SUPPLEMENTARY ONLINE APPENDIX FOR: "TECHNOLOGY AND COLLECTIVE ACTION: THE EFFECT OF CELL PHONE COVERAGE ON POLITICAL VIOLENCE IN AFRICA"

1. Cell Phones and Protest

The Afrobarometer survey asks whether respondents "never", "less than once a month", "a few times a month", "a few times a week" or "every day" use a cell phone. In addition, the survey includes a question on protest behavior, i.e whether respondents have or would have participated in a demonstration or protest march in the last year, ranging from "No, would never do this" to "Yes, often" on a 0-4 ordinal scale. Table 1 presents the cross tabulation of both variables for respondents that chose to answer each question. Table 2 shows a simple linear regression, controlling for the respondent's employment status, age, education and internet usage.

TABLE 1. Cross Tab for Cell Phone Use and Protest Behavior

Protest / Cell Phone Usage	Never	Less than once a month	A few times a month	A few times a week	Every day	Total
Never	5365	421	738	1526	5884	13934
	56.92%	51.66%	51.90%	51.43%	49.03%	
No, but would	3177	281	511	1066	4224	9259
	33.70%	34.48%	35.94%	35.93%	35.20%	
Yes, once or twice	436	63	99	197	993	1788
	4.63%	7.73%	6.96%	6.64%	8.28%	
Yes, several times	291	30	52	113	583	1069
	3.09%	3.68%	3.66%	3.81%	4.86%	
Yes, often	157	20	22	65	316	580
	1.67%	2.45%	1.55%	2.19%	2.63%	
Total	9426	815	1422	2967	12000	26630
	100%	100%	100%	100%	100%	

TABLE 2. Cell Phone Usage and Protest Behavior

(Intercept)	2.417^{***}
	(124.878)
Employment Status	0.032^{*}
	(2.567)
Age	-0.0001^{*}
	(-2.004)
Education	0.002
	(0.821)
Internet Usage	0.051^{***}
	(7.747)
Cell Phone Usage	0.031^{***}
	(8.495)
AIC	71062.967
BIC	71095.726
Deviance	22474.726
Log-likelihood	-35527.483
N	26412

$^{\dagger}p = 0.1, ^{*}p = 0.05, ^{**}p = 0.01, ^{***}p = 0.001$

2. SUMMARY STATISTICS

TABLE 3. Summary Statistics

Variable	Mean	Std.Dev	Min	Max
pre-2000 Conflict	1.46	11.71	0.00	551.00
Pct Mountainous	0.14	0.26	0.00	1.00
Border Distance	168.72	137.55	0.00	1945.00
Capital Distance	649.63	416.61	4.00	2483.00
Population in 2005	83440.44	262848.23	0.00	11620281.00
Pct Irrigation	1.45	4.97	0.00	86.96
GDP pc in 2000	5338.87	109394.54	198.73	5309074.60
Cell Phone Coverage in 2007	0.37	0.48	0.00	1.00
Conflict Dummy in 2007	0.03	0.18	0.00	1.00
Conflict 2008 Count	0.11	2.05	0.00	196.00

3. Additional Tables

TABLE 4. Spatial Binary Models

	Logit, robust SE	Re-Logit, robust SE	Mixed Logit	Mixed Logit	OLS FE, robust SE
(Intercept)	-4.370^{***}	-4.370^{***}	-4.370^{***}	-3.752^{***}	$-0.009^{\dagger}$
	(-21.917)	(-21.861)	(-21.345)	(-16.483)	(-1.695)
Spatial Lag	6.050^{***}	6.050^{***}	6.050^{***}	5.656^{***}	0.546^{***}
	(16.517)	(16.436)	(19.002)	(17.579)	(11.359)
pre-2000 Conflict	0.008^{*}	0.008^{*}	0.008^{**}	0.011^{***}	0.001^{*}
	(2.204)	(2.182)	(2.950)	(3.626)	(2.408)
Border Distance	0.000	0.000	0.000	-0.000	-0.000^{*}
	(0.475)	(0.496)	(0.495)	(-0.467)	(-2.198)
Capital Distance	$0.000^{\dagger}$	$0.000^{\dagger}$	$0.000^{\dagger}$	0.000	0.000
	(1.822)	(1.821)	(1.888)	(1.121)	(0.614)
Population	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{*}
	(3.705)	(3.577)	(4.583)	(4.865)	(2.451)
Pct Mountainous	1.062^{***}	1.062^{***}	1.062^{***}	1.139^{***}	0.040^{***}
	(4.904)	(4.914)	(4.853)	(5.148)	(4.228)
Pct Irrigation	-0.032	-0.032	-0.032	-0.046^{*}	-0.001^{**}
	(-1.438)	(-1.336)	(-1.613)	(-2.123)	(-2.803)
GDP pc	-0.000^{***}	-0.000^{***}	-0.000^{***}	-0.000^{***}	-0.000
	(-3.889)	(-3.834)	(-4.088)	(-3.678)	(-0.257)
Cell Phone Coverage	0.233	0.233	0.233	0.756^{***}	0.013^{**}
	(1.572)	(1.608)	(1.516)	(4.476)	(3.074)
Mean Cell Coverage				-1.995^{***}	
				(-5.803)	
Country Fixed Effects	No	No	No	No	Yes
AIC	1919.635	1919.635	1901.173	1867.034	-8510.308
BIC	1991.059	1991.059	1979.739	1952.743	-8124.620
Deviance	1899.635	1899.635	1879.173	1843.034	217.472
Log-likelihood	-949.818	-949.818	-939.586	-921.517	4309.154
N	9343	9343	9343	9343	9343

$^{\dagger}p = 0.1$,$^{*}p = 0.05$, $^{**}p = 0.01$,$^{***}p = 0.001$

TABLE 5. Count DV Models

	Poisson, robust SE	Negative Binomial, robust SE	Poisson, robust SE	Negative Binomial, robust SE
(Intercept)	-3.265^{***}	-3.382^{***}	-3.045^{***}	-4.024^{***}
	(-13.045)	(-14.400)	(-14.130)	(-16.209)
pre-2000 Conflict	0.010^{***}	0.080^{***}	0.002	0.056^{***}
	(6.151)	(36.757)	(0.843)	(24.258)
Border Distance	0.001	-0.000	0.001	-0.001
	(1.585)	(-0.555)	(1.357)	(-0.696)
Capital Distance	0.000	0.001^{**}	0.000	0.001^{***}
	(1.394)	(3.010)	(0.560)	(3.350)
Population	0.000^{***}	0.000^{***}	0.000^{**}	0.000^{***}
	(4.222)	(13.285)	(3.290)	(10.216)
Pct Mountainous	1.648^{***}	1.318^{***}	0.853^{**}	1.393^{***}
	(7.596)	(4.994)	(2.877)	(5.065)
Pct Irrigation	-0.055^{**}	$-0.025^{\dagger}$	-0.066^{*}	-0.009
	(-2.580)	(-1.934)	(-2.192)	(-0.685)
GDP pc	-0.000^{**}	-0.000^{***}	-0.000^{**}	-0.000^{***}
	(-3.077)	(-5.404)	(-3.208)	(-5.601)
Cell Phone Coverage	0.712^{***}	$0.359^{\dagger}$	0.518^{**}	0.654^{***}
	(3.845)	(1.898)	(2.852)	(3.431)
Spatial Lag			0.544^{***}	1.527^{***}
			(8.635)	(30.193)
AIC	5919.609	3186.333	5200.028	3023.725
BIC	5983.891	3257.757	5271.452	3102.292
Deviance	5187.994	884.507	4466.412	919.273
Log-likelihood	-2950.805	-1583.167	-2590.014	-1500.863
N	9343	9343	9343	9343

$^{\dagger}p = 0.1$,$^{*}p = 0.05$, $^{**}p = 0.01$,$^{***}p = 0.001$

TABLE 6. Binary DV Models, Natural Resources

	Logit, robust SE	Re-Logit, robust SE	Mixed Effects Logit	Mixed Effects Logit	Fixed Effects OLS, robust SE
(Intercept)	-3.978^{***}	-3.978^{***}	-3.978^{***}	-3.298^{***}	-0.014
	(-20.896)	(-20.87)	(-21.195)	(-16.137)	(-1.639)
pre-2000 Conflict	0.020	$0.020^{\dagger}$	0.020^{***}	0.023^{***}	0.002^{**}
	(1.952)	(1.931)	(5.948)	(6.465)	(3.048)
Border Distance	0.000	0.000	0.000	-0.000	-0.000^{**}
	(0.585)	(0.621)	(0.620)	(-0.640)	(-2.801)
Capital Distance	0.000^{*}	0.000^{*}	0.000^{*}	0.000	0.000
	(2.234)	(2.245)	(2.302)	(1.571)	(0.089)
Population	0.000^{**}	0.000^{**}	0.000^{***}	0.000^{***}	0.000^{*}
	(2.820)	(2.693)	(4.174)	(4.587)	(2.494)
Pct Mountainous	1.636^{***}	1.636^{***}	1.636^{***}	1.736^{***}	0.057^{***}
	(8.537)	(8.537)	(8.610)	(8.907)	(5.341)
Pct Irrigation	-0.037^{*}	-0.033^{*}	-0.037^{*}	-0.051^{**}	-0.001^{***}
	(-2.183)	(-1.992)	(-2.126)	(-2.667)	(-3.573)
GDP pc	-0.000^{***}	-0.000^{***}	-0.000^{***}	-0.000^{***}	-0.000
	(-4.304)	(-4.269)	(-6.042)	(-4.531)	(-0.546)
Diamonds	-14.820^{***}	$1.815e{+}05^{***}$	-14.820	-14.843	-0.006^{*}
	(-91.632)	$(1.112e{+}06)$	(-0.024)	(-0.024)	(-2.262)
Oil	1.088^{***}	1.108^{***}	1.088^{***}	0.957^{***}	0.012
	(3.679)	(3.745)	(4.387)	(3.783)	(1.238)
Cell Phone Coverage	0.389^{**}	0.385^{**}	0.385^{**}	1.092^{***}	0.027^{***}
	(2.773)	(2.808)	(2.745)	(7.164)	(5.758)
Mean Cell Coverage				-2.772^{***}	
				(-8.348)	
Country Fixed Effects	No	No	No	No	Yes
AIC	2237.662	2237.662	2198.466	2126.356	-7588.851
BIC	2316.228	2316.228	2284.175	2219.207	-7196.019
Deviance	2215.662	2215.662	2174.466	2100.356	239.962
Log-likelihood	-1107.831	-1107.831	-1087.233	-1050.178	3849.425
N	9343	9343	9343	9343	9343

$^{\dagger}p = 0.1, ^{*}p = 0.05, ^{**}p = 0.01, ^{***}p = 0.001$

TABLE 7. Count DV Models, Natural Resources

	Poisson, robust SE	Negative Binomial, robust SE
(Intercept)	-3.234^{***}	-3.348^{***}
	(-12.753)	(-14.756)
pre-2000 Conflict	0.010^{***}	0.083^{***}
	(5.920)	(36.612)
Border Distance	0.001	-0.000
	(1.437)	(-0.699)
Capital Distance	0.000	0.001^{**}
	(1.371)	(2.944)
Population	0.000^{***}	0.000^{***}
	(3.859)	(12.546)
Pct Mountainous	1.686^{***}	1.308^{***}
	(7.737)	(5.062)
Pct Irrigation	-0.063^{**}	-0.029^{*}
	(-2.714)	(-2.140)
GDP pc	-0.000^{**}	-0.000^{***}
	(-3.041)	(-5.634)
Diamond	-14.304^{***}	-35.410^{***}
	(-82.478)	(-66.271)
Oil	0.982^{*}	1.000^{*}
	(2.156)	(2.194)
Cell Phone Coverage	0.704^{***}	0.394^{*}
	(3.631)	(2.150)
AIC	5850.881	3165.484
BIC	5929.447	3251.193
Deviance	5115.265	882.571
Log-likelihood	-2914.440	-1570.742
N	9343	9343

$^{\dagger}p = 0.1$,$^{*}p = 0.05$, $^{**}p = 0.01$,$^{***}p = 0.001$

TABLE 8. Spatial Binary and Count Models, Natural Resources

	Logit, robust SE	Re-Logit, robust SE	Mixed Logit	Poisson, robust SE	Negative Binomial, robust SE
(Intercept)	-4.310^{***}	-4.299^{***}	-3.698^{***}	-3.026^{***}	-3.975^{***}
	(-21.719)	(-21.166)	(-16.274)	(-13.462)	(-16.364)
Spatial Lag	5.842^{***}	5.808^{***}	5.440^{***}	0.527^{***}	1.516^{***}
	(15.645)	(15.55)	(16.828)	(7.528)	(29.382)
pre-2000 Conflict	0.009^{*}	0.009^{*}	0.011^{***}	$0.004^{\dagger}$	0.059^{***}
	(2.399)	(2.361)	(3.785)	(1.739)	(25.297)
Border Distance	0.000	0.000	-0.000	0.001	-0.001
	(0.553)	(0.572)	(-0.345)	(1.633)	(-0.846)
Capital Distance	0.000	0.000	0.000	-0.000	0.001^{***}
	(1.526)	(1.530)	(0.906)	(-0.209)	(3.348)
Population	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{**}	0.000^{***}
	(3.623)	(3.514)	(4.647)	(3.075)	(10.328)
Pct Mountainous	1.088^{***}	1.090^{***}	1.153^{***}	0.825^{**}	1.377^{***}
	(5.032)	(5.039)	(5.169)	(3.156)	(5.131)
Pct Irrigation	$-0.035^{\dagger}$	-0.033	-0.049^{*}	-0.059^{*}	-0.012
	(-1.654)	(-1.552)	(-2.284)	(-2.401)	(-0.885)
GDP pc	-0.000^{***}	-0.000^{***}	-0.000^{***}	-0.000^{*}	-0.000^{***}
	(-4.216)	(-4.152)	(-3.704)	(-2.299)	(-5.897)
Diamonds	-14.522^{***}	$1.86e{+}05^{***}$	-14.509	-14.304^{***}	-33.650^{***}
	(-111.253)	$(1.429e{+}06)$	(-0.024)	(-99.960)	(-99.096)
Oil	$0.619^{\dagger}$	$0.638^{\dagger}$	$0.557^{\dagger}$	0.205	0.146
	(1.840)	(1.896)	(1.922)	(0.396)	(0.374)
Cell Phone Coverage	0.237	0.242	0.763^{***}	0.515^{**}	0.661^{***}
	(1.601)	(1.635)	(4.525)	(2.828)	(3.507)
Mean Cell Coverage			-2.031^{***}		
			(-5.841)		
AIC	1914.842	1914.842	1861.580	5125.465	3016.208
BIC	2000.550	2000.550	1961.573	5211.174	3109.059
Deviance	1890.842	1890.842	1833.580	4387.849	912.978
Log-likelihood	-945.421	-945.421	-916.790	-2550.733	-1495.104
N	9343	9343	9343	9343	9343

$^{\dagger}p = 0.1$,$^{*}p = 0.05$, $^{**}p = 0.01$,$^{***}p = 0.001$

TABLE 9. Binary DV Models, Excluded Ethnicity

	Logit, robust SE	Re-Logit, robust SE	Mixed Effects Logit	Mixed Effects Logit	Fixed Effects OLS, robust SE
(Intercept)	-4.238^{***}	-4.228^{***}	-4.238^{***}	-7.591^{***}	$-0.019^{\dagger}$
	(-18.144)	(-18.102)	(-20.603)	(-3.412)	(-1.682)
pre-2000 Conflict	$0.018^{\dagger}$	$0.018^{\dagger}$	0.018^{***}	0.051^{***}	0.002^{**}
	(1.683)	(1.666)	(5.306)	(8.725)	(2.982)
Border Distance	-0.000	-0.000	-0.000	-0.002^{**}	-0.000^{**}
	(-0.032)	(-0.004)	(-0.041)	(-2.868)	(-2.821)
Capital Distance	0.000	0.000	$0.000^{\dagger}$	-0.000	-0.000
	(1.323)	(1.332)	(1.719)	(-1.048)	(-0.322)
Population	0.000^{**}	0.000^{*}	0.000^{***}	0.000^{***}	0.000^{*}
	(2.609)	(2.490)	(4.580)	(4.606)	(2.518)
Pct Mountainous	1.575^{***}	1.574^{***}	1.575^{***}	1.165^{***}	0.055^{***}
	(7.064)	(7.058)	(8.110)	(4.382)	(4.719)
Pct Irrigation	$-0.033^{\dagger}$	-0.029	$-0.033^{\dagger}$	$-0.038^{\dagger}$	-0.001^{**}
	(-1.804)	(-1.614)	(-1.906)	(-1.766)	(-2.867)
GDP pc	-0.000^{**}	-0.000^{**}	-0.000^{***}	-0.000^{*}	-0.000^{***}
	(-2.901)	(-2.864)	(-4.591)	(-2.087)	(-3.436)
Ethnicities excluded	0.693^{**}	0.689^{**}	0.693^{***}	0.628^{**}	0.011
	(3.150)	(3.134)	(4.229)	(2.710)	(1.604)
Cell Phone Coverage	0.541^{**}	0.546^{**}	0.541^{***}	0.857^{***}	0.032^{***}
	(3.020)	(3.043)	(3.657)	(4.806)	(5.811)
Mean Cell Coverage				-4.340	
				(-1.109)	
Country Fixed Effects	No	No	No	No	Yes
AIC	2094.256	2094.256	2058.540	1737.790	-5526.885
BIC	2164.007	2164.007	2135.266	1821.492	-5185.104
Deviance	2074.256	2074.256	2036.540	1713.790	227.147
Log-likelihood	-1037.128	-1037.128	-1018.270	-856.895	2812.443
N	7904	7904	7904	7904	7904

$^{\dagger}p = 0.1$,$^{*}p = 0.05$, $^{**}p = 0.01$,$^{***}p = 0.001$

TABLE 10. Count DV Models, Excluded Ethnicity

	Poisson, robust SE	Negative Binomial, robust SE
(Intercept)	-3.622^{***}	-3.954^{***}
	(-12.226)	(-15.233)
pre-2000 Conflict	0.009^{***}	0.064^{***}
	(5.918)	(33.957)
Border Distance	0.001	$-0.001^{\dagger}$
	(0.940)	(-1.751)
Capital Distance	0.000	0.000
	(0.839)	(1.516)
Population	0.000^{***}	0.000^{***}
	(4.085)	(11.993)
Pct Mountainous	1.686^{***}	1.777^{***}
	(7.435)	(7.143)
Pct Irrigation	-0.050^{*}	-0.033^{*}
	(-2.524)	(-2.454)
GDP pc	-0.000^{*}	-0.000^{***}
	(-2.378)	(-4.074)
Ethnicities excluded	0.939^{***}	1.360^{***}
	(3.451)	(5.496)
Cell Phone Coverage	0.897^{***}	0.562^{**}
	(4.097)	(2.741)
AIC	5483.199	2959.101
BIC	5552.951	3035.828
Deviance	4777.243	845.332
Log-likelihood	-2731.600	-1468.551
N	7904	7904

$^{\dagger}p = 0.1$,$^{*}p = 0.05$, $^{**}p = 0.01$,$^{***}p = 0.001$

TABLE 11. Spatial Binary and Count Models, Ethnicity Excluded

	Logit, robust SE	Re-Logit, robust SE	Mixed Logit	Poisson, robust SE	Negative Binomial, robust SE
(Intercept)	-4.435^{***}	-4.416^{***}	-3.895^{***}	-3.302^{***}	-4.469^{***}
	(-19.101)	(-19.021)	(-14.285)	(-12.445)	(-19.866)
Spatial Lag	5.230^{***}	5.189^{***}	4.906^{***}	0.489^{***}	1.037^{***}
	(13.589)	(13.481)	(13.803)	(8.815)	(20.782)
pre-2000 Conflict	0.014^{**}	0.014^{**}	0.017^{***}	$0.004^{\dagger}$	0.057^{***}
	(3.020)	(2.979)	(4.369)	(1.895)	(27.742)
Border Distance	0.001	0.001	0.000	$0.001^{\dagger}$	-0.001
	(0.813)	(0.840)	(0.105)	(1.883)	(-1.075)
Capital Distance	0.000	0.000	0.000	-0.000	0.001^{***}
	(0.644)	(0.657)	(0.568)	(-0.331)	(3.315)
Population	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{**}	0.000^{***}
	(3.610)	(3.458)	(4.415)	(2.741)	(9.326)
Pct Mountainous	1.211^{***}	1.210^{***}	1.230^{***}	1.003^{***}	2.152^{***}
	(5.239)	(5.235)	(5.048)	(3.802)	(10.130)
Pct Irrigation	$-0.038^{\dagger}$	-0.035	-0.053^{*}	-0.062^{*}	-0.031^{*}
	(-1.653)	(-1.511)	(-2.188)	(-2.310)	(-2.278)
GDP pc	-0.000^{**}	-0.000^{**}	-0.000^{*}	-0.000^{**}	-0.000^{***}
	(-2.957)	(-2.912)	(-2.504)	(-2.632)	(-6.132)
Ethnicities excluded	0.155	0.156	0.044	0.390	0.628^{**}
	(0.804)	(0.807)	(0.252)	(1.508)	(3.123)
Cell Phone Coverage	0.483^{**}	0.487^{**}	0.922^{***}	0.777^{***}	0.955^{***}
	(2.715)	(2.735)	(4.764)	(3.568)	(4.930)
Mean Cell Coverage			-1.790^{***}		
			(-4.531)		
AIC	1423.085	1423.085	1390.450	3987.226	2295.888
BIC	1496.919	1496.919	1477.708	4061.059	2376.433
Deviance	1401.085	1401.085	1364.450	3399.927	692.131
Log-likelihood	-700.543	-700.543	-682.225	-1982.613	-1135.944
N	6076	6076	6076	6076	6076

$^{\dagger}p = 0.1$,$^{*}p = 0.05$, $^{**}p = 0.01$,$^{***}p = 0.001$

TABLE 12. Spatial Binary and Count Models, Ethnicity Excluded

	Logit, robust SE	Re-Logit, robust SE	Mixed Logit	Poisson, robust SE	Negative Binomial, robust SE
(Intercept)	-4.336^{***}	-4.323^{***}	-3.627^{***}	-3.376^{***}	-4.357^{***}
	(-18.204)	(-18.147)	(-14.510)	(-11.579)	(-17.207)
Spatial Lag	5.614^{***}	5.580^{***}	5.304^{***}		
	(14.078)	(13.993)	(15.999)		
pre-2000 Conflict	0.008^{*}	0.008^{*}	0.011^{***}	$0.004^{\dagger}$	0.051^{***}
	(2.006)	(1.966)	(3.629)	(1.883)	(22.487)
Border Distance	0.000	0.000	-0.000	0.001	-0.001
	(0.286)	(0.300)	(-0.431)	(1.046)	(-0.979)
Capital Distance	0.000	0.000	0.000	-0.000	0.001^{**}
	(1.173)	(1.176)	(1.208)	(-0.328)	(2.844)
Population	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{**}	0.000^{***}
	(3.494)	(3.377)	(4.749)	(3.171)	(10.058)
Pct Mountainous	1.035^{***}	1.037^{***}	1.074^{***}	0.893^{***}	1.683^{***}
	(4.308)	(4.313)	(4.734)	(3.611)	(6.430)
Pct Irrigation	-0.031	-0.029	-0.048^{*}	-0.053^{*}	-0.017
	(-1.461)	(-1.348)	(-2.213)	(-2.231)	(-1.273)
GDP pc	-0.000^{**}	-0.000^{**}	-0.000^{**}	$-0.000^{\dagger}$	-0.000^{***}
	(-2.833)	(-2.777)	(-3.069)	(-1.818)	(-4.911)
Ethnicities excluded	0.209	0.210	-0.035	0.752^{*}	0.761^{**}
	(0.891)	(0.895)	(-0.194)	(2.557)	(3.091)
Cell Phone Coverage	0.256	0.261	0.760^{***}	0.659^{**}	0.732^{***}
	(1.387)	(1.410)	(4.375)	(2.915)	(3.597)
Mean Cell Coverage			-2.100^{***}		
			(-5.794)		
Spatial Lag				0.498^{***}	1.303^{***}
				(7.810)	(21.030)
AIC	1806.489	1806.489	1754.765	4804.757	2838.698
BIC	1883.216	1883.216	1845.441	4881.484	2922.399
Deviance	1784.489	1784.489	1728.765	4096.801	869.038
Log-likelihood	-892.245	-892.245	-864.382	-2391.379	-1407.349
N	7904	7904	7904	7904	7904

$^{\dagger}p = 0.1$,$^{*}p = 0.05$, $^{**}p = 0.01$,$^{***}p = 0.001$

TABLE 13. Binary DV Models, Precise UCDP

	Logit, robust SE	Re-Logit, robust SE	Mixed Effects Logit	Mixed Effects Logit	Fixed Effects OLS, robust SE
(Intercept)	-4.252^{***}	-4.248^{***}	-4.252^{***}	-3.579^{***}	-0.009
	(-18.811)	(-18.792)	(-19.124)	(-15.024)	(-1.446)
pre-2000 Conflict	$0.010^{\dagger}$	$0.010^{\dagger}$	0.010^{**}	0.012^{***}	$0.001^{\dagger}$
	(1.910)	(1.822)	(3.235)	(3.339)	(1.775)
Border Distance	-0.001	-0.001	-0.001	-0.001^{*}	-0.000^{***}
	(-1.050)	(-1.018)	(-1.087)	(-2.150)	(-4.108)
Capital Distance	0.000	0.000	0.000	0.000	-0.000
	(1.348)	(1.371)	(1.406)	(0.575)	(-0.009)
Population	0.000^{*}	0.000^{*}	0.000^{***}	0.000^{***}	0.000^{*}
	(2.559)	(2.463)	(4.632)	(4.713)	(2.508)
Pct Mountainous	1.746^{***}	1.748^{***}	1.746^{***}	1.897^{***}	0.043^{***}
	(8.852)	(8.863)	(8.150)	(8.695)	(4.575)
Pct Irrigation	-0.025	-0.021	-0.025	$-0.037^{\dagger}$	-0.001^{**}
	(-1.351)	(-1.112)	(-1.370)	(-1.826)	(-2.866)
GDP pc	-0.000^{***}	-0.000^{***}	-0.000^{***}	-0.000^{***}	0.000
	(-3.735)	(-3.670)	(-4.873)	(-3.604)	(0.095)
Cell Phone Coverage	0.550^{***}	0.550^{***}	0.550^{***}	1.251^{***}	0.022^{***}
	(3.445)	(3.475)	(3.320)	(6.938)	(5.355)
Mean Cell Coverage				-2.658^{***}	
Country Fixed Effects	No	No	No	No	Yes
AIC	1688.252	1688.252	1668.737	1616.419	-10738.848
BIC	1752.534	1752.534	1740.161	1694.986	-10360.302
Deviance	1670.252	1670.252	1648.737	1594.419	171.359
Log-likelihood	-835.126	-835.126	-824.369	-797.210	5422.424
N	9343	9343	9343	9343	9343

$^{\dagger}p = 0.1$,$^{*}p = 0.05$, $^{**}p = 0.01$,$^{***}p = 0.001$

TABLE 14. Count DV Models, Precise UCDP

	Poisson, robust SE	Negative Binomial, robust SE
(Intercept)	-3.544^{***}	-3.871^{***}
	(-9.955)	(-13.725)
pre-2000 Conflict2	0.011^{***}	0.071^{***}
	(5.097)	(31.386)
Border Distance	-0.001	-0.002
	(-0.528)	(-1.885)
Capital Distance	0.000	0.001^{**}
	(0.825)	(2.648)
Population	0.000^{***}	0.000^{***}
	(4.486)	(15.973)
Pct Mountainous	1.648^{***}	1.463^{***}
	(6.549)	(5.234)
Pct Irrigation	-0.030	-0.003
	(-1.518)	(-0.220)
GDP pc	-0.000^{**}	-0.000^{***}
	(-2.610)	(-4.147)
Cell Phone Coverage	1.064^{***}	0.502^{*}
	(4.992)	(2.380)
AIC	3963.878	2280.537
BIC	4028.159	2351.960
Deviance	3469.133	642.986
Log-likelihood	-1972.939	-1130.268
N	9343	9343

$^{\dagger}p = 0.1$,$^{*}p = 0.05$, $^{**}p = 0.01$,$^{***}p = 0.001$

TABLE 15. Spatial Binary and Count Models, Precise UCDP

	Logit, robust SE	Re-Logit, robust SE	Mixed Logit	Poisson, robust SE	Negative Binomial, robust SE
(Intercept)	-4.509^{***}	-4.496^{***}	-3.857^{***}	-3.290^{***}	-4.173^{***}
	(-20.060)	(-20.004)	(-15.035)	(-12.966)	(-13.644)
Spatial Lag	5.986^{***}	5.947^{***}	5.584^{***}	0.546^{***}	1.929^{***}
	(13.206)	(13.121)	(14.631)	(5.019)	(22.375)
pre-2000 Conflict	0.006^{*}	0.006^{*}	0.008^{*}	0.006^{**}	0.016^{***}
	(1.984)	(2.075)	(2.250)	(2.698)	(5.761)
Border Distance	-0.000	-0.000	-0.001	-0.000	-0.002
	(-0.402)	(-0.390)	(-1.506)	(-0.340)	(-1.624)
Capital Distance	0.000	0.000	-0.000	-0.000	0.001^{*}
	(0.240)	(0.259)	(-0.404)	(-0.472)	(2.539)
Population	0.000^{**}	0.000^{**}	0.000^{***}	0.000^{**}	0.000^{***}
	(3.179)	(3.044)	(4.556)	(3.082)	(10.777)
Pct Mountainous	1.173^{***}	1.174^{***}	1.294^{***}	0.735^{*}	1.411^{***}
	(4.936)	(4.939)	(5.236)	(2.315)	(4.476)
Pct Irrigation	-0.021	-0.018	-0.033	-0.027	0.005
	(-1.135)	(-0.968)	(-1.570)	(-1.262)	(0.403)
GDP pc	-0.000^{**}	-0.000^{**}	-0.000^{**}	-0.000^{*}	-0.000^{***}
	(-3.137)	(-3.050)	(-2.771)	(-1.976)	(-4.514)
Cell Phone Coverage	0.366^{*}	0.371^{*}	0.947^{***}	0.773^{***}	0.628^{**}
	(2.146)	(2.171)	(4.832)	(3.972)	(2.922)
Mean Cell Coverage			-2.189^{***}		
			(-5.611)		
AIC	1474.364	1474.364	1433.028	3625.072	2209.816
BIC	1545.788	1545.788	1518.737	3696.496	2288.382
Deviance	1454.364	1454.364	1409.028	3128.327	668.904
Log-likelihood	-727.182	-727.182	-704.514	-1802.536	-1093.908
N	9343	9343	9343	9343	9343

$^{\dagger}p = 0.1$,$^{*}p = 0.05$, $^{**}p = 0.01$,$^{***}p = 0.001$

TABLE 16. Binary DV Models, ACLED

	Logit, robust SE	Re-Logit, robust SE	Mixed Effects Logit	Mixed Effects Logit	Fixed Effects OLS, robust SE
(Intercept)	-3.199^{***}	-3.196^{***}	-3.199^{***}	-3.183^{***}	0.026
	(-21.011)	(-20.990)	(-24.586)	(-21.877)	(0.330)
pre-2000 Conflict	0.022^{*}	0.021^{*}	0.022^{***}	0.022^{***}	0.003^{*}
	(2.518)	(2.478)	(5.039)	(5.037)	(2.540)
Border Distance	-0.001^{**}	-0.001^{**}	-0.001^{**}	-0.001^{***}	-0.000^{***}
	(-2.846)	(-2.829)	(-3.290)	(-3.298)	(-4.423)
Capital Distance	0.000	0.000	0.000	0.000	0.000^{***}
	(1.003)	(1.007)	(1.131)	(1.085)	(3.411)
Population	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{***}
	(9.318)	(9.271)	(13.305)	(13.275)	(4.462)
Pct Mountainous	0.743^{***}	0.746^{***}	0.743^{***}	0.746^{***}	0.054^{***}
	(5.031)	(5.047)	(5.230)	(5.229)	(3.923)
Pct Irrigation	-0.013	-0.013	-0.013	-0.013	-0.000
	(-1.068)	(-1.047)	(-1.615)	(-1.633)	(-0.469)
GDP pc	-0.000^{**}	-0.000^{**}	-0.000^{***}	-0.000^{**}	-0.000
	(-2.610)	(-2.577)	(-3.414)	(-3.269)	(-0.175)
Cell Phone Coverage	0.760^{***}	0.761^{***}	0.760^{***}	0.775^{***}	0.049^{***}
	(7.238)	(7.243)	(7.449)	(6.861)	(6.351)
Mean Cell Coverage				-0.050	
				(-0.259)	
Country Fixed Effects	No	No	No	No	Yes
AIC	4153.451	4153.451	4071.122	4072.823	-444.388
BIC	4217.733	4217.733	4142.546	4151.389	-65.842
Deviance	4135.451	4135.451	4051.122	4050.823	515.737
Log-likelihood	-2067.726	-2067.726	-2025.561	-2025.411	275.194
N	9343	9343	9343	9343	9343

$^{\dagger}p = 0.1, ^{*}p = 0.05, ^{**}p = 0.01, ^{***}p = 0.001$

TABLE 17. Count DV Models, ACLED

	Poisson, robust SE	Negative Binomial, robust SE
(Intercept)	-1.893^{***}	-1.866^{***}
	(-7.104)	(-3.708)
pre-2000 Conflict	0.016^{***}	0.119^{***}
	(11.293)	(28.269)
Border Distance	-0.002^{*}	-0.003^{*}
	(-2.405)	(-2.205)
Capital Distance	0.000	0.000
	(1.190)	(0.652)
Population	0.000^{***}	0.000^{***}
	(6.147)	(15.101)
Pct Mountainous	0.876^{***}	0.393
	(3.846)	(1.084)
Pct Irrigation	-0.032	-0.003
	(-1.654)	(-0.229)
GDP pc	-0.000	-0.000^{*}
	(-1.429)	(-2.275)
Cell Phone Coverage	1.098^{***}	$0.451^{\dagger}$
	(6.103)	(1.680)
AIC	18876.043	7291.995
BIC	18940.325	7363.419
Deviance	16998.705	1857.961
Log-likelihood	-9429.022	-3635.997
N	9343	9343

$^{\dagger}p = 0.1, ^{*}p = 0.05, ^{**}p = 0.01, ^{***}p = 0.001$

TABLE 18. Spatial Binary and Count Models, ACLED

	Logit, robust SE	Re-Logit, robust SE	Mixed Logit	Poisson, robust SE	Negative Binomial, robust SE
(Intercept)	-3.618^{***}	-3.613^{***}	-3.552^{***}	-1.937^{***}	-2.159^{***}
	(-24.704)	(-24.673)	(-23.601)	(-7.882)	(-3.348)
Spatial Lag	4.265^{***}	4.257^{***}	4.280^{***}	0.168^{***}	0.550^{***}
	(17.868)	(17.835)	(19.070)	(10.167)	(14.043)
pre-2000 Conflict	0.016^{**}	0.015^{**}	0.016^{***}	0.015^{***}	0.081^{***}
	(2.590)	(2.509)	(4.042)	(8.841)	(15.794)
Border Distance	-0.000	-0.000	-0.000	$-0.001^{\dagger}$	-0.003
	(-0.715)	(-0.695)	(-0.910)	(-1.790)	(-1.520)
Capital Distance	0.000	0.000	0.000	0.000	0.000
	(0.863)	(0.867)	(0.723)	(1.464)	(0.404)
Population	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{***}
	(6.945)	(6.900)	(9.507)	(5.963)	(7.177)
Pct Mountainous	0.624^{***}	0.627^{***}	0.636^{***}	0.029	0.305
	(3.926)	(3.942)	(4.158)	(0.095)	(0.564)
Pct Irrigation	-0.004	-0.004	-0.005	-0.025	0.013
	(-0.344)	(-0.317)	(-0.634)	(-1.465)	(0.879)
GDP pc	-0.000^{*}	-0.000^{*}	-0.000^{*}	-0.000	$-0.000^{\dagger}$
	(-2.300)	(-2.266)	(-2.293)	(-1.136)	(-1.749)
Cell Phone Coverage	0.581^{***}	0.582^{***}	0.648^{***}	0.901^{***}	0.554
	(5.360)	(5.365)	(5.458)	(4.753)	(1.619)
Mean Cell Coverage			-0.229		
			(-1.122)		
AIC	3793.923	3793.923	3750.471	16967.030	7092.856
BIC	3865.347	3865.347	3836.179	17038.453	7171.422
Deviance	3773.923	3773.923	3726.471	15087.692	1931.966
Log-likelihood	-1886.962	-1886.962	-1863.235	-8473.515	-3535.428
N	9343	9343	9343	9343	9343

$^{\dagger}p = 0.1$,$^{*}p = 0.05$, $^{**}p = 0.01$,$^{***}p = 0.001$

TABLE 19. Binary DV Models, SCAD

	Logit, robust SE	Re-Logit, robust SE	Mixed Effects Logit	Mixed Effects Logit	Fixed Effects OLS, robust SE
(Intercept)	-5.224^{***}	-5.224^{***}	-5.224^{***}	-4.959^{***}	-0.020^{**}
	(-14.505)	(-14.513)	(-16.157)	(-14.190)	(-2.927)
pre-2000 Conflict	0.011	0.011	0.011^{**}	0.012^{**}	$0.001^{\dagger}$
	(1.530)	(1.496)	(2.960)	(3.105)	(1.943)
Border Distance	-0.002^{**}	-0.002^{*}	-0.002^{**}	-0.003^{**}	-0.000^{**}
	(-2.616)	(-2.576)	(-2.641)	(-2.859)	(-2.653)
Capital Distance	0.000	0.000	0.000	-0.000	$0.000^{\dagger}$
	(0.245)	(0.298)	(0.290)	(-0.037)	(1.906)
Population	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{***}
	(9.636)	(9.582)	(9.751)	(9.902)	(6.073)
Pct Mountainous	-0.015	0.012	-0.015	0.022	-0.008
	(-0.042)	(0.034)	(-0.043)	(0.064)	(-1.441)
Pct Irrigation	0.001	0.001	0.001	-0.002	-0.000
	(0.119)	(0.093)	(0.137)	(-0.203)	(-0.445)
GDP pc	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.642)	(-0.247)	(-0.613)	(-0.437)	(-0.287)
Cell Phone Coverage	1.298^{***}	1.285^{***}	1.298^{***}	1.498^{***}	$0.007^{\dagger}$
	(5.078)	(5.030)	(4.959)	(5.374)	(1.906)
Mean Cell Coverage				$-0.759^{\dagger}$	
				(-1.881)	
Country Fixed Effects	No	No	No	No	Yes
AIC	1074.510	1074.510	1074.773	1073.164	-15074.392
BIC	1138.792	1138.792	1146.197	1151.731	-14695.845
Deviance	1056.510	1056.510	1054.773	1051.164	107.740
Log-likelihood	-528.255	-528.255	-527.387	-525.582	7590.196
N	9343	9343	9343	9343	9343

$^{\dagger}p = 0.1$,$^{*}p = 0.05$, $^{**}p = 0.01$,$^{***}p = 0.001$

TABLE 20. Count DV Models, SCAD

	Poisson, robust SE	Negative Binomial, robust SE
(Intercept)	-4.370^{***}	-4.672^{***}
	(-10.927)	(-9.905)
pre-2000 Conflict	0.006^{***}	0.018^{***}
	(4.261)	(6.920)
Border Distance	-0.001	$-0.003^{\dagger}$
	(-1.494)	(-1.921)
Capital Distance	-0.001	-0.000
	(-1.300)	(-0.174)
Population	0.000^{***}	0.000^{***}
	(5.585)	(15.695)
Pct Mountainous	0.048	-0.509
	(0.119)	(-0.792)
Pct Irrigation	-0.006	0.019
	(-0.370)	(1.354)
GDP pc	-0.000	-0.000
	(-0.701)	(-0.398)
Cell Phone Coverage	1.787^{***}	1.142^{***}
	(6.464)	(3.460)
AIC	2028.873	1503.846
BIC	2093.155	1575.270
Deviance	1701.058	553.968
Log-likelihood	-1005.437	-741.923
N	9343	9343

$^{\dagger}p = 0.1$,$^{*}p = 0.05$, $^{**}p = 0.01$,$^{***}p = 0.001$

TABLE 21. Spatial Binary and Count Models, SCAD

	Logit, robust SE	Re-Logit, robust SE	Mixed Logit	Poisson, robust SE	Negative Binomial, robust SE
(Intercept)	-5.305^{***}	-5.304^{***}	-5.033^{***}	-4.449^{***}	-4.675^{***}
	(-14.801)	(-14.800)	(-14.412)	(-10.682)	(-9.920)
Spatial Lag	2.614^{*}	2.666^{*}	2.685^{**}	0.980^{***}	1.099^{*}
	(2.371)	(2.418)	(2.711)	(3.648)	(2.093)
pre-2000 Conflict	0.011	0.011	0.012^{**}	0.006^{***}	0.015^{***}
	(1.548)	(1.529)	(2.956)	(4.445)	(6.157)
Border Distance	-0.002^{*}	-0.002^{*}	-0.002^{**}	-0.001	$-0.002^{\dagger}$
	(-2.407)	(-2.355)	(-2.604)	(-1.434)	(-1.754)
Capital Distance	0.000	0.000	0.000	-0.001	-0.000
	(0.405)	(0.459)	(0.138)	(-1.117)	(-0.249)
Population	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{***}
	(8.595)	(8.517)	(9.201)	(5.944)	(14.367)
Pct Mountainous	-0.054	-0.027	-0.015	0.018	-0.564
	(-0.146)	(-0.074)	(-0.043)	(0.044)	(-0.886)
Pct Irrigation	-0.001	-0.001	-0.005	-0.009	0.019
	(-0.093)	(-0.117)	(-0.473)	(-0.634)	(1.354)
GDP pc	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.666)	(-0.351)	(-0.431)	(-0.711)	(-0.359)
Cell Phone Coverage	1.268^{***}	1.259^{***}	1.479^{***}	1.730^{***}	1.087^{**}
	(4.936)	(4.902)	(5.279)	(6.219)	(3.284)
Mean Cell Coverage			-0.800^{*}		
			(-1.969)		
AIC	1070.378	1070.378	1068.895	2007.852	1501.686
BIC	1141.802	1141.802	1154.603	2079.275	1580.252
Deviance	1050.378	1050.378	1044.895	1678.036	555.574
Log-likelihood	-525.189	-525.189	-522.447	-993.926	-739.843
N	9343	9343	9343	9343	9343

$^{\dagger}p = 0.1$,$^{*}p = 0.05$, $^{**}p = 0.01$,$^{***}p = 0.001$

4. MATCHING

Alternative to the estimation of parametric models, we also explore the effect of cell phone coverage using matching methods. In particular, we rely on "Coarsened Exact Matching" (CEM) (Iacus, King & Porro 2012). CEM bins observations into coarsened strata and matches based on the new groupings. This matching approach reduces imbalance in the sample based on all properties of the covariate distributions, not just differences of means or similar univariate statistics (Iacus, King & Porro 2012). We use the *cem* library in R to implement this matching algorithm and estimate the sample average treatment effect for the cells treated (SATT) with cell phone coverage after matching. We match on our baseline set of pre-treatment covariates. The original sample contains 5,628 untreated and 3,715 treated grid cells with an overall $\mathcal{L}_1$ imbalance score of 0.793. After matching we retain 4,882 control and 2,794 treated units, with a $\mathcal{L}_1$ imbalance score of 0.728, a moderately sized imbalance reduction of over 8%. We then use a logit model with and without additional balance adjustment through covariates to obtain the estimated treatment effect. Without additional control variables, the estimated SATT is 0.45 with a 95% CI of $[0.14, 0.76]$. Including control variables in the estimation produces a SATT estimate of 0.30 and a 95% CI of $[-0.03, 0.65]$. Both estimates are very similar in magnitude to our original estimates and confirm the main finding.

TABLE 22. Imbalance Statistics, Unmatched Sample

Variable	Diff-in-Means	$\mathcal{L}_1$	Diff-in-Means CEM	$\mathcal{L}_1$ CEM
pre-2000 Conflict	-1.90	0.05	-0.43	0.03
Pct Mountainous	-0.09	0.16	-0.001	0.004
Border Distance	17.22	0.02	0.59	0.003
Capital Distance	28.07	$5.55 \cdot 10^{-17}$	4.59	0
Population in 2005	$-1.46 \cdot 10^5$	$5.55 \cdot 10^{-17}$	$-6.04 \cdot 10^4$	0
Pct Irrigation	-2.55	0.31	-0.55	0.18
GDP pc in 2000	2381.59	$5.55 \cdot 10^{-17}$	-1482.75	0

5. INSTRUMENTAL VARIABLES

TABLE 23. Bivariate Probit Model, Cell Phone Coverage Instrumented

	(1) Robust SE	(2) Robust SE	(3) Clustered SE	(4) Clustered SE
(Intercept)	-2.139***	-2.304***	-2.139***	-2.304***
	(-16.42)	(-15.49)	(-9.15)	(-8.06)
pre-2000 Conflict	0.0146***	0.007*	0.0146*	0.007
	(4.49)	(1.96)	(2.45)	(1.17)
Border Distance	0.000	0.000	0.000	0.000
	(0.75)	(0.83)	(0.32)	(0.45)
Capital Distance	0.000***	0.000**	0.000	0.000
	(4.38)	(3.16)	(1.56)	(1.36)
Population	0.000*	0.000**	0.000*	0.000**
	(2.46)	(3.16)	(2.24)	(3.08)
Pct Mountainous	0.502***	0.318**	0.502**	0.318
	(5.04)	(2.72)	(2.96)	(1.63)
Pct Irrigation	-0.005	0.005	-0.005	0.005
	(-0.62)	(0.67)	(-0.56)	(0.57)
GDP per capita	-0.000***	-0.000**	-0.000*	-0.000
	(-4.59)	(-3.15)	(-2.04)	(-1.62)
Spatial Lag		2.732***		2.732***
		(12.89)		(8.93)
Cell Phone Coverage	0.590***	$0.315^{\dagger}$	0.590**	0.315
	(3.58)	(1.81)	(3.05)	(1.31)
N	6598	6598	6598	6598

t statistics in parentheses

† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

6. Panel Data

TABLE 24. Panel Data, Country and Year Fixed Effects

	(1) OLS, clustered SE	(2) OLS, clustered SE
Cell Phone Coverage	0.0265**	0.121**
	(0.00869)	(0.0390)
pre-2000 Conflict	0.00167	0.0150
	(0.00101)	(0.00916)
Border Distance	$-0.0000346^{\dagger}$	-0.000101
	(0.0000200)	(0.000143)
Capital Distance	0.0000230	0.000155
	(0.0000302)	(0.000144)
Population	$2.36e-08^{\dagger}$	8.17e-08
	(1.32e-08)	(8.70e-08)
Pct Mountainous	0.0392	0.255
	(0.0350)	(0.229)
Pct Irrigation	-0.000562	-0.00249
	(0.000420)	(0.00195)
GDP pc	8.82e-10	6.17e-09
	(3.49e-09)	(1.15e-08)
Country & Year Effects	Yes	Yes
Observations	28029	28029
Adjusted R^2	0.031	0.031
F	2.274	2.944

Clustered standard errors in parentheses

† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE 25. Panel Data, Additional Count Models

	(1) log(Count+1), OLS, clustered SE	(2) Poisson Fixed Effects
Cell Phone Coverage	0.0172**	1.136*
	(0.00553)	(0.502)
Cell & Year Effects	Yes	Yes
Observations	32022	1857
Adjusted R^2	0.004	
F	20.63	

Standard errors in parentheses

† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

7. MODEL FIT

While the focus on statistical and substantive significance of individual covariates is warranted given our theoretical interests, overall model fit and predictive capabilities of the model should not go without any consideration (Ward *et al.* 2010). Below we present a heat map of predicted conflict probabilities that suggest a fairly accurate identification of conflict hot spots. A better and intuitive graphical method to assess model fit for models with binary dependent variables is the "separation plot" (Greenhill *et al.* 2011). A separation plot orders observations according to their predicted probabilities derived from the model and plots the predicted probability curve. For each observation realized events in the data are then plotted with red vertical lines. A good model fit shows a clustering of actual events for higher predicted probabilities, whereas an inferior model fit shows a haphazard pattern. Below we show separation plots for the in-sample and out-of-sample (predicting 2009 conflict) fit for several models. Overall, the models do quite well in classifying grid cells correctly, especially when the spatial lag is included, strengthening the overall credibility or our models and findings.

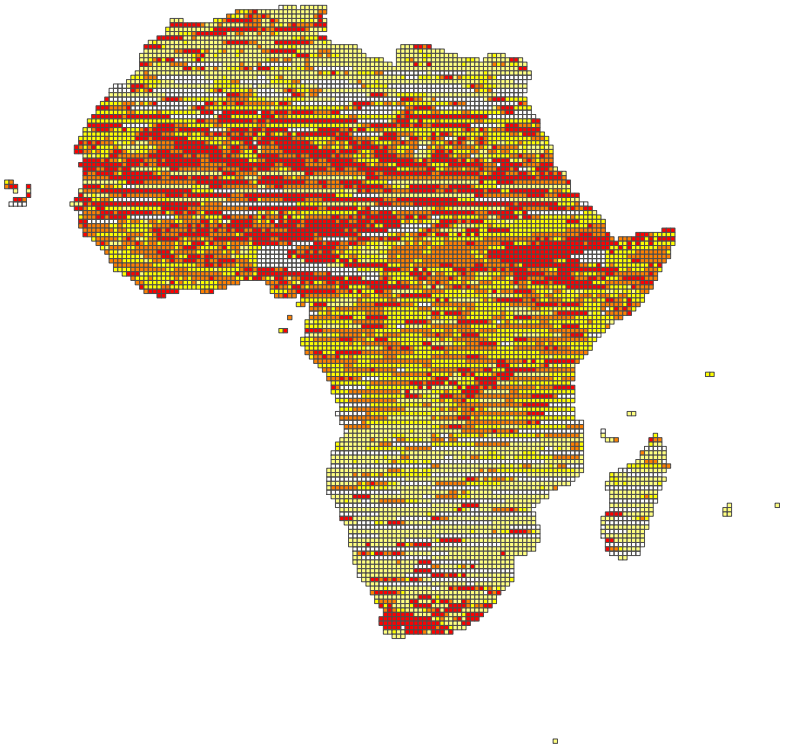
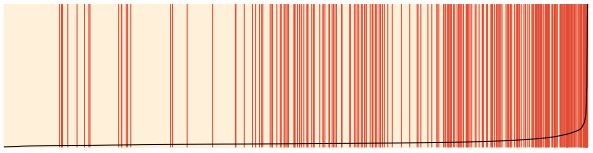
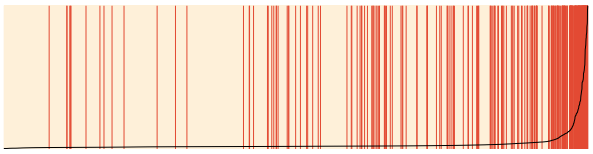


FIGURE 1. Predicted Probabilities Heat Map, darker colors signify higher probability, In-Sample

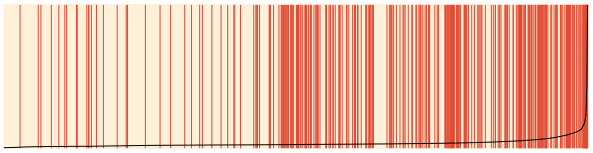


(a) Logit

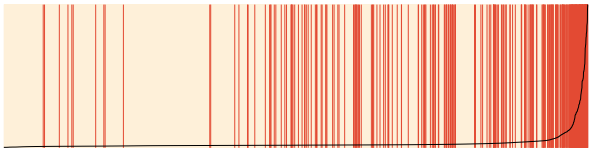


(b) Logit with Spatial Lag

FIGURE 2. Separationplots In-Sample



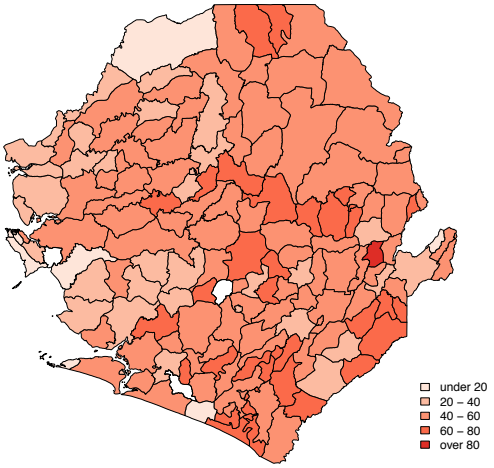
(a) Logit



(b) Logit with Spatial Lag

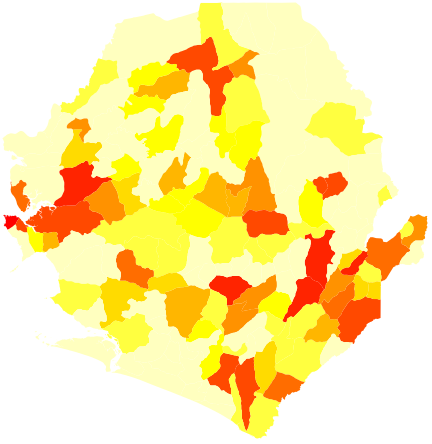
FIGURE 3. Separationplots Out-of-Sample 2009

8. Comparison of UCDP and World Bank Data for Sierra Leone



(a) Household Member Injured or Maimed

(a) Source: Sacks and Larizza 2012, p.41



(b) UCDP-GED

FIGURE 4. Violence in Sierra Leone's Civil War

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Ward, Michael D., Greenhill, Brian, & Bakke, Kristin. 2010. The Perils of Policy by P-value: Predicting Civil Conflicts. *Journal of Peace Research*, **47**, 363–375.