506	−0.220
	(0.718)	(0.705)	(1.375)	(1.426)
Territorial Threat*Exclusionary Ideology	1.976**	2.220	−4.983	−3.002
	(0.834)	(2.190)	(3.321)	(4.069)
Constant	−1.315	−1.000	−6.568**	−6.234
	(1.983)	(2.122)	(3.274)	(4.039)
N	991	991	433	455

Note: *p<0.1; **p<0.05; ***p<0.01

This is a basic replication of Table 1, Model 3 in Hong and Kim (2019)

Cubic polynomial of years since laste state failure omitted to save space.

The post-Cold War dummy is a near perfect predictor in Model 4 and is omitted for presentation.

or targeted territorial claim). Second, the effect of territorial threat on mass killing onsets does not depend on elite ideology (and vice-versa) even as both have discernible effects on the likelihood of mass killing episodes.

Conclusion

Researchers in the territorial conflict literature have long-agreed on the basic importance of territorial threat. Threats over territory are more likely to lead to conflict onset, which is more likely to escalate to war than conflicts over other issues, and are more likely to lead to conflict recurrence. The importance of territorial threat extends to domestic politics as well. Here, researchers encounter an uncomfortable situation where they almost unanimously agree that territorial threat creates conditions ripe for autocracy and a restrictive domestic political environment, but they disagree on how to best code the motivating concept in question. Researchers encounter multiple difficulties in adequately generating a measure that approximates the concept in question. I change this by providing a continuous measure of territorial threat for all states in the international system from 1816 to 2010. I also offer an expansive analysis of the data and two empirical replications that show the validity of the measure and its utility for our hypotheses on territorial threat.

The data are ideally best used for analyses looking at the effect of territorial threat on state-level outcomes, like militarization, democratic backsliding, or individual-level outcomes in which state-level territorial threat is an important contextual influence (e.g. political intolerance, support for strong leaders). They can, however, be used more broadly as a stand-in for "external threat." After all, researchers who look at the effect of territorial threat on various domestic political outcomes are using territorial threat as just the most obvious and important form of external threat (see Hutchison and Gibler, 2007, and Miller (2017), for two examples). The processes they outline are applicable to other non-territorial forms of serious, external threat, even though identifying serious, non-territorial external threats are often ad hoc. This should broaden the scope of analyses for which these data would be useful.

Upon publication, the data will be available on my Github and can be downloaded as R serialized data frames or .csv files for researchers using any statistical software or programming language. I will also provide the script that generates these data for maximum transparency. Github is a particularly attractive repository for hosting free-to-use data sets because version tracking in Git (through Github) will provide additional transparency about changes to the data and any other tweaks. In addition, I plan an extension of these data to the directed dyad-year level to complement the state-year-level data I provide here. Future advances in our conflict data that can distinguish what actor on what side was responsible for fatalities on the other side will be critical to disentangle particularly messy conflicts cases with multiple actors on multiple sides, sometimes switching sides (e.g. World War I, World War II). No matter, the same approach to estimating territorial threat at the state-year-level is generalizable to the directed-dyad-year-level.

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