Online Appendix to "Domestic Signaling of Commitment Credibility"

Table of Contents:

***Summary Statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
year	13,647	1944.274	51.35091	1816	2005
realconscr~t	12,992	.6367765	.480947	0	1
defense	13,647	.4797391	.4996076	0	1
defense_form	13,647	.0323881	.177035	0	1
defense_end	6,547	.0470444	.2117501	0	1
NATO	6,547	.7491981	.4335078	0	1
defense_fo~5	6,547	.2559951	.4364524	0	1
offense	13,647	.0649227	.2463984	0	1
offense_form	13,647	.0104052	.1014776	0	1
offense_fo~5	886	.4503386	.4978086	0	1
war	13,647	.0211768	.1439787	0	1
milex	12,928	223810.3	1522742	0	3.38e+07
milper	13,020	167.7147	547.2443	-9	12500
tpop	13,020	25330.07	85408.75	11	1277673
rivalry	13,647	.417894	.4932306	0	1
polity	12,097	-.6296602	7.147717	-10	10
prev_war_c~t	13,647	.3682128	.4823372	0	1
nuke_ally	13,647	.2429105	.4288572	0	1
nuclearacq~e	13,647	.0227889	.1492354	0	1
switch_to_~t	13,647	.006375	.0795918	0	1
switch_to~t5	13,647	.0202975	.1410212	0	1
switch_to_~4	13,647	.017513	.1311776	0	1
switch_to_~3	13,647	.014069	.1177799	0	1
switch_to_~2	13,647	.0104052	.1014776	0	1
switch_to_~6	13,647	.0229354	.1497032	0	1
switch_to~10	13,647	.0296036	.1694972	0	1
switch_to~15	13,647	.0345864	.1827364	0	1
switch_to~r5	13,647	.0215432	.1451917	0	1
switch_to_~r	13,647	.006888	.0827104	0	1
deflator	13,555	78.73689	67.24871	8.793456	206.4
milex_over~r	12,144	802.8529	3662.056	-228386.3	167106.2
previous_a~y	13,647	.4783469	.4995492	0	1
NATO_member	13,647	.3594197	.4798479	0	1
join_NATO	13,647	.0031509	.0560462	0	1
defense_no~m	13,647	.0322415	.1766474	0	1
pre_war_pe~d	13,647	.0868323	.2815994	0	1
post_war_p~d	13,647	.0839745	.2773597	0	1
milper_ove~p	13,020	.0071606	.0111051	-.2903226	.2112974
post_1945	13,647	.603356	.4892188	0	1
democracy	13,647	.261596	.4395198	0	1
change_troop	8,347	1.749535	1.745342	0	9.364434
change_exp	8,189	7.211768	3.661088	-3.429224	16.84903
change_qua~y	12,773	-2.304236	.0987627	-7.85748	-.9407818

threatE	13,647	.1566675	.1775454	0	.8486017
con_threatE	13,647	.0027442	.0317111	0	.7571565
buff	1,245	1	0	1	1
war_time	13,647	.1080091	.3104033	0	1
conscript_~r	13,647	.0022716	.0476085	0	1
conscript_~l	13,647	.0120906	.1092944	0	1
con_dem	13,647	.0052759	.0724461	0	1
lirst	13,019	2.722238	3.532352	0	12.00151
growth	5,526	.0111201	.1176315	-1	2.584963
region1	13,642	2.856986	1.618654	1	5
reg_conscr~t	13,616	.9516263	.0827627	.5	1
reg_ally	13,616	1	0	1	1
change_mi~op	11,520	-4.606214	.4260062	-10.15658	-1.202898
WB_gdp95	4,925	1.41e+11	5.92e+11	3.90e+07	8.58e+12
mil_1995	1,080	8.43e+08	1.38e+10	.0345663	3.36e+11
change_mi~dp	4,071	-2.302586	.0000448	-2.303071	-2.301539
mil_gdp	4,924	2.89e-06	6.17e-06	0	.0001109
lag_mil_gdp	4,923	2.89e-06	6.17e-06	0	.0001109
_est_volun~r	13,647	.8898659	.3130683	0	1
time	13,647	24.18627	26.25977	0	189
time2	13,647	1274.501	3153.435	0	35721
time3	13,647	105203.1	457443.5	0	6751269
change_reg~e	13,647	.0794314	.2704208	0	1
majpow	13,647	.0817029	.2739216	0	1
learn	11,323	.0927316	.6194623	-2	2

*** List of State-Years That Switched to Conscription and Formed an Alliance:**

COUNTRY	YEAR
USA	1942
USA	1944
CAN	1942
CUB	1942
UKG	1939
UKG	1941
GMY	1939
GDR	1964
HUN	1940
ALB	1927
BUL	1941
EST	1923
GUI	1971
DRC	1998
SAF	1955
KZK	1998
MAL	1965
AUL	1942
AUL	1951
AUL	1954
NEW	1942
NEW	1951

* Main Results With US Removed From Sample

Regression Results:

Switch to Conscription	0.89***
in Previous 5 years	(0.24)
:	
Constant	-3.37***
	(0.11)
Number of Observations	11,962

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

* Main Results With Australia Removed From Sample

Regression Results:

Switch to Conscription	0.85***
in Previous 5 years	(0.25)
:	
Constant	-3.43***
	(0.12)
Number of Observations	12,062

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

* Main Results With Australia and New Zealand Removed From Sample

Regression Results:

Switch to Conscription	0.89***
in Previous 5 years	(0.21)
:	
Constant	-3.42***
	(0.12)
Number of Observations	12,062

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

*** Main Results Controlling for Country Economic Attractiveness (Iron and Steel Production and Growth of Iron and Steel Production)**

Regression Results:

Switch to Conscription	1.25***
in Previous 5 years	(0.32)
:	
Constant	-3.45***
	(0.25)
Number of Observations	5,043

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

*Control for Proportion of States in Region with Conscription

Regression Results:

Switch to Conscription	0.93***
in Previous 5 years	(0.23)
:	
Constant	-6.33***
	(0.78)
Number of Observations	12,141

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

*Offensive Alliances

Regression Results:

Switch to Conscription	1.19***
in Previous 5 years	(0.36)
:	
Constant	-4.93***
	(0.23)
Number of Observations	12,144

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

* Alternative Measures of Internal Arming

First, we consider measures of changes in levels of military personnel over the previous 5 years. The first is the change in the number of military personnel from year *t-5* to year t. To account for country size, the second measure is the change in military personnel over total population. Data on military size (measured in terms of military personnel) and total population come from the Correlates of War project (Singer, Bremer, and Stuckey 1972).[1] Because both measures are skewed by extreme values, we take their natural logs. The results from this test are reported in models 1 and 2. Consistent with our theory, increasing troop levels from year *t-5* to year *t* is positively associated with the formation of a defensive alliance in year *t.*

Second, we consider changes in military expenditures. The first measure is the change in level of inflation adjusted military expenditures from year *t-5* to year *t.* We use the same inflation-adjusted data on each country's total military expenditures as described above. The second measure is the lagged value of military expenditures over a country's gross domestic product (GDP). The data on GDP comes from the World Bank's World Development Indicators, as collected by Bueno de Mesquita et al (2003). Both measures are adjusted to constant 1995 dollars. It should be noted that since the GDP data are only available after 1960, we omit both the *After 1945* and the *NATO Member* variable, as both are collinear with the GDP data. Also, we only use the level of, not changes in, military expenditures over GDP. This is because the variable is relatively stable in value over 5 year periods and, consequently, the difference from year *t-5* to year *t* is close to zero for most countries over most of the time period (which causes the measure to be highly collinear with the constant term). The results are reported in models 3 and 4. Changes in military expenditures since year *t-5* (Model 1) has a positive and statistically significant association with the formation of defense pacts. A positive and statistically significant relationship is also found between military expenditures over GDP in year *t-5* and the formation of a defensive alliance in year *t.*

[1] EUGene (Bennett and Stam 2000).

Table: Effect of Increase in Alternative Measures of Internal Arming in Previous 5 years on Probability of Joining a Defensive Alliance, Logit Results

	Model 1	**Model 2**	**Model 3**	**Model 4**
Change in Number of Troops in Previous 5 years	0.26*** (0.04)			
Change in Number of Troops Over Total Population in Previous 5 years		0.78*** (0.14)		
Change in Military Expenditures in Previous 5 years			0.07*** (0.03)	
Military Expenditures over GDP $_{t-5}$				40279.18*** (12165.98)
Constant	-3.69*** (0.17)	0.02 (0.68)	-3.62*** (0.18)	-3.57*** (0.20)
Number of Observations	7,816	7,807	8,189	4,428

Standard errors in parentheses; * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$ (two-tailed).

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

*Model of Conscription Presence and Alliance Joining

Regression Results:

Switch to Conscription	0.24**
in Previous 5 years	(0.12)
:	
Constant	-3.54***
	(0.15)
Number of Observations	11,539

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

* Different Lags on Switch to Conscription

This table reports how the coefficient and standard errors on the *Switch to Conscription* $_{t-5}$ variable change for different lags. It shows quite clearly that the coefficient size and significant level is robust to different time lags.

Table: Coefficient on *Switch to Conscription* for Different Time Lags

Lag	Coefficient	Standard Error
Previous 2 years	0.90	0.33***
Previous 5 years	0.96	0.23***
Previous 10 years	0.97	0.20***
Previous 15 years	0.81	0.20***

Standard errors in parentheses; * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$ (two-tailed).

* Test Switch to Volunteer

This table reports the results from a regression in which we replace *Switch to Conscription* $_{t-5}$ with *Switch to Volunteer* $_{t-5}$. The table shows that switching to a volunteer force in the previous 5 years does not alter a state's probability of forming an alliance.

Table: Effect of Switch to Volunteer Force on Joining a Defensive Alliance, Logit Results

Dependent Variable: Join Defensive Alliance in year t

Switch to Volunteer	0.08
in Previous 5 years	(0.36)
:	
Constant	-3.40***
	(0.12)
Number of Observations	12,144

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

* Random Effects

Regression Results:

Switch to Conscription	0.90***
in Previous 5 years	(0.25)
:	
Constant	-3.34***
	(0.14)
Number of Observations	12,144

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

* Fixed Effects

Regression Results:

Switch to Conscription	0.88***
in Previous 5 years	(0.27)
:	
Number of Observations	10,365

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

* Duration Model

Regression Results:

Switch to Conscription	2.17***
in Previous 5 years	(0.41)
:	
Number of Observations	4,481

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

***Control for nuclear weapons or nuclear ally**

Regression Results:

Switch to Conscription	0.95***
in Previous 5 years	(0.23)
:	
Constant	-3.44***
	(0.12)
Number of Observations	12,144

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

***Control for time, time^2, and time^3**

Regression Results:

Switch to Conscription	0.95***
in Previous 5 years	(0.23)
:	
Constant	-2.33***
	(0.13)
Number of Observations	12,144

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

*Control for Polity Change

Regression Results:

Switch to Conscription	0.95***
in Previous 5 years	(0.23)
:	
Constant	-3.49***
	(0.11)
Number of Observations	12,144

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

*Control for Major Power

Regression Results:

Switch to Conscription in Previous 5 years :	0.94*** (0.23)
Constant	-3.38*** (0.12)
Number of Observations	12,144

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

***Condition on Major Power or Minor Power**

	Major Powers Only	Minor Powers Only
Switch to Conscription	1.11***	0.85***
in Previous 5 years	(0.57)	(0.25)
:		
Number of Observations	1,070	11,074

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

*Control for Learning

Regression Results:

Switch to Conscription	0.89***
in Previous 5 years	(0.24)
:	
Constant	-3.44***
	(0.12)
Number of Observations	10,637

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

*** Identifying the Mechanism: Modified by Democracy and Rivalry**

Second, I generated 10,000 simulated values of these coefficient results so that I could compute the marginal effect of Conscription (con) and confidence intervals around the effect at different values for Democracy (dem) and Rivalry (riv). Here is what I found (point estimate is reported with the confidence interval below):

Effect when No Democracy and in rivalry
58.049167[-30.246184 , 210.81371]

Effect when Democracy and in rivalry
395.72178[65.926407 , 979.85318]

Effect when Not Democracy and not in rivalry
32.800834[-67.981297 , 261.26782]

Effect when Democracy and not in rivalry
944.18705[242.93375 , 2282.8096]

In other words, conscription causes a statistically significant increase in the probability of alliance formation ONLY when a country is a democracy (regardless of threat environment). This would be consistent with conscription being a costly signal (it is a stronger signal for democracies because they face larger audience costs).

*Bivariate Probit Model

Regression Results:

	Alliance Present	Conscription
Conscription Presence	1.84***	
	(0.10)	
Alliance Present :		1.10***
		(0.05)
Number of Observations	11,539	

Note: For ease of reading, results for all control variables and the constant are suppressed. These are available upon request and can be acquired by using the replication materials.

Substantive Effect of Conscription over Full Range of *Threat Environment

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For Threat E of 0 the effect is 1.9789089[ .71732336 , 3.7099307 ]
For Threat E of .01 the effect is 1.9398694[ .73050281 , 3.5849549 ]
For Threat E of .02 the effect is 1.9018872[ .74323258 , 3.4844465 ]
For Threat E of .03 the effect is 1.8649432[ .746499 , 3.3906374 ]
For Threat E of .04 the effect is 1.8290183[ .74651757 , 3.3029542 ]
For Threat E of .05 the effect is 1.7940934[ .74096179 , 3.2031721 ]
For Threat E of .06 the effect is 1.7601496[ .74122214 , 3.12843 ]
For Threat E of .07 the effect is 1.7271682[ .72758985 , 3.0690955 ]
For Threat E of .08 the effect is 1.6951305[ .7154057 , 3.0003318 ]
For Threat E of .09 the effect is 1.6640182[ .70851299 , 2.9542892 ]
For Threat E of .1 the effect is 1.6338132[ .69216788 , 2.9122092 ]
For Threat E of .11 the effect is 1.6044976[ .67663619 , 2.8667628 ]
For Threat E of .12 the effect is 1.5760536[ .65416446 , 2.853 ]
For Threat E of .13 the effect is 1.5484641[ .63353246 , 2.8283347 ]
For Threat E of .14 the effect is 1.5217119[ .60380292 , 2.8097228 ]
For Threat E of .15 the effect is 1.4957803[ .57165787 , 2.8117298 ]
For Threat E of .16 the effect is 1.470653[ .53470665 , 2.8099433 ]
For Threat E of .17 the effect is 1.4463138[ .4988777 , 2.8124321 ]
For Threat E of .18 the effect is 1.4227469[ .46558957 , 2.8185884 ]
For Threat E of .19 the effect is 1.3999371[ .42326443 , 2.8392992 ]
For Threat E of .2 the effect is 1.3778691[ .38200277 , 2.8633479 ]
For Threat E of .21 the effect is 1.3565284[ .3383629 , 2.8693091 ]
For Threat E of .22 the effect is 1.3359006[ .2940668 , 2.8778713 ]
For Threat E of .23 the effect is 1.3159715[ .25339346 , 2.9093566 ]
For Threat E of .24 the effect is 1.2967277[ .21664026 , 2.9487805 ]
For Threat E of .25 the effect is 1.2781557[ .17722105 , 2.9844242 ]
For Threat E of .26 the effect is 1.2602426[ .13560695 , 3.0325539 ]
For Threat E of .27 the effect is 1.2429758[ .09621165 , 3.0773233 ]
For Threat E of .28 the effect is 1.2263429[ .05983968 , 3.1201843 ]
For Threat E of .29 the effect is 1.2103321[ .02136915 , 3.1742312 ]
For Threat E of .3 the effect is 1.1949316[ -.01505769 , 3.2340317 ]
For Threat E of .31 the effect is 1.1801303[ -.05056705 , 3.2847366 ]
For Threat E of .32 the effect is 1.1659171[ -.08345851 , 3.3448598 ]
For Threat E of .33 the effect is 1.1522814[ -.11594244 , 3.3955616 ]
For Threat E of .34 the effect is 1.1392127[ -.14673346 , 3.4526318 ]
For Threat E of .35 the effect is 1.1267011[ -.18107686 , 3.5357499 ]
For Threat E of .36 the effect is 1.1147368[ -.2116095 , 3.5974094 ]
For Threat E of .37 the effect is 1.1033104[ -.24413529 , 3.6746683 ]
For Threat E of .38 the effect is 1.0924126[ -.2758431 , 3.7461053 ]
For Threat E of .39 the effect is 1.0820344[ -.30548413 , 3.8262633 ]
For Threat E of .4 the effect is 1.0721674[ -.33461677 , 3.9022912 ]
For Threat E of .41 the effect is 1.062803[ -.36279275 , 3.9856634 ]
For Threat E of .42 the effect is 1.0539332[ -.38815458 , 4.0621588 ]
For Threat E of .43 the effect is 1.0455501[ -.41334583 , 4.1392834 ]
For Threat E of .44 the effect is 1.0376459[ -.43835002 , 4.2090023 ]
For Threat E of .45 the effect is 1.0302133[ -.46199921 , 4.2772317 ]
For Threat E of .46 the effect is 1.0232451[ -.48255402 , 4.3446364 ]
For Threat E of .47 the effect is 1.0167342[ -.50312671 , 4.4264534 ]
For Threat E of .48 the effect is 1.010674[ -.52331582 , 4.5046234 ]
For Threat E of .49 the effect is 1.0050577[ -.54137468 , 4.5951428 ]
For Threat E of .5 the effect is .99987911[ -.56058669 , 4.6869013 ]
For Threat E of .51 the effect is .99513192[ -.57874325 , 4.7649131 ]
For Threat E of .52 the effect is .99081012[ -.5964112 , 4.8565772 ]
For Threat E of .53 the effect is .98690787[ -.61392987 , 4.9609928 ]
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For Threat E of .54 the effect is .98341948[-.62975919 , 5.0561991]
For Threat E of .55 the effect is .98033943[-.64466348 , 5.1463962]
For Threat E of .56 the effect is .97766233[-.65877932 , 5.2491]
For Threat E of .57 the effect is .97538297[-.67288449 , 5.3599546]
For Threat E of .58 the effect is .97349624[-.68598652 , 5.4691446]
For Threat E of .59 the effect is .9719972[-.69975132 , 5.5825324]
For Threat E of .6 the effect is .97088102[-.71096334 , 5.7144291]
For Threat E of .61 the effect is .97014298[-.72297168 , 5.82619]
For Threat E of .62 the effect is .9697785[-.73513302 , 5.9507802]
For Threat E of .63 the effect is .96978311[-.74736217 , 6.0656183]
For Threat E of .64 the effect is .97015243[-.75915068 , 6.1895936]
For Threat E of .65 the effect is .97088219[-.76879138 , 6.3188536]
For Threat E of .66 the effect is .97196821[-.77804849 , 6.4528468]
For Threat E of .67 the effect is .97340642[-.78799137 , 6.5772452]
For Threat E of .68 the effect is .97519283[-.79716885 , 6.6775861]
For Threat E of .69 the effect is .97732351[-.80611047 , 6.7768328]
For Threat E of .7 the effect is .97979465[-.81376642 , 6.8897679]
For Threat E of .71 the effect is .98260248[-.82201752 , 7.0057952]
For Threat E of .72 the effect is .98574333[-.82979026 , 7.143477]
For Threat E of .73 the effect is .98921358[-.83697623 , 7.2813141]
For Threat E of .74 the effect is .99300967[-.84388447 , 7.3972199]
For Threat E of .75 the effect is .99712814[-.85026303 , 7.5320704]
For Threat E of .76 the effect is 1.0015655[-.85647163 , 7.6789689]
For Threat E of .77 the effect is 1.0063185[-.86267459 , 7.8204808]
For Threat E of .78 the effect is 1.0113837[-.86863714 , 7.9531796]
For Threat E of .79 the effect is 1.0167579[-.87435231 , 8.1093445]
For Threat E of .8 the effect is 1.0224379[-.87934762 , 8.2573252]
For Threat E of .81 the effect is 1.0284205[-.88447323 , 8.4022336]
For Threat E of .82 the effect is 1.0347026[-.88974339 , 8.5705652]
For Threat E of .83 the effect is 1.0412811[-.89416152 , 8.7321949]
For Threat E of .84 the effect is 1.048153[-.89885351 , 8.8791733]
For Threat E of .85 the effect is 1.0553153[-.9034301 , 9.0195146]
For Threat E of .86 the effect is 1.062765[-.90758067 , 9.1719422]
For Threat E of .87 the effect is 1.0704993[-.91174152 , 9.3144369]
For Threat E of .88 the effect is 1.0785151[-.91576067 , 9.4839339]
For Threat E of .89 the effect is 1.0868098[-.91944399 , 9.6338887]