Milestone 7

Liz Masten

4/4/2020

Contents

1 Abstract

Michael Findley, James Piazza, and Joseph Young show, in their paper "Games Rivals Play: Terrorism in International Rivalries," that interstate rivalries are a positive predictor of transnational terrorist activity. The authors argue that terrorism is often a component of broader hostilities that can be emperically analyzed using a series of politicaly relevant directed dyads. While this paper is a successful replication of their work, my subsequent extension calls into question their choice to use dyadic analysis. When using country-year analysis as opposed to directed dyad analysis, I find that . . . my findings don't make sense.

2 Introduction

Findley, Piazza, and Young analyze transnational terrorism as a component of interstate rivalries, specifically focusing on the use of terrorism in proxy warfighting. Their main argument is that terrorist attacks are more likely to occur in the context of a rivalry between two states than in the absence of such a rivalry. They empirically test their hypothesis by analyzing "politically relevant directed state dyads." They define politically relevant as states where "relationships of interest are at least possible" and utilize directed state dyads to indicate directionality of attacks (i.e. the state where the attack originated) in which there exists at least one major power.

I was able to successfully replicate the authors' findings in this paper exactly. Note that the authors suffered from a data management error at the time of publication and subsequently published errata results.(cite where I got data here). I based my analysis on the revised data and tables, which can be found in the Appendix. Because there are no directly analagous R packages to translate the authors' original STATA code, I wrote and managed the project in R while running the replication and extension in STATA.(cite R and STATA here).[1] (change location of link).

what did i do and find?

This paper is laid out as follows: in the section below, I discuss relevant literature as it relates to the concept of interstate rivalries, state-sponsored terrorism, and the use of proxies. I then discuss the research design

---

[1] All analysis for this paper is available in my GitHub: https://github.com/LizMas/ms_5

and analysis of Findley et al. (2012) and why their results, although valid and statistically sound, may be problematic. Next, I propose an alternative method of analysis in which I forgo the dyadic system entirely. Lastly, I discuss my results and the implications for future emperical research in the field of terrorism studies.

3   Literature Review

States both use and suffer from terrorism. It is no secret that states support terrorist groups, actively or passively, willingly or unwillingly. States with strong and stable institutions may give groups direct aid including money, weapons, or logistic support. They may help with training and operations, back them diplomatically, assist organizing efforts, steer the group's ideological direction, or provide sanctuary. States with weak capacity or institutional infighting may offer support in similar ways, but with the caveat that they couldn't get rid of the group or its influence if they wanted to (footnote with specific examples). (Byman et al. 2010).

Terrorist groups make appealing proxies because they specialize in activities that states are often unwilling or unable to do directly. They offer cover and plausible deniability in case an operation goes bad or is unpopular, allowing states to avoid directly committing an act of war against another state (Conrad, Findley et al, Laqueur 1996). Terrorist proxies are also disproportionally effective when considering the amount of money, time, and personnel it takes to orchestrate an attack versus the capital, infrastructural, and psychological damage they can inflict (Gamage 2007, Findley et al. 2012). This disproportionality makes proxies especially attractive to weak states who have rivalries with stronger states (Iran is an expert at using proxies to counter Saudi, US, and Israeli influence in the Middle East). Byman et al. (2010) advances another theory: that states may delegate to terrorist groups to ensure the state's preferences continue beyond the effective global or regional influence of that state. Iranian support of nascent Hezbollah is a good case study of this. The often surreptitious nature of terrorist proxies makes analyzing this phenomenon difficult. The empirical study of terrorism, as a subfield of International Relations, tries to make sense of it in two main ways: using a country-year method of analysis, in which variables are analyzed continuously, and dyadic analysis, in which countries are paired and models are estimated having dyadic measurements as the outcome variable. International Relations scholars have a strong preference for dyadic analysis when possible, but terrorism scholars have been somewhat reticent to employ it. Terrorism scholars have traditionally favored using a domestic social and institutional or micro-foundational levels of analysis (Cranmer 2016). Findley et al. (2012) were among the first scholars to use dyadic analysis in the field. For their experiment design, they employ a dyadic design to investigate the causal relationship between interstate rivalry and terrorism. They chose dyadic analysis because they deemed it "crucial for establishing causal chains between indicators and patterns of terrorism because it permits us to examine the interplay of both origin countries for terrorism—the countries from which terrorists hail—and target countries that experience terrorist attacks." They use directed dyads, as opposed to nondirected dyads, because they argue that there may be "that certain aspects of the origin country—the country of national origin of the perpetrators of the attack—lead to greater attacks on the target country—the country where the attack occurred. Directed dyads are also appropriate because certain aspects of the target country may make them a more plausible target for actors from the origin country." They also used only politically relevant dyads, which allows them to discount pairs of states which would not significantly interact in the international system. This keeps the number of observations from being deceivingly high, which would increase the likelihood of spurious statistical significance. This design may be problematic because a key assumption of dyadic design is that the observations have to be independent events. Since states exist in a globalized world, rather than a vacuum, it is inappropriate to assume that dyadic interactions are independent from triadic (or greater) interactions (Robert S. Erikson (a1), Pablo M. Pinto (a2) and Kelly T. Rader (a3) ; Bennet and Stam). For example, let's use Israel and Saudi Arabia as an example of a dyad. In the experimental design, we must assume that this dyadic relationship is independent, or not influenced by tertiary relationships. However, what about Iran, arguably both countries' main regional rival? How can we be sure that the actions of Israel and Saudi Arabia are being made without consideration of an Iranian response? Additionally, because both countries have different stakes with respect to their Iranian rivalry, how can we control for their different responses? This interdependence is one of the main flaws with dyadic design and dyadic analysis risks "dramatically understat[ing] the size of standard errors and overstat[ing] the power of hypothesis tests" (Erikson et al.). Findley et al. (2012) define their thought

process of using directed dyads thusly: "First, we define the origin country as the nationality of the terrorists and the target country as the country (location) in which the terrorist event occurred. Second, we define the origin country as the nationality of the terrorists and the target country as the nationality of the victims. The origin country can be conceived as the exporter of violence while the target is the importer." I interpret this as a definitional work-around to the problem of not knowing exactly who all is involved in a terrorist attack, but it does not solve this fundamental problem and rather risks assigning statistical significance to events that may have been misunderstood and coded incorrectly. Conrad (2016) argued this point exactly, saying "even knowing the nationality of the terrorists themselves does not help, since many state-sponsored terrorists are of a different nationality than their state sponsors. For example, knowing that a Lebanese Hizbollah agent pulled off an attack in Israel masks the possibility that the agent may have been sponsored by Iran. In such a case, knowing the nationality of the terrorist (Lebanese) is not useful." Because of the problems with dyadic design, some scholars have called for the practice to be abandoned entirely (Cranmer and Desmarais 2016) while others advise to proceed with extreme caution (Paul Poast). This extension is a modest attempt to weigh in on the dyad debate in empirical terrorism studies. I ran the regressions in Findley et al. (2012) without the dyad component and found . . . the estimates are the same but the CIs are significantly different. I think the standard errors got MORE specific without the clusters, which is totally not what I was expecting, so I think something is up with the model. I need STATA help.

4 Extension

```
## # A tibble: 1 x 7
##   format width height colorspace matte filesize density
##   <chr>  <int>  <int> <chr>      <lgl>     <int> <chr>
## 1 PNG     1152    648 sRGB       FALSE     25682 57x57
```

| | m1 | m2 | m3 | m4 |
	b	b	b	b
main				
rivalry	1.4478	1.343603	.9428877	.7239482
jointDem1	1.078305	.9148215	.1493155	-.0978066
logcapratio	-.0580376	-.3308437	.143322	-.5739091
contiguity	.9338621	-.0337634	1.760055	.9011013
history11			.3140578	.6762304
history12			.7055795	.6343164
coldwar1			-.6589639	-.3715783
conflict1			.5168228	.2420686
conflict2			-.1317386	.468271
war1			1.3682	.9923906
war2			-.4273818	-.3517002
_cons	-4.949761	-3.587342	-6.171499	-5.321318
/				
lndelta	.8395978	1.041234	.6916802	.7640089

```
## # A tibble: 1 x 7
##   format width height colorspace matte filesize density
##   <chr>  <int>  <int> <chr>      <lgl>   <int> <chr>
## 1 PNG     1152    900 sRGB       FALSE   47492 57x57
```

	m5	m6	m7	m8
	b	b	b	b
main				
rivalry	.7875606	.5523742	1.528866	.8807594
jointDem1	.2923292	.4423824	-.6430226	-.2202105
logcapratio	-.2756557	-.8545319	.1087845	-.6101344
historyl1	-.1536103	.5546325	.3237116	.7581844
historyl2	.8509729	.5714928	.8715946	.7387755
coldwar1	-1.196787	-.1616484	-1.008014	-.480551
conflict1	.5185103	.5360222	.693135	.2167522
conflict2	.4352143	.3501322	.1848864	.4758808
contiguity	2.183136	1.603833	1.918519	1.192765
war1	1.402511	.0255695	1.429725	1.028566
war2	-.7135543	-.4140796	-.7488887	-.5393466
_cons	-4.79312	-4.74755	-6.007066	-5.818862
inflate				
rivalry	-.6756733	-.9358107		
jointDem1	.1457508	1.352246	-41.90289	-1.927623
logcapratio	-.6072143	-.5411059		
historyl1	-.5797623	-.493827		
historyl2	-.0133606	-.4261289		
coldwar1	-.2187092	.888854		
conflict1	-.295997	.8357781		
conflict2	.5529765	-.4238297		
contiguity	.3432188	.8769043		
war1	-.2730128	-3.626443		
war2	.0186213	.3299914		
_cons	1.395852	.4646512	-.1614503	-14.94437
/				
lnalpha	1.581271	1.425747	2.457868	1.969877

```
## [1] D. Byman and S. E. Kreps. "Agents of destruction? Applying
## principal-agent analysis to state-sponsored terrorism". In:
## _International Studies Perspectives_ 11.1 (2010), pp. 1-18.
##
## [2] J. Conrad. "Interstate rivalry and terrorism: An unprobed link".
## In: _Journal of Conflict Resolution_ 55.4 (2011), pp. 529-555.
##
## [3] R. S. Erikson, P. M. Pinto, and K. T. Rader. "Dyadic Analysis in
## International Relations: A Cautionary Tale." In: _Political Analysis_
## 22.4 (2014).
```

```
##
## [4] M. G. Findley, J. A. Piazza, and J. K. Young. "Games rivals play:
## Terrorism in international rivalries". In: _The Journal of Politics_
## 74.1 (2012), pp. 235-248.
##
## [5] C. Loveman. "Assessing the phenomenon of proxy intervention". In:
## _Conflict, Security & Development_ 2.03 (2002), pp. 29-48.
```

5   Appendix

```
## # A tibble: 1 x 7
##   format width height colorspace matte filesize density
##   <chr>  <int>  <int> <chr>      <lgl>    <int> <chr>
## 1 PNG     1152    648 sRGB       FALSE    25844 57x57
```

| | m1_1 | m2_1 | m3_1 | m4_1 |
	b	b	b	b
main				
rivalry	1.4478	1.343603	.9428877	.7239482
jointDem1	1.078305	.9148215	.1493155	-.0978066
logcapratio	-.0580376	-.3308437	.143322	-.5739091
contiguity	.9338621	-.0337634	1.760055	.9011013
history1			.3140578	.6762304
history2			.7055795	.6343164
coldwar1			-.6589639	-.3715783
conflict1			.5168228	.2420686
conflict2			-.1317386	.468271
war1			1.3682	.9923906
war2			-.4273818	-.3517002
_cons	-4.949761	-3.587342	-6.171499	-5.321318
/				
lndelta	.8395978	1.041234	.6916802	.7640089

```
## # A tibble: 1 x 7
##   format width height colorspace matte filesize density
##   <chr>  <int>  <int> <chr>      <lgl>    <int> <chr>
## 1 PNG     1152    874 sRGB       FALSE    47461 57x57
```

	m5_1 b	m6_1 b	m7_1 b	m8_1 b
main				
rivalry	.7875606	.5523742	1.528866	.8807594
jointDem1	.2923292	.4423824	-.6430226	-.2202105
logcapratio	-.2756557	-.8545319	.1087845	-.6101344
historyl1	-.1536103	.5546325	.3237116	.7581844
historyl2	.8509729	.5714928	.8715946	.7387755
coldwar1	-1.196787	-.1616484	-1.008014	-.480551
conflict1	.5185103	.5360222	.693135	.2167522
conflict2	.4352143	.3501322	.1848864	.4758808
contiguity	2.183136	1.603833	1.918519	1.192765
war1	1.402511	.0255695	1.429725	1.028566
war2	-.7135543	-.4140796	-.7488887	-.5393466
_cons	-4.79312	-4.74755	-6.007066	-5.818862
inflate				
rivalry	-.6756733	-.9358107		
jointDem1	.1457508	1.352246	-41.90289	-1.927623
logcapratio	-.6072143	-.5411059		
historyl1	-.5797623	-.493827		
historyl2	-.0133606	-.4261289		
coldwar1	-.2187092	.888854		
conflict1	-.295997	.8357781		
conflict2	.5529765	-.4238297		
contiguity	.3432188	.8769043		
war1	-.2730128	-3.626443		
war2	.0186213	.3299914		
_cons	1.395852	.4646512	-.1614503	-14.94437
/				
lnalpha	1.581271	1.425747	2.457868	1.969877