Shifting Power, Commitment Problems, and Preventive War

Web Appendix

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This document includes tables for all of the robustness checks mentioned in the text and footnotes. Before each table is a brief description of the robustness check. After each description in parentheses is the page number or footnote where the robustness check is mentioned in the article.

Table A.1 reports the results from our analysis when we use a non-directed dyad research design. To construct a non-directed dyadic measure of the expected shift in the distribution of power, we calculate the expected shift in the distribution of power for each state in the dyad. We then include the maximum of these two variables in our regression (footnote 6).

Table A.1: Rare Events Logistic Regressions of War Occurrence, 1818 to 2000

	Original Participants		Including Joiners	
	(1)	(2)	(3)	(4)
Expected Shift in the Distribution of Power	2.373**	1.016	3.810**	2.916**
	(0.634)	(0.633)	(0.285)	(0.344)
Capital-to-Capital Distance		-0.474**		-0.529**
		(0.089)		(0.059)
Contiguity		2.456**		1.461**
		(0.331)		(0.196)
Joint Democracy		-2.076**		-2.556**
		(1.010)		(0.711)
Similarity in Foreign Policy Interests		-1.327**		-1.993**
		(0.507)		(0.258)
Peace Years		-0.212**		-0.120**
		(0.036)		(0.014)
Peace Years^2		0.003**		0.002**
		(0.001)		(0.000)
Peace Years^3		-0.000**		-0.000**
		(0.000)		(0.000)
Constant	-8.681**	-2.817**	-7.742**	-0.981*
	(0.099)	(0.900)	(0.060)	(0.558)
Observations	630,788	530,740	630,788	530,740

Standard errors in parentheses

Two tailed tests: * $p < .1$, ** $p < .05$

(1) & (2) War occurrence coding only includes original war participants.

(3) & (4) War occurrence coding includes original participants and war joiners.

Table A.2 reports the results from our analysis when we use both original participants and war joiners to code instances of war initiation but exclude WWI and WWII observations (footnote 11).

Table A.2: Rare Events Logistic Regressions of War Initiation, 1818 to 2000

	(1)	(2)
Expected Shift in the Distribution of Power	3.023**	1.657**
	(0.453)	(0.440)
Capital-to-Capital Distance		-0.514**
		(0.070)
Contiguity		1.556**
		(0.251)
Joint Democracy		-2.559**
		(1.006)
Similarity in Foreign Policy Interests		-1.957**
		(0.372)
Peace Years		-0.194**
		(0.025)
Peace Years^2		0.003**
		(0.000)
Peace Years^3		-0.000**
		(0.000)
Constant	-8.755**	-1.765**
	(0.075)	(0.671)
Observations	1,144,476	1,044,428

Standard errors in parentheses

Two tailed tests: * $p < .1$, ** $p < .05$

War initiation coding includes original participants and war joiners.

Table A.3 reports the results from our analysis when we use a measure that only takes into account the expected power shift of the potential target and ignores the dyadic distribution of power (footnote 12).

Table A.3: Rare Events Logistic Regressions of War Initiation, 1818 to 2000

	Original Participants		Including Joiners	
	(1)	(2)	(3)	(4)
Potential Target Expected Power Shift	1.056**	0.617**	1.212**	0.935**
	(0.288)	(0.267)	(0.163)	(0.168)
Capital-to-Capital Distance		-0.473**		-0.521**
		(0.091)		(0.059)
Contiguity		2.332**		1.331**
		(0.346)		(0.192)
Joint Democracy		-2.104**		-3.177**
		(1.010)		(1.003)
Similarity in Foreign Policy Interests		-1.334**		-1.748**
		(0.525)		(0.262)
Peace Years		-0.210**		-0.085**
		(0.037)		(0.019)
Peace Years^2		0.003**		0.001**
		(0.001)		(0.000)
Peace Years^3		-0.000**		-0.000*
		(0.000)		(0.000)
Constant	-9.392**	-3.464**	-8.273**	-1.909**
	(0.104)	(0.911)	(0.061)	(0.576)
Observations	1,165,362	1,056,057	1,165,362	1,056,057

Standard errors in parentheses

Two tailed tests: * $p < .1$, ** $p < .05$

(1) & (2) War initiation coding only includes original war participants.

(3) & (4) War initiation coding includes original participants and war joiners.

Table A.4 reports the results from our analysis when we measure the expected shift in the distribution of power three years in the future rather than just one year. To do this we measure the initiator's military power at time $t+3$ instead of $t+1$ and the target's expected military power at time $t+3$ instead of $t+1$ (footnote 13).

Table A.4: Rare Events Logistic Regressions of War Initiation, 1818 to 2000

	Original Participants		Including Joiners	
	(1)	(2)	(3)	(4)
Expected Shift in the Distribution of Power$_{t+3}$	2.294**	1.434**	2.703**	1.933**
	(0.542)	(0.503)	(0.422)	(0.428)
Capital-to-Capital Distance		-0.461**		-0.525**
		(0.090)		(0.061)
Contiguity		2.372**		1.439**
		(0.345)		(0.209)
Joint Democracy		-2.002**		-2.934**
		(1.010)		(1.003)
Similarity in Foreign Policy Interests		-1.373**		-2.064**
		(0.512)		(0.268)
Peace Years		-0.221**		-0.128**
		(0.040)		(0.015)
Peace Years		0.003**		0.002**
		(0.001)		(0.000)
Peace Years		-0.000**		-0.000**
		(0.000)		(0.000)
Constant	-9.323**	-3.453**	-8.379**	-1.507**
	(0.100)	(0.904)	(0.063)	(0.566)
Observations	1,137,065	1,038,093	1,137,065	1,038,093

Standard errors in parentheses

Two tailed tests: * $p < .1$, ** $p < .05$

(1) & (2) War initiation coding only includes original war participants.

(3) & (4) War initiation coding includes original participants and war joiners.

Table A.5 reports the results from our analysis when we measure the expected shift in the distribution of power three years in the future rather than just one year. To do this we measure the initiator's military power at time $t+5$ instead of $t+1$ and the target's expected military power at time $t+5$ instead of $t+1$ (footnote 13).

Table A.5: Rare Events Logistic Regressions of War Initiation, 1818 to 2000

	Original Participants		Including Joiners	
	(1)	(2)	(3)	(4)
Expected Shift in the Distribution of Power$_{t+5}$	2.009**	1.275**	3.660**	3.094**
	(0.618)	(0.577)	(0.355)	(0.392)
Capital-to-Capital Distance		-0.461**		-0.558**
		(0.091)		(0.061)
Contiguity		2.356**		1.354**
		(0.348)		(0.216)
Joint Democracy		-2.005**		-2.839**
		(1.010)		(1.004)
Similarity in Foreign Policy Interests		-1.318**		-2.032**
		(0.518)		(0.290)
Peace Years		-0.219**		-0.130**
		(0.039)		(0.016)
Peace Years^2		0.003**		0.002**
		(0.001)		(0.000)
Peace Years^3		-0.000**		-0.000**
		(0.000)		(0.000)
Constant	-9.320**	-3.490**	-8.470**	-1.341**
	(0.101)	(0.915)	(0.066)	(0.576)
Observations	1,129,823	1,031,525	1,129,823	1,031,525

Standard errors in parentheses

Two tailed tests: * $p < .1$, ** $p < .05$

(1) & (2) War initiation coding only includes original war participants.

(3) & (4) War initiation coding includes original participants and war joiners.

Table A.6 reports the results from our analysis when we use a dichotomous variable that codes large expected shifts in the distribution of power as shifts greater than the 75th percentile (footnote 14).

Table A.6: Rare Events Logistic Regressions of War Initiation, 1818 to 2000

	Original Participants		Including Joiners	
	(1)	(2)	(3)	(4)
Large Expected Shift in the Distribution of Power	0.865**	0.497**	1.306**	1.040**
	(0.199)	(0.208)	(0.118)	(0.122)
Capital-to-Capital Distance		-0.445**		-0.491**
		(0.090)		(0.059)
Contiguity		2.379**		1.390**
		(0.343)		(0.202)
Joint Democracy		-1.981*		-2.906**
		(1.015)		(1.005)
Similarity in Foreign Policy Interests		-1.406**		-1.996**
		(0.510)		(0.260)
Peace Years		-0.213**		-0.118**
		(0.038)		(0.014)
Peace Years^2		0.003**		0.002**
		(0.001)		(0.000)
Peace Years^3		-0.000**		-0.000**
		(0.000)		(0.000)
Constant	-9.611**	-3.743**	-8.791**	-2.203**
	(0.132)	(0.904)	(0.088)	(0.564)
Observations	1,144,582	1,044,534	1,144,582	1,044,534

Standard errors in parentheses

Two tailed tests: * $p < .1$, ** $p < .05$

(1) & (2) War initiation coding only includes original war participants.

(3) & (4) War initiation coding includes original participants and war joiners.

Table A.7 reports the results from our analysis when we use a dichotomous variable that codes large expected shifts in the distribution of power as shifts greater than the 90th percentile (footnote 14).

Table A.7: Rare Events Logistic Regressions of War Initiation, 1818 to 2000

	Original Participants		Including Joiners	
	(1)	(2)	(3)	(4)
Large Expected Shift in the Distribution of Power	0.979**	0.587**	1.337**	1.067**
	(0.237)	(0.251)	(0.129)	(0.135)
Capital-to-Capital Distance		-0.445**		-0.500**
		(0.089)		(0.060)
Contiguity		2.394**		1.398**
		(0.344)		(0.206)
Joint Democracy		-2.003**		-2.962**
		(1.009)		(1.003)
Similarity in Foreign Policy Interests		-1.431**		-2.018**
		(0.518)		(0.263)
Peace Years		-0.214**		-0.119**
		(0.038)		(0.014)
Peace Years^2		0.003**		0.002**
		(0.001)		(0.000)
Peace Years^3		-0.000**		-0.000**
		(0.000)		(0.000)
Constant	-9.469**	-3.646**	-8.524**	-1.902**
	(0.113)	(0.904)	(0.070)	(0.565)
Observations	1,144,582	1,044,534	1,144,582	1,044,534

Standard errors in parentheses

Two tailed tests: * $p < .1$, ** $p < .05$

(1) & (2) War initiation coding only includes original war participants.

(3) & (4) War initiation coding includes original participants and war joiners.

Table A.8 reports the results from our analysis when we control for the current capability ratio of the potential initiator and target. We use the potential initiator's probability of winning: the potential initiator's CINC score divided by the sum of the potential initiator and target's CINC scores (Singer et al. 1972). This variable is bounded between zero and one where values closer to one indicate that the potential initiator has a higher probability of defeating the potential target in a war. As this probability increases the initiator will be more likely to initiate a war. (footnote 16).

Table A.8: Rare Events Logistic Regressions of War Initiation, 1818 to 2000

	Original Participants		Including Joiners	
	(1)	(2)	(3)	(4)
Expected Shift in the Distribution of Power	2.419**	1.186**	3.200**	2.289**
	(0.584)	(0.531)	(0.454)	(0.498)
Initiator's Probability of Winning	1.157**	1.162**	0.550**	0.455**
	(0.266)	(0.325)	(0.158)	(0.179)
Capital-to-Capital Distance		-0.455**		-0.508**
		(0.090)		(0.060)
Contiguity		2.380**		1.392**
		(0.340)		(0.203)
Joint Democracy		-2.031**		-3.025**
		(1.009)		(1.003)
Similarity in Foreign Policy Interests		-1.307**		-1.871**
		(0.512)		(0.259)
Peace Years		-0.215**		-0.118**
		(0.038)		(0.014)
Peace Years^2		0.003**		0.002**
		(0.001)		(0.000)
Peace Years^3		-0.000**		-0.000**
		(0.000)		(0.000)
Constant	-9.955**	-4.216**	-8.591**	-2.012**
	(0.192)	(0.881)	(0.105)	(0.570)
Observations	1,144,582	1,044,534	1,144,582	1,044,534

Standard errors in parentheses

Two tailed tests: * $p < .1$, ** $p < .05$

(1) & (2) War initiation coding only includes original war participants.

(3) & (4) War initiation coding includes original participants and war joiners.

Table A.9 reports the results from our analysis when we control for the current capability ratio of the potential initiator and target and allow for the relationship to be non-linear. We do this by including the potential initiator's probability of winning and the square of this variable. The variable is constructed in the same manner as described above (footnote 16).

Table A.9: Rare Events Logistic Regressions of War Initiation, 1818 to 2000

	Original Participants		Including Joiners	
	(1)	(2)	(3)	(4)
Expected Shift in the Distribution of Power	2.301**	1.188**	3.086**	2.281**
	(0.535)	(0.535)	(0.437)	(0.495)
Initiator's Probability of Winning	4.120**	0.893	2.508**	0.618
	(1.087)	(1.200)	(0.662)	(0.730)
Initiator's Probability of Winning^2	-2.812**	0.247	-1.929**	-0.160
	(1.048)	(1.150)	(0.655)	(0.714)
Capital-to-Capital Distance		-0.455**		-0.508**
		(0.090)		(0.061)
Contiguity		2.384**		1.389**
		(0.339)		(0.203)
Joint Democracy		-2.035**		-3.022**
		(1.007)		(1.002)
Similarity in Foreign Policy Interests		-1.301**		-1.876**
		(0.509)		(0.259)
Peace Years		-0.215**		-0.118**
		(0.038)		(0.014)
Peace Years^2		0.003**		0.002**
		(0.001)		(0.000)
Peace Years^3		-0.000**		-0.000**
		(0.000)		(0.000)
Constant	-10.407**	-4.167**	-8.851**	-2.035**
	(0.259)	(0.912)	(0.138)	(0.586)
Observations	1144582	1044534	1144582	1044534

Standard errors in parentheses

Two tailed tests: * $p < .1$, ** $p < .05$

(1) & (2) War initiation coding only includes original war participants.

(3) & (4) War initiation coding includes original participants and war joiners.

Table A.10 reports the results from our analysis when we estimate the models with a random effect for each directed dyad in the sample (footnote 17).

Table A.10: Rare Events Logistic Regressions of War Initiation, 1818 to 2000

	Original Participants		Including Joiners	
	(1)	(2)	(3)	(4)
Expected Shift in the Distribution of Power	2.925**	1.502*	3.617**	2.518**
	(0.829)	(0.840)	(0.447)	(0.467)
Capital-to-Capital Distance		-0.605**		-0.555**
		(0.125)		(0.070)
Contiguity		2.234**		1.341**
		(0.329)		(0.200)
Joint Democracy		-2.629**		-3.541**
		(1.017)		(1.004)
Similarity in Foreign Policy Interests		-1.324**		-1.735**
		(0.613)		(0.314)
Peace Years		-0.209**		-0.115**
		(0.025)		(0.011)
Peace Years^2		0.003**		0.002**
		(0.000)		(0.000)
Peace Years^3		-0.000**		-0.000**
		(0.000)		(0.000)
Constant	-12.214**	-3.553**	-9.877**	-2.173**
	(0.461)	(1.130)	(0.201)	(0.649)
Directed Dyad Random Effect	0.870**	0.360**	0.550**	0.078
	(0.087)	(0.131)	(0.064)	(0.112)
Observations	1,144,582	1,044,534	1,144,582	1,044,534

Standard errors in parentheses

Two tailed tests: * $p < .1$, ** $p < .05$

(1) & (2) War initiation coding only includes original war participants.

(3) & (4) War initiation coding includes original participants and war joiners.

Table A.11 reports the results from our analysis when we utilize a standard logit model rather than a rare events logit model (footnote 18).

Table A.11: Logistic Regressions of War Initiation, 1818 to 2000

	Original Participants		Including Joiners	
	(1)	(2)	(3)	(4)
Expected Shift in the Distribution of Power	2.736**	1.427*	3.387**	2.410**
	(0.769)	(0.777)	(0.418)	(0.448)
Capital-to-Capital Distance		-0.448**		-0.506**
		(0.092)		(0.060)
Contiguity		2.384**		1.390**
		(0.290)		(0.184)
Joint Democracy		-2.507**		-3.520**
		(1.006)		(1.002)
Similarity in Foreign Policy Interests		-1.299**		-1.867**
		(0.561)		(0.301)
Peace Years		-0.217**		-0.118**
		(0.026)		(0.011)
Peace Years^2		0.003**		0.002**
		(0.000)		(0.000)
Peace Years^3		-0.000**		-0.000**
		(0.000)		(0.000)
Constant	-9.342**	-3.653**	-8.319**	-1.804**
	(0.101)	(0.906)	(0.061)	(0.562)
Observations	1,144,582	1,044,534	1,144,582	1,044,534

Standard errors in parentheses

Two tailed tests: * $p < .1$, ** $p < .05$

(1) & (2) War initiation coding only includes original war participants.

(3) & (4) War initiation coding includes original participants and war joiners.