Online Appendix to "Explaining the Origins of Military Rebellions"

Theodore McLauchlin

June 2022

Robustness check: the status of ethnic exclusion as a variable

As mentioned in the main paper, ethnic exclusion could plausibly operate as either a confounder or a mechanism, with respect to the paper's theory wherein personalism increases the likelihood of army-splinter rebellion. Ethnic exclusion is a strategy frequently employed by personalist dictators (Roessler 2016; Harkness 2018). It could plausibly be a posttreatement mechanism linking personalism and army-splinter rebellion in the sense that, applied to an army, an ethnic preference policy could easily create a disgruntled out-group with motivation to rebel, and an entrenched elite apt to resist a coup attempt. It could also plausibly be a pretreatment confounder: it may capture broad-based, society-wide ethnic exclusion that generates broader social movements that bring soldiers along. Since the EPR data that I use for ethnic exclusion cannot separate these two possibilities effectively, in the paper I adopt the conservative assumption that ethnic exclusion represents a confounder, and I include it in the model. If instead it is a mechanism, then including it in the model introduces posttreatment bias. Hence, in column 2, table A1, below, I remove ethnic exclusion from the model to see whether this meaningfully changes the findings from the paper. I exclude the log-population control, because there is no reason to suppose it is related to the independent variable or the dependent variable and had been included in Model 2 in the main paper purely for comparison with non-military rebellions using standard correlates of civil conflict. The coefficient on personalism is slightly stronger, with a lower standard error; otherwise, removing this variable changes little.

Table A1. With and without ethnic exclusion

VARIABLES	(1) Main model	(2) Without ethnic exclusion
Personalism index (in dictatorships only)	2.787**	2.956***
	[1.194]	[1.102]
Democracy	1.089	1.059
	[0.900]	[0.887]
Warlord/foreign occupied/other	2.601***	2.514**
	[0.946]	[0.979]
1989-1995	1.822***	1.816***
	[0.480]	[0.479]
1996-2010	0.967**	0.958**
	[0.447]	[0.459]
Share of population ethnically excluded	1.058*	
	[0.564]	
Log GDP per capita	-0.384**	-0.457**
	[0.178]	[0.185]
Time since last army-splinter rebellion	-0.153*	-0.145
	[0.089]	[0.090]
Time^2	0.007*	0.007*
	[0.004]	[0.004]
Time^3	-0.000*	-0.000*
	[0.000]	[0.000]
Constant	-4.382***	-3.613**
	[1.644]	[1.768]
Observations	7,974	7,975
Countries	163	163

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1

Robustness check: rare-events logit

There are only 31 country-years with the emergence of a new army-splinter rebellion; this is a rare event, and according to King and Zeng (2001) the estimates can therefore be affected by the shape of the logit function at its extremes. Here, I reproduce the results from Model 2, Table 3 (the key model in the paper) with the rare-events approach of King and Zeng (2001). I exclude the log-population control, because there is no reason to suppose it is related to the independent variable or the dependent variable and had been included in Model 2 in the main paper purely for comparison with non-military rebellions using standard correlates of civil conflict. I use the King and Zeng-recommended case-control method, including every case of an army-splinter rebellion (1 on the DV) and a random sample of four controls for each ASR case, keeping the proportion of 1s to 20%, in the range in which logit models are more valid; the method then corrects the constant to the true proportion of 1s in the dataset. The results are similar, above all for personalism. There are differences, however, notably for the post-Cold War period (since 1996), which sees a weaker and no longer statistically significant difference form the Cold War period.

Table A2. Robustness check: BTSCS vs. Rare-Events Logit

VARIABLES	(1) BTSCS Logit	(2) Rare Events Logit
Personalism index (in dictatorships only)	2.787**	2.827**
	[1.194]	[1.373]
Democracy	1.089	1.229
	[0.900]	[1.191]
Warlord/foreign occupied/other	2.601***	2.457**
	[0.946]	[1.225]
1989-1995	1.822***	1.361**
	[0.480]	[0.554]
1996-2010	0.967**	0.502
	[0.447]	[0.628]
Share of population ethnically excluded	1.058*	1.892**
	[0.564]	[0.848]
Log GDP per capita	-0.384**	-0.451**
	[0.178]	[0.225]
Time since last army-splinter rebellion	-0.153*	-0.066
	[0.089]	[0.110]
Time^2	0.007*	0.002
	[0.004]	[0.005]
Time^3	-0.000*	-0.000
	[0.000]	[0.000]
Constant	-4.382***	-3.756**
	[1.644]	[1.792]
Observations	7,974	155

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Robustness check: excluding defection to existing uprisings

The definition of army-splinter rebellions includes both cases in which soldiers play an essential role in founding armed groups (36 cases) and those in which they join existing uprisings founded by other actors prior to a civil conflict (8 cases). While both produce ASRs in that they both produce rebellions whose military force comes from armed personnel of the state, it is worth asking whether these are two separate pathways, and whether any of the results that I obtain in the paper are affected by this coding decision. Out of the eight defection cases, only two (NSF, Romania, 1989; Junbish-i Milli-yi Islami, Afghanistan, 1993) are located within the timeframe in which I have data; the others (Opposition coalition, Paraguay, 1947; Communist Party of Burma, Burma, 1948; NTC, Libya, 2011; Syrian Insurgents, Syria, 2011; MNLA, Mali, 2012; Anti-Balaka, Central African Republic, 2013) are either before or after the 1951-2010 period. Removing the two cases makes little difference to the overall result (Table A3).

Table A3. Robustness check: Excluding cases of defection to existing uprisings prior to armed conflict

VARIABLES	(1) All ASRs included	(2) Defection cases excluded
Personalism index (in dictatorships only)	2.787**	2.594**
	[1.194]	[1.229]
Democracy	1.089	1.135
	[0.900]	[0.913]
Warlord/foreign occupied/other	2.601***	2.105**
	[0.946]	[0.991]
1989-1995	1.822***	1.813***
	[0.480]	[0.509]
1996-2010	0.967**	1.118***
	[0.447]	[0.413]
Share of population ethnically excluded	1.058*	1.169**
	[0.564]	[0.587]
Log GDP per capita	-0.384**	-0.416**
	[0.178]	[0.176]
Time since last army-splinter rebellion	-0.153*	-0.141
	[0.089]	[0.090]
Time^2	0.007*	0.007
	[0.004]	[0.004]
Time^3	-0.000*	-0.000*
	[0.000]	[0.000]
Constant	-4.382***	-4.054***
	[1.644]	[1.544]
Observations	7,974	7,974

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Correlation matrix and multicollinearity check

This is the correlation matrix for the right-hand-side variables in the key Model 2 in the paper. While there is high correlation between personalism and democracy, this is by design, as personalism is only measured for dictatorships; the fact that the personalism index takes values of 0 in democracies and other regimes also shapes its relationships with other variables. A second correlation matrix shows the correlations only for dictatorships.

Whole sample	Personalism index	Democracy	Other regime	Time period	Ln excluded share	Ln GDP/capita	Ln pop.
Personalism index	1						
Democracy	-.683	1					
Warlord/foreign occupied/other	-.115	-.122	1				
Time period	-.102	.212	.049	1			
Ln share pop. ethnically excluded	.260	-.282	.030	-.071	1		
Ln GDP per cap., 2005 US$	-.382	.483	-.090	.132	-.301	1	
Ln population	-.031	-.015	-.041	.093	.054	-.058	1

Dictatorships only	Personalism index	Time period	Ln excluded share	Ln GDP/capita	Ln pop.
Personalism index	1				
Time period (1951-88; 1989-95; 1996-2010)	.121	1			
Ln share of pop ethnically excluded	.110	-.016	1		
Ln GDP per cap., 2005 US$	-.131	.076	-.218	1	
Ln population	-.106	.129	.048	-.051	1

An analysis of the variance inflation factor suggests that multicollinearity is not a very large issue, with the exception of the multinomial time parameter (whose elements are closely linked).

Variable	Variance inflation factor
Personalism index	2.10
Democracy	2.35
Warlord/foreign occupied/other	1.14
1989-1995	1.34
1996-2010	1.97
Ln share of pop ethnically excluded	1.14
Ln GDP per cap., 2005 US$	1.47
Ln population	1.10
Time since last army-splinter rebellion	79.54
Time^2	461.16
Time^3	182.25

Onsets as dependent variable

The main paper has a different dependent variable from much of the armed conflict literature: not the onset of a new armed conflict but the emergence of a specific new rebel-government dyad. This corresponds to my coding scheme, which is based on assessing where specific armed groups get their fighting strength (from military personnel or not). But this means that any time a new armed group emerges, even in an ongoing civil conflict, the dependent variable is coded as 1; this is different from the standard approach, in which only the outbreak of a *new* civil conflict is coded as 1.

To provide a closer link to the armed conflict literature, here I adopt a more standard approach, with the outbreak of new armed conflict according to the Uppsala Conflict Data Project (25 battle deaths in a year) as the dependent variable (Gleditsch et al. 2002; Pettersson and Eck 2018). Following Cederman, Gleditsch and Buhaug (2013, ch 7), the outbreak must be preceded by two calendar years *without* armed conflict. To distinguish among different kinds of rebellion, the focus of the paper, I code a conflict onset as an army-splinter rebellion if it includes at least one army-splinter-coded armed group in the first year of the conflict. They are coded as non-military rebellions if there is at least one non-military-rebellion-coded armed group active in the first year of the conflict episode. Hence, a given country-year can be coded as 1 in several of these categories at once; they are not mutually exclusive.

I rerun the models from Table 3 from the paper with this dependent variable; results are below, in Table A4. Notably, personalism here has a weaker relationship to army-splinter wars, and falls somewhat short of statistical significance at conventional levels. This suggests that several of the army-splinter rebellions in personalist regimes took place in the context of ongoing civil conflicts. Personalist regimes' armies may be especially prone to falling apart when they face the challenge of a rebellion (whether a different army splinter or a rebellion from below).

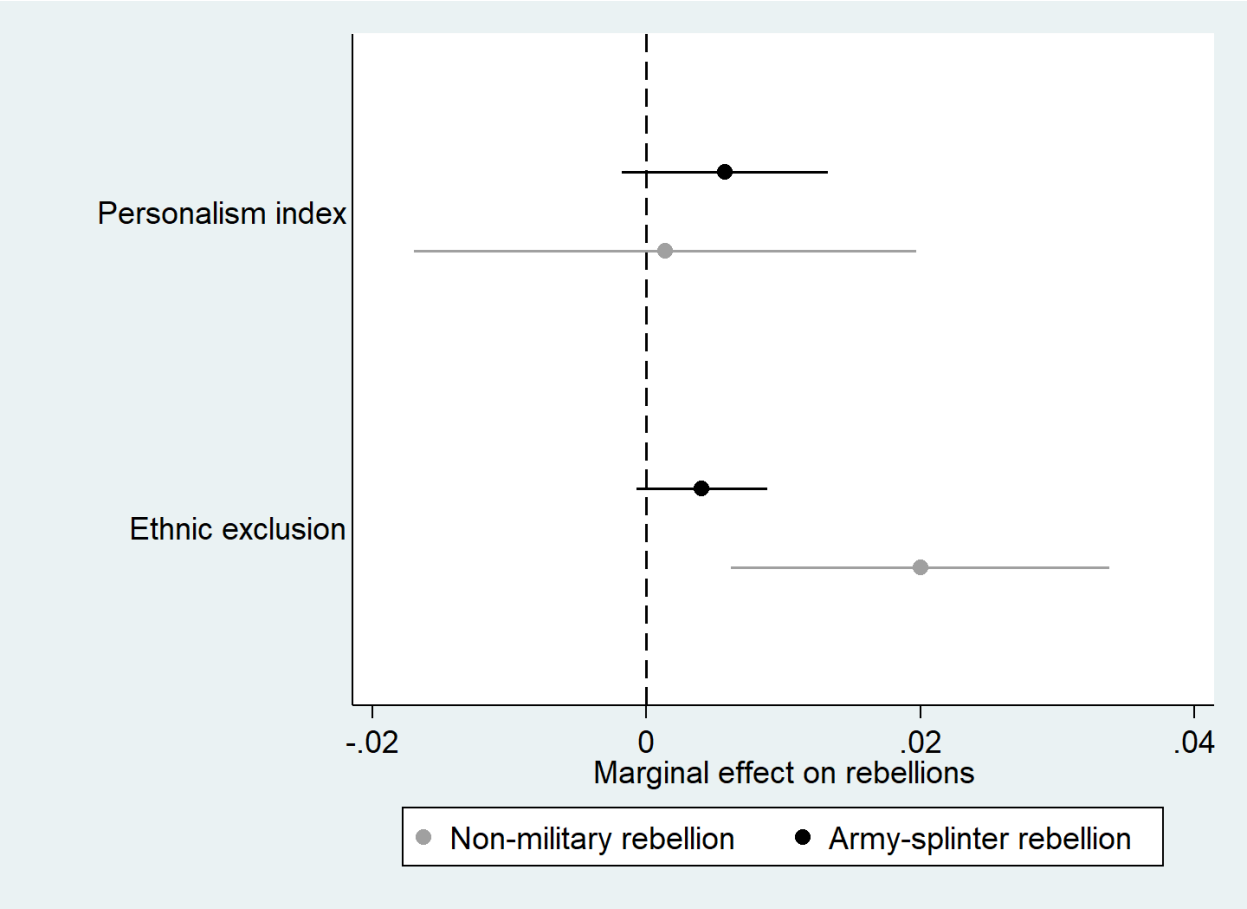
I also reproduce the marginal effects plot, here in Figure A1, demonstrating that personalism does have a larger relationship with army-splinter conflict onsets than with non-military conflict onsets, though it falls short of statistical significance. It also demonstrates that the much weaker effect of ethnic exclusion on army-splinter conflicts holds for onsets as well as for the emergence of new rebel groups.

Table A4. Alternative dependent variable: onsets as DV

VARIABLES	(1) Non-Military Rebellion	(2) Army-Splinter Rebellion	(3) Coups with UCDP armed conflicts
Personalism index (in dictatorships only)	0.055	1.853	0.051
	[0.379]	[1.198]	[0.468]
Democracy	-0.081	0.163	-0.395
	[0.270]	[0.896]	[0.599]
Warlord/foreign occupied/other	0.610	2.594***	
	[0.379]	[0.880]	
1989-1995	1.089***	1.187**	-0.282
	[0.211]	[0.491]	[0.529]
1996-2010	0.466***	0.859	-1.061*
	[0.166]	[0.608]	[0.632]
Share of population ethnically excluded	0.806***	1.309*	-0.545
	[0.290]	[0.702]	[0.685]
Log GDP per capita	-0.258***	-0.060	-0.591***
	[0.093]	[0.250]	[0.206]
Log population	0.409***	0.193	-0.109
	[0.066]	[0.139]	[0.108]
Time since last rebellion of the given type	-0.061**	-0.303***	0.034
	[0.027]	[0.089]	[0.094]
Time^2	0.001	0.014***	0.000
	[0.002]	[0.004]	[0.004]
Time^3	-0.000	-0.000***	-0.000
	[0.000]	[0.000]	[0.000]
Constant	-5.322***	-7.666***	0.224
	[0.994]	[2.766]	[1.979]
Observations	7,974	7,974	7,814

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Figure A1. Marginal effects of covariates on predicted probability of different types of conflict onset



ASR vs. FORGE dataset

Among its many different variables measuring characteristics of the origins of rebel groups, Foundations of Rebel Group Emergence (FORGE) (Braithwaite and Cunningham 2020) has one with significant overlap to army-splinter rebellions: *preorgmil* (Indicator: did the rebel group develop from the government's current armed forces?). This is a subset of the general variable *preorg*, which asks "Did the rebel group derive its initial membership from at least one identifiable, named pre-existing organization?"

Preorgmil does not distinguish between coups and other uprisings, unlike my work, and I regard it as critical to make this distinction. Leaving aside the 39 cases of *preorgmil*=1 that correspond to coups, and leaving aside the cases that are included in one dataset but not the other due to changes in UCDP armed group lists over time and the fact that I do not code armed groups that emerge from alliances and splits, leaves the following overlap:

Army-splinter rebellion	FORGE *preorgmil=0*	FORGE *preorgmil=1*
0	249	5
1	21	14

One key substantive difference is that I am interested not in the "initial membership" of the group exactly, but in where the group got its fighting power at the *outset of the armed conflict*, which may come some time after the founding of the group. Hence, I code as army-splinters rebels in which a different organization attracts military defectors and an armed conflict starts *after* this defection. FORGE does not do so; for FORGE, it seems, the fact that the armed group came from a civilian or other organization to begin with suggests that the armed group's parent organization is different. Five differences in coding, in which I code an army-splinter rebellion and FORGE codes *preorgmil* as 0, may be explained this way: Opposition Coalition (Paraguay, 1947); Communist Party of Burma (Burma, 1948); Junbish-i Milli-yi Islami (Afghanistan, 1993); NSF (Romania, 1989); NTC (Libya, 2011). The other three cases of defection to existing organizations are not included in the FORGE dataset (Syrian insurgents, Syria, 2011; MNLA, Mali, 2012; Anti-Balaka, CAR, 2013).

However, this still leaves sixteen cases of ASR=1 and *preorgmil* = 0, and five vice versa. There is not an obvious explanation for the former sixteen cases; I am confident that each included a significant share of government military personnel, and I have re-verified my codings in light of the differences with FORGE. However, it is possible that my 25% participation threshold is lower than theirs.

Of the five cases FORGE codes as military and ASR does not, two appear to be possible army-splinter rebellions (BRA, Bougainville, 1989; FDSI-CI, Côte d'Ivoire, 2011), in that there are reports about military defectors involved initially (Islam 1991, 454; Banegas 2011, 463–64), but it is difficult to be sure that this was a substantial proportion. Two appear to come principally from the armed forces of *former* regimes (Forces of Muammar Gaddafi, Libya, 2012; MDD, Chad, 1991) and should perhaps have been coded with FORGE's *preorgfmr* (forces of a previous regime) variable. One (PMR, Moldova, 1992) may be based on confusion about which National Guard was involved with the creation of the Transnistrian PMR (UCDP Conflict Encyclopedia 2021); further reading suggests that it was based not on Moldovan state forces but on Transnistrian forces organized after Transnistria's declaration of independence in 1991 (International Crisis Group 2003, 3; Kolstø and Malgin 1998, 109).

Bibliography

Banegas, Richard. 2011. "Briefing: Post-Election Crisis in Côte d'Ivoire: The 'Gbonhi' War." *African Affairs* 110 (440): 457–68.

Braithwaite, Jessica Maves, and Kathleen Gallagher Cunningham. 2020. "When Organizations Rebel: Introducing the Foundations of Rebel Group Emergence (FORGE) Dataset." *International Studies Quarterly* 64 (1): 183–93. https://doi.org/10.1093/isq/sqz085.

Cederman, Lars-Erik, Kristian Skrede Gleditsch, and Halvard Buhaug. 2013. *Inequality, Grievances, and Civil War*. Cambridge: Cambridge University Press.

Gleditsch, Nils Petter, Peter Wallensteen, Mikael Eriksson, Margareta Sollenberg, and Håvard Strand. 2002. "Armed Conflict 1946-2001: A New Dataset." *Journal of Peace Research* 39 (5): 615–37.

Harkness, Kristen A. 2018. *When Soldiers Rebel: Ethnic Armies and Political Instability in Africa*. Cambridge: Cambridge University Press.

International Crisis Group. 2003. "Moldova: No Quick Fix." Europe Report 147. Chisinau/Brussels: International Crisis Group.

Islam, M. Rafiqul. 1991. "Secession Crisis in Papua New Guinea: The Proclaimed Republic of Bougainville in International Law." *University of Hawaii Law Review* 13 (2): 453–76.

King, Gary, and Langche Zeng. 2001. "Logistic Regression in Rare Events Data." *Political Analysis* 9 (2): 137–63.

Kolstø, Pål, and Andrei Malgin. 1998. "The Transnistrian Republic: A Case of Politicized Regionalism." *Nationalities Papers* 26 (1): 103–27. https://doi.org/10.1080/00905999808408553.

Pettersson, Therése, and Kristine Eck. 2018. "Organized Violence, 1989–2017." *Journal of Peace Research* 55 (4): 535–47. https://doi.org/10.1177/0022343318784101.

Roessler, Philip G. 2016. *Ethnic Politics and State Power in Africa: The Logic of the Coup-Civil War Trap*. Cambridge: Cambridge University Press.

UCDP Conflict Encyclopedia. 2021. "PMR." Uppsala: Uppsala Conflict Data Program. https://ucdp.uu.se/actor/344.