Appendix for

Shadow Wars in the Shadow of the Bomb: The Link Between Nuclear Weapons and Indirect Conflict

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Table A1 Full Results: Logit tests with (1) no controls, (2) plus conflict controls, (3) plus conflict and state/dyad-level controls, (4) full test with proxy onset, (5) full test with censored proxy onset, (6) full test with proxy presence and time and dyad fixed effects

VARIABLES	(1) Odds ratio	(2) Odds ratio	(3) Odds ratio	(4) Odds ratio	(5) Odds ratio	(6) Odds ratio
Proxy Conflict Measure	PRESENCE	PRESENCE	PRESENCE	ONSET	ONSET CENSORED	PRESENCE F.E.
Asymmetric Nuclear Dyad	5.230***	4.387***	2.905***	4.638***	4.687***	2.131***
	(0.577)	(0.483)	(0.583)	(0.611)	(0.635)	(0.432)
Symmetric Nuclear Dyad	34.93***	16.31***	8.557***	10.88***	13.16***	9.585***
	(9.173)	(4.970)	(3.741)	(3.317)	(4.016)	(3.811)
State Capabilities			0.831***	0.844***	0.832***	2.188***
			(0.0385)	(0.0279)	(0.0285)	(0.196)
Ally			0.271***	0.448***	0.429***	0.227***
			(0.0549)	(0.0696)	(0.0689)	(0.0324)
Democracy			0.877***	0.937***	0.934***	0.952***
			(0.0113)	(0.00850)	(0.00863)	(0.00790)
Economic Interdependence			0	0**	0**	0***
			(0)	(0)	(0)	(0)
Distance			0.442***	0.493***	0.498***	0.0305
			(0.0557)	(0.0501)	(0.0523)	(0.0885)
Contiguity			1.471	1.391	1.508*	0.0513***
			(0.408)	(0.288)	(0.328)	(0.0316)
Major Power			0.959	0.685**	0.683**	9.426e+06
			(0.264)	(0.124)	(0.128)	(8.273e+09)
NIGO Membership			1.013*	1.004	1.004	0.944***
			(0.00696)	(0.00481)	(0.00514)	(0.00694)
Prior Conflict		1.562***	1.308***	1.149***	1.187***	1.205***
		(0.0528)	(0.0481)	(0.0246)	(0.0303)	(0.0236)
Power Projection			4,802***	316.0***	510.7***	26.29**
			(4,695)	(208.3)	(356.8)	(41.87)
Colonizer			1.137	1.042	1.063	
			(0.189)	(0.125)	(0.132)	
Personalist 1			1.010	1.184	1.170	0.607***
			(0.157)	(0.138)	(0.139)	(0.102)
Personalist 2			0.918	1.430***	1.400***	2.149***
			(0.132)	(0.158)	(0.160)	(0.295)
Constant	0.00472***	0.00444***	2.249	1.780	1.505	
	(0.000273)	(0.000253)	(2.493)	(1.576)	(1.377)	
	0.00472***	0.00444***	2.249	1.780	1.505	
Observations	631,083	631,083	295,558	295,558	293,898	19,654
Groups						643

Robust SE (eform) in parentheses
*** p<0.01, ** p<0.05, * p<0.1

We run six core models: 1) a stripped down one including only the primary independent and dependent variables of interest; 2) one adding controls for the level of interstate conflict prior to nuclear acquisition; and 3) a full model incorporating all control variables; 4) a full model using proxy onset; 5) a full model using proxy onset and censoring subsequent non-onset observations; and 6) a full model using proxy presence with fixed effects. Across all models, the sign, magnitude, and statistical significance of our core findings remain intact: nuclear weapons possession is strongly associated with proxy conflicts.

Table A2 Cold War Controls: Full logit tests (1) with Cold War time control (first-order and interacted with nuclear variables) and (2) excluding India-Pakistan and (3) United States-Soviet Union/Russia dyads

VARIABLES	(1) Odds ratio	(2) Odds ratio	(3) Odds ratio
Asymmetric Nuclear Dyad	1.870***	2.984***	2.662***
	(0.423)	(0.601)	(0.558)
Cold War	0.404***		
	(0.0567)		
Asymmetric Nuclear Dyad *x* CW	3.231***		
	(0.708)		
Symmetric Nuclear Dyad	4.538**	8.706***	11.77***
	(3.159)	(4.121)	(5.448)
Symmetric Nuclear Dyad *x* CW	5.589***		
	(3.622)		
State Capabilities	0.837***	0.837***	0.845***
	(0.0398)	(0.0392)	(0.0436)
Ally	0.278***	0.288***	0.277***
	(0.0567)	(0.0582)	(0.0616)
Democracy	0.868***	0.877***	0.871***
	(0.0115)	(0.0114)	(0.0110)
Economic Interdependence	1.62e-10	0	0.000341
	(3.49e-09)	(0)	(0.00417)
Distance	0.445***	0.453***	0.460***
	(0.0542)	(0.0539)	(0.0563)
Contiguity	1.613*	1.469	1.384
	(0.450)	(0.404)	(0.403)
Major Power	0.825	0.926	0.662
	(0.222)	(0.257)	(0.205)
NIGO Membership	1.009	1.014**	1.019***
	(0.00595)	(0.00610)	(0.00615)
Prior Conflict	1.300***	1.308***	1.308***
	(0.0497)	(0.0487)	(0.0498)
Power Projection	4,722***	3,976***	541,434***
	(4,753)	(3,879)	(1.244e+06)
Personalist 1	0.998	0.994	0.995
	(0.159)	(0.156)	(0.156)
Personalist 2	0.903	0.915	0.996
	(0.131)	(0.131)	(0.145)
Colonizer Status	1.195	1.137	1.233
	(0.195)	(0.185)	(0.211)
Constant	1.104	2.327	1.590
	(0.881)	(2.491)	(1.741)
Observations	295,565	295,529	289,158

Column 1 includes additional controls for the Cold War. The main results for the impact on nuclear possession on proxy conflict remain substantively large and statistically significant. Here we ensure that the results are not driven by extreme outliers within the dataset. Specifically, we run our models excluding both the United States-Soviet Union (column 2) and the India-Pakistan (column 3) dyads. Both these dyads are prominent nuclear-armed dyads which have are generally believed to have experienced high levels of proxy conflict. Even when excluding these observations, the results remain unchanged.

Table A3 Excluding Nuclear States: Full logit tests each excluding a separate nuclear-armed state.

VARIABLES	(1) Odds ratio	(2) Odds ratio	(3) Odds ratio	(4) Odds ratio	(5) Odds ratio	(6) Odds ratio	(7) Odds ratio	(8) Odds ratio	(9) Odds ratio	(10) Odds ratio
EXCLUDED STATE	U.S.A.	U.K.	FRANCE	RUSSIA	SOUTH AFRICA	ISRAEL	CHINA	NORTH KOREA	INDIA	PAKISTAN
Asymmetric Nuclear Dyad	2.655***	2.952***	2.778***	2.957***	2.534***	3.392***	2.873***	3.192***	2.785***	2.161***
	(0.556)	(0.587)	(0.564)	(0.594)	(0.566)	(0.740)	(0.569)	(0.676)	(0.625)	(0.602)
Symmetric Nuclear Dyad	12.57***	8.576***	9.113***	6.097***	6.250***	8.805***	10.96***	10.68***	7.616***	4.825***
	(5.356)	(4.121)	(4.448)	(3.555)	(2.856)	(4.202)	(4.520)	(5.021)	(3.893)	(2.744)
State Capabilities	0.847***	0.836***	0.852***	0.839***	0.833***	0.822***	0.840***	0.813***	0.837***	0.837***
	(0.0430)	(0.0392)	(0.0401)	(0.0415)	(0.0394)	(0.0387)	(0.0403)	(0.0383)	(0.0416)	(0.0405)
Ally	0.240***	0.274***	0.265***	0.301***	0.270***	0.278***	0.242***	0.295***	0.274***	0.281***
	(0.0545)	(0.0558)	(0.0543)	(0.0629)	(0.0550)	(0.0567)	(0.0510)	(0.0597)	(0.0570)	(0.0585)
Democracy	0.869***	0.875***	0.878***	0.879***	0.876***	0.877***	0.868***	0.869***	0.877***	0.865***
	(0.0110)	(0.0113)	(0.0117)	(0.0115)	(0.0116)	(0.0117)	(0.0117)	(0.0116)	(0.0116)	(0.0125)
Economic Interdependence	8.35e-06	0	0	0	0	0	0.000863	0	0	0
	(0.000120)	(0)	(0)	(0)	(0)	(0)	(0.0101)	(0)	(0)	(0)
Distance	0.444***	0.439***	0.444***	0.476***	0.449***	0.444***	0.445***	0.429***	0.436***	0.446***
	(0.0589)	(0.0563)	(0.0569)	(0.0616)	(0.0571)	(0.0573)	(0.0573)	(0.0546)	(0.0566)	(0.0587)
Contiguity	1.421	1.394	1.501	1.807**	1.540	1.499	1.370	1.462	1.369	1.457
	(0.412)	(0.393)	(0.422)	(0.536)	(0.426)	(0.415)	(0.395)	(0.407)	(0.398)	(0.423)
Major Power	0.693	1.054	0.828	0.890	1.104	0.855	1.027	0.925	0.967	1.216
	(0.220)	(0.302)	(0.249)	(0.263)	(0.322)	(0.242)	(0.300)	(0.263)	(0.302)	(0.411)
NIGO Membership	1.016**	1.015**	1.014**	1.016**	1.017**	1.012*	1.015**	1.005	1.010	1.012
	(0.00713)	(0.00703)	(0.00722)	(0.00707)	(0.00708)	(0.00703)	(0.00738)	(0.00672)	(0.00710)	(0.00758)
Previous Conflict	1.310***	1.313***	1.302***	1.303***	1.290***	1.310***	1.326***	1.351***	1.318***	1.322***
	(0.0508)	(0.0494)	(0.0477)	(0.0491)	(0.0459)	(0.0493)	(0.0529)	(0.0470)	(0.0509)	(0.0525)
Power Projection	141,104***	2,862***	8,257***	3,513***	7,210***	5,048***	4,469***	5,031***	4,932***	4,754***
	(309,020)	(2,981)	(8,677)	(3,473)	(7,110)	(4,953)	(4,437)	(4,903)	(4,847)	(4,779)
Personalist 1	1.032	1.001	1.022	1.062	1.015	1.010	1.019	0.975	1.059	1.020
	(0.160)	(0.155)	(0.158)	(0.174)	(0.158)	(0.159)	(0.161)	(0.154)	(0.165)	(0.165)
Personalist 2	1.003	0.915	0.875	0.921	0.931	0.915	0.905	0.884	0.916	0.908
	(0.147)	(0.135)	(0.129)	(0.137)	(0.134)	(0.132)	(0.131)	(0.129)	(0.133)	(0.133)
Colonizer Status	1.229	1.210	1.053	1.241	0.976	1.122	1.115	1.194	1.186	1.219
	(0.212)	(0.202)	(0.186)	(0.219)	(0.178)	(0.188)	(0.196)	(0.196)	(0.198)	(0.205)
Time	1.103***	1.117***	1.116***	1.097***	1.119***	1.121***	1.108***	1.115***	1.105***	1.096***
	(0.0375)	(0.0356)	(0.0364)	(0.0355)	(0.0351)	(0.0360)	(0.0356)	(0.0352)	(0.0347)	(0.0344)
Time-Squared	0.991***	0.990***	0.990***	0.991***	0.990***	0.990***	0.991***	0.991***	0.991***	0.992***
	(0.00218)	(0.00207)	(0.00212)	(0.00207)	(0.00205)	(0.00209)	(0.00207)	(0.00207)	(0.00204)	(0.00205)
Time-Cubed	1.000***	1.000***	1.000***	1.000***	1.000***	1.000***	1.000***	1.000***	1.000***	1.000***
	(3.89e-05)	(3.76e-05)	(3.81e-05)	(3.70e-05)	(3.70e-05)	(3.77e-05)	(3.73e-05)	(3.74e-05)	(3.69e-05)	(3.71e-05)
Constant	1.747	2.274	2.087	1.126	1.718	2.203	1.827	3.323	2.696	2.003
	(2.027)	(2.558)	(2.353)	(1.284)	(1.916)	(2.500)	(2.090)	(3.671)	(3.063)	(2.336)
Observations	290,644	290,619	290,619	291,034	291,180	291,208	290,731	291,794	290,649	290,671

Here we ensure that the results are not driven by monadic outliers. We run the full dataset 10 times, each time excluding a separate nuclear-armed state from the analysis. In all of the specifications, the results on our variable of interest remain substantively large and statistically significant.

Table A4 Fixed Effects Model: Full test using fixed effects logit on (1) presence of indirect conflict, (2) onset of indirect conflict, (3) onset of indirect conflict with censoring. Also test (4) using rare event logit

VARIABLES	(1) Odds ratio	(2) Odds ratio	(3) Odds ratio	(4) Odds ratio
Proxy Conflict Measure	PRESENCE	ONSET	ONSET CENSORED	RELOGIT
Asymmetric Nuclear Dyad	2.131***	2.587***	2.478***	2.909***
	(0.432)	(0.720)	(0.690)	(0.584)
Symmetric Nuclear Dyad	9.585***	6.802***	9.716***	8.579***
	(3.811)	(3.596)	(5.353)	(3.750)
State Capabilities	2.188***	2.121***	2.252***	0.831***
	(0.196)	(0.271)	(0.296)	(0.0385)
Ally	0.227***	0.613**	0.464***	0.272***
	(0.0324)	(0.117)	(0.0904)	(0.0550)
Democracy	0.952***	1.045***	1.031***	0.877***
	(0.00790)	(0.0108)	(0.0110)	(0.0113)
Economic Interdependence	0***	0**	0**	0
	(0)	(0)	(0)	(0)
Distance	0.0305	0.0333	0.0395	0.442***
	(0.0885)	(0.109)	(0.126)	(0.0557)
Contiguity	0.0513***	0.158**	0.109**	1.472
	(0.0316)	(0.141)	(0.102)	(0.408)
Major Power	9.426e+06	712,606	412,536	0.959
	(8.273e+09)	(5.652e+08)	(2.066e+08)	(0.264)
NIGO Membership	0.944***	0.964***	0.958***	1.013*
	(0.00694)	(0.00989)	(0.0102)	(0.00696)
Prior Conflict	1.205***	1.064**	1.137***	1.307***
	(0.0236)	(0.0302)	(0.0360)	(0.0481)
Power Projection	26.29**	137.0**	254.0**	4,755***
	(41.87)	(316.8)	(614.4)	(4,649)
Personalist 1	0.607***	0.853	0.789	1.012
	(0.102)	(0.196)	(0.184)	(0.157)
Personalist 2	2.149***	2.790***	2.979***	0.919
	(0.295)	(0.493)	(0.541)	(0.132)
Colonizer Status	-	-	-	1.138
				(0.189)
Time				1.119***
				(0.0352)
Time-Squared				0.990***
				(0.00205)
Time-Cubed				1.000***
				(3.70e-05)
Constant				2.252
				(2.496)
Observations	19,654	19,433	17,791	295,558
Groups	643	634	634	

seEform in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Reports the results from the fully specified model estimated using fixed effects logit with various measures of indirect conflict. Again, the estimates for nuclear possession remain positive and statistically significant. Though the magnitude of the point estimates decreases compared to other models, the results still report a strong relationship between nuclear possession and proxy war. Column 4 reports the results from the fully specified model estimated using rare events logit to correct for possible high dispersion on the dependent variable. Again, the estimates for nuclear possession remain both substantively large and statistically significant.

Table A5 Alternative Nuclear and State Capabilities Codings: Full logit tests employing (1) Singh and Way nuclear codings, (2) Beckley net capabilities, (3) controlling for simultaneous MID, and (4) interstate rivalry.

VARIABLES	(1) Odds ratio	(2) Odds ratio		(3) Odds ratio	(4) Odds ratio
Asymm. Nuclear Dyad (S&W)	2.949***		Asymm. Nuclear Dyad	2.539***	2.327***
	(0.594)			(0.508)	(0.475)
Symm. Nuclear Dyad (S&W)	8.710***		Symm. Nuclear Dyad	8.323***	6.885***
	(3.810)			(3.517)	(2.915)
State Capabilities (CINC)	0.831***		State Capabilities (Net Cap)	0.862***	0.861***
	(0.0385)			(0.0246)	(0.0246)
Ally	0.272***	0.259***	Ally	0.255***	0.256***
	(0.0550)	(0.0537)		(0.0532)	(0.0540)
Democracy	0.877***	0.879***	Democracy	0.878***	0.882***
	(0.0113)	(0.0111)		(0.0111)	(0.0111)
Economic Interdependence	0	0*	Economic Interdependence	0	0
	(0)	(0)		(0)	(0)
Distance	0.443***	0.448***	Distance	0.447***	0.446***
	(0.0557)	(0.0594)		(0.0584)	(0.0558)
Contiguity	1.475	1.451	Contiguity	1.305	1.010
	(0.409)	(0.404)		(0.373)	(0.313)
Major Power	0.946	0.896	Major Power	0.891	1.031
	(0.261)	(0.244)		(0.244)	(0.286)
NIGO Membership	1.013*	1.009	NIGO Membership	1.009	1.008
	(0.00698)	(0.00706)		(0.00718)	(0.00760)
Prior Conflict	1.308***	1.326***	Prior Conflict	1.183***	1.111**
	(0.0481)	(0.0473)		(0.0417)	(0.0468)
Power Projection	4,741***	6,079***	Power Projection	6,270***	6,159***
	(4,636)	(6,087)		(6,334)	(6,152)
Personalist 1	1.010	1.025	Personalist 1	1.008	0.997
	(0.157)	(0.160)		(0.159)	(0.158)
Personalist 2	0.918	1.022	Personalist 2	1.000	1.004
	(0.132)	(0.153)		(0.151)	(0.150)
Colonizer Status	1.140	1.575**	Colonizer Status	1.565**	1.557**
	(0.190)	(0.281)		(0.280)	(0.278)
Time	1.119***	1.121***	MID Presence	5.444***	5.004***
	(0.0352)	(0.0352)		(1.052)	(0.993)
Time-Squared	0.990***	0.990***	Rivalry		4.300***
	(0.00204)	(0.00205)			(1.598)
Time-Cubed	1.000***	1.000***	Time	1.120***	1.129***
	(3.69e-05)	(3.71e-05)		(0.0348)	(0.0355)
Asymm. Nuclear Dyad (Bleek)		2.572***	Time-Squared	0.990***	0.990***
		(0.515)		(0.00202)	(0.00203)
Symm. Nuclear Dyad (Bleek)		7.886***	Time-Cubed	1.000***	1.000***
		(3.380)		(3.64e-05)	(3.65e-05)
State Capabilities (Net Cap)		0.863***			
		(0.0245)			
Constant	2.230	2.347	Constant	2.388	2.427
	(2.472)	(2.772)		(2.785)	(2.724)
Observations	295,558	295,558	Observations	295,558	295,558

Robust seeform in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Robustness tests employing alternative operationalizations for nuclear possession (using Bleek's codings) and state capacity (using Beckley's net capabilities measure). Additional tests with simultaneous MID and rivalry measures.

Table A6 Checkrob Test: 1024 iterations, with 5 core variables and 10 test variables

	Asymmetric Nuclear Dyads		Symmetric Nuclear Dyads	
	Coefficient	**Z-Score**	**Coefficient**	**Z-Score**
Minimum	1.0000	6.4074	1.8247	4.4685
Median	1.3914	10.5243	2.7539	7.9664
Mean	1.4009	10.9016	2.7760	8.1706

Reporting summary statistics from the *checkrob* analysis. The extremely large Z-scores associated with the various iterations strongly suggests the results are robust to specific model specification and combination of control variables. These results are presented visually in the following two figures. Here we restrict the control variables to those in the original Bell and Miller analysis since adding the additional 4 control variables (power projection, colonizer status, and personalist measures) increases the number of iterations to 16,384.

Figure A1 CheckRob Test: Histogram of Z-scores for effect of asymmetric nuclear dyads on proxy war onset. Red line indicates Z-score of 3.72 (p-value < 0.0001)

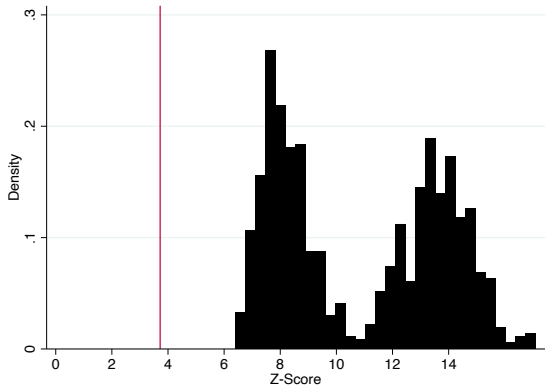

Figure A1: Histogram of Z-scores from *checkrob* analysis of primary specification including all covariates, which allows us to test 1,024 combinations of our variables as an additional test of the robustness of our findings. Panel (a) presents the results for asymmetric dyads and panel (b) presents the results for symmetric dyads. Each panel plots the Z-scores for all 1,024 iterations of the main specification. Vertical red lines indicate Z-score of 3.72, equivalent to a p-value of 0.0001. The results, which show every specification's Z-score far to the right, illustrate that the findings are robust to the inclusion and exclusion of covariates.

Figure A2 Checkrob Test: Histogram of Z-scores for effect of symmetric nuclear dyads on proxy war onset. Red line indicates Z-score of 3.72 (p-value < 0.0001)

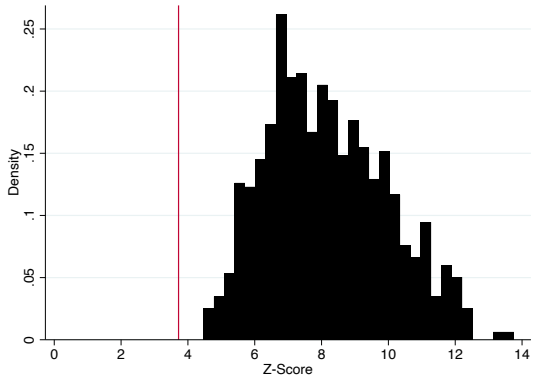

Figure A2: Histogram of Z-scores from *checkrob* analysis of primary specification including all covariates, which allows us to test 1,024 combinations of our variables as an additional test of the robustness of our findings. Panel (a) presents the results for asymmetric dyads and panel (b) presents the results for symmetric dyads. Each panel plots the Z-scores for all 1,024 iterations of the main specification. Vertical red lines indicate Z-score of 3.72, equivalent to a p-value of 0.0001. The results, which show every specification's Z-score far to the right, illustrate that the findings are robust to the inclusion and exclusion of covariates.

Table A7 Alternative Nuclear Measures: Full tests with alternative nuclear capabilities

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio
	Total Warheads	Strategic Warheads	Strategic DVs	Loaded Strat. Warheads	Total Megatonnage	EMT	CMP
Nuclear Measure	3.994	0.533	2.327	1.305	1.835	3.454	0.579
	(5.360)	(0.929)	(4.262)	(2.447)	(3.575)	(6.161)	(0.825)
State Capabilities	0.602***	0.576***	0.565***	0.564***	0.601***	0.634***	0.629***
	(0.0480)	(0.0504)	(0.0495)	(0.0494)	(0.0480)	(0.0410)	(0.0415)
Ally	0.205***	0.243***	0.202***	0.205***	0.208***	0.212***	0.216***
	(0.0792)	(0.100)	(0.0848)	(0.0851)	(0.0799)	(0.0692)	(0.0694)
Democracy	0.965	0.967	0.969	0.969	0.966	0.940***	0.939***
	(0.0225)	(0.0272)	(0.0271)	(0.0270)	(0.0225)	(0.0167)	(0.0166)
Economic Interdependence	0**	0**	0**	0**	0**	0**	0**
	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Distance	0.290***	0.320***	0.294***	0.297***	0.293***	0.357***	0.364***
	(0.0618)	(0.0773)	(0.0742)	(0.0746)	(0.0626)	(0.0634)	(0.0643)
Contiguity	0.872	0.904	0.841	0.854	0.891	1.064	1.102
	(0.493)	(0.545)	(0.514)	(0.521)	(0.502)	(0.530)	(0.551)
Major Power	2.261**				2.251**	1.518	1.535
	(0.779)				(0.779)	(0.447)	(0.450)
NIGO Membership	0.961***	0.963**	0.963**	0.963**	0.962***	0.988	0.987
	(0.0136)	(0.0160)	(0.0161)	(0.0160)	(0.0137)	(0.0113)	(0.0111)
Power Projection	65,615***	78,824***	114,805***	115,413***	64,875***	17,068***	17,455***
	(90,185)	(113,729)	(167,251)	(168,111)	(88,946)	(18,605)	(19,019)
Personalist 1	0.895	0.945	0.973	0.974	0.896	0.544**	0.551**
	(0.281)	(0.370)	(0.390)	(0.390)	(0.281)	(0.152)	(0.155)
Personalist 2	0.944	1.017	1.005	1.009	0.947	0.909	0.927
	(0.312)	(0.338)	(0.341)	(0.342)	(0.313)	(0.277)	(0.280)
Colonizer Status	0.967	0.795	0.812	0.813	0.968	0.930	0.938
	(0.266)	(0.259)	(0.273)	(0.273)	(0.266)	(0.218)	(0.220)
Prior Conflict	1.393***	1.369***	1.359***	1.362***	1.397***	1.309***	1.308***
	(0.108)	(0.125)	(0.126)	(0.127)	(0.109)	(0.0808)	(0.0793)
Time	1.414***	1.423***	1.457***	1.457***	1.413***	1.313***	1.307***
	(0.113)	(0.118)	(0.123)	(0.123)	(0.113)	(0.0706)	(0.0694)
Time-Squared	0.972***	0.973***	0.971***	0.971***	0.972***	0.979***	0.979***
	(0.00674)	(0.00701)	(0.00711)	(0.00712)	(0.00674)	(0.00386)	(0.00382)
Time-Cubed	1.001***	1.001***	1.001***	1.001***	1.001***	1.000***	1.000***
	(0.000170)	(0.000182)	(0.000184)	(0.000184)	(0.000170)	(7.40e-05)	(7.33e-05)
Constant	1,166***	1,316***	2,550***	2,375***	1,058***	162.4***	141.1***
	(2,233)	(2,925)	(5,778)	(5,369)	(2,031)	(264.0)	(227.2)
Observations	22,316	17,291	16,632	16,632	22,316	36,138	36,129

Table A7: Logit tests employing alternative measures of the nuclear balance from Logan, including (1) total nuclear warhead stockpile, (2) strategic warhead stockpile, (3) strategic delivery vehicles, (4) strategic warheads loaded onto delivery vehicles, and (5) megatonnage from Logan (2022) and (6) EMT and (7) CMP from Suh (2023). Each measure is expressed as a ratio of the nuclear inferior state's capabilities to the sum of capabilities of both states in the dyad. In other words, a higher value on the nuclear ratio measure indicates greater nuclear parity along that dimension, while a lower value indicates greater asymmetry along that dimension. Five of the seven nuclear measures show a relationship between parity and proxy conflict, which would support our theory. However, none of the tests are statistically significant at conventional thresholds.

These mixed results may be due to several reasons. First, it may be that the particular nuclear balance itself matters less than presence of nuclear weapons as predicted by the theory of the nuclear revolution. Second, it may depend on the perceptions of actors at the time about the nuclear balance, something force-based measures will not capture (Logan 2022). Third, these aggregate results may be hiding variation in how different kinds of superiority affect conflict dynamics (Fanlo and Sukin 2023). Fourth, there is very little variance in most of the strategic nuclear measures, which may, from a technical standpoint, complicate quantitative analysis of their effects. These results offer tentative support to the theory of the nuclear revolution, element of which have been called into question by recent works (Jervis 1989; Kroenig 2018; Gavin 2020). Further research can do more to investigate these dynamics.

South Africa Comparative Tests

To ensure that shifts in indirect conflict rates for South Africa are not driven by secular trends, we compare the rates for South Africa to those for three comparison groups: 1) the entire continent of Africa, 2) Africa but excluding Middle Eastern and North African states (excluding correlates of war country codes between 600 and 627: Morocco, Algeria, Tunisia, Libya, Sudan, and South Sudan), and 3) states comprising the South African region of the continent (including correlates of war country codes between 539 and 600: Angola, Mozambique, Zambia, Zimbabwe, Malawi, Namibia, Lesotho, Botswana, Swaziland, Madagascar, Comoros, Mauritius, and Seychelles). We exclude South Africa from each of the comparison groups. The relative rates of indirect conflict for South Africa and the three comparison groups are plotted in Figure A3.

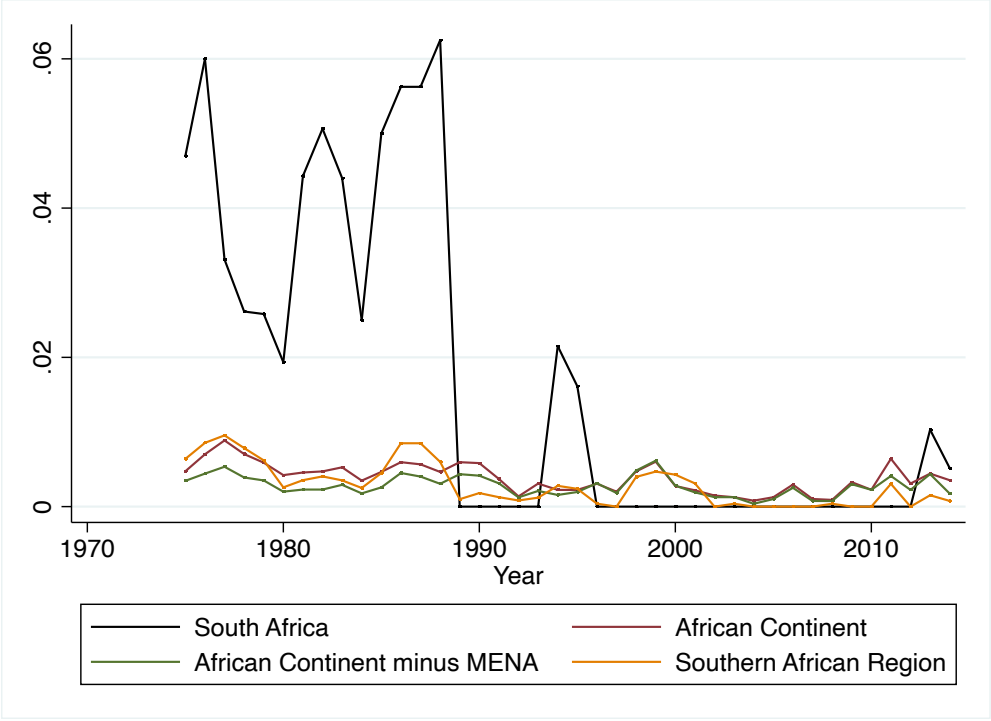

Figure A3 Rates of Indirect Conflict for South Africa and Regional Comparison Groups

The results support the findings from our other tests. During its nuclear years, South Africa had significantly higher rates of indirect conflict than each of the comparison groups. Following denuclearization, South Africa experienced a significant drop in indirect conflict rates, following below that of each of the three comparison

groups and staying at or near zero in most years. While the three reference groups experience a slight drop in indirect conflict rates in the early- to mid-1990s, they remain roughly consistent across the time period and consistently below South Africa's nuclear rates and above South Africa's non-nuclear rates.

Controls Included in Model

We control for several variables that influence a state's likelihood of acquiring nuclear weapons and participating in an indirect proxy conflict.

- *Major Power*. Major powers are more likely to engage in interstate conflict. Recent work has argued there is a particular link between great power status and the onset of proxy wars (Jenne, Popovic, and Siroky 2021). We control for this using data from Correlates of War (2017) to identify whether either state is a major power.
- *Colonizer Status*. States that have a history of establishing overseas colonies are likely to have higher risks of both proxy warfare and nuclear proliferation. Many proxy wars are fought in states that were formerly colonized and involve the intervention of former colonizers (Towle 1981; Jenne, Popovic, and Siroky 2021). Scholars have also drawn a link between nuclear weapons and colonial projects, arguing that colonial possessions facilitated or were fueled by nuclear weapons by justifying the acquisition of nuclear weapons to protect overseas dependencies, extracting fissile material from overseas colonies, and using colonial territory as the site of nuclear weapons tests (Jacobs 2013; Intondi 2015; van Munster 2021). We control for this by identifying whether either state was a former colonizer using data from Lange and Dawson (2009).
- *Personalism*. Personalist regimes are more likely to initiate conflict (Weeks 2014; Colgan and Weeks 2015) and pursue nuclear weapons (Way and Weeks 2015). We control for this by identifying whether either state is a personalist state using data from Geddes, Wright, and Frantz (2014).
- *Power Projection Capabilities*. States with power projection capabilities are more likely to engage in indirect proxy conflicts because they have the capacity to support actors abroad, especially at distance (Heinkelmann-Wild and Mehrl 2022). In addition, nuclear weapons possession is associated with power projection capabilities and logics (Fuhrmann and Sechser 2014; Gannon 2023). We include a measure of power projection capabilities from Gannon (2023). We take the state's share of global military capabilities that constitute power projection capabilities in the air, in the sea, and in supporting extended command and control. We then average these three shares to produce a composite power projection measure for each state and use the higher share in the dyad.
- *Geography*. We include standard geographic controls that are typically used for studies of interstate conflict. We include a control for whether the states are contiguous and the logged distance between the capitals in miles. Past work on direct conflict has found that states which are closer and contiguous are more likely to experience conflict. However, for indirect proxy conflict, the relationship between distance and conflict may be reversed with states forced to rely on proxies to undermine a distant adversary.
- *Ally*. State dyads that feature shared alliances are less likely to have conflict. States with security alliances are also less likely to pursue or acquire nuclear weapons (Bleek and Lorber 2014; Miller 2014). We control for alliances within the dyad using data from the ATOP dataset (Leeds, Ritter, Mitchell, and Long 2022).
- *Previous Conflict*. Past military conflict increases the likelihood of both nuclear proliferation and of interstate conflict (Bell and Miller 2015). We adopt the approach of Lee, et al. (2023) and control for previous conflict by using the total number of MIDs experienced in the previous 10 years.
- *State Capabilities*. Both nuclear proliferation and interstate conflict are likely correlated with a state's capabilities (Jo and Gartzke; Singh and Way). We control for material capabilities by including the log of the ratio between the two states' Composite Index of National Capability (CINC) scores (Singer, Bremer, and Stuckey 1972). As a robustness test, we instead use Beckley's (2018) measure of net capabilities.
- *Economic Integration*. States with lower levels of economic integration are more likely to engage in interstate conflict (Gartzke) and are more likely to proliferate (Solingen 2009). We address this by controlling for the proportion of state GDP that depends on trade. We adopt the "least constrained" approach and include the lower of the two measures in the dyad (Pevehouse 2004; Hegre 2009).
- *Regime Type*. In addition to personalism, we control for regime type using data from Polity. As with the economic integration control, we adopt the least constrained approach and include the lower of the polity2 scores.
- *IGO Membership*. Membership in international organizations is associated with conflict patterns (Oneal, Russett, and Berbaum 2003) and nuclear proliferation (Solingen 2009). We control for this by including the number of intergovernmental organizations in which the states share membership (Pevehouse, et al.).
- *Temporal Dependence*. We add measures of time, time-squared, and time-cubed based on the number of years that have passed since the presence of a conflict within the dyad (Carter and Signorino 2010).

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