Coup-proofing in the shadow of intervention: Appendix

Summary statistics

Table A1: Summary statistics

Variable	#	% of obs.
Defense alliances	1,910	59.8
Neutrality agreements	541	16.9
U.S. security aid	1,682	53.7
Arms shipments (SIPRI)	2,147	67.2
Purges	508	15.9
Purges (excl. failed coups)	419	13.1
Post-purge violence	87	3.2

Table A2: Summary statistics

Variable	N	Mean	σ	Min.	Max
Deviations from $\overline{Pr(successful\ coup)_i}$	2,805	0.00	0.03	-0.09	0.20

Main analysis: External support*Elite strength interaction

The full version of Table 1 in the main text is presented in Table A3, complete with control variables. These models include a predicted probability derived from another model—point estimates of the probability of a successful coup, shown in Table A5—which can cause deflated standard errors if treated as data in a separate model. To correct for this by incorporating the uncertainty associated with these predictions into the model, I run 1,000 bootstrap simulations of each model, thus ensuring that the standard errors are not artificially deflated (see Slantchev (2004, 819) and Beardsley (2010, 399) for other applications). The same covariates are included

in these models as in the first stage of the censored probit, with one addition: the country mean of *Pr(successful coup)*, which captures the wide variation in coup occurrence across countries. While the effect of this variable is consistently negative, as we would expect—leaders in countries with lower chances of leader removal via coup should be less likely to purge—it never achieves statistical significance (see Table A3).

Main analysis: Censored probit

The full table of results from the censored probit estimation are presented in this section in Table A4, along with a detailed description and justification of all covariates. The left side of Table A4 contains the selection equation, which models the occurrence of purges, while the right side contains the outcome equation, which estimates the occurrence of post-purge retaliation. The models include 445 purges and 87 instances of post-purge violence.

With several exceptions, I largely follow Sudduth (2017) regarding the inclusion of leader-, regime-, and country-specific control variables in the purge occurrence-retaliatory violence two-stage selection models. Whether or not a leader entered office via coup is an important control, as these leaders typically attempt to purge their regimes of figures loyal to the previous regime. Similarly, I control for whether or not a leader is the first among a succession of leaders within a discrete autocratic regime, as coded in Geddes, Wright and Frantz (2014). Since these leaders are assuming power from a separate group of ruling elites, purges are more likely to occur during the initial power consolidation phase in order to eliminate figures loyal to the *ancien régime*. In addition, I control for the occurrence of failed coup attempts, as leaders often purge those responsible for the failed plot as punishment, and also use the event as an excuse to purge or intimidate others they suspect of disloyalty. Sudduth (2017) finds that leaders who come to office via coup enjoy a short window of time at the beginning of their tenure in which they are likely to purge their regimes, but that this effect diminishes over time. I therefore include a variable measuring the logged number of years in office, as well as an interaction

Table A3: External support, elite strength, and purges

	Model 1	Model 2	Model 4	Model 5
Intercept	1.66^{*}	1.68^{*}	1.64^{*}	2.07^{**}
	(0.75)	(0.72)	(0.72)	(0.74)
Increase in elite strength, no ally	-11.81^{***}	-6.94^{*}	-8.31^{**}	-6.90^{*}
	(3.45)	(2.75)	(3.11)	(3.20)
Increase in elite strength w/ defensive ally	7.72^{*}			
	(3.63)			
Defense alliance, no deviation	0.35^{**}			
	(0.12)			
Increase in elite strength w/ neutrality agreement		-3.96		
		(5.31)		
Neutrality alliance, no deviation		-0.29		
		(0.17)		
Increase in elite strength w/ US security assistance			2.32	
			(3.56)	
US security assistance, no deviation			0.06	
			(0.12)	
Increase in elite strength w/ arms shipments				0.76
				(3.60)
Arms shipments, no deviation				0.09
				(0.15)
$\overline{Elite\ strength_i}$	-2.63	-3.62	-3.72	-2.79
	(4.64)	(4.41)	(4.35)	(4.54)
ln(mil. expenditure)	0.13^{***}	0.14^{***}	0.13^{***}	0.11^{***}
	(0.03)	(0.03)	(0.03)	(0.03)
First regime leader	0.56^{***}	0.52^{***}	0.53^{***}	0.57^{***}
	(0.13)	(0.13)	(0.13)	(0.14)
Interstate war	0.48	0.49	0.53	0.68^{*}
	(0.35)	(0.33)	(0.33)	(0.35)
Economic growth	-0.25^{***}	-0.23^{**}	-0.22^{**}	-0.22^{**}
	(0.07)	(0.07)	(0.08)	(0.07)
Mil. regime	0.16	0.19	0.18	0.17
	(0.13)	(0.13)	(0.12)	(0.13)
Monarchy	-1.15^{**}	-1.17^{**}	-1.17^{**}	-1.13^{**}
	(0.46)	(0.45)	(0.44)	(0.44)
Single-party	-0.46	-0.50	-0.51	-0.42
	(0.33)	(0.32)	(0.30)	(0.31)
Coup entry	0.39	0.48	0.46	0.55
	(0.28)	(0.28)	(0.28)	(0.28)
ln(tenure)	0.40^{***}	0.40^{***}	0.38^{***}	0.43^{***}
	(0.08)	(0.08)	(0.08)	(0.08)
Coup entry*ln(tenure)	-0.09	-0.10	-0.09	-0.16
	(0.13)	(0.12)	(0.12)	(0.13)
Yrs since last purge	-2.08^{***}	-2.07^{***}	-2.07^{***}	-2.26^{***}
	(0.44)	(0.45)	(0.46)	(0.46)
Yrs since last purge^2	0.38^{**}	0.37^{**}	0.37^{**}	0.42^{**}
	(0.15)	(0.15)	(0.15)	(0.15)
Yrs since last purge^3	-0.03	-0.03	-0.03	-0.03^{*}
	(0.01)	(0.01)	(0.01)	(0.01)
AIC	1984.63	1993.46	1975.16	1907.29
Log Likelihood	-981.92	-986.31	-976.95	-942.79
N	2,805	2,805	2,749	2,707

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$; cubic time polynomials not shown
Bootstrapped standard errors in parentheses

between logged tenure and coup entry to test for the changing effects over time (my findings corroborate this; see appendix for these results). Some regime types are more susceptible to elite power struggles than others, and thus I include controls for regime types—military regimes, single-party dictatorship, and monarchy—from Cheibub, Gandhi and Vreeland (2010). Logged military expenditures, taken from Singer and Stuckey (1972), are also included. Increasing military expenditures can reduce grievances against the leader among the military, reducing the likelihood of a coup and thus giving the leader less incentive to purge the armed forces. High-performing economies are said to be less susceptible to political instability; I therefore include variables for logged GDP per capita and economic growth, each from (Gleditsch, 2002). Controlling for ongoing interstate wars addresses the possibility that, on the one hand, a war may cause the military to coalesce in support of the leader, reducing threats to power and thus the propensity to purge (McMahon and Slantchev, 2015). On the other hand, however, the leader may use external threats as an excuse to purge those suspected of disloyalty. I also model temporal dependence by including cubic polynomials of years since the last purge Carter and Signorino (2010)[1]. While I present only graphical results for my primary independent variables in the main text, full tables containing the additional covariates can be found in the appendix. In the full models, the sample contains 2,786 observations of non-democratic countries (as classified by Cheibub, Gandhi and Vreeland (2010)) observed at the leader-year level between 1969 and 2003.

Purges are more likely to occur as military expenditure increases, and less likely when the economy is growing. They are also more likely when the country is involved in an *interstate war*. Monarchies are unique among dictatorships in that the regimes codify *clear and detailed* rules regarding leader succession and the distribution of rents within the regime and among branches of the ruling family. Members of the regime can wield political power and monitor

[1]In order to satisfy the exclusion restriction, I include cubic polynomials of time elapsed since the last purge in the purge occurrence equation but not in the outcome equation. See appendix for a variety of robustness checks, alternative specifications, and strategies to correct for endogeneity between defense alliances and purges.

the leader's actions via ruling councils, which alleviates the commitment problem between the leader and elites present in other autocracies (Herb, 1999; Menaldo, 2012). This likely accounts for the finding here that leaders in monarchies are roughly 80% less likely to carry out military purges. The shock surrounding the recent Saudi purge illustrates this point: the arrest of dozens of members of the royal family could potentially destroy the power-sharing system that had maintained intra-family stability for 80 years (Kirkpatrick, 2017). Unsurprisingly, failed coup attempts have a strong positive effect on the occurrence of purges. I also find, consistent with Sudduth (2017), that dictators who enter office in a coup are likely to purge their regimes in their first year in power, but that they become significantly less likely to do so over time. Dictators who accede to office by means other than coup become more likely to purge over the course of their time in power, as indicated by the positive and significant coefficient on *ln(tenure)*.

Retaliatory violence

Turning to control variables, I find that while military expenditure is a strong predictor of purge occurrence, the size and significance of the coefficient diminish greatly in the civil war stage. Interstate war is positively related to post-purge civil wars, while economic growth is negative. The estimates for failed coup attempt are positive in the civil war stage, which should not be surprising, as a coup attempt is likely a sign that elites are more mobilized and thus more capable of threatening the leader in the event of a purge. I include only the binary coup-entry indicator without the interaction with leader tenure; it is not significant. Finally, the results of these models suggest that the censored probit models are identified: in addition to the coup-entry-leader tenure interaction, I also find that purge occurrence is strongly duration dependent (models including cubic time polynomials are presented in the appendix).

Table A4: Defensive alliances, purges, and retaliatory violence: Results of a censored probit

	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
	Y_1 = PURGE				Y_2 = RETALIATORY VIOLENCE | PURGE			
Intercept	−0.64	−0.22	−0.26	-0.40	−0.08	−0.24	−0.50	−0.06
	(0.41)	(0.38)	(0.38)	(0.41)	(0.98)	(0.96)	(0.98)	(0.97)
Defensive alliance	0.20**				0.68***			
	(0.08)				(0.19)			
Neutrality agreement		−0.11				−0.40		
		(0.10)				(0.26)		
US security assistance			0.01				0.14	
			(0.07)				(0.16)	
Arms shipments				0.02				0.26
				(0.08)				(0.18)
First regime leader	0.36***	0.33***	0.34***	0.36***	0.36	0.26	0.28	0.25
	(0.08)	(0.08)	(0.08)	(0.08)	(0.19)	(0.18)	(0.18)	(0.18)
ln(mil. expenditure)	0.11***	0.11***	0.11***	0.09***	−0.06	0.05	-0.03	0.07
	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)	(0.04)	(0.05)
Interstate war	0.28	0.29	0.30*	0.38*	0.79**	0.71*	0.77**	0.75*
	(0.17)	(0.17)	(0.17)	(0.17)	(0.32)	(0.31)	(0.31)	(0.31)
Economic growth	−0.01**	−0.01**	−0.01**	−0.01**	−0.01**	−0.01	−0.01	−0.01
	(0.00)	(0.00)	(0.00)	(0.05)	(0.00)	(0.01)	(0.01)	(0.01)
ln(GDP per capita)	−0.09	−0.07	−0.07	−0.06	−0.07	−0.00	−0.01	−0.02
	(0.05)	(0.04)	(0.05)	(0.05)	(0.10)	(0.10)	(0.10)	(0.10)
Military regime	0.07	0.07	0.06	0.05	-0.14	-0.22	-0.20	-0.19
	(0.10)	(0.09)	(0.10)	(0.10)	(0.24)	(0.23)	(0.23)	(0.23)
Single − party	−0.04	−0.03	−0.03	−0.02	−0.57**	−0.57**	−0.59**	−0.60**
	(0.11)	(0.11)	(0.11)	(0.11)	(0.22)	(0.22)	(0.22)	(0.22)
Monarchy	−0.68***	−0.66***	−0.66***	−0.65**				
	(0.21)	(0.20)	(0.21)	(0.21)				
Failed coup	0.23**	0.27**	0.27**	0.24**	0.40*	0.49**	0.53**	0.53**
	(0.09)	(0.09)	(0.09)	(0.09)	(0.18)	(0.17)	(0.22)	(0.17)
Entered via coup,	0.30*	0.36**	0.34*	0.37*	0.14	0.42	0.49	0.30
first year in office	(0.15)	(0.15)	(0.15)	(0.15)	(0.38)	(0.36)	(0.36)	(0.36)
ln(tenure), non − coup entry	0.21***	0.21***	0.20***	0.23***	-0.07	-0.05	-0.04	-0.06
	(0.04)	(0.04)	(0.05)	(0.05)	(0.12)	(0.12)	(0.11)	(0.12)
*Coup entry * ln(tenure)*	−0.10	−0.10	−0.09	−0.12	-0.09	-0.12	-0.15	-0.10
	(0.07)	(0.07)	(0.07)	(0.07)	(0.17)	(0.16)	(0.16)	(0.16)
Yrs since last purge	−1.28***	−1.27***	−1.27***	−1.45***				
	(0.23)	(0.23)	(0.23)	(0.23)				
Yrs since last purge^2	0.22**	0.22**	0.22**	0.26**				
	(0.07)	(0.07)	(0.07)	(0.07)				
Yrs since last purge^3	−0.02*	−0.01*	−0.01*	−0.02**				
	(0.01)	(0.01)	(0.01)	(0.01)				
ρ					0.15	0.21	0.24***	0.23
					(0.23)	(0.22)	(0.22)	(0.21)
Log Likelihood					-1,090.29	-1,097.81	-1,090.46	-1,059.87
N					2,786	2,786	2,731	2,698
Purges					445	445	444	443
Instances of post-purge violence					87	87	87	87

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Cubic time polynomials included in selection equation but not shown

Interaction models

Hainmueller, Mummolo and Xu (2017) encourage researchers to examine the assumptions of linear marginal effects and common support (sufficient data over the full range of X) when using interaction models. Using the diagnostic tools they provide, I find that these assumptions are mostly valid here, with the sole exception being neutrality agreements. Figures 1 through 4 compare, for each external support variable, the linear marginal effects (left side) with the results of a kernel regression (right side), the latter of which allows the marginal effects to vary over the range of the moderator variable. With the exception of *neutrality agreements*, the kernel regression results converge with the linear marginal effects, meaning that the assumption of linearity is appropriate. According to Figure 2, neutrality agreements actually make purges less likely at high levels of elite strength. With regard to Hypothesis 2 in the main text, Figure 1 shows that defense alliances have a positive effect on the probability of purges when elite strength increases above the country mean. None of the other external support variables have statistically significant effects, which supports the intuition that it is the firm commitment of defense alliances which encourages leaders to consolidate power.

Successful coup model

Table A5 contains the results of the logit model used to generate the annual predicted probabilities of a successful coup attempt among CGV autocracies between 1969 and 2003 (shown in Figures 1 and 2 of the main text), which helps derive the *elite strength* variable used in the interaction models in the main text. This is constructed—in a similar fashion to Sudduth (2017)—by estimating the 1) the annual predicted probabilities of successful coup occurrence; 2) the country means of these probabilities; and 3) the annual deviations from the country means in each year ($Elite\ strength = Pr(successful\ coup)_{it} - \overline{Pr(sucessful\ coup)_i}$).

The covariates for this model were chosen in order to capture meaningful variation in the

relative strength of elites in a given country-year[2]. Whether or not a leader entered office via coup is an important covariate, as these leaders typically attempt to purge their regimes of figures loyal to the previous regime. Similarly, I control for whether or not a leader is the first among a succession of leaders within a discrete autocratic regime, as coded in Geddes, Wright and Frantz (2014). Since these leaders are assuming power from a separate group of ruling elites, purges are more likely to occur during the initial power consolidation phase in order to eliminate figures loyal to the *ancien régime*. In addition, I control for the occurrence of failed coup attempts, as leaders often purge those responsible for the failed plot as punishment, and also use the event as an excuse to purge or intimidate others they suspect of disloyalty. Sudduth (2017) finds that leaders who come to office via coup enjoy a short window of time at the beginning of their tenure in which they are likely to purge their regimes, but that this effect diminishes over time. I therefore include a variable measuring the logged number of years in office, as well as an interaction between logged tenure and coup entry to test for the changing effects over time (my findings corroborate this; see appendix for these results). Some regime types are more susceptible to elite power struggles than others, and thus I include controls for regime types—military regimes, single-party dictatorship, and monarchy—from Cheibub, Gandhi and Vreeland (2010). The structure of monarchies (i.e., Menaldo (2012)), single-party regimes (i.e., Brownlee (2004); Smith (2005)), and military regimes help determine the need for the leader to share power, and also the ability of elites to coordinate, each of which in turn have strong effects on the likelihood of successful coups. Logged military expenditures, taken from Singer and Stuckey (1972), are also included. Increasing military expenditures can reduce grievances against the leader among the military, reducing the likelihood of a coup. High-performing economies are said to be less susceptible to political instability; I therefore include variables for logged GDP per capita and economic growth, each from (Gleditsch, 2002). Controlling for ongoing interstate wars addresses the fact that conduct of wars can have divisive

[2]The McFadden Psuedo-R^2 statistic of 0.24 indicates that the model fit is high (McFadden, 1979, 307).

effects on the military and its views of the leader. In addition, strengthening the military to fight a war also increases their ability to carry out a successful coup (Talmadge, 2015). Finally, I include an indicator for Bolivia, since this country has experienced them most successful coups (6) in the data.

The idea here is to capture how much higher or lower the current, temporary coup threat is, relative to the average level of coup threat normally experienced by a leader in that country. As we know from Roessler (2011), Svolik (2012), and Sudduth (2017), the logic of regime purges revolves around the leader's strength relative to the military and the rest of his regime. My argument, however, is that leaders faced with a high probability of a successful coup, relative to the average level for that country, are *more likely* to purge their regimes if they have a defense alliance not only because they feel more threatened, but also because they believe their ally will support them in hypothetical ensuing conflict. Another advantage of calculating elite strength by measuring deviations from country means is that countries vary widely in their susceptibility to coups, and in many, the mean probability is close to zero. This is also one reason why I control for each country's mean probability of experiencing a successful coup in the purge models.

Additional analysis: Purge magnitude

An added implication of the argument presented in the main text is that purges will be *larger* when the incumbent anticipates external support, and that the purges will be more likely to contain higher-ranking security officials. The larger the purge, the greater the pool of marginalized and disgruntled soldiers with incentive to challenge the regime. Similarly, high-ranking military commanders often enjoy their own independent bases of armed supporters, which can be mobilized against the regime if the commander is purged. These soldiers, as well as those who were not purged but wish to avoid a similar fate, have both the incentive and ability to mobilize against the regime to reclaim their positions and punish the leader. A cautious leader

Table A5: Logistic regression in which DV = successful coup

	Model 1
(Intercept)	1.09
	(1.15)
ln(mil. expenditure)	-0.10
	(0.06)
Interstate war	0.01
	(0.77)
ln(GDP per capita)	-0.03^{*}
	(0.01)
Economic growth	-0.15
	(0.16)
Military regime	-0.14
	(0.36)
Monarchy	-2.33^{***}
	(0.64)
Single-party	-2.63^{***}
	(0.31)
Failed coup$_{t-1}$	-0.51
	(0.36)
Entry via coup	-1.57^{**}
	(0.52)
ln(leader tenure)	-0.17
	(0.17)
Coup entry*ln(tenure)	0.81^{**}
	(0.25)
Bolivia	3.97^{***}
	(0.60)
McFadden's R^2	0.24
AIC	622.71
BIC	693.98
Log Likelihood	-299.35
Deviance	598.71
N	2,805

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

may be reluctant to carry out larger purges, or purges of high-ranking officials, for fear of a violent backlash. The anticipation of external support may cause them to be more risk-acceptant, however, leading to the following hypotheses:

Hypothesis 1. *Dictators who expect external support are more likely to carry out purges consisting of larger numbers of people.*

Hypothesis 2. *Dictators who expect external support are more likely to purge higher-ranking military officials.*

The purges data contain information on the size of each purge, as well as the ranks of the purged members of the military. Both of these are categorical variables. The *size* variable takes a value of 0 if no purge occurs; 1 if the purge consisted of between 1 and 10 officers; 2 if between 10 and 100; and 3 if more than 100 were purged. Similarly, the *ranks* variable assumes a value of 0 if no purge occurs; 1 if only soldiers were purged; 2 if a mid-ranking officer (i.e., colonel, general, or regional commander) was purged; and 3 if a chief of staff or defense or interior minister is purged.

Table A6 contains the results of ordered logit models evaluating expectations regarding purge magnitude. Odd-numbered models contain estimates for *purge size*, while even-numbered models examine the *ranks* of purged officers. Positive coefficients indicate an increase in the size of purges and higher ranks of officers purged. Results are consistent with the intuition of the argument. Dictators in countries with defensive alliances are more likely to carry out larger purges, and also to purge higher-ranking officers. By contrast, just as with purge occurrence, other measures of support have no apparent effect on either of these measures.

Table A7 displays the percent changes in probabilities for each category of size and rank between defensive alliance status. As with the simulations above, all independent variables are held at their medians (or means if continuous), while defensive alliance status is varied between 0 and 1. As the first row shows, the probability of not experiencing a purge decreases by between 4.4% and 5.9% when a state has a defensive ally. Meanwhile, purges tend to be larger and to consist of higher-ranking officers when the regime is a member of a defensive

Table A6: Effects of external assistance on purge magnitude

Dependent variable	Model 1 Size of purge	Model 2 Ranks of officers	Model 3 Size of purge	Model 4 Ranks of officers	Model 5 Size of purge	Model 6 Ranks of officers	Model 7 Size of purge	Model 8 Ranks of officers	Model 9 Size of purge	Model 10 Ranks of officers
Defensive alliance	0.32^{**}	0.36^{**}								
	(0.10)	(0.12)								
Neutrality agreement			-0.23	-0.24						
			(0.16)	(0.18)						
Neutrality agmt. w/ major power					-0.32	-0.35				
					(0.24)	(0.26)				
US security assistance							0.02	0.06		
							(0.12)	(0.12)		
Arms shipments									0.14	0.10
									(0.14)	(0.12)
Economic growth	-0.04	-0.03	0.00	0.02	0.01	0.02	0.01	0.02	-0.03	-0.01
	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)	(0.06)	(0.06)	(0.07)	(0.07)	(0.08)
Interstate war	0.97^{**}	0.79^{**}	0.99^{***}	0.82^{**}	1.00^{***}	0.82^{**}	0.99^{***}	0.82^{***}	1.13^{***}	0.94^{***}
	(0.35)	(0.33)	(0.32)	(0.34)	(0.37)	(0.28)	(0.36)	(0.31)	(0.35)	(0.32)
Military regime	0.03	0.03	0.03	0.03	0.03	0.03	0.00	0.00	-0.01	-0.01
	(0.16)	(0.19)	(0.13)	(0.16)	(0.14)	(0.17)	(0.16)	(0.18)	(0.18)	(0.15)
Monarchy	-1.46^{***}	-1.49^{***}	-1.44^{***}	-1.47^{***}	-1.44^{***}	-1.46^{***}	$-1.36**$	-1.39^{***}	-1.44^{***}	-1.46^{***}
	(0.31)	(0.38)	(0.40)	(0.40)	(0.35)	(0.39)	(0.39)	(0.36)	(0.40)	(0.37)
Single party	-0.18	-0.25	-0.15	-0.21	-0.14	-0.21	-0.14	-0.21	-0.15	-0.22
	(0.17)	(0.17)	(0.16)	(0.18)	(0.19)	(0.16)	(0.19)	(0.18)	(0.20)	(0.18)
Failed coup att.	$0.48**$	0.25	$0.52**$	$0.30*$	$0.53**$	0.31	$0.51***$	0.30	$0.50**$	$0.27*$
	(0.16)	(0.16)	(0.15)	(0.15)	(0.17)	(0.17)	(0.14)	(0.17)	(0.16)	(0.14)
Entered via coup	0.20	0.18	0.25	0.24	0.25	0.24	0.26	0.25	0.25	0.23
	(0.16)	(0.19)	(0.15)	(0.15)	(0.15)	(0.16)	(0.16)	(0.17)	(0.18)	(0.17)
ln(tenure)	0.32^{***}	0.44^{***}	0.31^{***}	0.43^{***}	0.31^{**}	0.43^{***}	0.29^{***}	0.41^{***}	0.32^{***}	0.44^{***}
	(0.06)	(0.06)	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Cut 1	-0.84	-0.71	-0.71	-0.55	-0.65	-0.50	-0.66	-0.52	-1.13	-0.98
Cut 2	0.71	-0.68	0.85	-0.51	0.91	-0.47	0.90	-0.49	0.43	-0.95
Cut 3	1.70	-0.29	1.83	-0.13	1.89	-0.08	1.90	-0.10	1.44	-0.55
Cut 1 = Cut 2	0.000	0.005	0.000	0.001	0.000	0.003	0.000	0.006	0.000	0.003
Cut 2 = Cut 3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N	2,925	2,926	2,925	2,926	2,925	2,925	2,842	2,843	2,823	2,824
Log likelihood	-1,333.38	-1,257.76	-1,335.84	-1,260.75	-1,336.12	-1,261.02	-1,322.94	-1,248.84	-1,279	-1,201.09

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$; cubic time polynomials not shown

alliance.

Table A7: Changes in expected purge magnitude

Size				**Ranks**			
	Defensive alliance?				*Defensive alliance?*		
	No	*Yes*	%Δ		*No*	*Yes*	%Δ
Pr(no purge)	0.880	0.841	**-4.4**	*Pr(no purge)*	0.866	0.815	**-5.9**
			[-8.1, -0.72]†				[-10.1, -0.96]
Pr(1 to 10)	0.093	0.121	**+30.1**	*Pr(soldiers only)*	0.003	0.004	**+33.3**
			[5.6, 56]				[2.9, 56.6]
Pr(11 to 100)	0.017	0.024	**+41.2**	*Pr(mid-ranking)*	0.039	0.051	**+30.8**
			[2.3, 70.1]				[6.4, 53.1]
Pr(more than 100)	0.011	0.015	**+36.4**	*Pr(minister/chief of staff)*	0.095	0.130	**+36.8**
			[2.8, 72.0]				[5.4, 68.8]

† Numbers in brackets are the 95% confidence bounds around percent change estimates

Excluding Doe & Amin

Samuel Doe (Liberia) and Idi Amin (Uganda) each carried out purges resulting in violence significantly more frequently than other leaders in the data. Thus, to ensure that results are not driven by either of these cases, I drop each of them and re-run the main analysis. Simulated probabilities are presented below in Figures 5 and 6. Results when these cases are dropped are substantively the same as when they are included.

Excluding purges in response to failed coup attempts

Failed coup attempts make it easy for leaders to readily identify disloyal members of the regime or military, and provide the leader with justification for removing them. Thus, they may be driven by a slightly different data-generating process than other purges. Still, even in cases in which purges are easily justifiable, the leader must consider the likelihood that the purged

factions will retaliate. Figure 7 shows that the difference in likelihood of these purges between leaders with a defense alliance and those with no alliance is just significant at the $p < 0.05$ level. In Figure 8, the joint probability of purge and post-purge violence is significantly higher when the leader is a member of a defense alliance. As before, I find no significant differences for the other forms of external support.

Controlling for prior power consolidation

Svolik argues that power consolidation is long-term process involving multiple power-grabs by the leader, the success of each of which is conditional upon and endogenous to previous successful attempts. Moreover, two-stage selection models are quite sensitive to changes in model specification. Thus, controlling for the extent to which the leader has already consolidated power is an essential robustness check when modeling the occurrence and outcome of purges in this manner. Toward this end, I re-estimate a version of the censored probit from the main text, this time including two potential confounders: 1) the number of past purges, and 2) a measure of the extent to which the leader has "coup-proofed" his regime by creating multiple, overlapping security forces (from Pilster and Böhmelt (2011)).

Figures 9 and 11 display the first and second stages of these models, respectively. The most striking contrast between the results in the main text and these plots is that the former displayed a gentle rise in the predicted differences for each form of external support over the course of a leader's tenure in office; here, the difference remains essentially flat throughout a leader's time in office. Additionally, the effect of defensive alliances on purge occurrence diminishes and falls just short of statistical significance ($p = 0.11$), while the effect of arms shipments becomes positive and significant for purge occurrence. Turning to differences in joint probabilities, Figure 11 shows that support for Hypothesis 3 in the main text—that defense alliances increase the joint probability of a purge and a resulting violent backlash—remains robust. The effect of neutrality agreements is negative and significant, while the effect of arms

shipments is, again, positive.

Figure 10 shows the results of the four types of external support across the range of the elite strength measure. While the estimated effect of defense alliances diminishes a bit, results remain roughly identical to those in the main text, even when controlling for past power consolidation.

Defense and neutrality alliances w/ major powers

In order to determine whether both defense and neutrality pacts have different implications for leaders if the agreement is with a major power, I construct separate variables to indicate defense and neutrality agreements with the US, the United Kingdom, France, and Russia, as these countries have historically shown the most willingness and ability to project power and intervene to support client regimes around the world. Perhaps an agreement with a major power would further embolden a leader to consolidate power. Results suggest that this is not the case. In fact, Figures 12 and 13 show that neither type of agreement with a major power is associated with increased likelihoods of either purges or post-purge violence.

Replication of censored probit using Sartori selection models

Censored probit models are extremely sensitive to model specification, and poorly or weakly identified can yield biased estimates and incorrect inferences. As an additional robustness check, I re-run the main analysis using a Sartori selection estimator to ensure that the findings are not driven by poor identification. As Table A8 demonstrates, results in both stages are very similar.

Temporal fixed effects

Geopolitical differences across time periods in this sample may have variable effects on dictators' propensity to consolidate power. For instance, leaders during the Cold War may have felt

Table A8: Defensive alliances, purges, and retaliatory violence: Replication of censored probit using Sartori's selection estimator

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5
	Y_1 = PURGE					Y_2 = RETALIATORY VIOLENCE | PURGE				
Constant	0.205	0.0565	0.0310	-1.084***	0.321	0.629	0.131	0.0598	-0.511	0.146
	(0.55)	(0.15)	(0.08)	(-3.75)	(0.83)	(0.64)	(0.12)	(0.06)	(-0.64)	(0.13)
Defense	0.142*					0.607**				
	(1.98)					(3.17)				
Neutrality agreement		-0.144					-0.571			
		(-1.52)					(-1.62)			
Maj. power neutrality			-0.180					-4.265		
			(-1.15)					(-0.00)		
US security assistance				0.0951					0.328*	
				(1.58)					(2.15)	
Arms shipments					0.0313					0.138
					(0.40)					(0.77)
ln(mil. expenditure)	0.0909***	0.0903***	0.0884***	0.0879***	0.0724***	0.0127	0.0389	0.0341	0.0911*	0.0156
	(5.30)	(5.25)	(5.14)	(5.57)	(3.79)	(0.30)	(0.91)	(0.78)	(2.18)	(0.34)
Interstate war	0.302	0.268	0.281	0.345*	0.367*	1.112***	0.947***	0.960***	1.182***	1.032***
	(1.85)	(1.61)	(1.70)	(2.22)	(2.12)	(3.94)	(3.44)	(3.50)	(4.77)	(3.69)
Economic growth	-0.102*	-0.0803	-0.0759	-0.139***	-0.0733	-0.314**	-0.243*	-0.233*	-0.382***	-0.220*
	(-2.39)	(-1.90)	(-1.80)	(-3.70)	(-1.68)	(-2.87)	(-2.35)	(-2.24)	(-3.68)	(-2.08)
Military regime	-0.0611	-0.0536	-0.0528	0.0842	-0.0686	0.143	0.0125	-0.00567	0.0500	0.00862
	(-0.67)	(-0.59)	(-0.58)	(1.01)	(-0.74)	(0.63)	(0.06)	(-0.03)	(0.23)	(0.04)
Monarchy	-0.641***	-0.624**	-0.625**	-0.815***	-0.635**	-4.058	-4.738	-4.902	-4.308	-4.692
	(-3.33)	(-3.21)	(-3.22)	(-5.10)	(-3.13)	(-0.04)	(-0.01)	(-0.00)	(-0.03)	(-0.01)
Single-party	-0.0219	-0.0220	-0.0216	-0.0390	-0.0157	-0.292	-0.257	-0.264	-0.527**	-0.283
	(-0.23)	(-0.22)	(-0.21)	(-0.44)	(-0.15)	(-1.37)	(-1.13)	(-1.17)	(-3.00)	(-1.23)
Failed coup	0.336***	0.336***	0.348***	0.261***	0.333***	0.492**	0.523**	0.543**	0.593***	0.549**
	(4.03)	(3.95)	(4.11)	(3.57)	(3.87)	(3.02)	(3.01)	(3.15)	(3.93)	(3.17)
Entered via coup	0.0868	0.101	0.107	0.166	0.100	-0.0775	0.181	0.194	0.0637	0.177
	(0.65)	(0.76)	(0.80)	(1.92)	(0.74)	(-0.23)	(0.56)	(0.61)	(0.29)	(0.55)
Observations						2805	2805	2805	2749	2707

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

that they had a freer hand to exclude regime opponents under the guise of anti-communism. In fact, leaders in right-wing regimes were sometimes told explicitly—particularly during the Nixon years—that the US was unconcerned with democracy. By contrast, the wave of democratization following the end of the Cold War, combined with the withdrawal of support to repressive anti-communist regimes, likely led to a decline in the frequency of purges, as well as a decrease in the expectation of support from countries such as the US. Such dynamics are likely to lead to considerable differences in purge occurrence across time periods. To account for this, I replicate the main analysis with the inclusion of decade fixed effects. These results are presented in Figure 14, and Figures 15, 16, and 17.

Region fixed effects

There is considerable cross-regional heterogeneity with respect to purge occurrence. Figure 18 replicates the main interaction models, while Figures 19 and 20 display simulation results from models estimated with dummy variables for Sub-Saharan Africa, the Middle East, Asia, Eastern Europe, Western Europe, and Latin America.

Using a shorter timeframe for post-purge coups

One might point out that it is a stretch to assume that all coups that occur within 3 years of a purge are related to that purge, as coups ostensibly require less coercive military capacity than rebellions and rely on the element of surprise, and thus often occur more spontaneously. I adopt the 3-year window for both civil wars and coups in the main text for the sake of consistency, but to ensure that the main results are not driven by the longer cutoff for coups, I re-run the censored probit including only coups that occurred after the purge in the same year. Results, presented in Figures 21 and 22, are substantively unchanged. Defense alliances significantly increase the independent probability of purges as well as the joint probability of purge and retaliatory violence, even when only retaliatory coups that occur in the same year are included.

Controlling for presidential election years

This section present robustness checks replicating each model in the main text, but controlling for years in which a presidential election is held, as incumbents may feel particularly vulnerable around election time, and thus more likely to purge their security forces (data taken from Hyde and Marinov (2012)). Results, presented in Figures 23, 24, and 25, are substantively unchanged. Defense alliances significantly increase the independent probability of purges as well as the joint probability of purge and retaliatory violence, even when executive elections are included as a covariate. The elite strength*external support interaction models show nearly identical results as well. I also checked for any differential effects of external support between election- and non-election years in the censored probit models, and found no significant differences (results not presented).

Endogeneity

It is possible that defense alliances and purges are endogenous. That is, perhaps leaders who feel vulnerable or who wish to consolidate power will deliberately form defense agreements with foreign powers, thus ensuring that they have support in the aftermath of whatever power-consolidating actions they are planning to undertake. This would mean that the causal arrow actually runs in the opposite direction (i.e., purges $\Rightarrow$ alliances), and would introduce upward bias into any estimate of the association between defense agreements and purges.

I conduct two additional checks in order to ensure that my findings regarding defense alliances are not spurious (I do not present the full results tables here, but I am happy to make them available). First, I re-estimate the defense alliance models from the main text using a restricted sample which includes only defense alliances that were in place when the current leader came to power. In other words, I drop from the data any defense alliance that was formed during a leader's time in office, eliminating the possibility that the effects we are observing are

due to alliances formed by leaders specifically seeking to consolidate power. Dropping these observations reduces the sample size from 2,786 in Table A4 to 2,464 observations, and the number of purges from 445 to 408. As Figures 26 through 28 show, the main results hold, for the most part. Results from the two-stage probit using the restricted sample are nearly identical. Regarding the interaction model (Figure 28), the marginal effect of defense alliances on the likelihood of purges remains positive and significant over most of the data, especially when relative elite strength is at its mean or greater. Only at extremely high levels of elite strength do the confidence intervals widen to include zero.

Second, I do the same with a 3-year lag of the defense alliance variable as further assurance that leaders are not forging alliances in anticipation of violence with internal enemies. Figures 29, 30, and 31 demonstrate that the results with the lagged alliance variable are similar to the main results. As with pre-existing alliances, the effect of lagged defense alliances is significant over the bulk of the data, but diminishes at the highest levels of elite strength.

Conditioning on allies' military strength

In order to determine whether allies' military strength is a factor in the decision to purge, I replicate the main models for defense alliances after obtaining information about the relative military capability between Country i and its allies in order to determine if these findings only hold in cases in which Country i has a defensive alliance with a relatively powerful country[3]. It is possible that dictators would feel more confident if their ally has a more competent military. To explore this, I calculated the *relative military capability* for each dyadic defense alliance-year using the difference in CINC scores between Country i and each of its allies (CINC_B-CINC_A). Then, because my data are monadic (i.e., each unit in the data may have more than one ally), I record the relative military capability between Country i and its *strongest* ally, since the capabilities of weaker allies are unlikely to factor into decisions to purge.

One thing to note about this measure is that the strongest ally for nearly every country i in the data is at least roughly equal in military capacity to country i (see the histogram in Figure 29 of the appendix). In fact, the only countries in the data whose most powerful ally was *weaker* are Côte d'Ivoire in 1977, whose strongest ally was Senegal, and Ethiopia from 1972 to 1977, whose strongest ally was Uganda. Even in these cases, the relative capabilities were very close to parity. Still, it is worth investigating whether dictators are more likely to purge, and if retaliation is more likely to follow, as their allies become relatively stronger. Thus, I replicate the two stage censored probit (for defense alliances only) using the relative military capacity of a country's strongest defense allies (results presented in Table A9 of the appendix). I then estimate the elite strength interaction model in order to determine whether the effects of elite strength are conditional upon the relative capability between Country i and its strongest ally.

[3]Data drawn from the National Military Capabilities dataset, version 5.0 from the Correlates of War (Singer and Stuckey, 1972).

Although I do not find anything statistically significant, some interesting patterns emerge which may be worth exploring in the future. In the first stage of the selection model, it appears that dictators with stronger allies are less likely to purge their regimes, although the effect falls short of significance. In the outcome stage, however, among those who do purge, stronger allies are associated with an increase the in the probability of retaliatory violence. The effect misses the conventional statistical significance threshold, but not by much. This finding would be consistent with the theory however: stronger allies make dictators more confident that they can purge rivals from their regimes and survive the backlash with the help of their allies' powerful militaries.

In the interaction model (Figure 29 of the appendix), I test whether the effect of elite strength is conditional upon the relative strength of a country's defensive allies. Although there appears to be a positive relationship (i.e., the marginal effect of elite strength on Pr(purge) increases as allies become stronger), but the effects are never statistically distinguishable from zero.

Table A9: Defensive alliances, purges, and civil war: Results of a censored probit

	Y_1 PURGE	Y_2 RETALIATORY VIOLENCE | PURGE
$Intercept$	-0.69	-0.55
	(0.47)	(1.09)
$Ally\ relative\ mil\ cap.$	-1.29	3.33
	(0.74)	(1.84)
$First\ regime\ leader$	0.28^{***}	0.35
	(0.09)	(0.19)
$ln(mil.\ expenditure)$	0.10^{***}	-0.05
	(0.02)	(0.05)
$Interstate\ war$	0.16	0.83^{*}
	(0.19)	(0.36)
$Economic\ growth$	-0.01^{**}	-0.01
	(0.00)	(0.01)
$ln(GDP\ per\ capita)$	-0.09	-0.08
	(0.05)	(0.13)
$Military\ regime$	0.00	-0.07
	(0.11)	(0.28)
$Single-party$	-0.11	-0.36
	(0.12)	(0.23)
$Monarchy$	-0.78^{***}	—
	(0.22)	
$Failed\ coup$	0.18	0.49^{**}
	(0.10)	(0.18)
$Entered\ via\ coup,$	0.47^{**}	0.48
$first\ year\ in\ office$	(0.17)	(0.40)
$ln(tenure),\ non-coup\ entry$	0.22^{***}	0.05
	(0.05)	(0.14)
$Coup\ entry * ln(tenure)$	-0.11	-0.21
	(0.08)	(0.17)
$Yrs\ since\ last\ purge$	-1.26^{***}	
	(0.25)	
$Yrs\ since\ last\ purge^2$	0.22^{**}	
	(0.08)	
$Yrs\ since\ last\ purge^3$	-0.01^{*}	
	(0.01)	
ρ		0.43
		(0.24)
Log Likelihood		-874.63
N		2,107
Purges		362

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Cubic time polynomials included in selection equation but not shown

References

Beardsley, Kyle. 2010. "Pain, pressure and political cover: Explaining mediation incidence." *Journal of Peace Research* 47(4):395–406.

Brownlee, Jason. 2004. "Ruling parties and durable authoritarianism." *CDDRL Working Paper* 23. http://iis-db.stanford.edu/pubs/20761/brownlee.working_paper.pdf.

Carter, David B. and Curtis S. Signorino. 2010. "Back to the future: Modeling temporal dependence in binary data." *Political Analysis* 18(3):271–292.

Cheibub, Jose A., Jennifer Gandhi and James R. Vreeland. 2010. "Democracy & dictatorship revisited." *Public Choice* 143(2-1):67–101.

Geddes, Barbara, Joseph Wright and Erica Frantz. 2014. "Autocratic breakdown and regime transitions: A new data set." *Perspectives on Politics* 12(1).

Gleditsch, Kristian Skrede. 2002. "Expanded Trade and GDP Data." *Journal of Conflict Resolution* 46(5):712–724.

Hainmueller, Jens, Jonathan Mummolo and Yiqing Xu. 2017. "How much should we trust estimates from multiplicative interaction models? Simple tools to improve empirical practice." *Working paper* . https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2739221.

Herb, Michael. 1999. *All in the Family: Absolutism, Revolution, and Democracy in Middle Eastern Monarchies*. Albany, NY: SUNY Press.

Hyde, Susan D. and Nikolay Marinov. 2012. "Which elections can be lost?" *Political Analysis* 20(3).

Kirkpatrick, David. 2017. "Saudi crown prince's mass purge upends a longstanding system." *New York Times* November 5.

McFadden, D. 1979. Quantitative methods for analysing travel behavior of individuals: Some recent developments. In *Behavioral Travel Modelling*, ed. David A. Hensher and Peter R. Stopher. London: Croom Helm.

McMahon, R. Blake and Branislav Slantchev. 2015. "The guardianship dilemma: Regime security through and from the armed forces." *American Political Science Review* 109(2).

Menaldo, Victor. 2012. "The Middle East and North Africa's resilient monarchs." *Journal of Politics* 74(3):707–722.

Pilster, Ulrich and Tobias Böhmelt. 2011. "Coup-proofing and military effectiveness in interstate wars, 19671999." *Conflict Management and Peace Science* 28(4):331–350.

Roessler, Philip. 2011. "The enemy within: Personal rule, coups, and civil war in Africa." *World Politics* 63(2):300–346.

Singer, J. David and John Stuckey. 1972. Capability distribution, uncertainty, and major power war, 1820-1965. In *Peace, War, and Numbers*, ed. Bruce Russett. Beverly Hills, CA: Sage.

Slantchev, Branislav. 2004. "How initiators end their wars: The duration of warfare and the terms of peace." *American Journal of Political Science* 48(4):813–829.

Smith, Benjamin. 2005. "Life of the party: The origins of regime breakdown and persistence under single-party rule." *World Politics* 57(3):421–451.

Sudduth, Jun Koga. 2017. "The strategic logic of elite purges in dictatorships." *Comparative Political Studies* 50(13):1768–1801.

Svolik, Milan. 2012. *The politics of authoritarian rule*. Cambridge, UK: Cambridge University Press.

Talmadge, Caitlin. 2015. "Different threats, different militaries: Explaining organizational practices in authoritarian armies." *Security Studies* 25:111–141.

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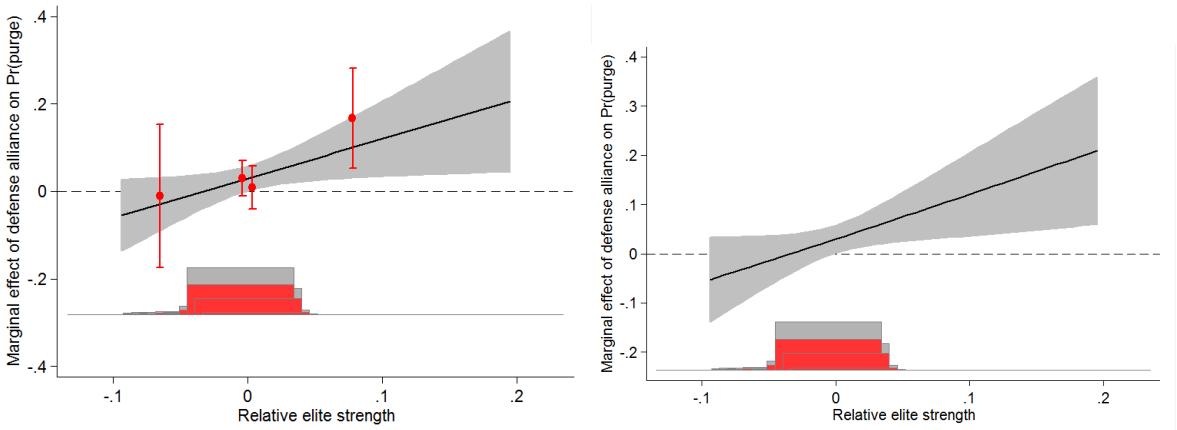

Figure 1: Defense alliances

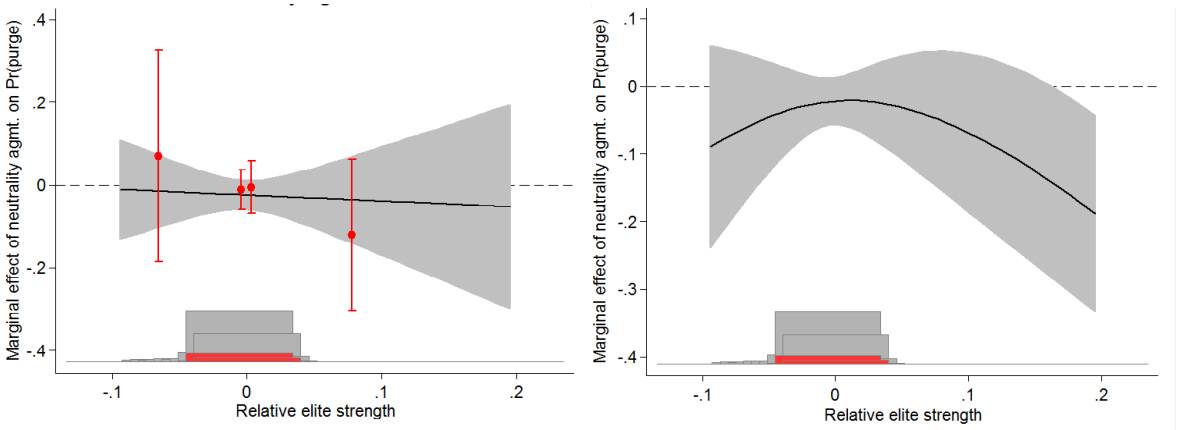

Figure 2: Neutrality agreements

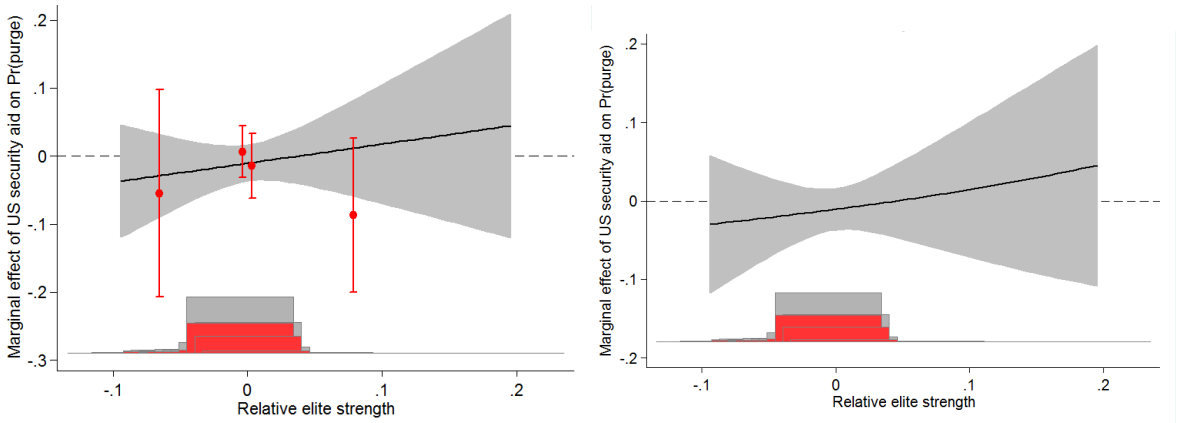

Figure 3: US security assistance

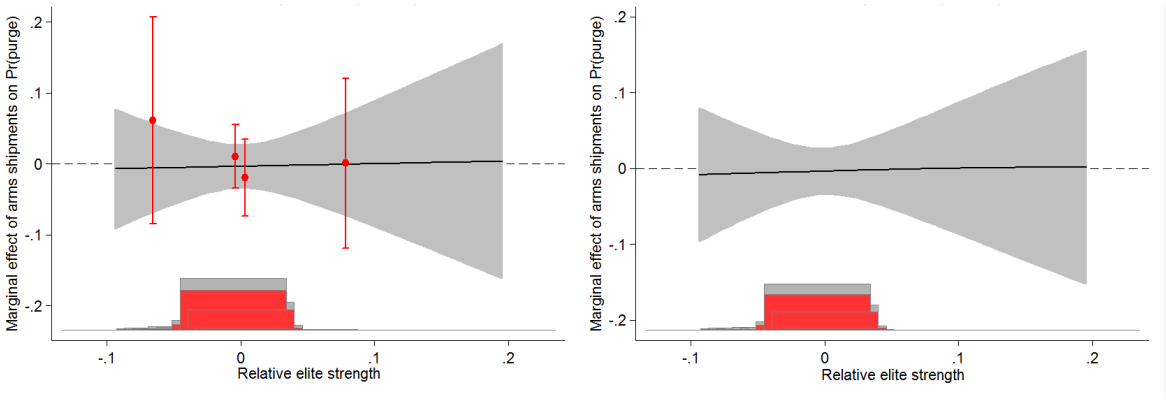

Figure 4: Arms shipments

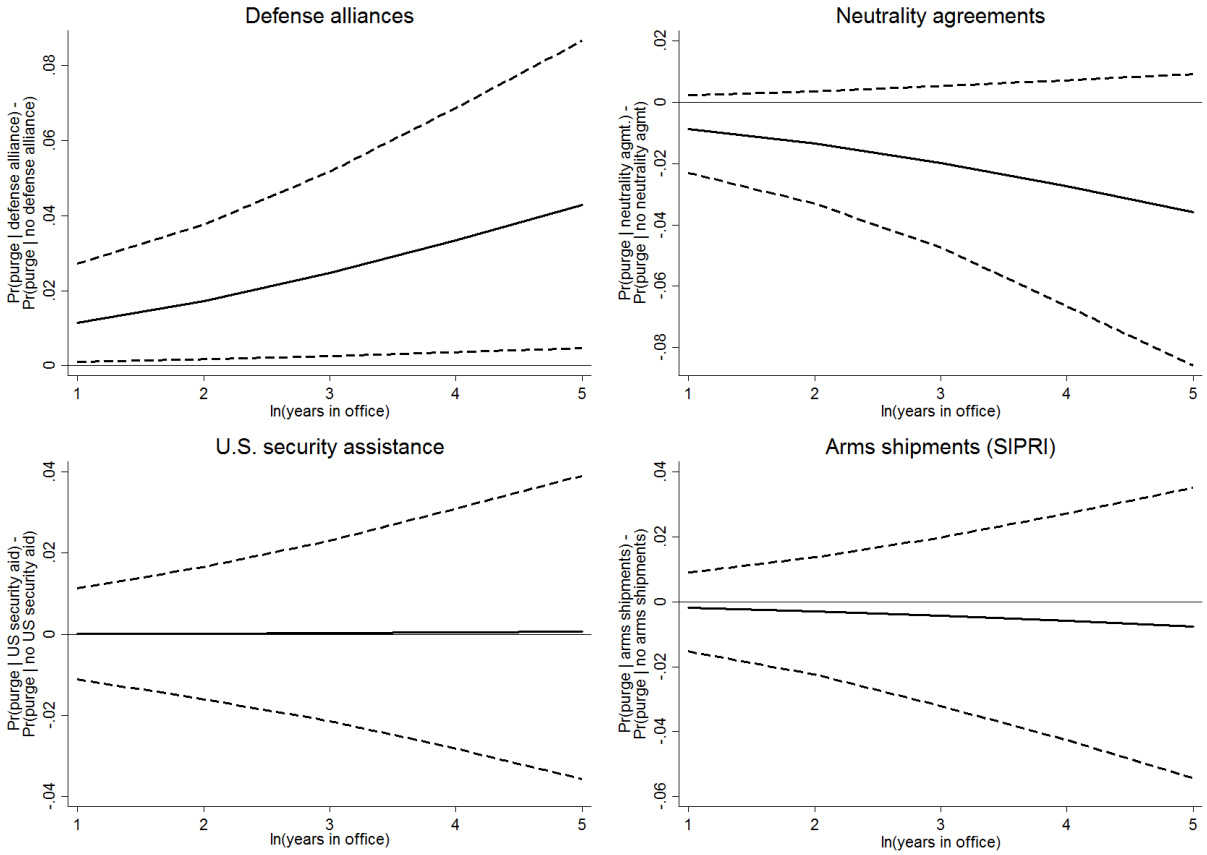

Figure 5: External support and purges, excluding Doe & Amin

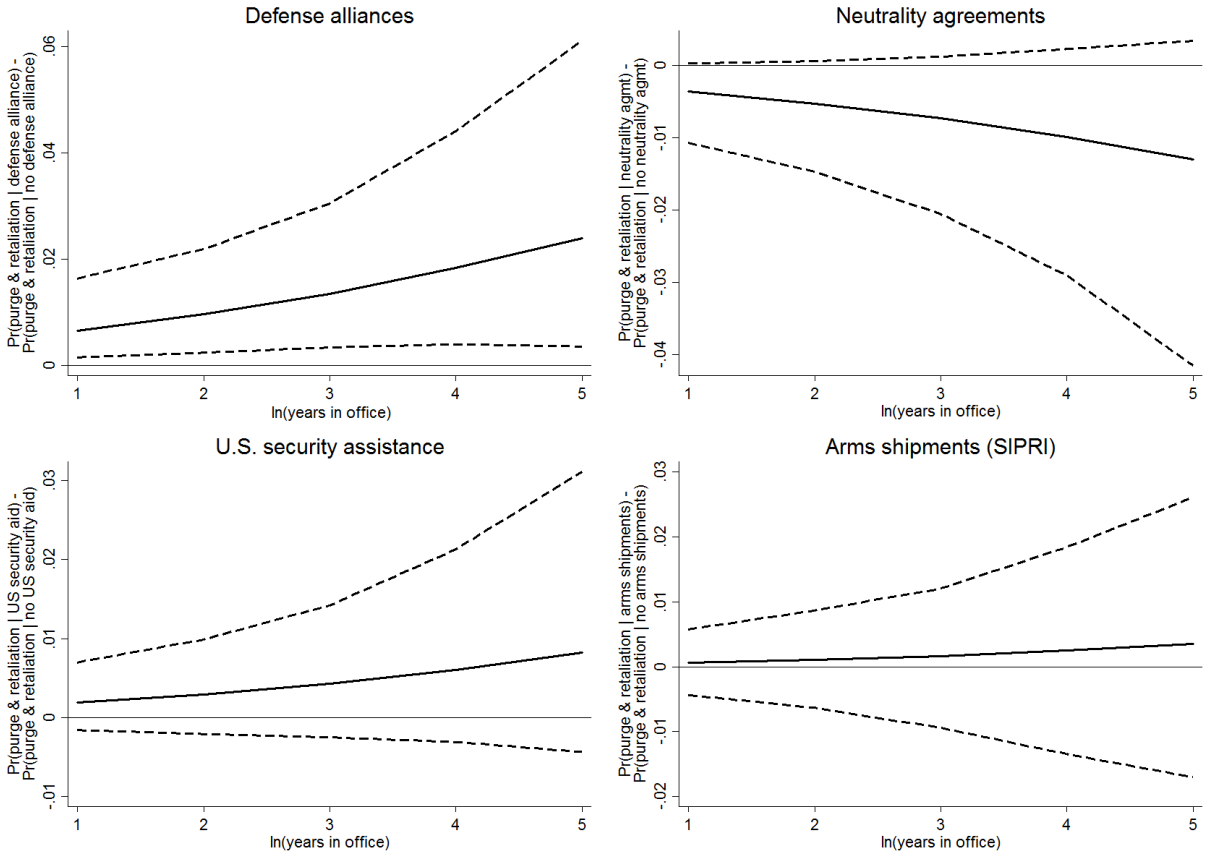

Figure 6: External support and the joint probabilities of purges and violent retaliation, excluding Doe & Amin

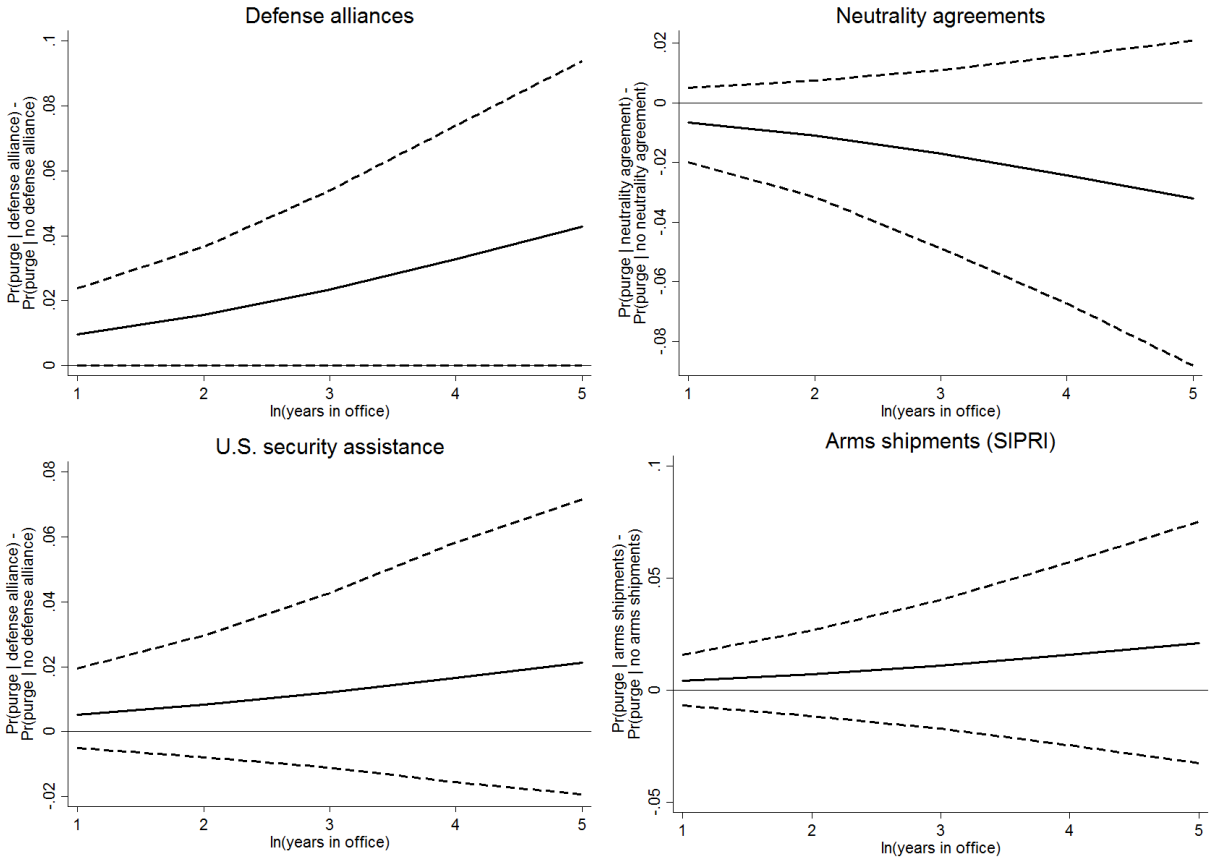

Figure 7: External support and purge occurrence, excluding purges in response to failed coup attempts

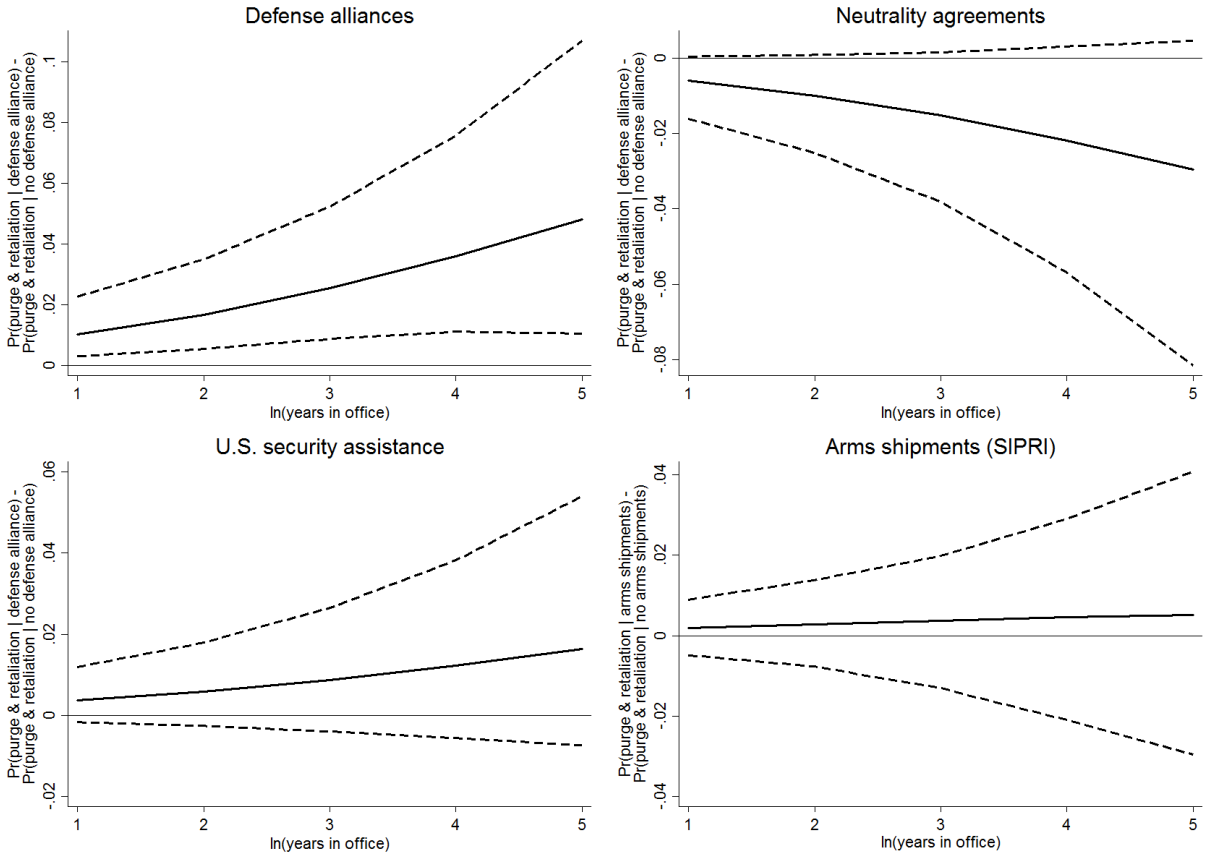

Figure 8: External support and the joint probabilities of purges and civil war onset, excluding purges in response to failed coup attempts

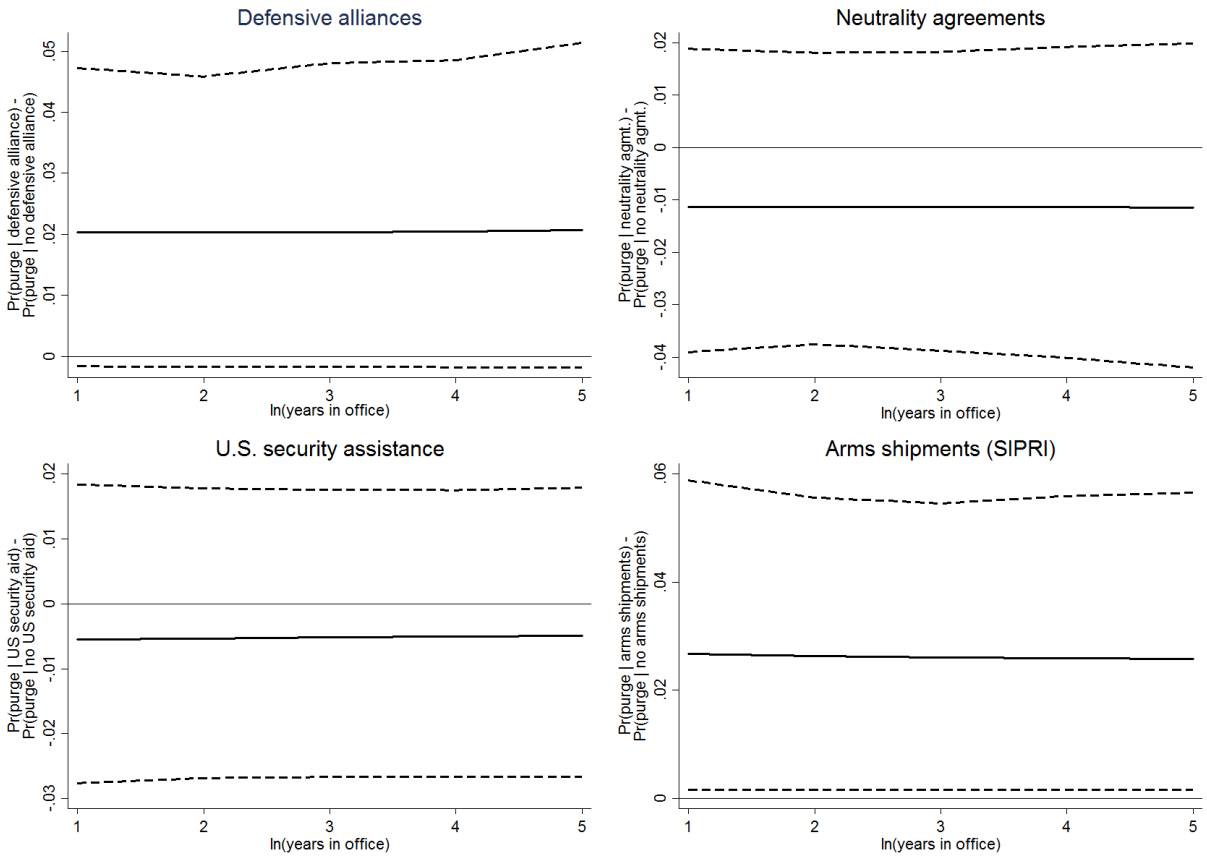

Figure 9: External support and purges, controlling for prior power consolidation

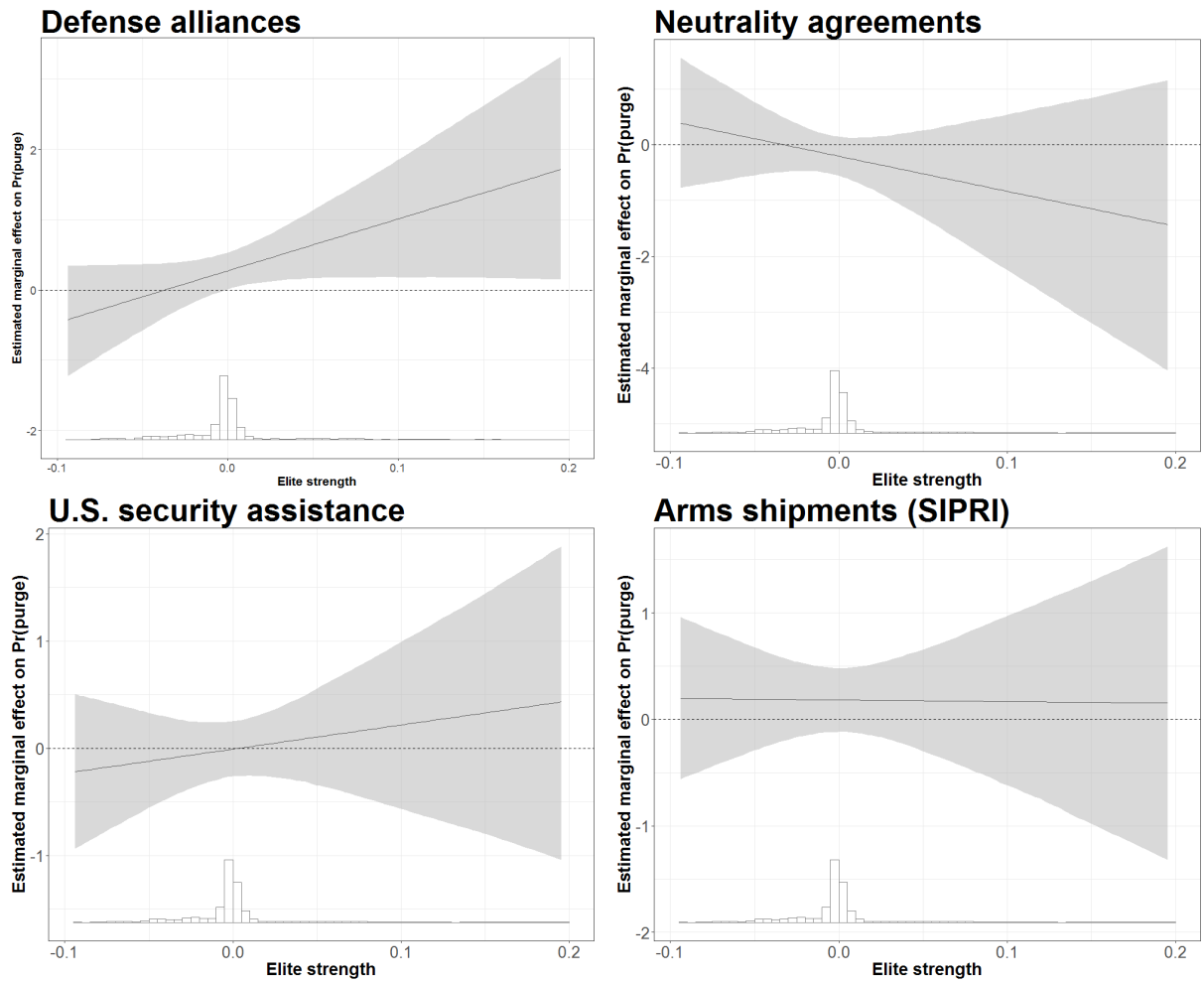

Figure 10: External support, elite strength, and purges, controlling for prior power consolidation

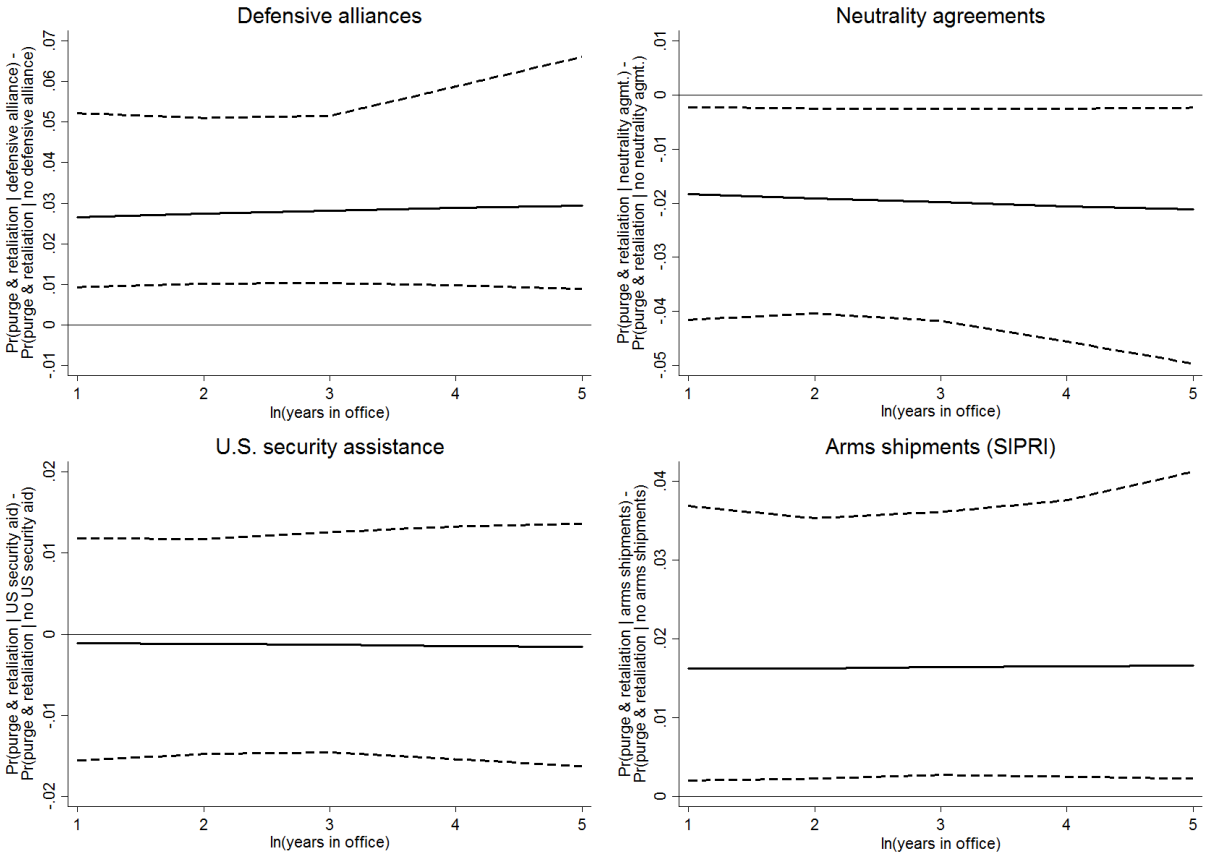

Figure 11: External support and the joint probabilities of purges and violent retaliation, controlling for prior power consolidation

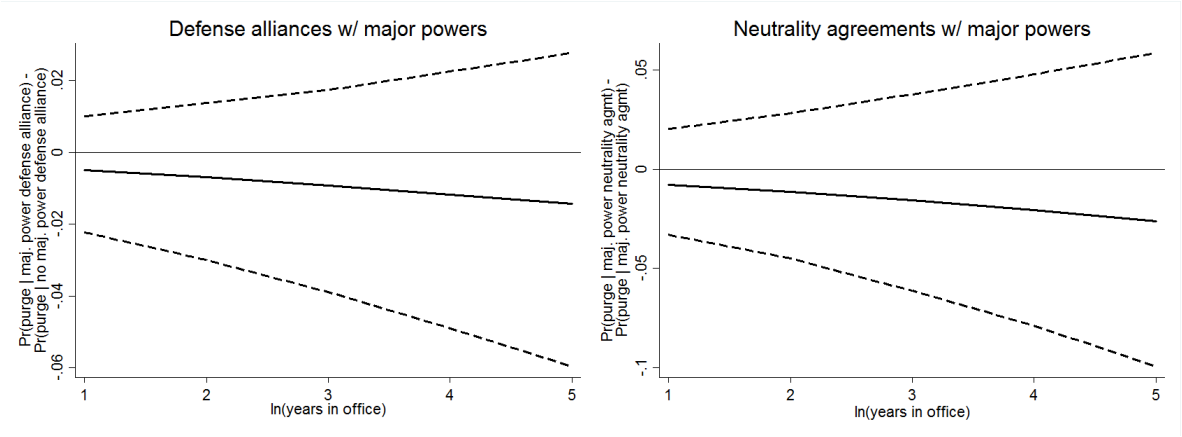

Figure 12: Alliances with major powers and purges

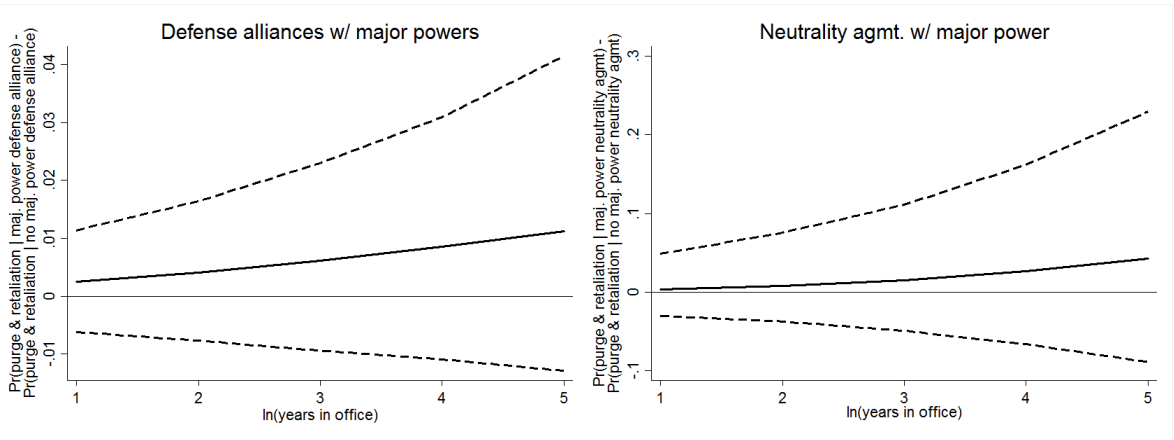

Figure 13: Alliances with major powers and joint probabilities of purges & violent retaliation

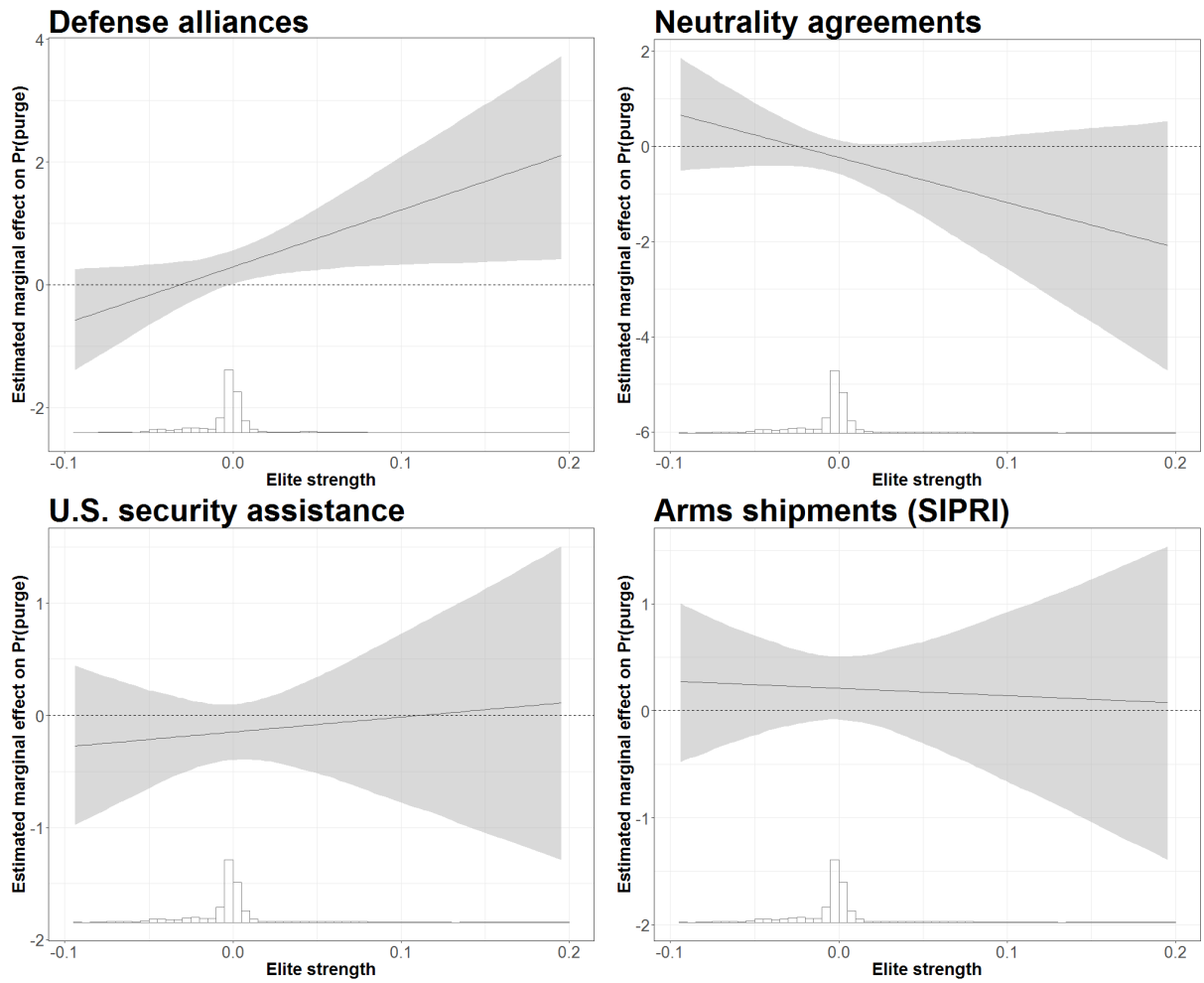

Figure 14: Replication of alliance type*elite strength interaction models with year fixed effects

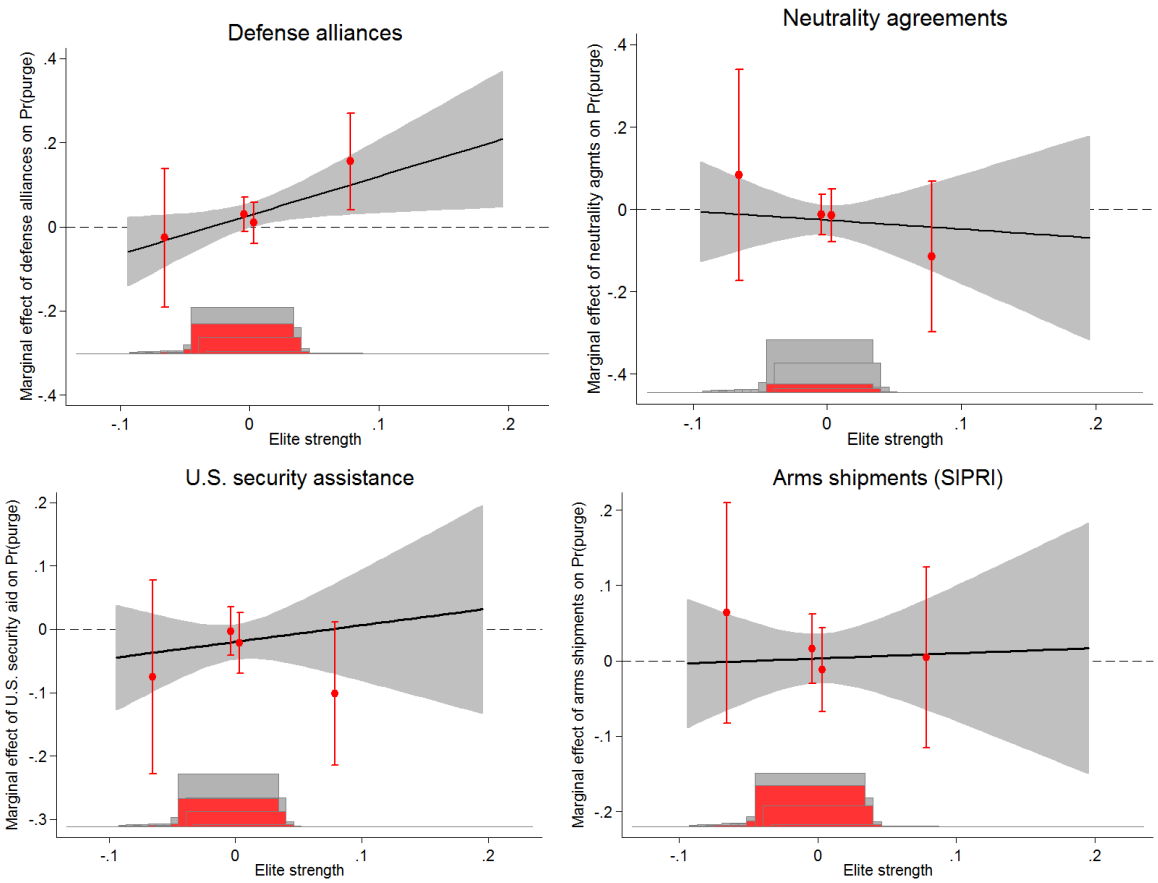

Figure 15: Replication of alliance type*elite strength interaction models with decade fixed effects

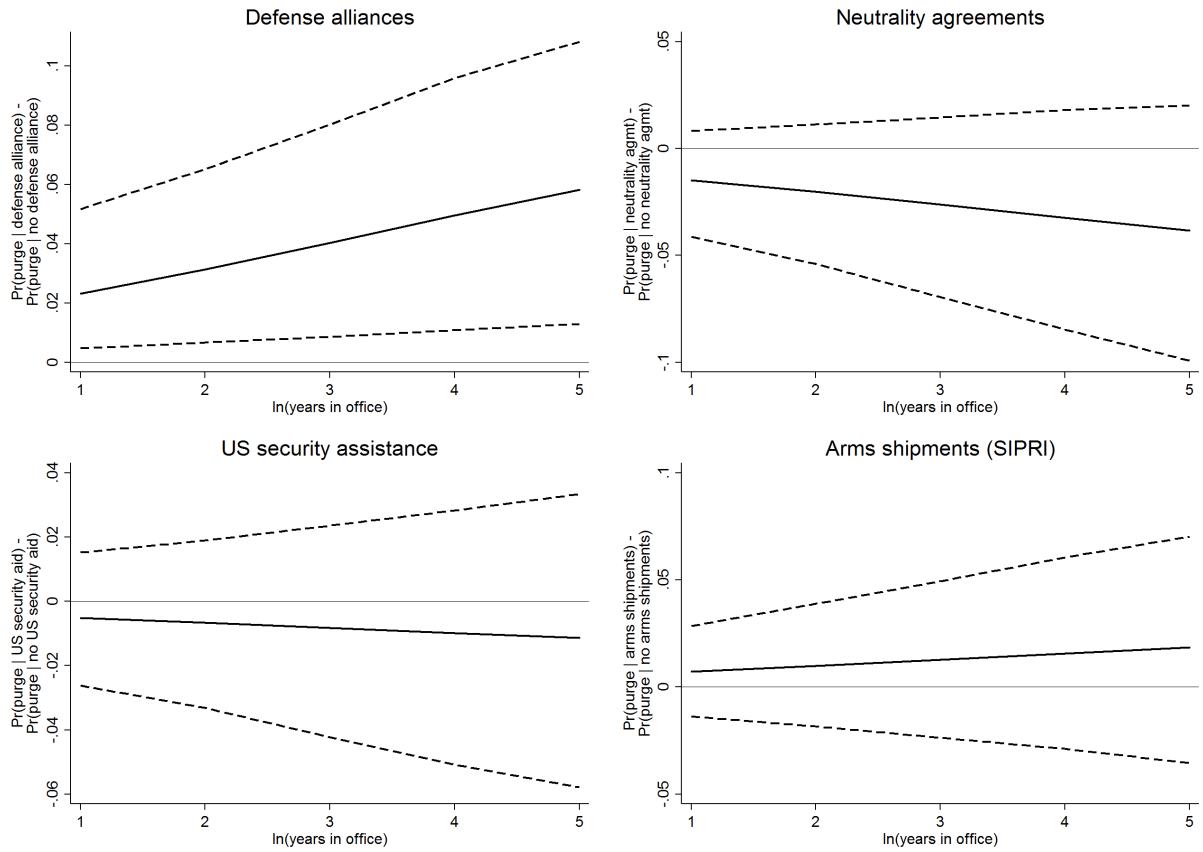

Figure 16: External support and purges with decade fixed effects

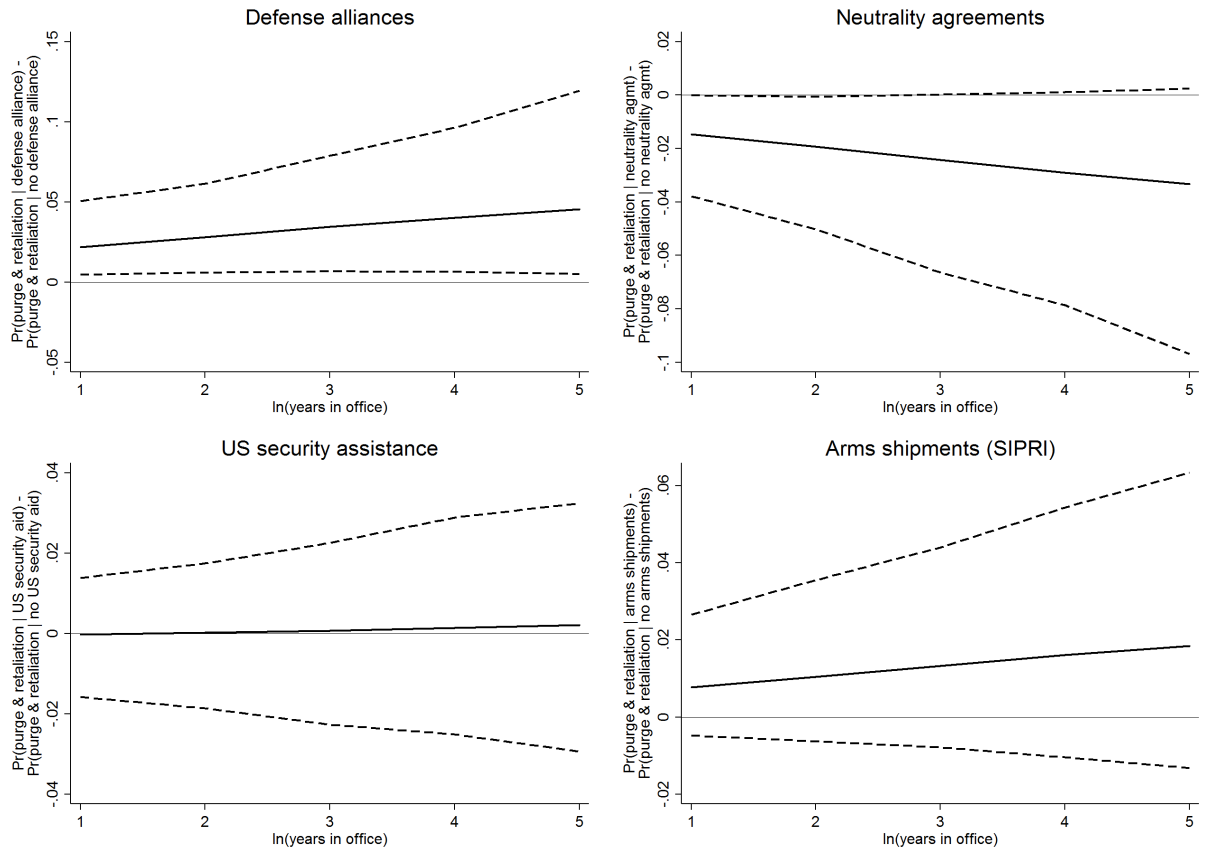

Figure 17: External support and the joint probabilities of purges and violent retaliation with decade fixed effects

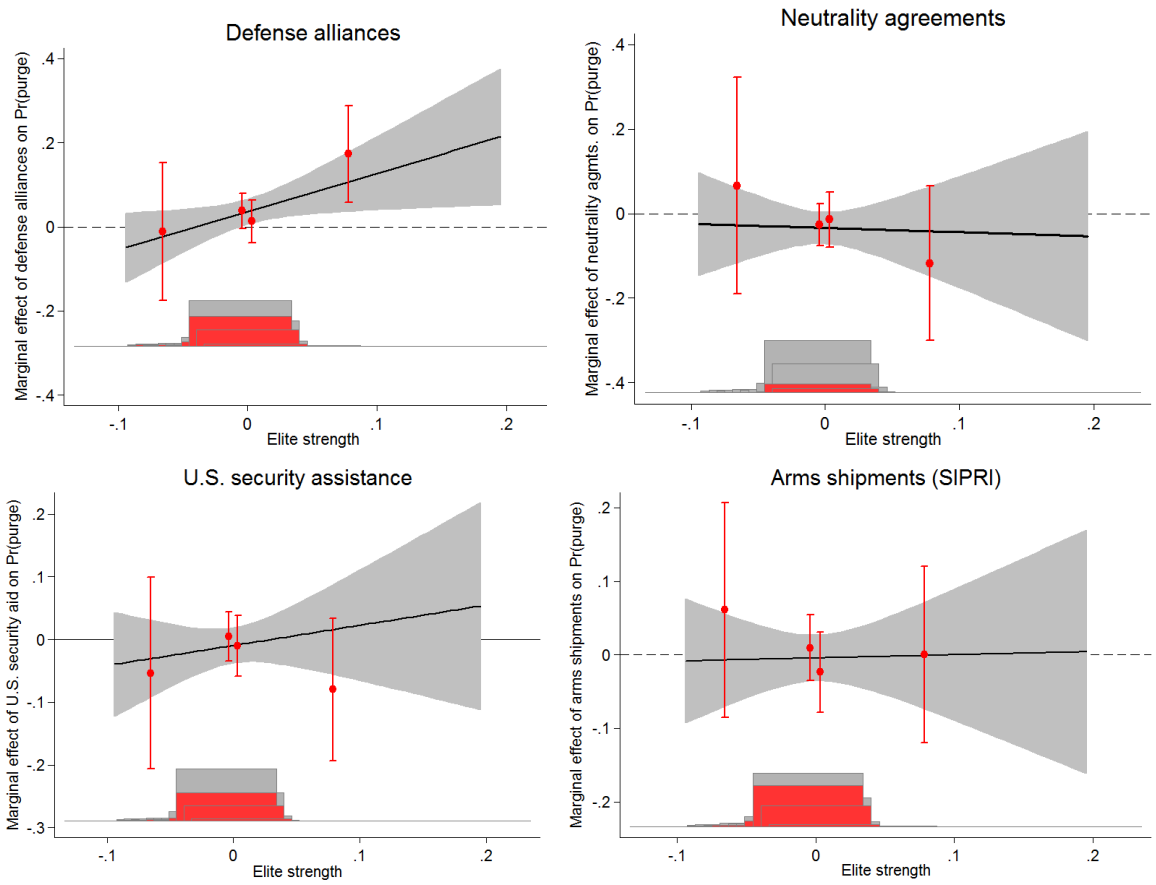

Figure 18: Replication of alliance type*elite strength interaction models with region fixed effects

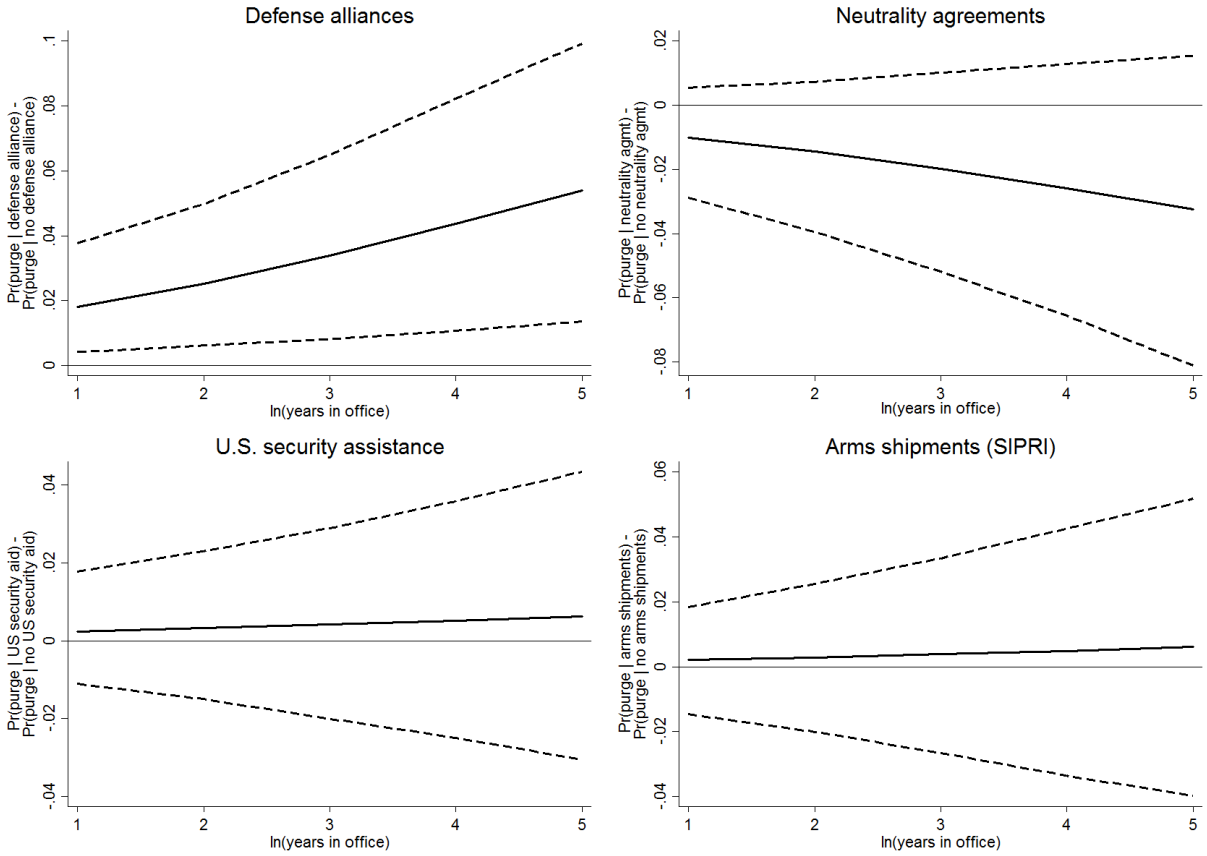

Figure 19: External support and purges w/ region fixed effects

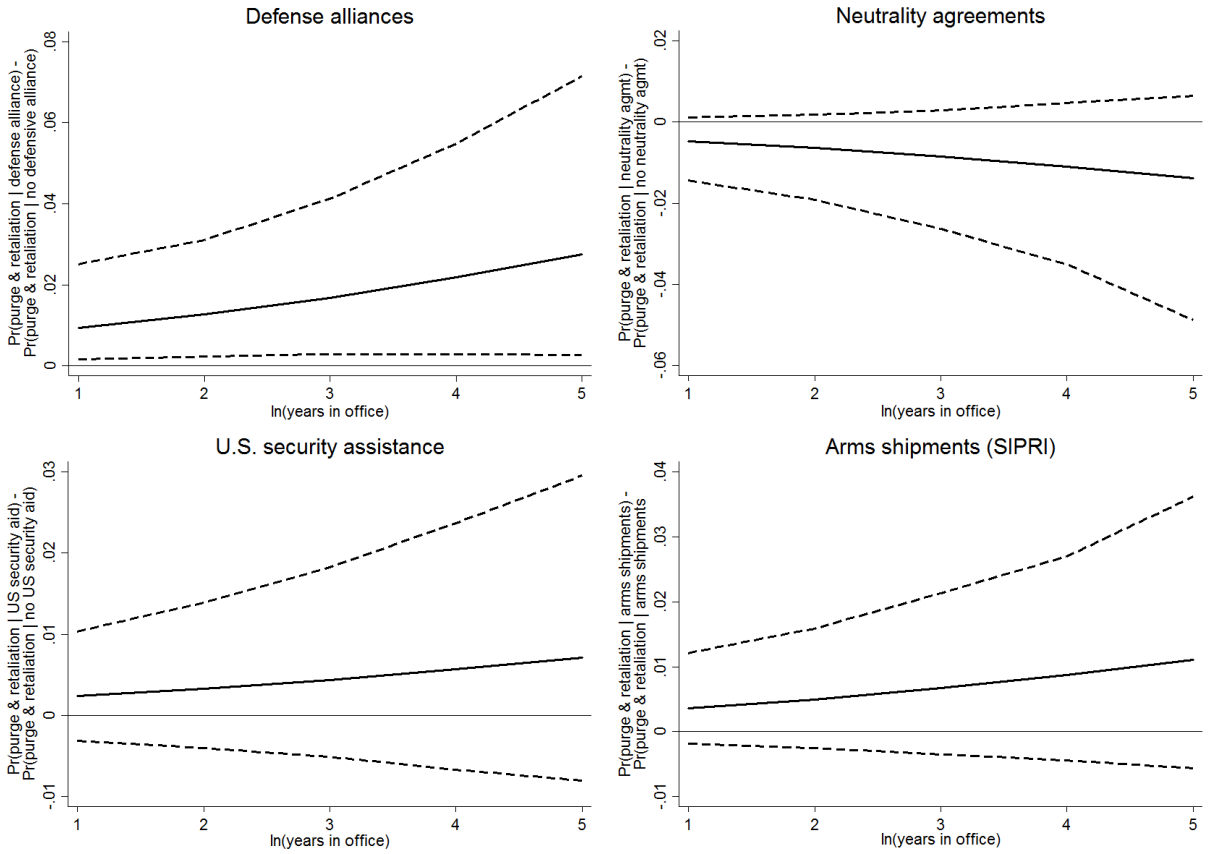

Figure 20: External support and the joint probabilities of purges and violent retaliation w/ region fixed effects

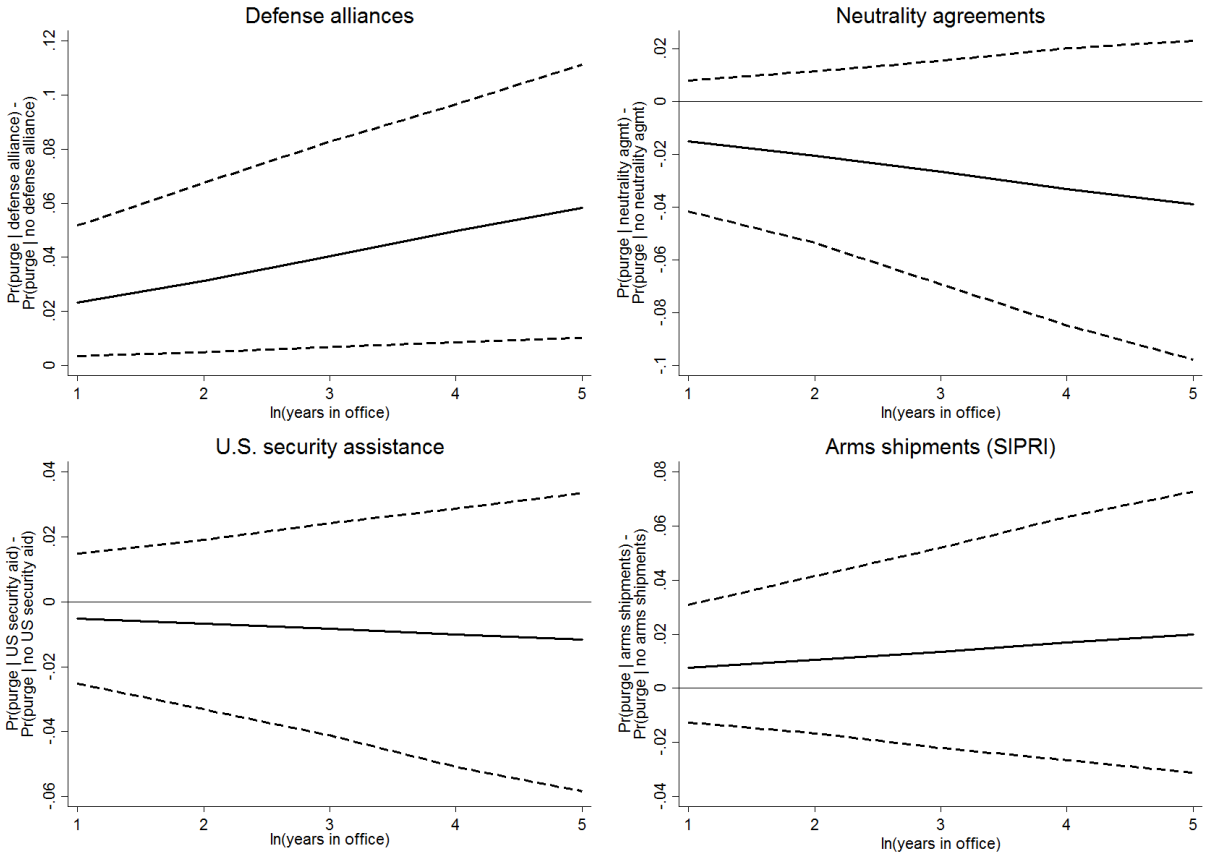

Figure 21: External support and purges w/ only same-year coups

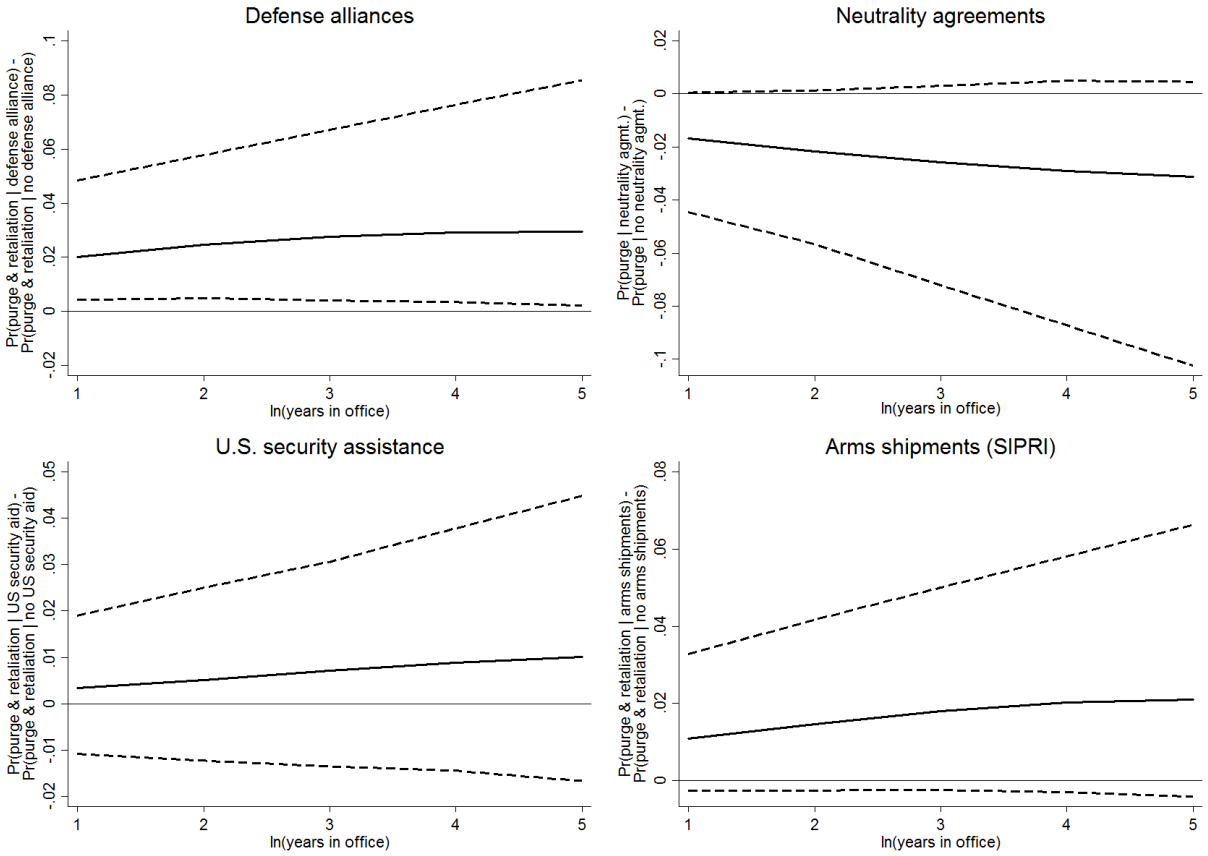

Figure 22: External support and the joint probabilities of purges and violent retaliation w/ only same-year coups

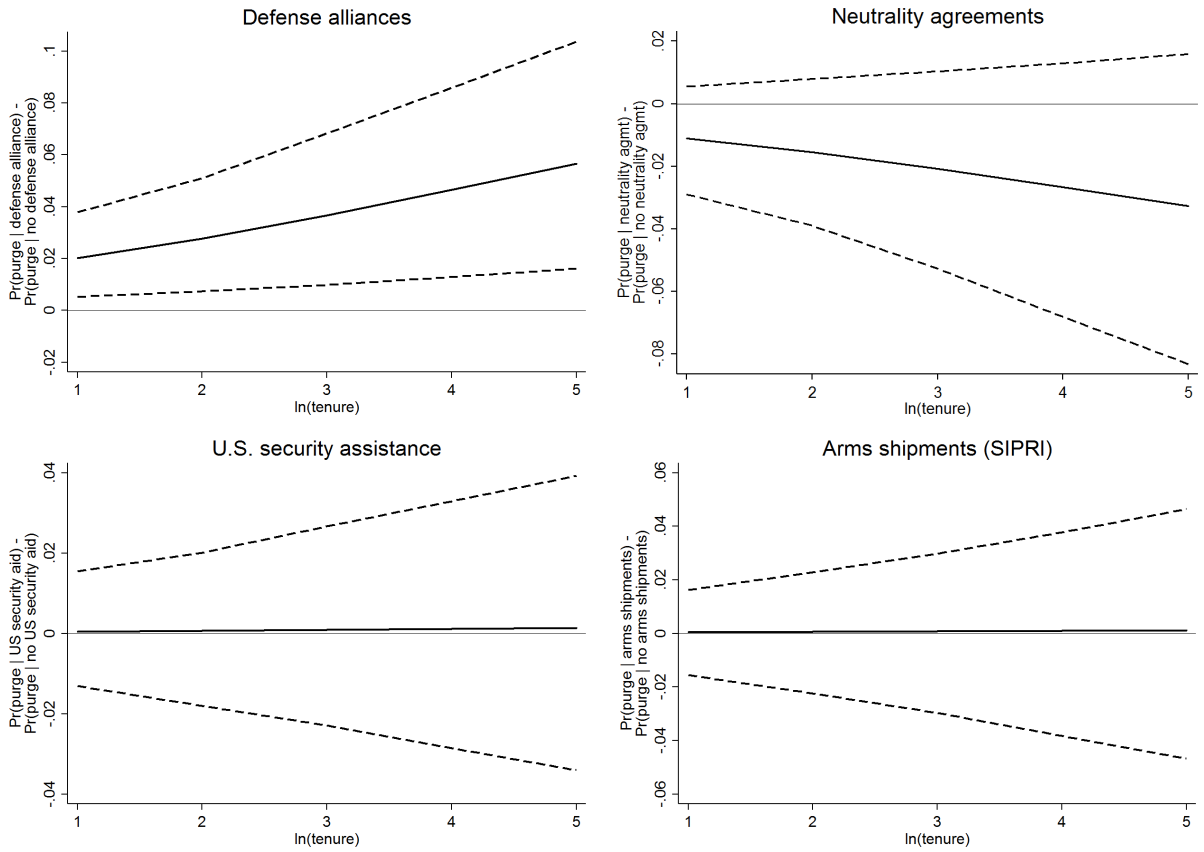

Figure 23: External support and purges, controlling for presidential election years

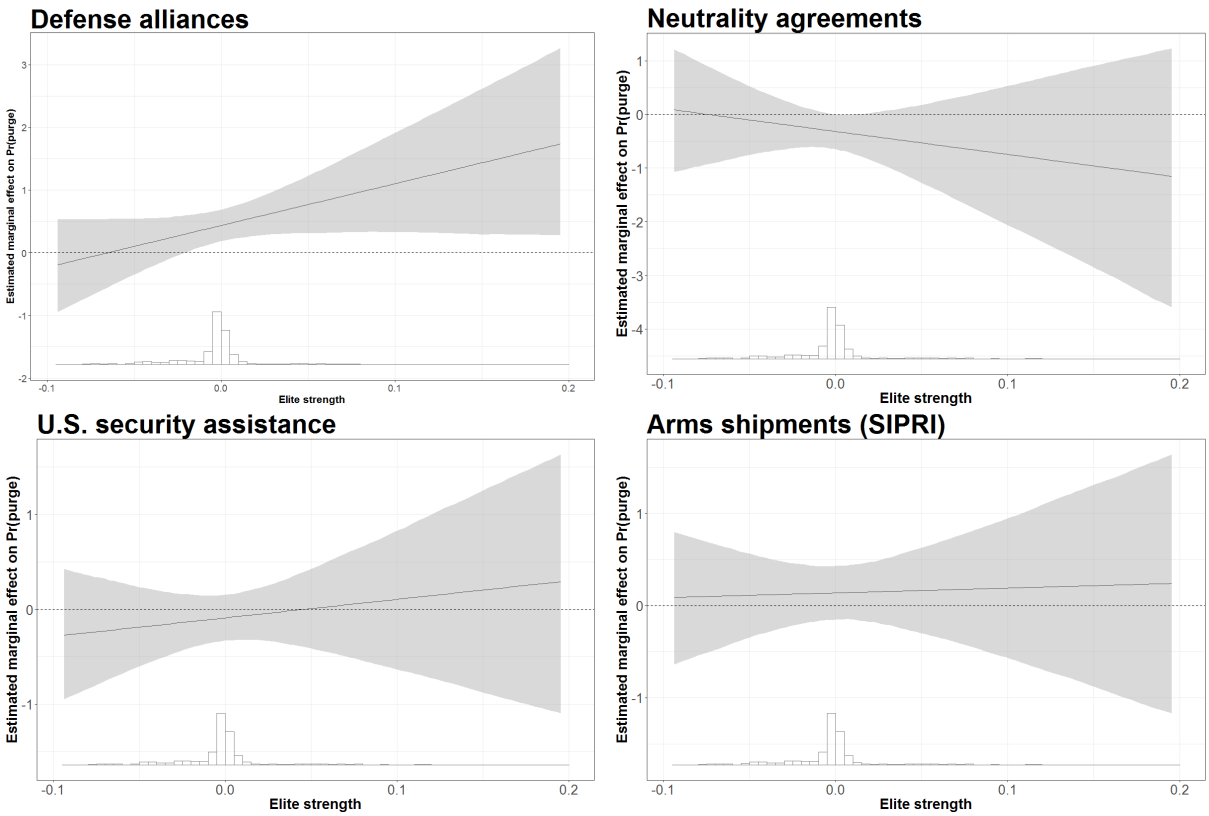

Figure 24: Replication of alliance type*elite strength interaction models, controlling for presidential election years

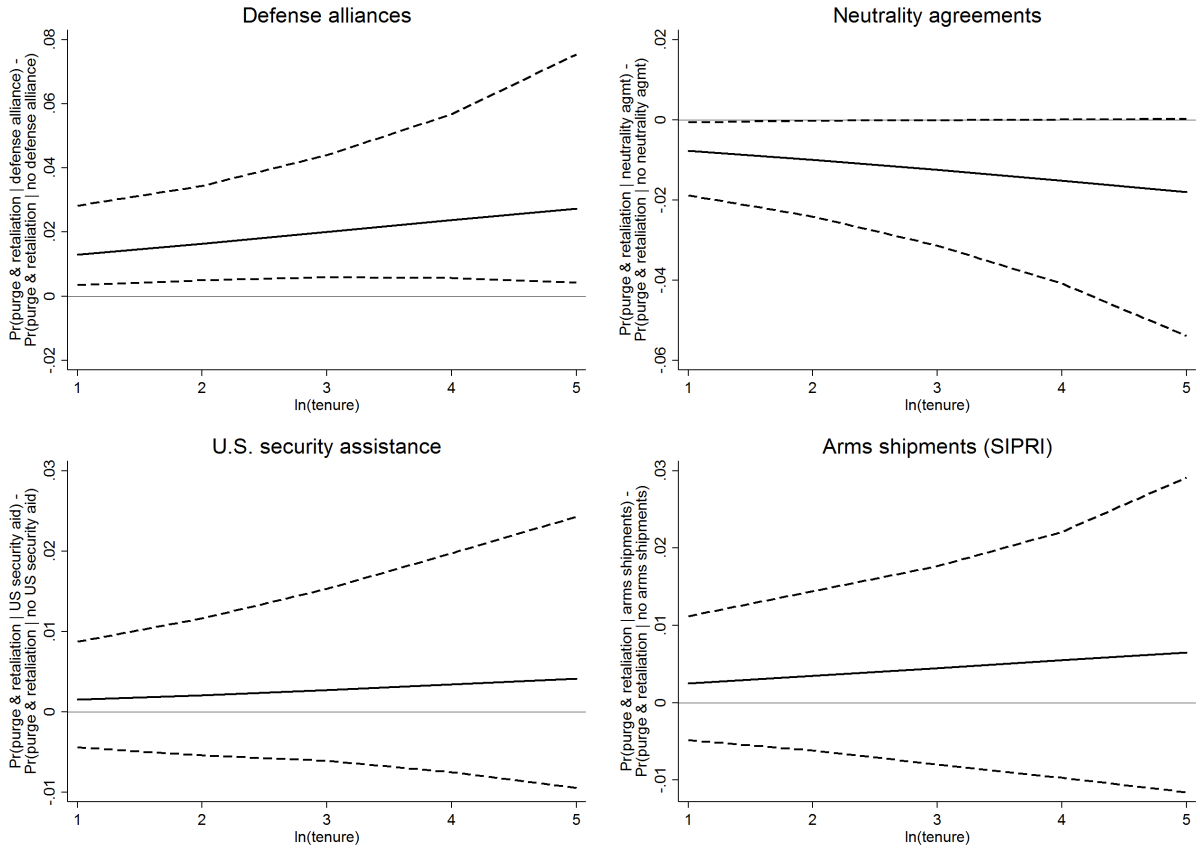

Figure 25: External support and the joint probabilities of purges and violent retaliation, controlling for presidential election years

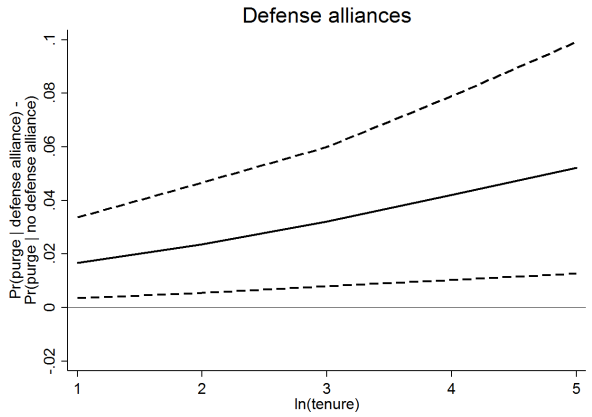

Figure 26: Defense alliance & probability of purges, pre-existing alliances only

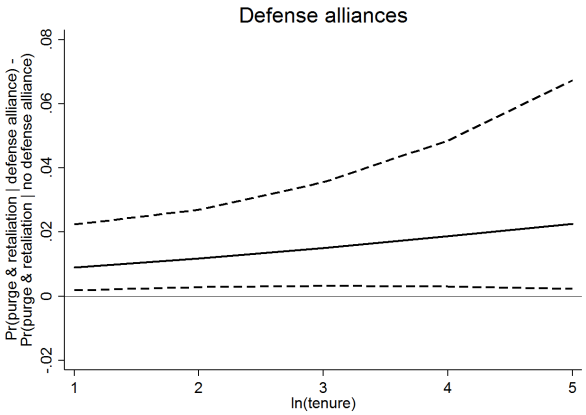

Figure 27: Defense alliance & joint probability of purges & retaliatory violence, pre-existing alliances only

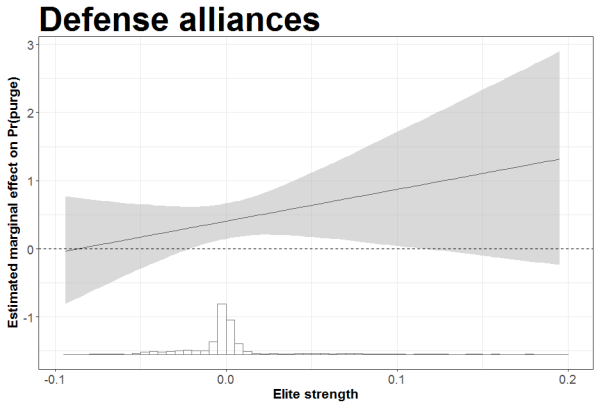

Figure 28: Defense alliance*elite strength interactions, pre-existing alliances only

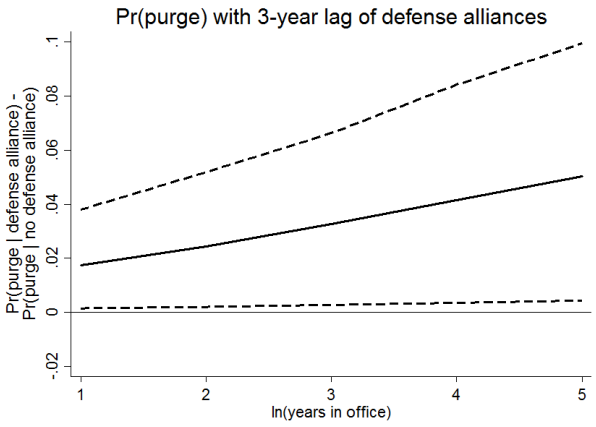

Figure 29: Purges, lagged defense alliance

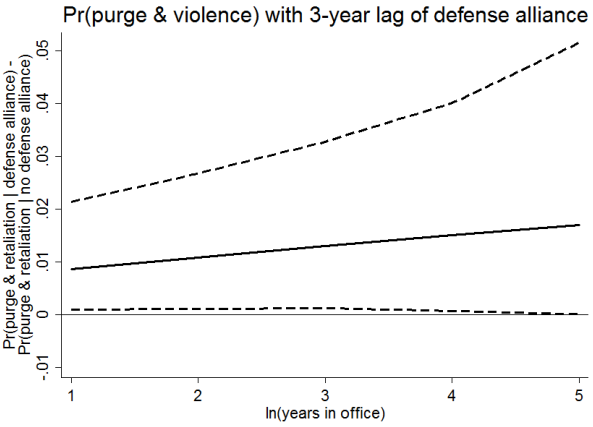

Figure 30: Joint probability of purges & retaliatory violence, lagged defense alliance

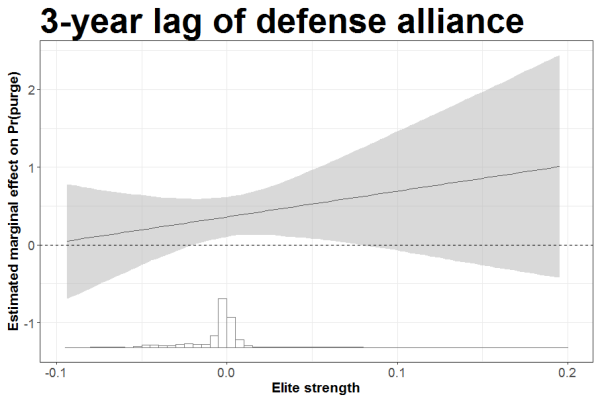

Figure 31: Lagged defense alliance*elite strength interactions

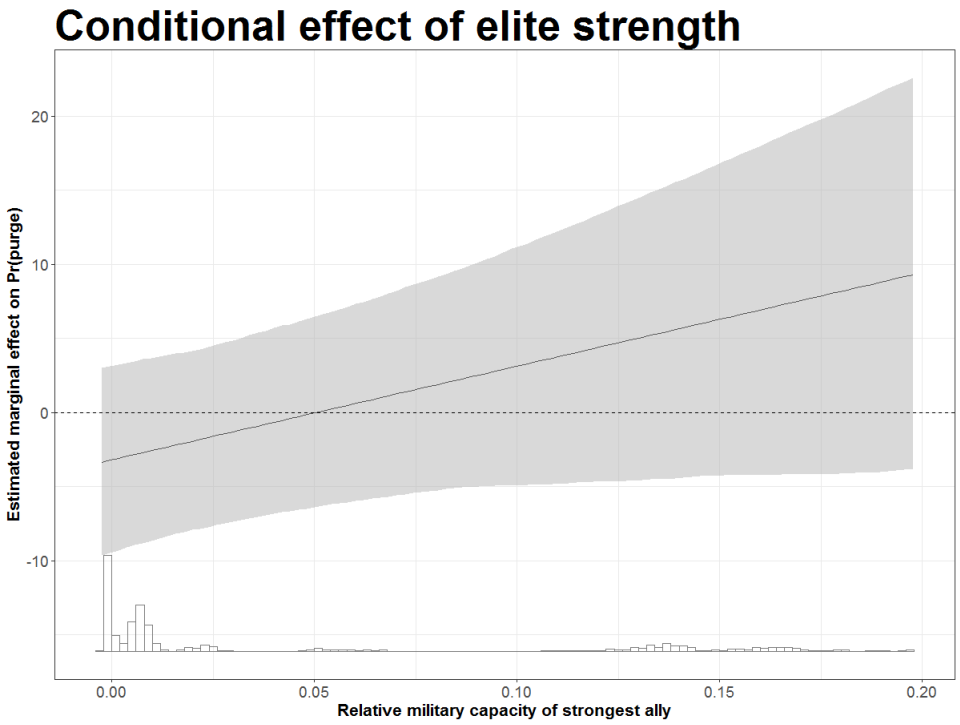

Figure 32: Effect of *elite strength* on Pr(purge), conditional on the relative military capacity of the strongest defensive ally