Table of Contents

A. *Geolocated Disease Outbreak Event Data*

the Geolocated Zoonotic Disease Outbreak Event Dataset (G-ZOD), developed specifically for the purpose of this study, measures zoonotic disease outbreaks in Africa between January 1996 and December 2019. G-ZOD records individual outbreaks under a location-date "where-and-when" framework, coding, first and foremost, information on (i) pathogen, (ii) province/state, and (iii) date/month and year, and (iv) credible source, as well as (based on data availability) information on: (iv) the number of people affected by and (v) the number of people who died from the pathogen; (vi) the exact date and (vii) exact location of the outbreak; (viii) the cause of infection (farm animals, wildlife, person-to-person, or other); and (ix) additional comments. For assisting with the coding procedures, two highly qualified research assistants were selectively recruited and thoroughly trained. The research assistants followed a detailed codebook (provided as a separate online attachment) in deciding which outbreak events to include in the database, and over what period (see detailed step-by-step discussion of coding procedure below).

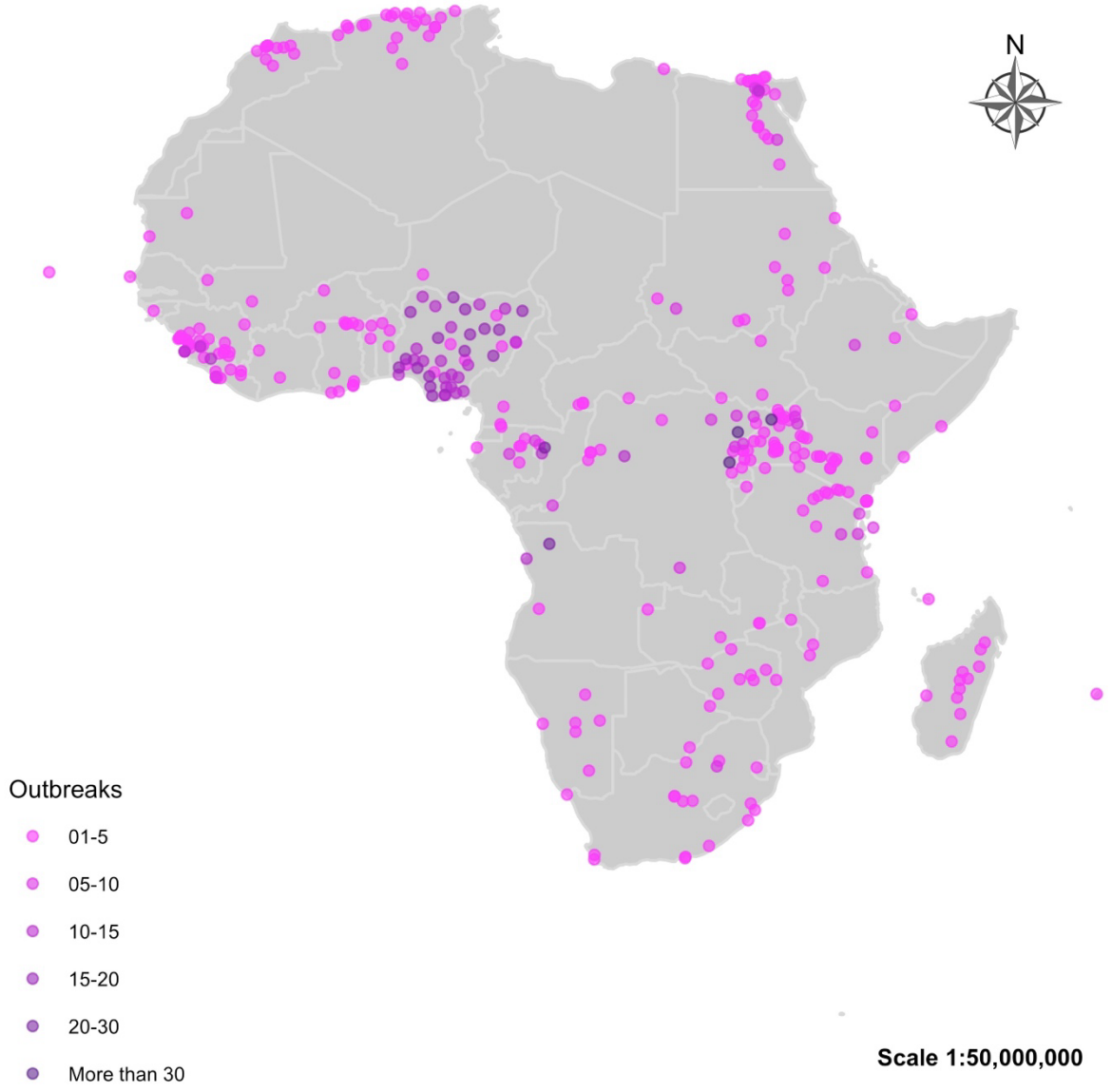
The 22 pathogens included in G-ZOD are reported in Supplementary Table 1. Search for additional pathogens – including H9N1, H7N9, H5N6, SARS-COV-19, and shigellosis – was also conducted, but no outbreaks involving these pathogens were identified over the period of interest in any African state (as discussed below, we extended our SARS-COV-19 to the Jan. to March 2020 period for some of our robustness models). These pathogens were selected for four main reasons. First, each one of these pathogens were reported by the WHO as a strain of concern for African states,[1] including pathogens that may be carried due to animal migration from other world regions and can hence induce a disruption. Second, these pathogens are deadly, making outbreak events more likely to be reported, and reported events more likely to be confirmed. Third, the purpose was to focus on zoonotic diseases (involving at least one type of animal host species as a vector in addition to infecting humans) because they pose the greatest risk of becoming emerging global pandemics.[2,3] Finally, and partly due to these issues, the purpose was to identify a subset of high-risk pathogens that are not yet endemic, and that hence information on outbreak timing and location can be easily ascertained as a unique event, rather than using alternative measures (e.g., "heatmaps").

Supplementary Table 1: (Re)Emergent Zoonotic Pathogens Included in G-ZOD

1. Ebola-Zaire	9. H1N1	17. Septicaemic plague
2. Ebola-Sudan	10. H5N1	18. Bubonic plague
3. Ebola-Täi forest	11. SARS	19. Crimean-Congo HF
4. Ebola-Bundibugyo	12. MERS	20. Zika/Zica
5. Ebola-Reston	13. Chikungunya	21. Anthrax
6. Marburg	14. Lassa	22. Rabies
7. Yellow fever	15. Dengue	
8. Rift Valley fever	16. Monkeypox	

For illustration, a map summing total outbreak frequencies by location is reported in Supplementary Figure 1. Note that due to the limited availability on information on some controls, most models are limited to the Jan. 2000 – Dec. 2018 period, and hence some of the pathogens

from Supplementary Table 1 are not featured in these models as they did not experience an outbreak during this curtailed period.



Supplementary Figure 1. Zoonotic disease outbreak frequencies in Africa by exact location, Jan. 1996 – Dec. 2019.

G-ZOD defines an outbreak as a local incident involving one of the pathogens from Table 1 where at least one individual was affected. Conceptually, each of 1,481 confirmed outbreak events between Jan. 1996 and Dec. 2019 (n=1,362 for confirmed events only, and n=58 for additional COVID-19 outbreak events between Jan. and Mar. 2020) in G-ZOD was recorded as follows:

1. Identifying an outbreak event for a pathogen of interest: using the LexisNexis Uni database, all outbreak events in Africa involving the 22 pathogens of interest (Supplementary Table 1) were identified (as mentioned above, searches for additional pathogens was also conducted). As mentioned above, an outbreak event was coded if it affected at least one person. For the geospatially coded data, events that could be classified to the village, or at the very least to the province (1st admin), month and year level was retained.

2. Coding relevant information on the outbreak: after identifying relevant incidents, information on different aspects of the outbreak event (e.g., number of people affected, dead, etc.) was coded using reports in reputable English language sources (e.g., NYT, Associated Press, BBC, Reuters, CNN, and CBS). All news stories were downloaded, given the incident's unique ID, and stored for future replication.

3. Internal event triangulation using duplicates: Most outbreaks included more than one media report. For instance, a report might mention outbreak in one village, and a later report will then mention outbreaks in several villages, including the one from the previous report. Our team combined information from different reports to get the best estimates for the information in (2).

4. Confirming outbreak event data with ISID and WHO reports: For robustness, we also created an indicator of whether a reported event was confirmed by a formal entity (see Supplementary Table 3). Hence, after coding information on each outbreak, each incident was triangulated for confirmation twice, once using the ProMed mail database,[4] which only report laboratory confirmed outbreaks; and separately using WHO disease outbreak news, which report outbreaks confirmed by a government official or agencies like the CDC. Each of the incidents used in constructing the figure in the main note was confirmed by at least one of the two sources (ProMed or WHO).

The result is a database that, in addition to its specific advantages for conflict analysis (dis- cussed in the main paper) offers several additional new features compared with existing datasets, such as WHO, EM-DAT, Torres et al. (2022),[5] and ISID. First, G-ZOD is geolocated by design and construction. All events included in analysis were recorded at the first administrative unit (province) levels or below, although for those interested in country level analysis, G-ZOD also contains country level data that were not used for analysis in the paper. In contrast, all other aforementioned datasets are country level, and rarely allow for local level assessment, despite the crucial need for such assessment in the role of environmental indicators' impact on armed conflict.[6]

Second, like to widely-used conflict datasets, G-ZOD is an event-based dataset, which includes (as mentioned above) – in addition to location – information on the month and year (or exact date, if available) of the event, and provide for a more data driven operationalization of disease outbreak risk and frequency. This in contrast to all other aforementioned datasets, which either used a high (100 or more) casualty thresholds, or really on qualitative definitions (e.g., the WHO defines an outbreak as an epidemic) in coding data. G-ZOD theretofore codes not only extreme epidemic and pandemic events, but also a higher resolution of such incidents as well as outbreak events that ultimately did not – luckily – deteriorate into an epidemic, even though they posed the risk for becoming one. Third, in addition to the specific pathogen, we coded – where available – additional

relevant information for each outbreak events, including the number of people affected and dead and the direct cause of the infection.

The fact that this dataset is operationalized based on media-reported events is also one important reason why the monthly 0.5-degree geospatial level used in our analysis is advantageous. This resolution is this geospatially and temporally the highest level of resolution recommended for analysing event-based data (including both G-ZOD the conflict variables used in analysis).[7] Especially in remote areas, village names might be switched or mispronounced, or reporters won't be able to access the exact site, which – in contrast to more precise outbreak investigations – creates some ambiguity as to the exact village or location of the event. Such ambiguities are resolved once the data is aggregated to the 0.5-degree level. The event-data approach discussed above provides for much coarser granularity of confirmed outbreaks, although the reliance on event data (as discussed above) means that the recommended resolution for an effective analysis (even though information on exact location is available in the vast majority of cases) is lower. Considering the cross-continental focus, the 0.5-degree resolution is still very high – there are 10,674 African 0.5-degree grid cells observed monthly over the Jan. 1996 – Dec. 2019 period, for a total of 3,074,112 panel observation (before missing observations are omitted), although we lose some observations in the socioeconomic and full model plots due to the limited availability of information on some of the controls (e.g., limited population in the Sahara Desert).

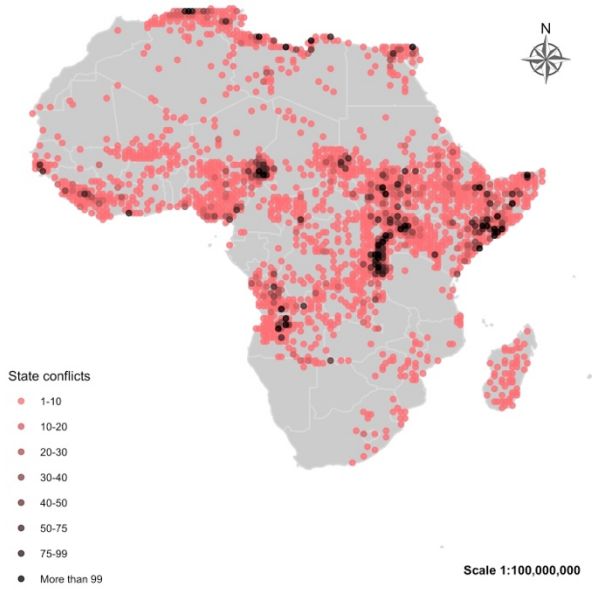
B. *Summary Statistics and Additional Figures*

Table 2: Summary Statistics of all Variables

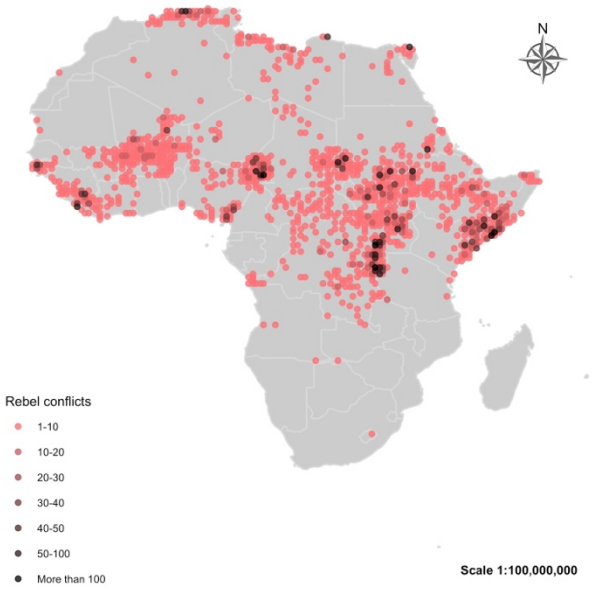
	Min.	Median	Mean	Max.	Std. Dev.
Dependent variables					
State conflict$_{it}$	0	0	0.008	75	0.262
Rebel conflict$_{it}$	0	0	0.003	37	0.126
Militia conflict$_{it}$	0	0	0.005	22	0.134
Pol. militia conflict$_{it}$	0	0	0.003	21	0.109
Id. militia conflict$_{it}$	0	0	0.002	19	0.072
All conflict$_{it}$	0	0	0.002	19	0.072
Independent variables					
ZDO events$_{it}$	0	0	0.001	14	0.032
ZDO events (confirmed)$_{it}$	0	0	0.001	14	0.031
ZDO events (yes/no)$_{it}$	0	0	0.0004	1	0.019
ZDO events (with COVID-19)$_{it}$	0	0	0.001	14	0.032
Virulent ZDO events$_{it}$	0	0	0.0002	14	0.025
Fever and RS ZDO events$_{it}$	0	0	0.0003	5	0.016
Other ZDO events$_{it}$	0	0	0.0001	5	0.010
NTL_{it} [1]	0	0	3.001	12.304	3.763
Population$_{it}$ [1]	0	9.697	9.001	16.733	2.981
Prec. anom$_{it}$	-4.032	-0.037	0.053	5.295	0.855
Prec. (mm)$_{it}$ [1]	0	2.518	2.518	7.710	2.014
Prec. (mm)$^2_{it}$ [1]	0	6.339	10.395	59.443	10.785
Drought$_{it}$	-9.004	-0.199	-0.258	7.887	1.015
Temp. anom$_{it}$	-5.295	0.493	0.480	5.295	0.917
Life exp.$_{it}$ [1]	4.727	7.093	7.206	10.041	1.072
Gov. eff.$_{it}$	0	0.857	1.977	50.102	3.045
$GDPpc_{it}$ [1]	3.747	4.110	4.113	4.355	0.130

i refers to the grid cell and *t* refers to a month in a given year.

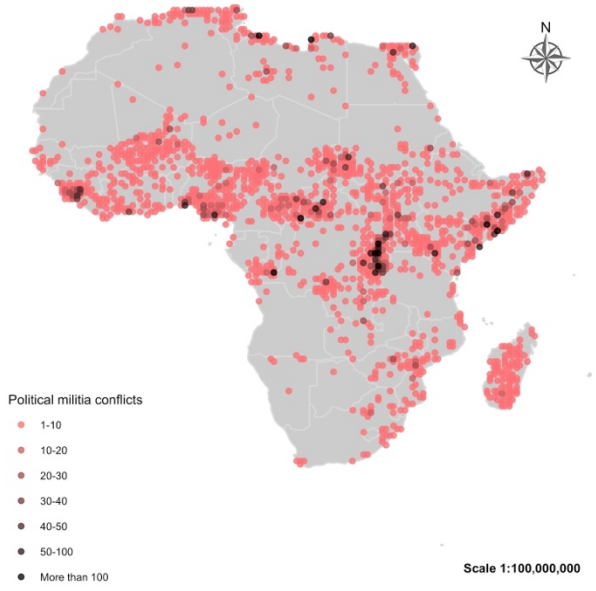
[1] Natural log



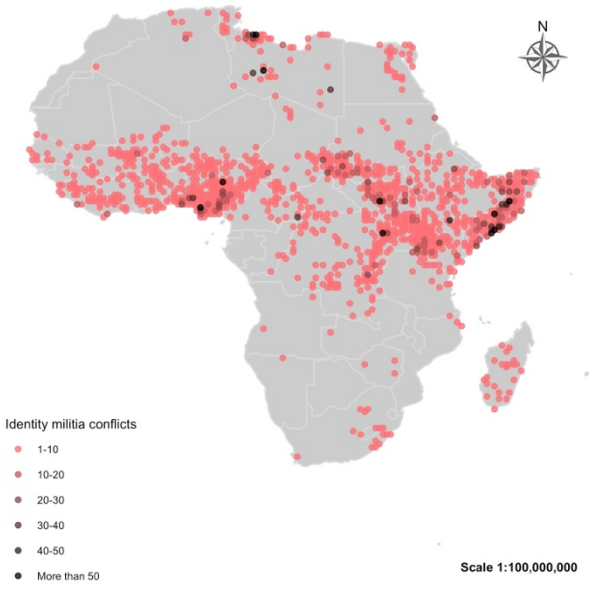
(a) State-initiated conflicts



(b)Rebel-initiated conflicts



(c) Political militia-initiated conflicts



(d) Identity militia-initiated conflicts

Supplementary Figure 2: 0.5 grid map of total conflict frequencies across Africa, Jan. 1996 – Dec. 2019

C. *Robustness Models and Sensitivity Analyses*

Supplementary Table 3: Determinants of Armed Conflict in African Locations, Confirmed Outbreaks

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(13)	(14)	(15)	(16)
ZDO events$_{it}$	−0.013*	0.002	0.010	0.012*
	(−0.025, −0.001)	(−0.009, 0.014)	(−0.017, 0.038)	(0.002, 0.023)
	[0.039]	[0.698]	[0.462]	[0.020]
NTL_{it} [1]	0.00002	0.00004	0.0002*	0.0001*
	(−0.001, 0.001)	(−0.0001, 0.0003)	(0.0001, 0.001)	(0.00002, 0.0004)
	[0.853]	[0.320]	[0.011]	[0.033]
Population$_{it}$ [1]	−0.001	−0.0001	0.001	−0.0001
	(−0.003, 0.002)	(−0.001, 0.001)	(−0.00002, 0.003)	(−0.001, 0.001)
	[0.598]	[0.825]	[0.054]	[0.711]
Prec. anom$_{it}$	0.0001	−0.0002*	−0.0002	−0.0002*
	(−0.0003, 0.001)	(−0.0004, −0.00004)	(−0.0004, 0.00002)	(−0.0004, −0.00002)
	[0.518]	[0.017]	[0.074]	[0.031]
Drought$_{it}$	−0.0001	0.0003*	0.0001	0.0002*
	(−0.001, 0.0003)	(0.0001, 0.0004)	(−0.0001, 0.0003)	(0.00002, 0.0004)
	[0.544]	[0.005]	[0.423]	[0.029]
Temp. anom$_{it}$	−0.0003	0.00001	−0.0001	−0.00001
	(−0.001, 0.0002)	(−0.0001, 0.0002)	(−0.0003, 0.0001)	(−0.0002, 0.0001)
	[0.275]	[0.855]	[0.436]	[0.864]
Life exp.$_{it}$ [1]	−0.004*	−0.001*	−0.001	−0.0004
	(−0.007, −0.0003)	(−0.001, −0.0002)	(−0.003, 0.0003)	(−0.001, 0.001)
	[0.032]	[0.007]	[0.116]	[0.370]
Gov. eff.$_{it}$	−0.001	0.001*	0.0002	−0.0002
	(−0.001, 0.0002)	(0.0004, 0.002)	(−0.0001, 0.001)	(−0.0005, 0.0001)
	[0.132]	[0.003]	[0.132]	[0.248]
$GDPpc_{it}$ [1]	−0.061*	−0.011*	−0.016*	−0.026*
	(−0.079, −0.043)	(−0.019, −0.004)	(−0.025, −0.006)	(−0.034, −0.018)
	[2.2e-11]	[0.004]	[0.002] [7.2e-10]	
DV_{it-1}	0.453*	0.323*	0.305*	0.092*
	(0.277, 0.630)	(0.119, 0.527)	(0.202, 0.409)	(0.061, 0.122)
	[4.8e-07]	[0.002]	[7.9e-09]	[3.5e-09]
$Trend_t$	0.0001*	0.00002*	0.00003*	0.00004*
	(0.0001, 0.0001)	(0.00001, 0.00003)	(0.00001, 0.0001)	(0.00003, 0.0001)
	[2.6e-06]	[1.3e-05]	[0.002]	[5.5e-12]
Observations		1,473,765		
R^2	0.641	0.152	0.166	0.067
Adjusted R^2	0.639	0.146	0.160	0.061
F-stat.	267.4*	26.73*	29.68*	10.76*
DF	1463970	1463970	1463970	1463970

Coefficients are reported with 97.5% confidence intervals clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month and grid cell were included in each regression, but not reported here. * p<0.05; [1] Natural log

Supplementary Table 4: Determinants of Armed Conflict in African Locations, Jan. 1997 – Dec. 2019

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(17)	(18)	(19)	(20)
ZDO events$_{it}$	−0.016*	−0.003	0.013	0.009
	(−0.029, −0.003)	(−0.018, 0.013)	(−0.014, 0.040)	(−0.001, 0.018)
	[0.019]	[0.737]	[0.348]	[0.069]
Prec. anom$_{it}$	0.001	−0.0005*	0.00005	−0.00005
	(−0.0001, 0.002)	(−0.001, −0.0002)	(−0.0002, 0.0003)	(−0.0002, 0.0001)
	[0.077]	[4.2e-05]	[0.658]	[0.563]
Drought$_{it}$	−0.001*	0.0005*	−0.0001	−0.00001
	(−0.001, −0.00002)	(0.0002, 0.001)	(−0.0003, 0.0001)	(−0.0002, 0.0001)
	[0.043]	[0.001]	[0.463]	[0.914]
Temp. anom$_{it}$	−0.001*	0.0003	−0.0004*	−0.0001
	(−0.002, −0.0004)	(−0.0001, 0.001)	(−0.001, −0.0002)	(−0.0002, 0.0001)
	[0.001]	[0.096]	[0.0003]	[0.297]
Observations	2,060,968	2,060,968	2,060,968	2,060,968
R^2	0.167	0.118	0.126	0.032
Adjusted R^2	0.163	0.114	0.122	0.027
F-stat.	41.99*	28.06*	30.2*	6.859*
DF	2051146	2051146	2051146	2051146

Coefficients are reported with 97.5% confidence intervals clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month and grid cell were included in each regression, but not reported here. * $p<0.05$; [1] Natural log

Supplementary Table 5: Determinants of Armed Conflict in African Locations, Jan. 2003 – Dec. 2018

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(21)	(22)	(23)	(24)
ZDO events$_{it}$	−0.025*	0.004	0.023	0.018*
	(−0.043, −0.006)	(−0.011, 0.019)	(−0.029, 0.075)	(0.002, 0.034)
	[0.009]	[0.610]	[0.394]	[0.023]
NTL$_{it}$ [1]	0.0002*	−0.0001	0.0001	0.0001
	(0.0001, 0.001)	(−0.0004, 0.0001)	(−0.0001, 0.001)	(−0.0001, 0.0005)
	[0.029]	[0.344]	[0.239]	[0.198]
Population$_{it}$ [1]	0.010*	0.002	0.001	−0.0002
	(0.006, 0.014)	(−0.001, 0.005)	(−0.002, 0.005)	(−0.003, 0.003)
	[1.7e-06]	[0.135]	[0.425]	[0.895]
Prec. anom$_{it}$	−0.0004	−0.0001	−0.0003	−0.0004
	(−0.001, 0.0004)	(−0.0005, 0.0002)	(−0.001, 0.0001)	(−0.001, 0.00003)
	[0.301]	[0.454]	[0.135]	[0.071]
Drought$_{it}$	0.0002	−0.0001	0.0002	0.0005*
	(−0.001, 0.001)	(−0.0005, 0.0003)	(−0.0002, 0.001)	(0.00002, 0.001)
	[0.554]	[0.743]	[0.274]	[0.039]
Temp. anom$_{it}$	−0.001	0.0002	0.0002	0.00002
	(−0.002, 0.001)	(−0.0001, 0.0005)	(−0.0002, 0.001)	(−0.0003, 0.0003)
	[0.287]	[0.269]	[0.335]	[0.918]
Life exp.$_{it}$ [1]	−0.008	0.003*	0.004*	0.001
	(−0.018, 0.002)	(0.00001, 0.005)	(0.001, 0.007)	(−0.002, 0.004)
	[0.115]	[0.049]	[0.010]	[0.552]
Gov. eff.$_{it}$	−0.001	0.002*	0.0002	−0.0001
	(−0.002, 0.0004)	(0.001, 0.003)	(−0.0004, 0.001)	(−0.001, 0.0004)
	[0.175]	[0.004]	[0.558]	[0.664]
GDPpc$_{it}$ [1]	0.040	0.030*	0.017	0.022
	(−0.042, 0.122)	(0.013, 0.048)	(−0.053, 0.087)	(−0.007, 0.052)
	[0.339]	[0.001]	[0.632]	[0.136]
Trend$_t$	−0.0001	−0.00000	0.00000	−0.00000
	(−0.0002, 0.00004)	(−0.00002, 0.00002)	(−0.0001, 0.0001)	(−0.00003, 0.00003)
	[0.257]	[0.790]	[0.959]	[0.991]
DV$_{it-1}$	0.470*	0.414*	0.287*	0.080*
	(0.304, 0.636)	(0.123, 0.704)	(0.167, 0.406)	(0.045, 0.115)
	[3.0e-08]	[0.005]	[2.6e-06]	[6.4e-06]
Observations		547,691		
R^2	0.734	0.248	0.241	0.108
Adjusted R^2	0.729	0.235	0.228	0.092
F-stat.	152.3*	18.22*	17.56*	6.694*
DF	537938	537938	537938	537938

Coefficients are reported with 97.5% confidence intervals clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month and grid cell were included in each regression, but not reported here. * $p<0.05$; [1] Natural log

Supplementary Table 6: Determinants of Armed Conflict in African Locations, Only Country Fragilities

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(25)	(26)	(27)	(28)
ZDO events$_{it}$	−0.009	0.005	0.012	0.013*
	(−0.023, 0.005)	(−0.014, 0.024)	(−0.022, 0.046)	(0.002, 0.023)
	[0.204]	[0.623]	[0.498]	[0.018]
NTL_{it} [1]	0.001*	0.0003*	0.001*	0.001*
	(0.001, 0.002)	(0.0001, 0.001)	(0.001, 0.001)	(0.0004, 0.001)
	[2.1e-07]	[0.007]	[4.7e-10]	[2.2e-08]
$Population_{it}$ [1]	0.0002	−0.0003*	−0.0002	−0.0002
	(0.006, 0.013)	(0.001, 0.003)	(0.003, 0.007)	(0.002, 0.004)
	[2.8e-08]	[0.007]	[2.2e-08]	[4.2e-14]
Prec. anom$_{it}$	0.0002	−0.0003	−0.0002	−0.0002
	(−0.0003, 0.001)	(−0.0005, −0.0001)	(−0.0005, 0.0001)	(−0.0004, 0.00001)
	[0.373]	[0.001]	[0.150]	[0.058]
$Drought_{it}$	−0.0003	0.0004*	0.0001	0.0002
	(−0.001, 0.0002)	(0.0002, 0.001)	(−0.0002, 0.0004)	(−0.00001, 0.0004)
	[0.242]	[9.9e-06]	[0.592]	[0.067]
Temp. anom$_{it}$	−0.001	0.0001	−0.0002	−0.00004
	(−0.001, 0.0003)	(−0.0001, 0.0003)	(−0.0005, 0.00005)	(−0.0002, 0.0001)
	[0.213]	[0.474]	[0.112]	[0.576]
Life exp.$_{it}$ [1]	−0.001	−0.0002	−0.0004	0.001*
	(−0.006, 0.003)	(−0.001, 0.001)	(−0.002, 0.001)	(0.0001, 0.002)
	[0.555]	[0.678]	[0.642]	[0.025]
Gov. eff.$_{it}$	−0.001	0.002*	0.0003	−0.0002
	(−0.002, 0.0003)	(0.0002, 0.003)	(−0.0001, 0.001)	(−0.0005, 0.0001)
	[0.150]	[0.026]	[0.155]	[0.276]
$GDPpc_{it}$ [1]	−0.030*	−0.001	0.003	−0.005
	(−0.051, −0.009)	(−0.008, 0.005)	(−0.003, 0.010)	(−0.010, 0.001)
	[0.005]	[0.733]	[0.259]	[0.085]
Observations		1,473,765		
R^2	0.550	0.057	0.079	0.059
Adjusted R^2	0.547	0.051	0.072	0.052
F-stat.	182.5*	9.068*	12.75*	9.324*
DF	1463972	1463972	1463972	1463972

Coefficients are reported with 97.5% confidence intervals clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month and grid cell were included in each regression, but not reported here. * $p<0.05$; [1] Natural log

Supplementary Table 7: Determinants of Armed Conflict in African Locations, Binary Outbreak Indicator

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(29)	(30)	(31)	(32)
ZDO event (binary)$_{it}$	−0.012	0.005	0.015	0.018*
	(−0.026, 0.003)	(−0.014, 0.023)	(−0.021, 0.052)	(0.002, 0.033)
	[0.116]	[0.632]	[0.410]	[0.023]
NTL_{it} [1]	0.0001	0.0001	0.0004*	0.0002*
	(−0.001, 0.001)	(−0.0001, 0.0003)	(0.0001, 0.001)	(0.00002, 0.0004)
	[0.853]	[0.316]	[0.010]	[0.031]
$Population_{it}$ [1]	−0.001	−0.0001	0.001	−0.0001
	(−0.003, 0.002)	(−0.001, 0.001)	(−0.00002, 0.003)	(−0.001, 0.001)
	[0.597]	[0.825]	[0.054]	[0.712]
Prec. anom$_{it}$	0.0001	−0.0002*	−0.0002	−0.0002*
	(−0.0003, 0.001)	(−0.0004, −0.00004)	(−0.0004, 0.00002)	(−0.0004, −0.00002)
	[0.519]	[0.017]	[0.074]	[0.031]
$Drought_{it}$	−0.0001	0.0003*	0.0001	0.0002*
	(−0.001, 0.0003)	(0.0001, 0.0004)	(−0.0001, 0.0003)	(0.00002, 0.0004)
	[0.545]	[0.005]	[0.424]	[0.029]
Temp. anom$_{it}$	−0.0003	0.00001	−0.0001	−0.00001
	(−0.001, 0.0002)	(−0.0001, 0.0002)	(−0.0003, 0.0001)	(−0.0002, 0.0001)
	[0.276]	[0.856]	[0.433]	[0.857]
Life exp.$_{it}$ [1]	−0.004*	−0.001*	−0.001	−0.0004
	(−0.007, −0.0003)	(−0.001, −0.0002)	(−0.003, 0.0003)	(−0.001, 0.001)
	[0.032]	[0.007]	[0.118]	[0.378]
Gov. eff.$_{it}$	−0.001	0.001*	0.0002	−0.0002
	(−0.001, 0.0002)	(0.0004, 0.002)	(−0.0001, 0.001)	(−0.0005, 0.0001)
	[0.132]	[0.003]	[0.133]	[0.247]
$GDPpc_{it}$ [1]	−0.061*	−0.011*	−0.016*	−0.026*
	(−0.079, −0.043)	(−0.019, −0.004)	(−0.025, −0.006)	(−0.034, −0.018)
	[2.2e-11]	[0.004]	[0.002]	[7.4e-10]
DV_{it-1}	0.453*	0.323*	0.305*	0.092*
	(0.277, 0.630)	(0.119, 0.527)	(0.202, 0.409)	(0.061, 0.122)
	[4.8e-07]	[0.002]	[8.0e-09]	[3.5e-09]
$Trend_t$	0.0001*	0.00002*	0.00003*	0.00004*
	(0.0001, 0.0001)	(0.00001, 0.00003)	(0.00001, 0.0001)	(0.00003, 0.0001)
	[2.7e-06]	[1.3e-05]	[0.002]	[6.1e-12]
Observations		1,473,765		
R^2	0.641	0.152	0.166	0.067
Adjusted R^2	0.639	0.146	0.160	0.061
F-stat.	267.4*	26.73*	29.68*	10.76*
DF	1463970	1463970	1463970	1463970

Coefficients are reported with 97.5% confidence intervals clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month and grid cell were included in each regression, but not reported here. * $p<0.05$; [1] Natural log

Supplementary Table 8: Determinants of Armed Conflict in African Locations, Environmental Pestilence

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(33)	(34)	(35)	(36)
$ZDO\ events_{it}$	−0.013*	0.002	0.010	0.012*
	(−0.024, −0.001)	(−0.009, 0.013)	(−0.017, 0.036)	(0.003, 0.021)
	[0.033]	[0.713]	[0.478]	[0.011]
NTL_{it} [1]	0.0001	0.0001	0.0004*	0.0002*
	(−0.001, 0.001)	(−0.0001, 0.0003)	(0.0001, 0.001)	(0.00002, 0.0004)
	[0.853]	[0.320]	[0.011]	[0.033]
$Population_{it}$ [1]	−0.001	−0.0003	0.003	−0.0003
	(−0.003, 0.002)	(−0.001, 0.001)	(−0.00002, 0.003)	(−0.001, 0.001)
	[0.599]	[0.825]	[0.054]	[0.711]
$Prec.\ anom_{it}$	0.0001	−0.0002*	−0.0002	−0.0002*
	(−0.0003, 0.001)	(−0.0004, −0.00004)	(−0.0004, 0.00002)	(−0.0004, −0.00001)
	[0.517]	[0.018]	[0.072]	[0.042]
$Prec.\ anom_{it} \times ZDO\ events_{it}$	−0.001	−0.003	0.001	−0.015*
	(−0.006, 0.005)	(−0.010, 0.003)	(−0.017, 0.019)	(−0.028, −0.002)
	[0.840]	[0.363]	[0.930]	[0.024]
$Drought_{it}$	−0.0001	0.0003*	0.0001	0.0002*
	(−0.001, 0.0003)	(0.0001, 0.0004)	(−0.0001, 0.0003)	(0.00002, 0.0004)
	[0.544]	[0.005]	[0.424]	[0.028]
$Temp.\ anom_{it}$	−0.0003	0.00002	−0.0001	−0.00001
	(−0.001, 0.0002)	(−0.0001, 0.0002)	(−0.0003, 0.0001)	(−0.0002, 0.0001)
	[0.275]	[0.851]	[0.435]	[0.881]
$Life\ exp._{it}$ [1]	−0.004*	−0.001*	−0.001	−0.0004
	(−0.007, −0.0003)	(−0.001, −0.0002)	(−0.003, 0.0003)	(−0.001, 0.001)
	[0.032]	[0.007]	[0.115]	[0.370]
$Gov.\ eff._{it}$	−0.001	0.001*	0.0002	−0.0002
	(−0.001, 0.0002)	(0.0004, 0.002)	(−0.0001, 0.001)	(−0.0005, 0.0001)
	[0.132]	[0.003]	[0.132]	[0.248]
$GDPpc_{it}$ [1]	−0.061*	−0.011*	−0.016*	−0.026*
	(−0.079, −0.043)	(−0.019, −0.004)	(−0.025, −0.006)	(−0.034, −0.018)
	[8.4e-01]	[0.363]	[0.930]	[0.024]
DV_{it-1}	0.453*	0.323*	0.305*	0.092*
	(0.277, 0.630)	(0.119, 0.527)	(0.202, 0.409)	(0.062, 0.122)
	[4.8e-07]	[0.002]	[7.9e-09]	[3.4e-09]
$Trend_t$	0.0001*	0.00002*	0.00003*	0.00004*
	(0.0001, 0.0001)	(0.00001, 0.00003)	(0.00001, 0.0001)	(0.00003, 0.0001)
	[2.6e-06]	[1.3e-05]	[0.002]	[5.5e-12]
Observations		1,473,765		
R^2	0.641	0.152	0.166	0.067
Adjusted R^2	0.639	0.146	0.160	0.061
F-stat.	267.4*	26.73*	29.68*	10.76*
DF	1463969	1463969	1463969	1463969

Coefficients are reported with 97.5% confidence intervals clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month and grid cell were included in each regression, but not reported here. * $p<0.05$; [1] Natural log

Supplementary Table 9: Determinants of Armed Conflict in African Locations, Other Actor Conflict Control

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(37)	(38)	(39)	(40)
ZDO events$_{it}$	−0.014*	0.001	0.009	0.011*
	(−0.026, −0.002)	(−0.008, 0.011)	(−0.016, 0.034)	(0.001, 0.022)
	[0.025]	[0.777]	[0.475]	[0.029]
NTL_{it} [1]	−0.00000	0.0001	0.0004*	0.0002*
	(−0.001, 0.001)	(−0.0001, 0.0003)	(0.0001, 0.001)	(0.00000, 0.0004)
	[0.997]	[0.492]	[0.013]	[0.049]
Population$_{it}$ [1]	−0.002	−0.001	0.003*	−0.0004
	(−0.003, 0.002)	(−0.001, 0.001)	(0.0001, 0.003)	(−0.001, 0.001)
	[0.510]	[0.683]	[0.033]	[0.625]
Prec. anom$_{it}$	0.0001	−0.0002*	−0.0002	−0.0002*
	(−0.0003, 0.001)	(−0.0004, −0.00002)	(−0.0004, 0.0001)	(−0.0004, −0.00002)
	[0.526]	[0.027]	[0.128]	[0.033]
Drought$_{it}$	−0.0001	0.0003*	0.0001	0.0002*
	(−0.0005, 0.0003)	(0.0001, 0.0004)	(−0.0002, 0.0003)	(0.00002, 0.0004)
	[0.627]	[0.007]	[0.611]	[0.029]
Temp. anom$_{it}$	−0.0003	0.00002	−0.0001	−0.00000
	(−0.001, 0.0003)	(−0.0001, 0.0002)	(−0.0003, 0.0001)	(−0.0001, 0.0001)
	[0.325]	[0.851]	[0.455]	[0.963]
Life exp.$_{it}$ [1]	−0.004*	−0.001*	−0.001	−0.0003
	(−0.007, −0.001)	(−0.002, −0.0002)	(−0.003, 0.0005)	(−0.001, 0.001)
	[0.022]	[0.013]	[0.173]	[0.465]
Gov. eff.$_{it}$	−0.0004*	0.001*	0.0002	−0.0002
	(−0.001, −0.00001)	(0.0004, 0.002)	(−0.00001, 0.0003)	(−0.0004, 0.0001)
	[0.042]	[0.002]	[0.069]	[0.256]
$GDPpc_{it}$ [1]	−0.060*	−0.013*	−0.011*	−0.025*
	(−0.075, −0.045)	(−0.020, −0.005)	(−0.020, −0.002)	(−0.032, −0.017)
	[6.6e-15]	[7.9e-04]	[0.014]	[1.7e-09]
DV_{it-1}	0.448*	0.317*	0.297*	0.090*
	(0.279, 0.618)	(0.132, 0.501)	(0.195, 0.398)	(0.060, 0.120)
	[2.3e-07]	[7.8e-04]	[1.0e-08]	[3.0e-09]
$Trend_t$	0.0001*	0.00002*	0.00003*	0.00004*
	(0.0001, 0.0001)	(0.00001, 0.00003)	(0.00001, 0.00005)	(0.00003, 0.0001)
	[4.7e-09]	[5.3e-07]	[0.006]	[1.9e-12]
State conflict$_{it}$		−0.019	0.023	0.008*
		(−0.061, 0.023)	(−0.0003, 0.046)	(0.002, 0.014)
		[0.377]	[0.053]	[0.010]
Rebel conflict$_{it}$	−0.126		0.073*	−0.007
	(−0.394, 0.142)		(0.005, 0.142)	(−0.015, 0.002)
	[0.356]		[0.035]	[0.144]
Pol. mil. conflict$_{it}$	0.100	0.048		0.027*
	(−0.013, 0.213)	(−0.005, 0.101)		(0.010, 0.044)
	[0.083]	[0.075]		[0.002]
Id. mil. conflict$_{it}$	0.054*	−0.006	0.039*	
	(0.018, 0.090)	(−0.016, 0.003)	(0.010, 0.069)	
	[0.003]	[0.183]	[0.009]	
Observations		1,473,765		
R^2	0.644	0.157	0.172	0.069
Adjusted R^2	0.641	0.151	0.166	0.063
F-stat.	269.9*	27.75*	30.95*	11.07*
DF	1463967	1463967	1463967	1463967

Coefficients are reported with 97.5% confidence intervals clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month and grid cell were included in each regression, but not reported here. * $p<0.05$; [1] Natural log

Supplementary Table 10: Determinants of Armed Conflict in African Locations, Other Actor Conflict Control and Lags

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(41)	(42)	(43)	(44)
ZDO events$_{it}$	−0.014*	0.001	0.009	0.011*
	(−0.026, −0.002)	(−0.008, 0.011)	(−0.016, 0.033)	(0.001, 0.022)
	[0.025]	[0.766]	[0.486]	[0.029]
NTL_{it} [1]	−0.00004	0.0001	0.0004*	0.0002
	(−0.001, 0.001)	(−0.0001, 0.0003)	(0.0001, 0.001)	(−0.00000, 0.0004)
	[0.907]	[0.533]	[0.014]	[0.055]
Population$_{it}$ [1]	−0.002	−0.001	0.003*	−0.0004
	(−0.004, 0.002)	(−0.001, 0.001)	(0.0001, 0.003)	(−0.001, 0.0005)
	[0.468]	[0.653]	[0.029]	[0.588]
Prec. anom$_{it}$	0.0001	−0.0002*	−0.0002	−0.0002*
	(−0.0003, 0.001)	(−0.0004, −0.00002)	(−0.0004, 0.0001)	(−0.0004, −0.00002)
	[0.588]	[0.027]	[0.144]	[0.032]
Drought$_{it}$	−0.0001	0.0003*	0.0001	0.0002*
	(−0.0004, 0.0003)	(0.0001, 0.0004)	(−0.0002, 0.0003)	(0.00002, 0.0004)
	[0.724]	[0.007]	[0.692]	[0.028]
Temp. anom$_{it}$	−0.0002	0.00002	−0.0001	0.00000
	(−0.001, 0.0003)	(−0.0001, 0.0002)	(−0.0003, 0.0001)	(−0.0001, 0.0001)
	[0.408]	[0.818]	[0.456]	[0.998]
Life exp.$_{it}$ [1]	−0.004*	−0.001*	−0.001	−0.0003
	(−0.006, −0.001)	(−0.002, −0.0002)	(−0.003, 0.001)	(−0.001, 0.001)
	[0.018]	[0.016]	[0.200]	[0.467]
Gov. eff.$_{it}$	−0.0003	0.001*	0.0001	−0.0002
	(−0.001, 0.0001)	(0.0004, 0.002)	(−0.00002, 0.0003)	(−0.0004, 0.0001)
	[0.092]	[0.002]	[0.090]	[0.256]
$GDPpc_{it}$ [1]	−0.060*	−0.013*	−0.009*	−0.025*
	(−0.075, −0.045)	(−0.020, −0.005)	(−0.018, −0.001)	(−0.032, −0.017)
	[8.7e-15]	[7.3e-04]	[0.030]	[1.1e-09]
$Trend_t$	0.0001*	0.00002*	0.00002*	0.00004*
	(0.0001, 0.0001)	(0.00001, 0.00003)	(0.00001, 0.00004)	(0.00003, 0.00005)
	[5.0e-11]	[4.9e-07]	[0.010]	[6.1e-13]
State conflict$_{it}$		−0.019	0.018	0.008*
		(−0.057, 0.018)	(−0.001, 0.038)	(0.002, 0.015)
		[0.312]	[0.069]	[0.010]
Rebel conflict$_{it}$	−0.108		0.063*	−0.006
	(−0.330, 0.113)		(0.008, 0.117)	(−0.014, 0.002)
	[0.339]		[0.025]	[0.152]
Pol. mil. conflict$_{it}$	0.069*	0.043		0.024*
	(0.004, 0.133)	(−0.006, 0.091)		(0.008, 0.039)
	[0.039]	[0.085]		[0.003]
Id. mil. conflict$_{it}$	0.050*	−0.006	0.037*	
	(0.014, 0.086)	(−0.015, 0.003)	(0.009, 0.066)	
	[0.006]	[0.174]	[0.011]	
State conflict$_{it-1}$	0.444*	−0.0003	0.012	−0.002
	(0.281, 0.606)	(−0.012, 0.012)	(−0.004, 0.027)	(−0.006, 0.003)
	[8.7e-08]	[0.966]	[0.150]	[0.514]
Rebel conflict$_{it-1}$	−0.074	0.315*	0.036*	−0.005
	(−0.205, 0.057)	(0.133, 0.497)	(0.003, 0.070)	(−0.010, 0.001)
	[0.267]	[0.001]	[0.025]	[0.085]
Pol. mil. conflict$_{it-1}$	0.112	0.019	0.293*	0.013
	(−0.079, 0.302)	(−0.001, 0.039)	(0.192, 0.395)	(−0.001, 0.027)
	[0.250]	[0.069]	[1.4e-08]	[0.074]
Id. mil. conflict$_{it-1}$	0.010	−0.008	0.022	0.090*
	(−0.022, 0.043)	(−0.019, 0.004)	(−0.002, 0.046)	(0.060, 0.119)
	[0.528]	[0.185]	[0.071]	[2.7e-09]
Observations		1,473,765		
R^2	0.645	0.157	0.173	0.069
Adjusted R^2	0.643	0.151	0.167	0.063
F-stat.	271.6*	27.84*	31.24*	11.11*
DF	1463964	1463964	1463964	1463964

Coefficients are reported with 97.5% confidence intervals clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month and grid cell were included in each regression, but not reported here. * $p<0.05$; [1] Natural log

Supplementary Table 11: Determinants of Armed Conflict in African Locations, With COVID-19 Outbreaks

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(45)	(46)	(47)	(48)
ZDO events$_{it}$	−0.011*	−0.001	0.015	0.008*
	(−0.021, −0.002)	(−0.005, 0.002)	(−0.010, 0.039)	(0.001, 0.016)
	[0.022]	[0.481]	[0.236]	[0.030]
Population$_{it}$ [1]	−0.0003	−0.0003	0.002*	0.0004
	(−0.003, 0.002)	(−0.001, 0.001)	(0.0003, 0.003)	(−0.0003, 0.001)
	[0.761]	[0.621]	[0.018]	[0.251]
Prec. anom$_{it}$	0.00003	−0.00002	−0.00003	−0.0001
	(−0.0003, 0.0003)	(−0.0002, 0.0001)	(−0.0002, 0.0001)	(−0.0002, 0.0001)
	[0.859]	[0.851]	[0.693]	[0.405]
Temp. anom$_{it}$	−0.0002	0.00004	−0.0001	−0.0001
	(−0.001, 0.0003)	(−0.0001, 0.0002)	(−0.0003, 0.0001)	(−0.0003, 0.00000)
	[0.379]	[0.663]	[0.359]	[0.059]
Life exp.$_{it}$ [1]	−0.002*	−0.001*	−0.001	−0.0004
	(−0.005, −0.0002)	(−0.001, −0.0005)	(−0.002, 0.0001)	(−0.001, 0.0004)
	[0.033]	[3.6e-05]	[0.082]	[0.368]
Gov. eff.$_{it}$	−0.001*	0.002*	0.001	−0.0003
	(−0.003, −0.00001)	(0.001, 0.003)	(−0.0002, 0.001)	(−0.001, 0.00005)
	[0.049]	[2.2e-06]	[0.155]	[0.092]
GDPpc$_{it}$ [1]	−0.055*	−0.007*	−0.015*	−0.023*
	(−0.075, −0.034)	(−0.014, −0.001)	(−0.025, −0.006)	(−0.030, −0.016)
	[1.6e-07]	[0.031]	[0.002]	[9.7e-11]
DV_{it-1}	0.547*	0.538*	0.342*	0.093*
	(0.391, 0.703)	(0.235, 0.841)	(0.239, 0.444)	(0.064, 0.121)
	[6.8e-12]	[5.0e-04]	[5.9e-11]	[1.9e-10]
$Trend_t$	0.0001*	0.00002*	0.00004*	0.00004*
	(0.00004, 0.0001)	(0.00000, 0.00003)	(0.00002, 0.0001)	(0.00003, 0.00005)
	[5.1e-06]	[0.006]	[4.0e-06]	[3.9e-18]
Observations	1,589,642			
R^2	0.604	0.385	0.207	0.063
Adjusted R^2	0.602	0.381	0.202	0.057
F-stat.	245.4*	100.7*	41.87*	10.73*
DF	1579808	1579808	1579808	1579808

Coefficients are reported with 97.5% confidence intervals clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month and grid cell were included in each regression, but not reported here. * $p<0.05$; [1] Natural log

Supplementary Table 12: Determinants of Armed Conflict in African Locations, Only Most Virulent Strains

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(49)	(50)	(51)	(52)
Virulent outbreaks$_{it}$	−0.014	0.008	0.024	0.007
	(−0.031, 0.002)	(−0.015, 0.031)	(−0.030, 0.077)	(−0.008, 0.022)
	[0.082]	[0.485]	[0.391]	[0.347]
NTL_{it} [1]	0.00002	0.00004	0.0002*	0.0001*
	(−0.0005, 0.001)	(−0.0001, 0.0003)	(0.0001, 0.001)	(0.00001, 0.0004)
	[0.842]	[0.325]	[0.011]	[0.036]
Population$_{it}$ [1]	−0.001	−0.0001	0.001	−0.0001
	(−0.003, 0.002)	(−0.001, 0.001)	(−0.00002, 0.003)	(−0.001, 0.001)
	[0.596]	[0.825]	[0.053]	[0.723]
Prec. anom$_{it}$	0.0001	−0.0002*	−0.0002	−0.0002*
	(−0.0003, 0.001)	(−0.0004, −0.00004)	(−0.0004, 0.00002)	(−0.0004, −0.00002)
	[0.517]	[0.017]	[0.073]	[0.030]
Drought$_{it}$	−0.0001	0.0003*	0.0001	0.0002*
	(−0.001, 0.0003)	(0.0001, 0.0004)	(−0.0001, 0.0003)	(0.00002, 0.0004)
	[0.544]	[0.005]	[0.422]	[0.029]
Temp. anom$_{it}$	−0.0003	0.00002	−0.0001	−0.00001
	(−0.001, 0.0002)	(−0.0001, 0.0002)	(−0.0003, 0.0001)	(−0.0002, 0.0001)
	[0.274]	[0.853]	[0.438]	[0.867]
Life exp.$_{it}$ [1]	−0.004*	−0.001*	−0.001	−0.0005
	(−0.007, −0.0003)	(−0.001, −0.0002)	(−0.003, 0.0003)	(−0.001, 0.0005)
	[0.033]	[0.006]	[0.111]	[0.346]
Gov. eff.$_{it}$	−0.001	0.001*	0.0002	−0.0002
	(−0.001, 0.0002)	(0.0004, 0.002)	(−0.0001, 0.001)	(−0.0005, 0.0001)
	[0.131]	[0.003]	[0.132]	[0.251]
$GDPpc_{it}$ [1]	−0.061*	−0.011*	−0.016*	−0.026*
	(−0.079, −0.043)	(−0.019, −0.004)	(−0.025, −0.006)	(−0.034, −0.018)
	[2.1e-11]	[0.004]	[0.002]	[7.2e-10]
DV_{it-1}	0.453*	0.323*	0.305*	0.092*
	(0.277, 0.630)	(0.119, 0.527)	(0.202, 0.409)	(0.061, 0.122)
	[4.8e-07]	[0.002]	[8.0e-09]	[3.4e-09]
$Trend_t$	0.0001*	0.00002*	0.00003*	0.00004*
	(0.0001, 0.0001)	(0.00001, 0.00003)	(0.00001, 0.0001)	(0.00003, 0.0001)
	[2.7e-06]	[1.3e-05]	[0.002]	[4.3e-12]
Observations		1,473,765		
R^2	0.641	0.152	0.166	0.067
Adjusted R^2	0.639	0.146	0.160	0.061
F-stat.	267.4*	26.73*	29.69*	10.75*
DF	1463970	1463970	1463970	1463970

Coefficients are reported with 97.5% confidence intervals clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month and grid cell were included in each regression, but not reported here. * p<0.05; [1] Natural log

Table 13: Determinants of Armed Conflict in African Locations, Only Fevers and RS

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(52)	(54)	(55)	(56)
Fevers and RS outbreaks$_{it}$	−0.005	−0.005*	−0.001	0.024*
	(−0.017, 0.008)	(−0.008, −0.001)	(−0.009, 0.006)	(0.003, 0.044)
	[0.466]	[0.011]	[0.751]	[0.022]
NTL_{it} [1]	0.00002	0.00004	0.0002*	0.0001*
	(−0.0005, 0.001)	(−0.0001, 0.0003)	(0.0001, 0.001)	(0.00002, 0.0004)
	[0.848]	[0.331]	[0.011]	[0.020]
Population$_{it}$ [1]	−0.001	−0.0001	0.001	−0.0001
	(−0.003, 0.002)	(−0.001, 0.001)	(−0.00002, 0.003)	(−0.001, 0.001)
	[0.595]	[0.830]	[0.053]	[0.708]
Prec. anom$_{it}$	0.0001	−0.0002*	−0.0002	−0.0002*
	(−0.0003, 0.001)	(−0.0004, −0.00004)	(−0.0004, 0.00002)	(−0.0004, −0.00002)
	[0.519]	[0.017]	[0.074]	[0.030]
Drought$_{it}$	−0.0001	0.0003*	0.0001	0.0002*
	(−0.001, 0.0003)	(0.0001, 0.0004)	(−0.0001, 0.0003)	(0.00002, 0.0004)
	[0.545]	[0.005]	[0.425]	[0.028]
Temp. anom$_{it}$	−0.0003	0.00001	−0.0001	−0.00001
	(−0.001, 0.0002)	(−0.0001, 0.0002)	(−0.0003, 0.0001)	(−0.0002, 0.0001)
	[0.275]	[0.854]	[0.437]	[0.866]
Life exp.$_{it}$ [1]	−0.004*	−0.001*	−0.001	−0.0004
	(−0.007, −0.0003)	(−0.001, −0.0002)	(−0.003, 0.0003)	(−0.001, 0.001)
	[0.033]	[0.006]	[0.110]	[0.393]
Gov. eff.$_{it}$	−0.001	0.001*	0.0002	−0.0002
	(−0.001, 0.0002)	(0.0004, 0.002)	(−0.0001, 0.001)	(−0.0005, 0.0001)
	[0.131]	[0.003]	[0.131]	[0.245]
$GDPpc_{it}$ [1]	−0.061*	−0.011*	−0.016*	−0.026*
	(−0.079, −0.043)	(−0.019, −0.004)	(−0.025, −0.006)	(−0.034, −0.018)
	[2.2e-11]	[0.004]	[1.9e-03]	[7.5e-10]
DV_{it-1}	0.453*	0.323*	0.305*	0.092*
	(0.277, 0.630)	(0.119, 0.527)	(0.202, 0.409)	(0.061, 0.122)
	[4.8e-07]	[0.002]	[7.9e-09]	[3.5e-09]
Trend$_t$	0.0001*	0.00002*	0.00003*	0.00004*
	(0.0001, 0.0001)	(0.00001, 0.00003)	(0.00001, 0.0001)	(0.00003, 0.0001)
	[2.77e-06]	[1.2e-05]	[0.002]	[7.3e-12]
Observations		1,473,765		
R^2	0.641	0.152	0.166	0.067
Adjusted R^2	0.639	0.146	0.160	0.061
F-stat.	267.4*	26.73*	29.68*	10.76*
DF	1463970	1463970	1463970	1463970

Coefficients are reported with 97.5% confidence intervals clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month and grid cell were included in each regression, but not reported here. * $p<0.05$; [1] Natural log

Supplementary Table 14: Determinants of Armed Conflict in African Locations, Other Strains

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(57)	(58)	(59)	(60)
Other outbreaks$_{it}$	−0.028*	−0.003	−0.011*	−0.003
	(−0.055, −0.0003)	(−0.006, 0.001)	(−0.016, −0.007)	(−0.013, 0.007)
	[0.048]	[0.127]	[4.8e-06]	[0.547]
NTL_{it} [1]	0.00002	0.00004	0.0002*	0.0001*
	(−0.0005, 0.001)	(−0.0001, 0.0003)	(0.0001, 0.001)	(0.00001, 0.0004)
	[0.842]	[0.323]	[0.011]	[0.036]
Population$_{it}$ [1]	−0.001	−0.0001	0.001	−0.0001
	(−0.003, 0.002)	(−0.001, 0.001)	(−0.00002, 0.003)	(−0.001, 0.001)
	[0.596]	[0.828]	[0.053]	[0.726]
Prec. anom$_{it}$	0.0001	−0.0002*	−0.0002	−0.0002*
	(−0.0003, 0.001)	(−0.0004, −0.00004)	(−0.0004, 0.00002)	(−0.0004, −0.00002)
	[0.522]	[0.017]	[0.074]	[0.031]
Drought$_{it}$	−0.0001	0.0003*	0.0001	0.0002*
	(−0.001, 0.0003)	(0.0001, 0.0004)	(−0.0001, 0.0003)	(0.00002, 0.0004)
	[0.549]	[0.005]	[0.423]	[0.029]
Temp. anom$_{it}$	−0.0003	0.00002	−0.0001	−0.00001
	(−0.001, 0.0002)	(−0.0001, 0.0002)	(−0.0003, 0.0001)	(−0.0002, 0.0001)
	[0.276]	[0.853]	[0.439]	[0.867]
Life exp.$_{it}$ [1]	−0.004*	−0.001*	−0.001	−0.0005
	(−0.007, −0.0003)	(−0.001, −0.0002)	(−0.003, 0.0003)	(−0.001, 0.0005)
	[0.033]	[0.006]	[0.110]	[0.346]
Gov. eff.$_{it}$	−0.001	0.001*	0.0002	−0.0002
	(−0.001, 0.0002)	(0.0004, 0.002)	(−0.0001, 0.001)	(−0.0005, 0.0001)
	[0.131]	[0.003]	[0.131]	[0.252]
$GDPpc_{it}$ [1]	−0.061*	−0.011*	−0.016*	−0.026*
	(0.009)	(0.004)	(0.005)	(0.004)
	[0.131]	[0.003]	[0.131]	[0.252]
DV_{it-1}	0.453*	0.323*	0.305*	0.092*
	(0.277, 0.630)	(0.119, 0.527)	(0.202, 0.409)	(0.061, 0.122)
	[4.8e-07]	[0.002]	[8.0e-09]	[3.4e-09]
$Trend_t$	0.0001*	0.00002*	0.00003*	0.00004*
	(−0.079, −0.043)	(−0.019, −0.004)	(−0.025, −0.006)	(−0.034, −0.018)
	[2.8e-06]	[1.3e-05]	[0.002]	[4.3e-12]
Observations		1,473,765		
R^2	0.641	0.152	0.166	0.067
Adjusted R^2	0.639	0.146	0.160	0.061
F-stat.	267.4*	26.73*	29.68*	10.75*
DF	1463970	1463970	1463970	1463970

Coefficients are reported with 97.5% confidence intervals clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month and grid cell were included in each regression, but not reported here. * $p<0.05$; [1] Natural log

Supplementary Table 15: Determinants of Armed Conflict in African Locations, Pooled Spatial Models

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(61)	(62)	(63)	(64)
ZDO events$_{it}$	−0.008	0.0006	0.017*	0.009*
	(0.005)	(0.003)	(0.003)	(0.002)
	[0.153]	[0.862]	[1.4e-08]	[2.2e-05]
Spatial ZDO lag$_{it}$ [1]	−0.002	−0.0002	0.020*	0.011*
	(0.014)	(0.008)	(0.008)	(0.005)
	[0.870]	[0.982]	[0.008]	[0.041]
NTL$_{it}$ [1]	6.636e-05	2.427e-05	0.0002*	6.512e-05*
	(7.238e-05)	(4.328e-05)	(4.043e-05)	(2.891e-05)
	[0.359]	[0.575]	[2.4e-07]	[0.024]
Population$_{it}$ [1]	0.001	7.567e-04*	0.001*	0.0008*
	(1.243e-04)	(7.430e-05)	(6.942e-05)	(4.962e-05)
	[2.2e-16]	[2.2e-16]	[2.2e-16]	[2.2e-16]
Prec. anom$_{it}$	−3.345e-04	−4.345e-04	−7.309e-04*	−5.675e-04*
	(5.101e-04)	(3.051e-04)	(2.849e-04)	(2.037e-04)
	[0.512]	[0.154]	[0.010]	[0.005]
Drought$_{it}$	0.0005	0.0004	0.0009*	7.259e-04*
	(0.0005)	(0.0003)	(0.0003)	(1.881e-04)
	[0.266]	[0.149]	[0.001]	[0.0001]
Temp. anom$_{it}$	−0.0002	0.0002	−9.837e-05	0.0003*
	(0.0003)	(0.0002)	(1.590e-04)	(0.0001)
	[0.513]	[0.226]	[0.536]	[0.001]
DV_{it-1}	0.748*	0.619*	0.530*	0.161*
	(6.817e-04)	(0.001)	(0.001)	(0.001)
	[2.2e-16]	[2.2e-16]	[2.2e-16]	[2.2e-16]
Trend$_t$	9.164e-06*	−2.020e-06	8.484e-06*	1.273e-05*
	(3.970e-06)	(2.374e-06)	(2.217e-06)	(1.585e-06)
	[0.021]	[0.395]	[0.0001]	[9.9e-16]
Constant	−0.0143*	−0.007*	−0.010*	0.009*
	(0.002)	(0.001)	(0.001)	(0.0007)
	[5.3e-16]	[2.7e-10]	[2.2e-16]	[2.2e-16]
Observations	926,592			
Spatial AR λ	0.089*	0.050*	0.050*	0.073*
	(0.002)	(0.002)	(0.002)	(0.002)
	[2.2e-16]	[2.2e-16]	[2.2e-16]	[2.2e-16]

Coefficients are reported with standard errors clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month were included in each regression, but not reported here. * $p<0.05$; [1] Natural log

Supplementary Table 16: Determinants of Armed Conflict in African Locations, 0.5-Grid RE Spatial Models

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(65)	(66)	(67)	(68)
ZDO events$_{it}$	−0.013*	−0.001	0.015*	0.007*
	(0.005)	(0.003)	(0.003)	(0.002)
	[0.016]	[0.752]	[5.8e-07]	[0.0008]
Spatial ZDO lag$_{it}$ [1]	−0.005	−0.003	0.017*	0.008
	(0.013)	(0.008)	(0.008)	(0.005)
	[0.699]	[0.733]	[0.024]	[0.121]
NTL$_{it}$ [1]	−0.0002	−1.848e-07	0.0003*	3.343e-05
	(0.0001)	(6.434e-05)	(6.068e-05)	(4.113e-05)
	[0.069]	[0.998]	[1.7e-07]	[0.416]
Population$_{it}$ [1]	0.002*	0.0009*	0.001*	0.0009*
	(0.0004)	(0.0002)	(0.0003)	(0.0001)
	[1.0e-06]	[9.8e-05]	[1.7e-08]	[1.6e-14]
Prec. anom$_{it}$	−0.0002	−0.0004	−0.0005	−0.0004
	(0.0005)	(0.0003)	(0.0003)	(0.0002)
	[0.778]	[0.153]	[0.084]	[0.068]
Drought$_{it}$	4.291e-05	0.0003	0.0004	0.0003
	(0.0005)	(0.0003)	(0.0003)	(0.0002)
	[0.929]	[0.387]	[0.098]	[0.139]
Temp. anom$_{it}$	−0.0002	0.0003	−0.0002	0.0002
	(0.0002)	(0.0002)	(0.0002)	(0.0001)
	[0.603]	[0.078]	[0.226]	[0.062]
DV_{it-1}	0.669*	0.555*	0.439*	0.136*
	(0.0008)	(0.0006)	(0.0009)	(0.001)
	[2.2e-16]	[2.2e-16]	[2.2e-16]	[2.2e-16]
Trend$_t$	1.985e-05*	−1.919e-06	8.410e-06*	1.384e-05*
	(4.395e-06)	(2.615e-06)	(2.452e-06)	(1.721e-06)
	[6.3e-06]	[0.463]	[0.0006]	[8.8e-16]
Constant	−0.023*	−0.008*	−0.015*	−0.009*
	(0.005)	(0.003)	(0.003)	(0.001)
	[4.0e-07]	[0.002]	[5.6e-08]	[3.7e-14]
Observations		926,592		
Spatial AR λ	0.101*	0.052*	0.048*	0.065*
	(0.002)	(0.001)	(0.001)	(0.002)
Error variance ϕ	0.063*	0.050*	0.075*	0.023*
	(0.002)	(0.001)	(0.002)	(0.0007)
	[2.2e-16]	[2.2e-16]	[2.2e-16]	[2.2e-16]

Standard errors in parentheses; fixed effects by month were included in each regression, but not reported here; unit of analysis is the grid cell-month.

*** p<0.01, ** p<0.05, * p<0.1

[1] Natural log

Supplementary Table 17: Determinants of Armed Conflict in African Locations, Combined Conflict Types

	Base (69)	**Count.** (70)
$ZDO\ events_{it}$	−0.002	0.006
	(−0.023, 0.020)	(−0.027, 0.039)
	[0.889]	[0.716]
NTL_{it} [1]	0.0002	0.0003
	(−0.001, 0.001)	(−0.0003, 0.001)
	[0.504]	[0.165]
$Population_{it}$ [1]	0.003*	0.0002
	(0.0002, 0.007)	(−0.003, 0.004)
	[0.038]	[0.927]
$Prec.\ anom_{it}$	−0.001*	−0.0005
	(−0.001, −0.00003)	(−0.001, 0.0001)
	[0.041]	[0.105]
$Drought_{it}$	0.0002	0.0004
	(−0.0005, 0.001)	(−0.0002, 0.001)
	[0.485]	[0.205]
$Temp.\ anom_{it}$	0.0001	−0.0003
	(−0.001, 0.001)	(−0.001, 0.0003)
	[0.857]	[0.342]
$Life\ exp._{it}$ [1]		−0.006*
		(−0.010, −0.002)
		[0.005]
$Gov.\ eff._{it}$		0.001
		(−0.00001, 0.001)
		[0.055]
$GDPpc_{it}$ [1]		−0.106*
		(−0.132, −0.080)
		[7.1e-16]
DV_{it-1}	0.524*	0.414*
	(0.333, 0.715)	(0.252, 0.575)
	[7.4e-08]	[5.0e-07]
$Trend_t$	0.0001*	0.0002*
	(0.00003, 0.0001)	(0.0001, 0.0002)
	[8.9e-10]	[4.7e-14]
Observations	1,779,790	1,473,765
R^2	0.540	0.587
Adjusted R^2	0.537	0.584
F-stat.	211.5*	212.5*
DF	1769964	1769964

Coefficients are reported with 97.5% confidence intervals clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month and grid cell were included in each regression, but not reported here. * $p<0.05$; [1] Natural log

Supplementary Table 18: Determinants of Armed Conflict in African Locations, Linear and Quadratic Rainfall

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(71)	(72)	(73)	(74)
ZDO events$_{it}$	−0.012*	0.002	0.008	0.010*
	(−0.023, −0.0004)	(−0.008, 0.013)	(−0.016, 0.033)	(0.001, 0.019)
	[0.042]	[0.682]	[0.505]	[0.033]
NTL_{it} [1]	0.0004	0.0002	0.0005*	0.0003*
	(−0.0001, 0.001)	(−0.00001, 0.0004)	(0.0002, 0.001)	(0.0001, 0.0005)
	[0.164]	[0.065]	[4.1e-04]	[0.002]
Population$_{it}$ [1]	−0.001	−0.0004	0.0004	−0.001*
	(−0.003, 0.001)	(−0.001, 0.0004)	(−0.001, 0.001)	(−0.001, −0.0001)
	[0.311]	[0.340]	[0.516]	[0.028]
Prec. (mm)$_{it}$ [1]	−0.00001	0.0001	0.0002	0.0003*
	(−0.001, 0.001)	(−0.0001, 0.0002)	(−0.00001, 0.0004)	(0.0001, 0.0005)
	[0.975]	[0.593]	[0.067]	[0.008]
$Prec.\ (mm)^2_{it}$ [1]	−0.00001	−0.00002	−0.00005	−0.0001*
	(−0.0001, 0.0001)	(−0.0001, 0.00001)	(−0.0001, 0.00000)	(−0.0001, −0.00001)
	[0.782]	[0.170]	[0.053]	[0.012]
Drought$_{it}$	−0.00001	0.0001*	−0.0001	0.00001
	(−0.0003, 0.0003)	(0.00001, 0.0003)	(−0.0002, 0.0001)	(−0.0001, 0.0001)
	[0.926]	[0.035]	[0.351]	[0.860]
Temp. anom$_{it}$	−0.0002	−0.00001	−0.0001	−0.00004
	(−0.001, 0.0002)	(−0.0002, 0.0001)	(−0.0003, 0.0001)	(−0.0002, 0.0001)
	[0.378]	[0.851]	[0.315]	[0.567]
Life exp.$_{it}$ [1]	−0.002	−0.0003	−0.001	−0.0003
	(−0.005, 0.001)	(−0.001, 0.0001)	(−0.002, 0.001)	(−0.001, 0.0004)
	[0.144]	[0.169]	[0.294]	[0.396]
Gov. eff.$_{it}$	−0.0005	0.001*	0.0002	−0.0001
	(−0.001, 0.0001)	(0.0004, 0.002)	(−0.00004, 0.0005)	(−0.0004, 0.0001)
	[0.113]	[0.002]	[0.091]	[0.221]
$GDPpc_{it}$ [1]	−0.055*	−0.010*	−0.012*	−0.021*
	(−0.071, −0.039)	(−0.016, −0.004)	(−0.020, −0.004)	(−0.029, −0.014)
	[2.1e-11]	[0.002]	[0.003]	[2.7e-08]
DV_{it-1}	0.446*	0.314*	0.313*	0.126*
	(0.275, 0.617)	(0.136, 0.492)	(0.202, 0.424)	(0.063, 0.190)
	[3.3e-07]	[5.4e-04]	[3.4e-08]	[1.0e-04]
$Trend_t$	0.0001*	0.00002*	0.00003*	0.00003*
	(0.00004, 0.0001)	(0.00001, 0.00002)	(0.00001, 0.00004)	(0.00002, 0.00004)
	[2.4e-06]	[3.0e-07]	[0.002]	[3.7e-11]
Observations		1,943,528		
R^2	0.623	0.146	0.168	0.070
Adjusted R^2	0.621	0.141	0.163	0.065
F-stat.	312.5*	32.26*	38.14*	14.29*
DF	1933309	1933309	1933309	1933309

Coefficients are reported with 97.5% confidence intervals clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month and grid cell were included in each regression, but not reported here. * $p<0.05$; [1] Natural log

Supplementary Table 19: Determinants of Armed Conflict in African Locations, Big Cities Removed

	Civil War		*Social Conflict*	
	State	**Rebel**	**Pol. Mil.**	**Id. Mil.**
	(75)	(76)	(77)	(78)
ZDO events$_{it}$	−0.013*	0.002	0.010	0.012*
	(−0.024, −0.001)	(−0.009, 0.013)	(−0.017, 0.036)	(0.001, 0.022)
	[0.032]	[0.718]	[0.471]	[0.025]
NTL_{it} [1]	0.0001	0.0001	0.0004*	0.0002*
	(−0.001, 0.001)	(−0.0001, 0.0003)	(0.0001, 0.001)	(0.00002, 0.0004)
	[0.853]	[0.320]	[0.011]	[0.033]
Population$_{it}$ [1]	−0.001	−0.0001	0.001	−0.0001
	(−0.003, 0.002)	(−0.001, 0.001)	(−0.00002, 0.003)	(−0.001, 0.001)
	[0.599]	[0.825]	[0.054]	[0.711]
Prec. anom$_{it}$	0.0001	−0.0002*	−0.0002	−0.0002*
	(−0.0003, 0.001)	(−0.0004, −0.00004)	(−0.0004, 0.00002)	(−0.0004, −0.00002)
	[0.518]	[0.017]	[0.074]	[0.031]
Drought$_{it}$	−0.0001	0.0003*	0.0001	0.0002*
	(0.0002)	(0.0001)	(0.0001)	(0.0001)
	[0.544]	[0.005]	[0.423]	[0.029]
Temp. anom$_{it}$	−0.0003	0.00001	−0.0001	−0.00001
	(−0.001, 0.0002)	(−0.0001, 0.0002)	(−0.0003, 0.0001)	(−0.0002, 0.0001)
	[0.275]	[0.855]	[0.436]	[0.863]
Life exp.$_{it}$ [1]	−0.004*	−0.001*	−0.001	−0.0004
	(−0.007, −0.0003)	(−0.001, −0.0002)	(−0.003, 0.0003)	(−0.001, 0.001)
	[0.032]	[0.007]	[0.116]	[0.368]
Gov. eff.$_{it}$	−0.001	0.001*	0.0002	−0.0002
	(−0.001, 0.0002)	(0.0004, 0.002)	(−0.0001, 0.001)	(−0.0005, 0.0001)
	[0.132]	[0.003]	[0.132]	[0.248]
$GDPpc_{it}$ [1]	−0.061*	−0.011*	−0.016*	−0.026*
	(−0.079, −0.043)	(−0.019, −0.004)	(−0.025, −0.006)	(−0.034, −0.018)
	[2.1e-11]	[0.004]	[0.002]	[7.4e-10]
DV_{it-1}	0.453*	0.323*	0.305*	0.092*
	(0.277, 0.630)	(0.119, 0.527)	(0.202, 0.409)	(0.061, 0.122)
	[4.8e-07]	[0.002]	[7.9e-09]	[3.5e-09]
$Trend_t$	0.0001*	0.00002*	0.00003*	0.00004*
	(0.0001, 0.0001)	(0.00001, 0.00003)	(0.00001, 0.0001)	(0.00003, 0.0001)
	[2.6e-06]	[1.3e-05]	[0.002]	[5.5e-12]
Observations		1,473,765		
R^2	0.641	0.152	0.166	0.067
Adjusted R^2	0.639	0.146	0.160	0.061
F-stat.	267.4*	26.73*	29.68*	10.76*
DF	1463970	1463970	1463970	1463970

Coefficients are reported with 97.5% confidence intervals clustered on grid cell in parentheses and p-values (based on two-tail tests) in brackets; the unit of analysis is the cell-month; fixed effects by month and grid cell were included in each regression, but not reported here. * $p<0.05$; [1] Natural log

D. *References*

[1] World Health Organization (WHO). 2023. "Disease Outbreak News (DONs)." Last accessed, May 30, 2023. https://www.who.int/emergencies/disease-outbreak-news.
[2] Mills, James N., Kenneth L. Gage, and Ali S. Khan. 2010. Potential influence of climate change on vector-borne and zoonotic diseases: a review and proposed research plan. Environmental health perspectives 118(11): 1507-1514.
[3] Sachan, Neelam, and V. P. Singh. 2010. Effect of climatic changes on the prevalence of zoonotic diseases. *Veterinary World* 3(11): 519.
[4] International Society of Infectious Disease (ISID). 2023. "ProMED Mail." Last access, May 26, 2023. https://promedmail.org.
[5] Juan Armando Torres Munguía, Florina Cristina Badarau, Luis Rodrigo Díaz Pavez, Inmaculada Martínez-Zarzoso, and Konstantin M Wacker. 2022. A global dataset of pandemic- and epidemic-prone disease outbreaks. Scientific data, 9(1):683.
[6] Ole Magnus Theisen, Nils Petter Gleditsch, and Halvard Buhaug. 2013. Is climate change a driver of armed conflict? Climatic change, 117(3):613–625.
[7] Weidmann, N.B., 2015. On the accuracy of media-based conflict event data. *Journal of Conflict Resolution*, *59*(6), pp.1129-1149.