

# Military Purges and the Recurrence of Civil Conflict: Appendix

## Summary statistics

As referenced at the end of the “Research design” section, Table A1 presents the summary statistics for all variables used in the analyses presented in the manuscript and in the models reported in this appendix.

Table A1: Summary statistics

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>	<b>N</b>
top purge	0.091	0.288	0	1	1210
any purge	0.212	0.409	0	1	1210
purge <sub>t-2</sub>	0.112	0.315	0	1	1210
purge <sub>t-3</sub>	0.092	0.289	0	1	1210
purge <sub>t-4</sub>	0.093	0.29	0	1	1210
purge decay	0.147	0.3	0	1	1210
victory	0.671	0.47	0	1	2501
duration	-0.153	1.89	-2.526	3.777	2501
battle deaths	0.218	2.613	-3.507	7.098	2501
peacekeepers	0.13	0.337	0	1	2501
military regime	0.186	0.389	0	1	9115
leader tenure	7.53	8.198	1	61	9115
population	2.962	1.512	-0.693	7.117	2439
GDP per cap	7.345	1.188	3.871	10.096	2004
IMR	73.367	46.931	4	332	2170
post cold war	0.391	0.488	0	1	9207
peace years	13.79	12.387	0	59	2501
peace years <sup>2</sup>	343.53	553.034	0	3481	2501
peace years <sup>3</sup>	11183.799	25784.944	0	205379	2501

## Time to recurrence of civil conflict

Rather than considering *whether* the country experiences another civil conflict, it is also possible for us to assess the likely length of post-conflict peace in the presence, or absence, of a purge event. As referenced in footnote 5 in the manuscript, we consider the time it takes to observe conflict recurrence using a Cox Proportional Hazards Model specified using the variables from Model 2, with the results presented in Table A2. For the sake of consistency with our other models we present coefficient estimates for Model 3, rather than hazard ratios. We see that the effects of these covariates on the risk of (and time it takes to observe) conflict recurrence are very similar to those seen in the logistic regression reported as Model 2 in the manuscript. Purges of high-ranking military officials delay the recurrence of civil conflict.

Table A2: Cox Proportional Hazards Model, Conflict Recurrence

	Model 3
toppurge	-1.545* (0.729)
victory	-0.808 (0.569)
duration	0.129 (0.146)
battledeaths	0.091 (0.100)
peacekeepers	-0.497 (0.521)
milregime	-0.123 (0.338)
leadertenure	-0.063** (0.023)
population	-0.383* (0.159)
gdp	-0.394 (0.267)
imr	0.006 (0.008)
postcold	0.846* (0.365)
<i>N</i>	1024

Post-conflict country-years in autocracies, 1969-2003.

Cox Proportional Hazards model with coefficients estimates presented here.

Robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

## The effect of purges over time

Models 1 and 2 reported in the manuscript focus on purge events that happened in the year prior to a given observation. However, as referenced in footnote 7, it is possible that the removal of high-ranking military officials has an impact on the willingness of opposition forces to take up arms against their government for more than one year after the purge event. The following model specifications explore this possibility in a number of ways. First, Table A3 presents a series of models employing temporal lags of our main explanatory variable *top purge* to examine how purge events impact the risk of recurrence 2, 3, and 4 years after the officer removal. Based on these specifications, we do not observe a statistically significant effect for purges on the likelihood of renewed unrest in a post-conflict country. It appears as though the conflict-preventing impact of this regime behavior is only particularly meaningful in the first year after it occurs.

However, Table A4 provides some evidence that purges might have a lasting effect on promoting peace (at least in the sense of preventing renewed civil conflict). The variable *purge decay* is a decay function coded 1 the first year after a purge (as is the case with *top purge*), and in subsequent years that value is halved (in other words: two years after the purge = 0.5, three years after = 0.25, four years after = 0.125). Thus, the potential effect of the purge event on deterring conflict recurrence is allowed to persist over time, though with diminished intensity. In the event that a new purge event occurs, this variable is coded 1 and the “half-life” decay starts over again. As can be seen in Model 8 of Table A4, the coefficient for *purge decay* is negative and statistically significant, suggesting that post-war military purges do have a deterrent effect on the likelihood of subsequent conflict. This effect is not as substantively strong as with the variable measuring the effect of purges in their first year only (*top purge*), suggesting that the conflict-mitigating power of a purge diminishes over time.

Table A3: Temporal lags of Top purge

	Model 4	Model 5	Model 6	Model 7
top purge				-1.922** (0.721)
purge <sub>t-2</sub>	-0.285 (0.457)			0.088 (0.499)
purge <sub>t-3</sub>		-0.007 (0.456)		0.367 (0.414)
purge <sub>t-4</sub>			-0.150 (0.472)	-0.183 (0.558)
victory	0.099 (0.301)	0.060 (0.298)	0.069 (0.292)	0.115 (0.299)
duration	0.366** (0.119)	0.363** (0.119)	0.363** (0.118)	0.363** (0.118)
battle deaths	-0.096 (0.066)	-0.098 (0.066)	-0.095 (0.066)	-0.088 (0.066)
peacekeepers	-0.740 (0.419)	-0.720 (0.419)	-0.720 (0.416)	-0.831* (0.420)
military regime	-0.058 (0.294)	-0.027 (0.306)	-0.035 (0.305)	-0.061 (0.295)
leader tenure	-0.050* (0.020)	-0.049* (0.020)	-0.050* (0.020)	-0.051* (0.020)
population	-0.027 (0.105)	-0.028 (0.104)	-0.029 (0.105)	-0.023 (0.107)
GDP per cap	-0.338 (0.185)	-0.323 (0.186)	-0.332 (0.187)	-0.348 (0.193)
IMR	0.000 (0.004)	0.001 (0.004)	0.000 (0.004)	0.000 (0.004)
post cold war	0.842** (0.310)	0.818** (0.313)	0.827** (0.308)	0.859** (0.317)
peace years	-0.183** (0.066)	-0.178** (0.065)	-0.179** (0.065)	-0.191** (0.066)
peace years <sup>2</sup>	0.007 (0.003)	0.006 (0.003)	0.006 (0.003)	0.007* (0.004)
peace years <sup>3</sup>	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
constant	0.703 (1.664)	0.559 (1.682)	0.642 (1.698)	0.834 (1.769)
<i>N</i>	1024	1024	1024	1024

Post-conflict country-years in autocracies, 1969-2003.

Logistic regression with robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A4: Decay function for top purge

	Model 8
purge decay	-1.196* (0.545)
victory	0.185 (0.302)
duration	0.359** (0.115)
battle deaths	-0.085 (0.066)
peacekeepers	-0.809 (0.422)
military regime	-0.134 (0.295)
leader tenure	-0.054** (0.020)
population	-0.027 (0.109)
GDP per cap	-0.372 (0.195)
IMR	0.000 (0.004)
post cold war	0.892** (0.303)
peace years	-0.199** (0.065)
peace years <sup>2</sup>	0.007* (0.003)
peace years <sup>3</sup>	-0.000 (0.000)
constant	1.129 (1.759)
<i>N</i>	1024

Post-conflict country-years in autocracies, 1969-2003.

Logistic regression with robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

## Conflict-level analysis

As referenced in footnote 2 in the manuscript, it is also worth considering the effect of purges on the likelihood that the same combatants will again take up arms against one another. For the models presented in Table A5, we replicate key specifications to examine the effect of purges on conflict recurrence at the post-conflict-year level of analysis, rather than at the post-conflict country-year level utilized in all previous models. This means that some country-years are represented across multiple observations if the country experienced more than one civil conflict.

Model 9 follows the specification of Model 2 from the manuscript to assess how purges in the previous year only (*top purge*) affect the risk of conflict recurrence. Model 10 employs the decay function of the *top purge* variable, as utilized in Model 8, to consider how the prolonged effect of purges impacts the likelihood of a particular conflict experiencing recurrence. In both models we see a similar (negative) relationship between high-ranking officer purges and the risk of recurrence. While the substantive effect is somewhat smaller at the conflict-year level as compared to the country-year level, we can still conclude that purges are an effective way for leaders to reduce the likelihood of renewed civil conflict, involving either the same adversaries or new challengers.

Table A5: Models 2 & 8, conflict-year unit of analysis

	Model 9	Model 10
top purge	-1.635* (0.716)	
purge decay		-0.791* (0.387)
victory	-0.769** (0.276)	-0.755** (0.275)
duration	-0.045 (0.099)	-0.044 (0.098)
battle deaths	0.033 (0.061)	0.032 (0.060)
peacekeepers	-1.064 (0.547)	-1.055 (0.551)
military regime	-0.237 (0.223)	-0.272 (0.230)
leader tenure	-0.041* (0.019)	-0.042* (0.019)
population	-0.026 (0.091)	-0.030 (0.093)
GDP per cap	-0.114 (0.177)	-0.119 (0.178)
IMR	0.003 (0.004)	0.003 (0.004)
post cold war	0.660** (0.246)	0.681** (0.241)
peace years	-0.250** (0.083)	-0.244** (0.082)
peace years <sup>2</sup>	0.013* (0.006)	0.012* (0.006)
peace years <sup>3</sup>	-0.000 (0.000)	-0.000 (0.000)
constant	-0.555 (1.693)	-0.503 (1.697)
<i>N</i>	1457	1457

Post-conflict country-years in autocracies, 1969-2003.

Logistic regression with robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$