Statistical Appendix for "Contagious Rebellion and Preemptive Repression"


1. Descriptive Data

1.1 *Descriptive Data Table*

This table describes the distribution of the data used in the main estimates reported in the article.

Variable	Min	Mean (sd)	Max
Neighborhood Civil War (proportional, distance-degraded)	0	0.05 (0.08)	0.47
Civil War	0	0.05 (0.22)	1
Ln GDP per capita	5.14	8.41 (1.16)	10.83
Ln Population	11.94	15.83 (1.68)	20.97
Unified Democracy Score	-1.98	0.07 (0.98)	2.11
CIRI Human Rights Violations	0	3.15 (2.36)	8
LN Refugees (100km)	0	3.60 (5.03)	15.30
Low Level Dissent	0	0.19 (0.39)	1
Political Terror Scale	1	2.45 (1.18)	5

1.2 Descriptive Data for Unified Democracy Scores

This figure plots the distribution of the Unified Democracy Scores (UDS) in our sample. Given this distribution, we consider states within 0.2 UDS units to have similar regime types. Our conclusions, however, are robust to variance in this choice.
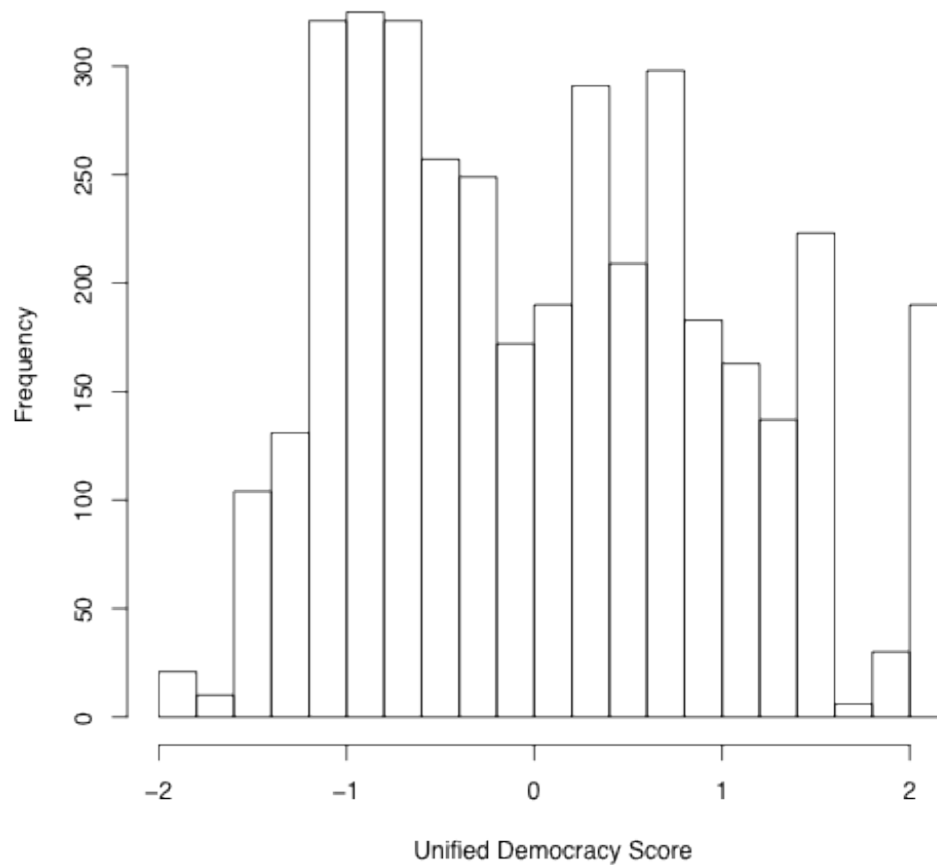
To further illustrate the distribution of this indicator, the following table presents (rounded) UDS scores for various state-years. It provides a rough idea of the scale of the UD scores, and also moves mostly in increments of about 0.2 units, the maximum difference at which we consider regimes to be similar.

State-Year	Unified Democracy Score
Saudi Arabia 2004	-2.0
Afghanistan 2001	-1.6
Qatar 2004	-1.2
Sudan 2003	-1.0
Egypt 2003	-0.8

Zimbabwe 2004	-0.5
Algeria 2004	-0.3
Zambia 2004	0.0
Sierra Leone 2002	0.2
Turkey 2001	0.4
El Salvador 2001	0.6
South Korea 2001	0.8
Argentina 2003	1.0
France 2003	1.2
United Kingdom 2002	1.4
Austria 2004	1.6
Australia 2002	2.0

1.3 Distance Weighting Function

This figure plots the weighting function we use in the distance-degraded versions of the *Trouble in the Neighborhood* variable:

$$1 - \left(\frac{Distance}{950}\right)^{\frac{1}{4}}.$$
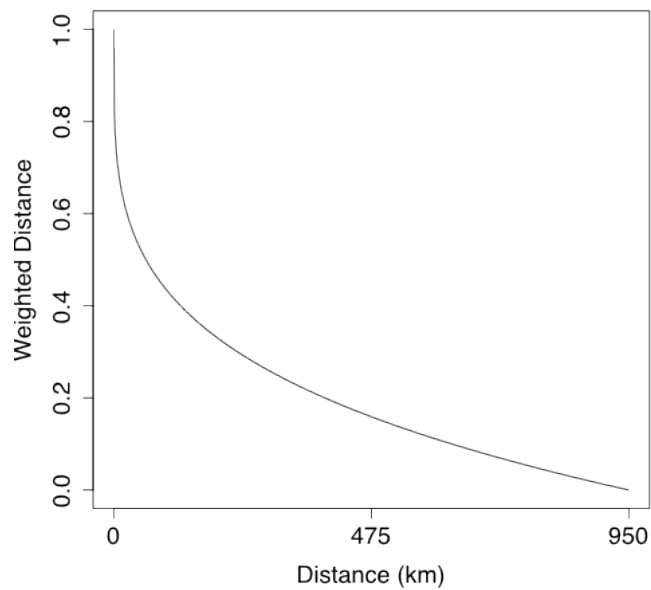
2. Robustness Checks

2.1 Identification via State and Year Fixed Effects

It is possible that an unobserved state-level characteristic confounds the relationship between neighborhood conflict and repression in our reported random effects model. Random effects assume no such correlation. Furthermore, there may be temporal trends in neighborhood conflict and human rights violations that account for the relationship we find, thus rendering it spurious. To account for both of these potential problems, we re-estimate our model using country and year fixed effects, and modeling all covariates at the level of observation. Our results are actually strengthened by this estimation, implying that unit effects and/or temporal trends introduced false suppression into our estimates.

	Coefficient	Std. Error
Neighborhood CW	**1.07**	**0.33**
Civil War i	1.06	0.13
NeighCWxCWi	-1.01	0.87
lnpop	0.03	0.08
lnGDPpc	-0.09	0.11
UDS	-0.64	0.06
lag(DV)	0.38	0.01

2.2 Alternative Measure of State Repression

In the first two tables, we substitute the Political Terror Scale (PTS) for our preferred DV, CIRI. The results are substantively similar, whether the Amnesty scores are used (above) or the State Department scores are used (below). These results are robust even using the simpler flat (i.e. non-hierarchical) models reported here.

Substituting the CIRI indicator with the Amnesty International Report-based PTS scores:

	Coefficient	Std. Error	t value
w.pdH	**0.9712**	**0.496**	**1.957**
intconflictHigh	1.4975	0.216	6.927
w.pdH:intconflictHigh	-1.9940	1.367	-1.459
lnpop	0.2037	0.026	7.706
lnGDPpc	-0.2249	0.041	-5.396
uds	-0.4088	0.052	-7.815
l.ptsa	2.1142	0.058	36.390

Intercepts:

	Value	Std. Error	t value
1|2	3.3235	0.55	6.0239
2|3	6.8614	0.55	12.3255
3|4	9.7084	0.57	16.7990
4|5	12.5504	0.59	20.9340

Substituting the CIRI indicator with the US State Department Report-based PTS scores:

	Coefficient	Std. Error	t value
w.pdH	**0.737**	**0.484**	**1.521**
w.pdH:intconflictHigh	-3.076	1.419	-2.167
intconflictHigh	1.825	0.245	7.437
lnpop	0.258	0.025	10.111
lnGDPpc	-0.279	0.039	-7.017
uds	-0.565	0.049	-11.342
l.ptss	2.463	0.059	41.454

Intercepts:

	Value	Std. Error	t value
1|2	4.7176	0.52	9.0286
2|3	8.1916	0.53	15.2886
3|4	11.5240	0.56	20.4949
4|5	14.5700	0.58	24.9004

2.3 Alternative Measure of Democracy

In our main empirical model, we employed Pemstein, Meserve, and Melton's (2010) Unified Democracy Score (UDS) to account for regime type because of its wide temporal and geographic coverage, as well as its robustness to systematic biases in the measure of "democracy" in any of its component measures. Our results are also robust to utilizing the more familiar POLITY IV scale (*democracy – autocracy = polity)* instead, as presented in the table below. We treated missing values in the POLITY measure as missing, rather than re-coding to zero, to avoid well-known problems with conflating middling regimes with conflicted states (Vreeland, James Raymond. 2008. "The Effect of Political Regime on CivilWar: Unpacking Anocracy."*Journal of Conflict Resolution* 52(3):401–425). Here, we employ a flat linear model for ease of execution and interpretation.

	Coefficient	Std. Error
(Intercept)	-0.220	0.30
w.pdH	**1.081**	**0.28**
intconflictHigh	1.075	0.13
lnpop	0.161	0.01
lnGDPpc	-0.171	0.02
pol	-0.027	0.00
l.ciri	0.688	0.01
w.pdH:intconflictHigh	-2.662	0.87

2.4 CIRI as an Ordered Dependent Variable

The CIRI human rights index is a nine point additive index. Ordinal variables featuring this many outcome categories can often be modeled linearly. In our main models we use a linear link for this reason, and because linear models are simpler for readers to interpret substantively. However, our results are robust to treating CIRI as an ordered variable, using an ordered logit model (in fact, treating CIRI as an ordered variable produces slightly stronger results, both statistically and substantively). The differences between the estimated intercepts are fairly constant, giving further credence to the notion that using a linear model is acceptable.

	Value	Std. Error	t value
w.pdH	**1.1380**	**0.43510**	**2.615**
intconflictHigh	1.4449	0.21130	6.838
lnpop	0.2597	0.02373	10.940
lnGDPpc	-0.2203	0.03560	-6.188
uds	-0.5636	0.04501	-12.521
l.ciri	0.9850	0.02528	38.965
w.pdH:intconflictHigh	-3.5471	1.32267	-2.682

Intercepts:

	Value	Std. Error	t value
0|1	1.54	0.4725	3.26
1|2	3.39	0.4717	7.19
2|3	4.82	0.4738	10.17
3|4	6.17	0.4797	12.88
4|5	7.61	0.4875	15.61
5|6	8.76	0.4936	17.76
6|7	9.97	0.4999	19.96
7|8	11.34	0.5083	22.32

2.5 Controlling for Neighborhood Repression

Some authors have found that neighborhood levels of repression affect the level of repression chosen by a state (e.g., Davenport 2007). As neighborhood conflict and neighborhood repression are likely correlated, we ran an auxiliary model which controls for neighborhood repression. Specifically, we create a variable which mimics our preferred measure of neighborhood conflict. It is a proportional measure of distance-degraded repression, as measured by CIRI scores. This measure varies from zero (a neighborhood comprised of states using no repression) to 8 (a neighborhood in which all states within 950 km utilize maximal repression). We lag this variable temporally one year. Not only is our test robust to this control, but we find that neighborhood conflict captures nearly all the variance, leaving neighborhood repression statistically and substantively insignificant.

	Value	Std. Error
Neighborhood Conflict	**0.74**	**0.32**
Civil War	1.11	0.13
ln(population)	0.27	0.03
ln(GDPpc)	-0.28	0.05
UDS	-0.39	0.04
lag(ciri)	0.48	0.02
w.pn X Civil War	-1.56	0.86
Neighborhood Repression	0.04	0.04

3. Alternative Measures of Neighborhood Conflict

In the paper, we describe four different spatial weighting schemes that capture different concepts of "neighborhood conflict." The one we use in the models reported in the article provided the best fit to the data, as evidenced by visual inspection, as well as various information criteria. That weighting scheme captures the proportion of distance-degraded neighbors experiencing civil conflict. Tests utilizing the three other variants are presented here.

3.1 A proportional measure that is not distance-penalized

	Value	Std. Error
w.pn	**0.94**	**0.35**
Civil War	1.02	0.13
ln(population)	0.27	0.03
ln(GDPpc)	-0.29	0.05
UDS	-0.39	0.04
lag(ciri)	0.48	0.02
w.pn X Civil War	-1.31	0.83

3.2 An additive measure that is distance-penalized

	Value	Std. Error
w.ad	**0.16**	**0.08**
Civil War	0.94	0.15
ln(population)	0.27	0.03
ln(GDPpc)	-0.29	0.05
UDS	-0.39	0.04
lag(ciri)	0.48	0.01
w.pn X Civil War	-1.43	0.88

3.2 An additive measure that is not distance-penalized

	Value	Std. Error
w.an	**0.05**	**0.03**
Civil War	1.04	0.13
ln(population)	0.27	0.03
ln(GDPpc)	-0.30	0.05
UDS	-0.39	0.04
lag(ciri)	0.48	0.02
w.pn X Civil War	-1.10	0.86