Growth in the Aftermath of War: Aid Effectiveness in Post-Conflict Locations

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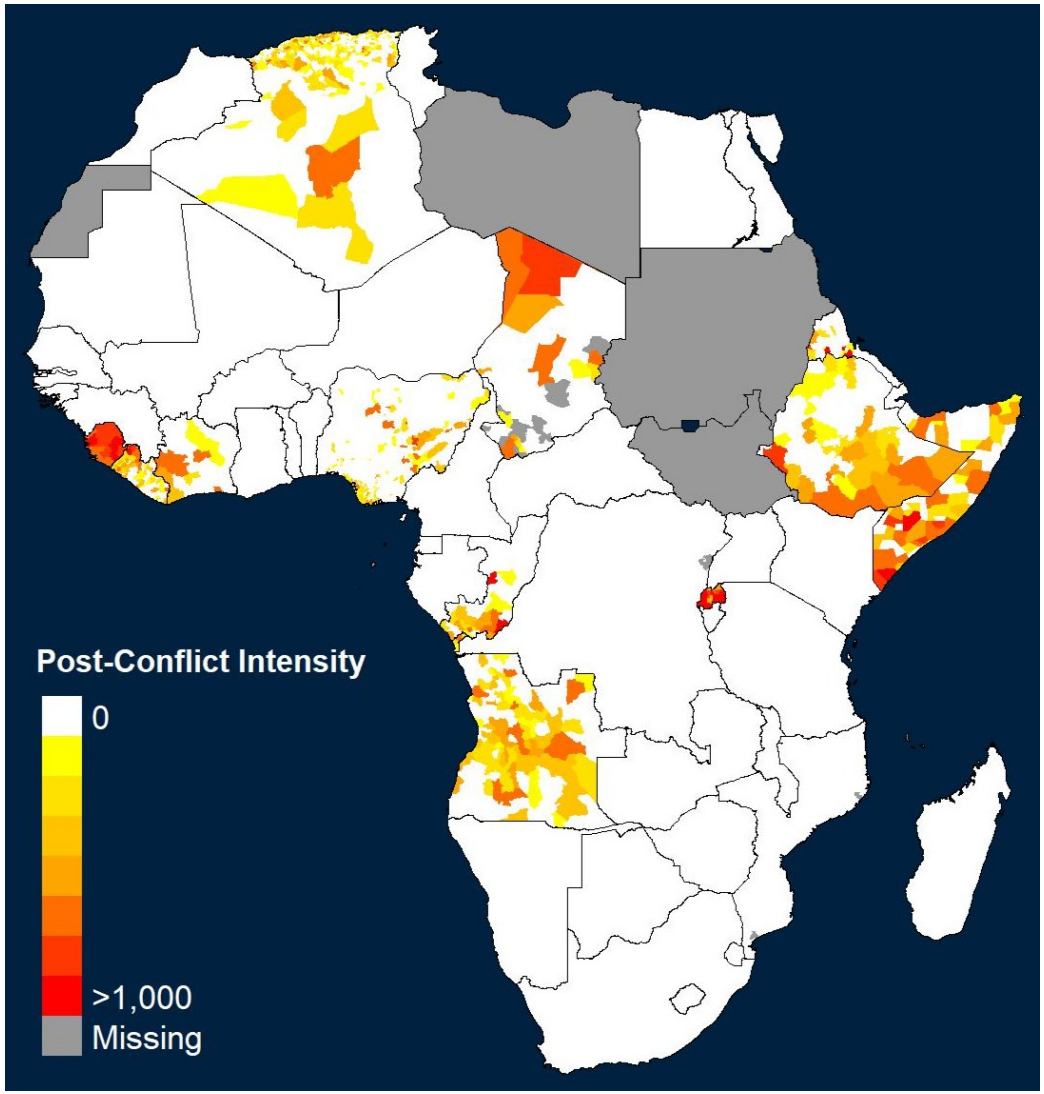
Motivation

- approximately half of African countries experienced a post-conflict period within the last 25 years
- within countries, a location's wartime experience likely shapes its post-conflict development
- Two competing hypotheses:
  - **War Ruin** - institutions are on average weaker, the economy is destroyed, and post-conflict reconstruction is lengthy and costly, growth is hindered
  - **Phoenix Factor** - functional and efficient structures supersede outdated institutions, infrastructure is rebuilt with new technologies, devastated economies replaced by competitive systems

Motivation

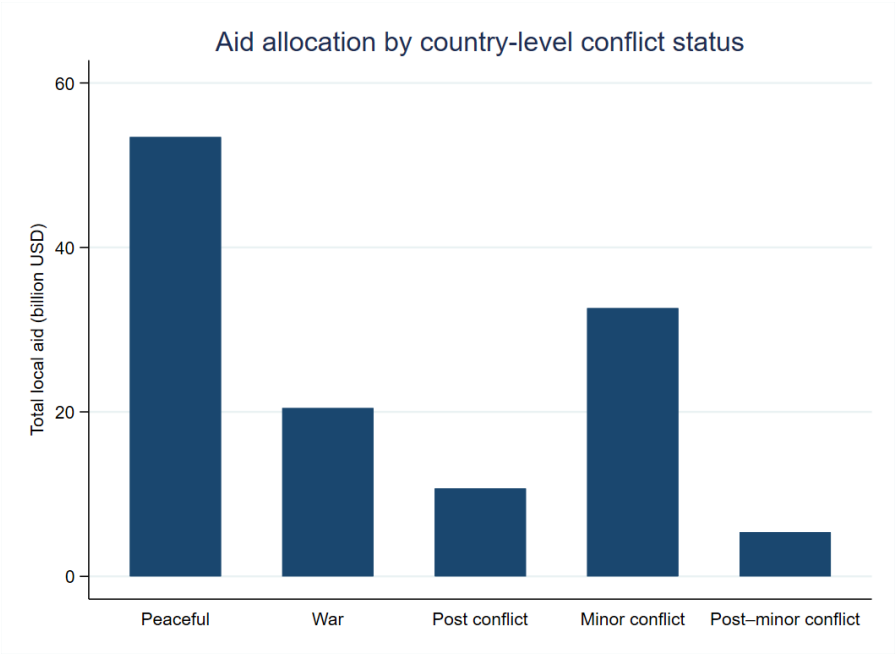


Post-conflict intensity in 2005 based on intensity index. Measures local exposure during past conflict. Source: UCDP/Author's calculations.

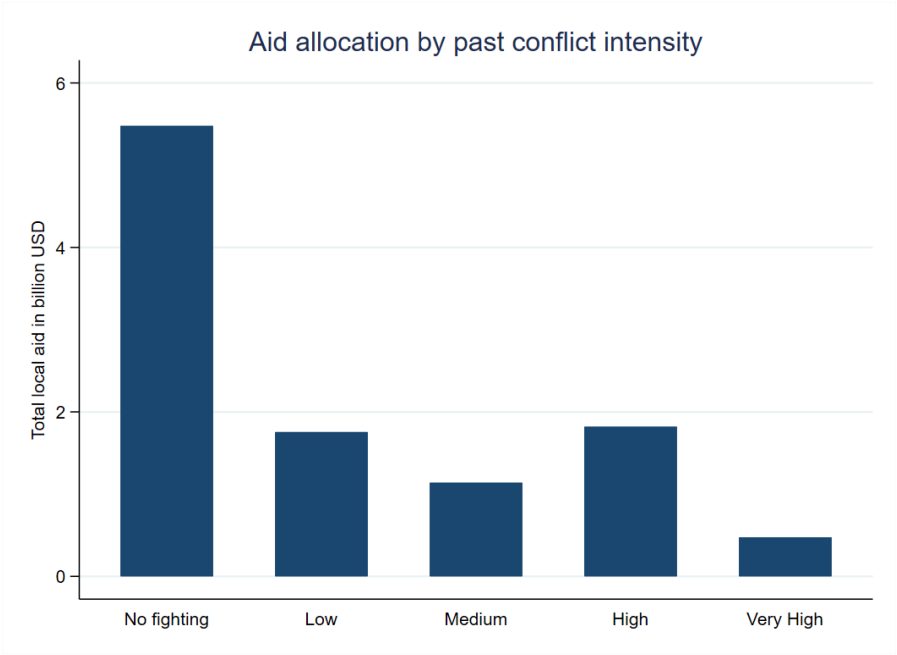
Motivation

- previously conflict-ridden and peaceful countries compete for the same pool of development assistance
- lack of systematic conflict analysis for post-conflict countries and location specific context ▸ Anecdotal Evidence
- likely shapes the effectiveness of development efforts

Motivation



Total World Bank aid disbursements 1995 to 2020 at ADM2 level by country and conflict status. Source: Data from GoDAD.



Total World Bank aid disbursements to post-conflict countries 1995 to 2020 at ADM2 level by intensity. Source: Data from GoDAD.

This paper in a nutshell...

Research Question

How do past local conflict dynamics shape economic conditions and thereby influence the effectiveness of post-conflict interventions?

Findings

- post-conflict peace dividend depends on local involvement in past fighting
- depending on past fighting intensity, aid can have adverse effects on development, potentially hindering growth
- spillover effects observed from involved to non-involved districts within a post-conflict country

This paper in a nutshell...

Identification Strategy

- extensive fixed effects (FE) model
- robustness with two different shift-share instruments

Contribution

- investigates subnational heterogeneous effects of past conflict intensity on growth and aid effectiveness
- novel categorization of post-conflict locations and exposure measurement
- identifies within country spillovers

Policy Relevance

- within country dynamics lead to differential outcomes
- when development projects are implemented, how do local conditions shape their effectiveness and outcome
- disregarding the local context can lead to adverse effects

Literature

- Costs and consequences of conflict
  - Collier (1999), Abadie & Gardeazabal (2003), Almer & Hodler (2015), de Groot et al. (2022)
- Post-conflict outcomes
  - Amodio & Di Maio (2018), Nkunruziza (2019), de Roux & Martinez (2023), Miguel & Roland (2011), Redding & Sturm (2024), Yamada & Yamada (2021)
- Foreign aid in post-conflict countries
  - Collier & Hoeffler (2004), Chauvet et al. (2010), Donaubauer et al. (2019)
- Effectiveness of foreign aid on growth
  - Burnside & Dollar (2000), Rajan & Subramanian (2008), Clemens et al. (2012), Dreher & Lohmann (2015), Chauvet & Ehrhart (2018), Dreher & Langlotz (2020)

Data

Nighttime Light

- change in nighttime light as proxy for GDP Growth
- satellite images harmonized and calibrated by Li et al. (2020) for years 1992 to 2020
- using geoBoundaries (Runfola, 2020) to extract the nighttime light at ADM2 (district) level

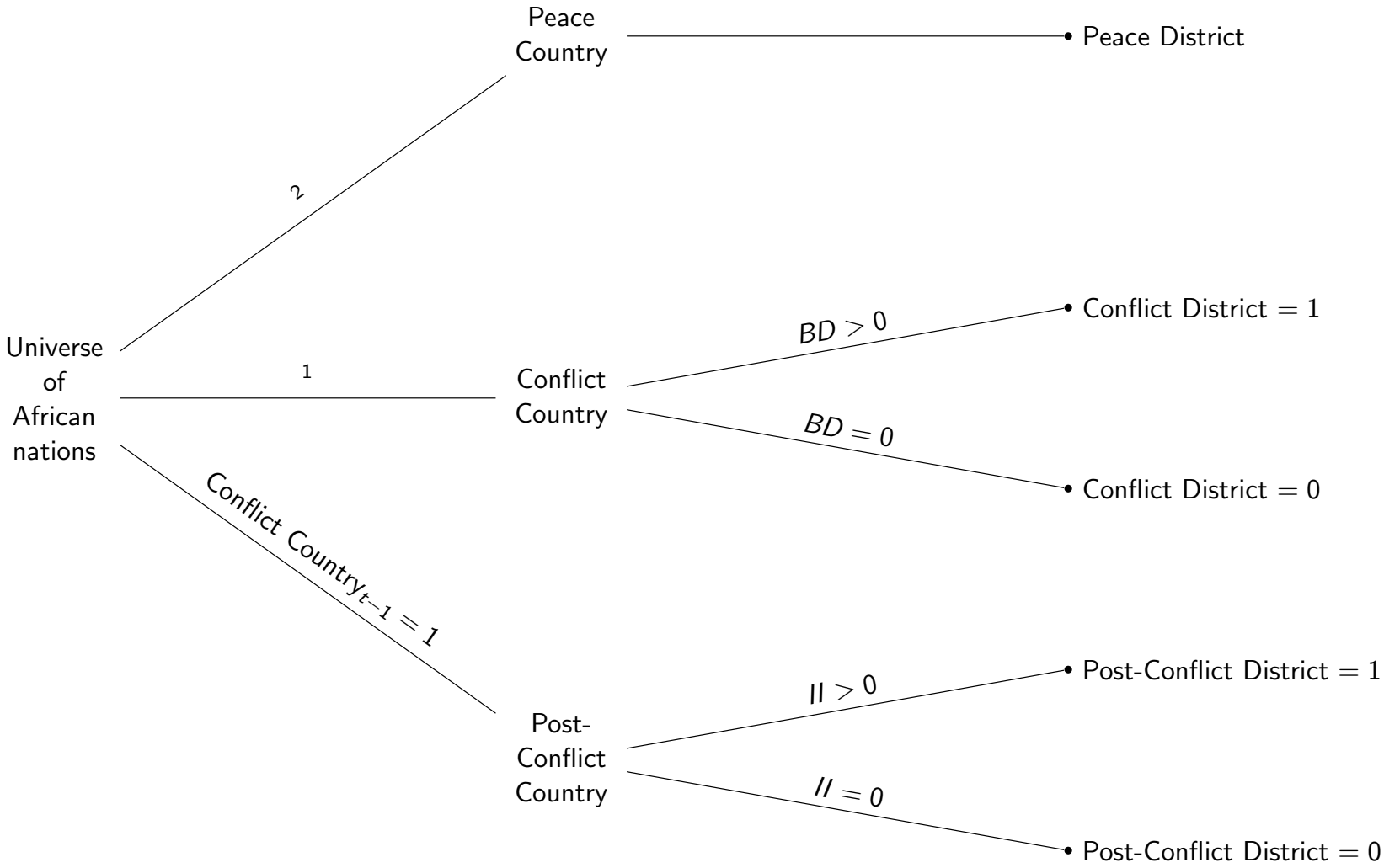
Foreign Aid

- World Bank aid disbursements from GODAD for years 1995 to 2020 disbursed at district level, alternatively AidData
- development assistance like monetary assistance e.g. to build a bridge

Conflicts ▸ Data Descr. Country ▸ Data Descr. District

- UCDP GED dataset with geocoded conflict/war coverage from 1989 to 2020 for 46 African countries, alternatively ACLED

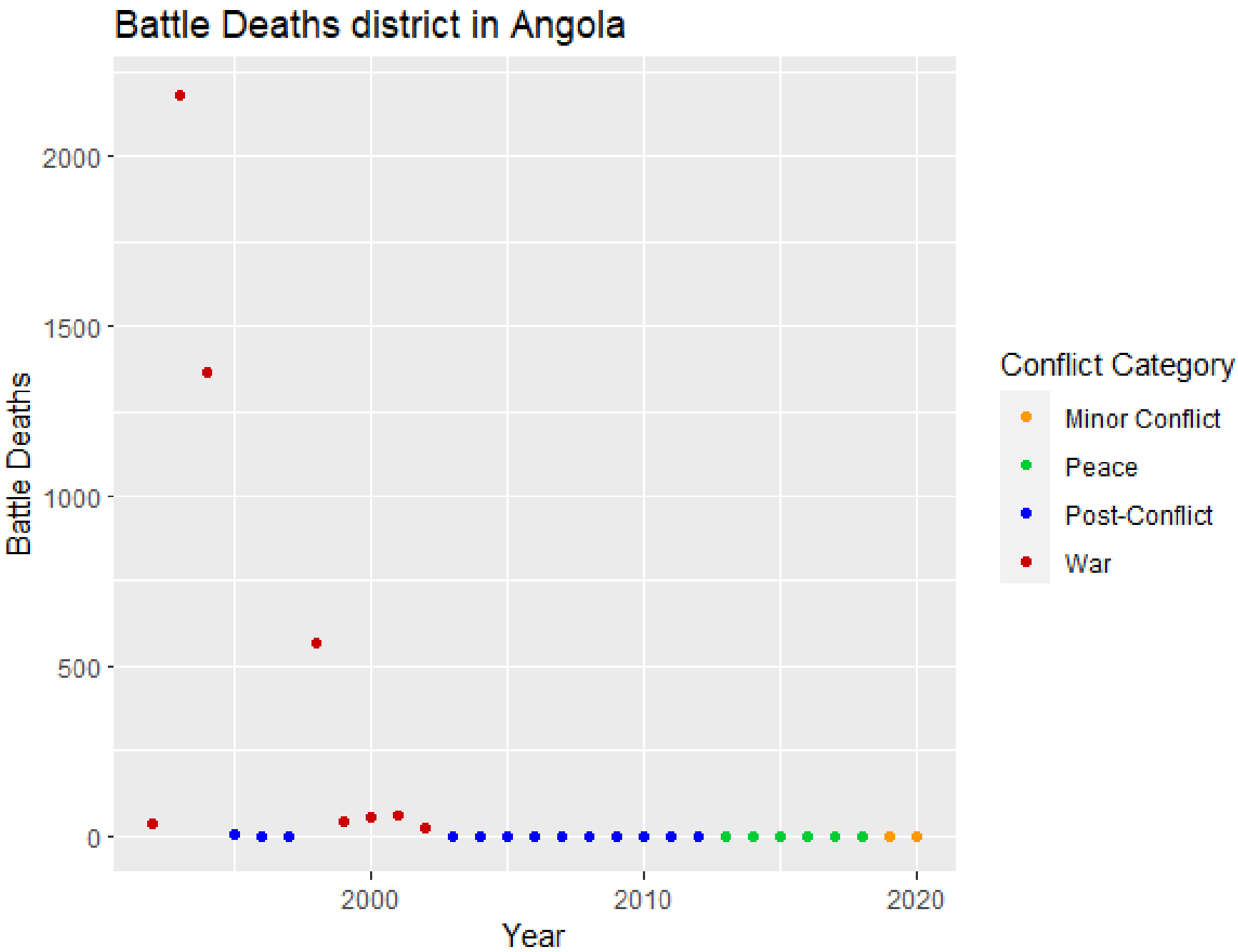
Conflict Categories[3]



[1] Conflict Country = $BD > 1000 \mid (BD > 500 \;\&\; BD_i = \frac{1}{2}\sum_{j=i}^{i+1} a_j > 300)$

[2] Peace Country = (Conflict C. $_t = 0$ & PC C. $_t = 0$ & $BD < 25$ & $BD_i = \frac{1}{3}\sum_{j=i}^{i+2} a_j < 25$)

[3] Additional nodes Minor Conflict, PC Minor Conflict are not shown. ▸ Full Tree


Battle Deaths district in Angola
Battle Deaths
2000
1500
1000
500
0
2000
2010
2020
Year
Conflict Category
Minor Conflict
Peace
Post-Conflict
War

Intensity Index

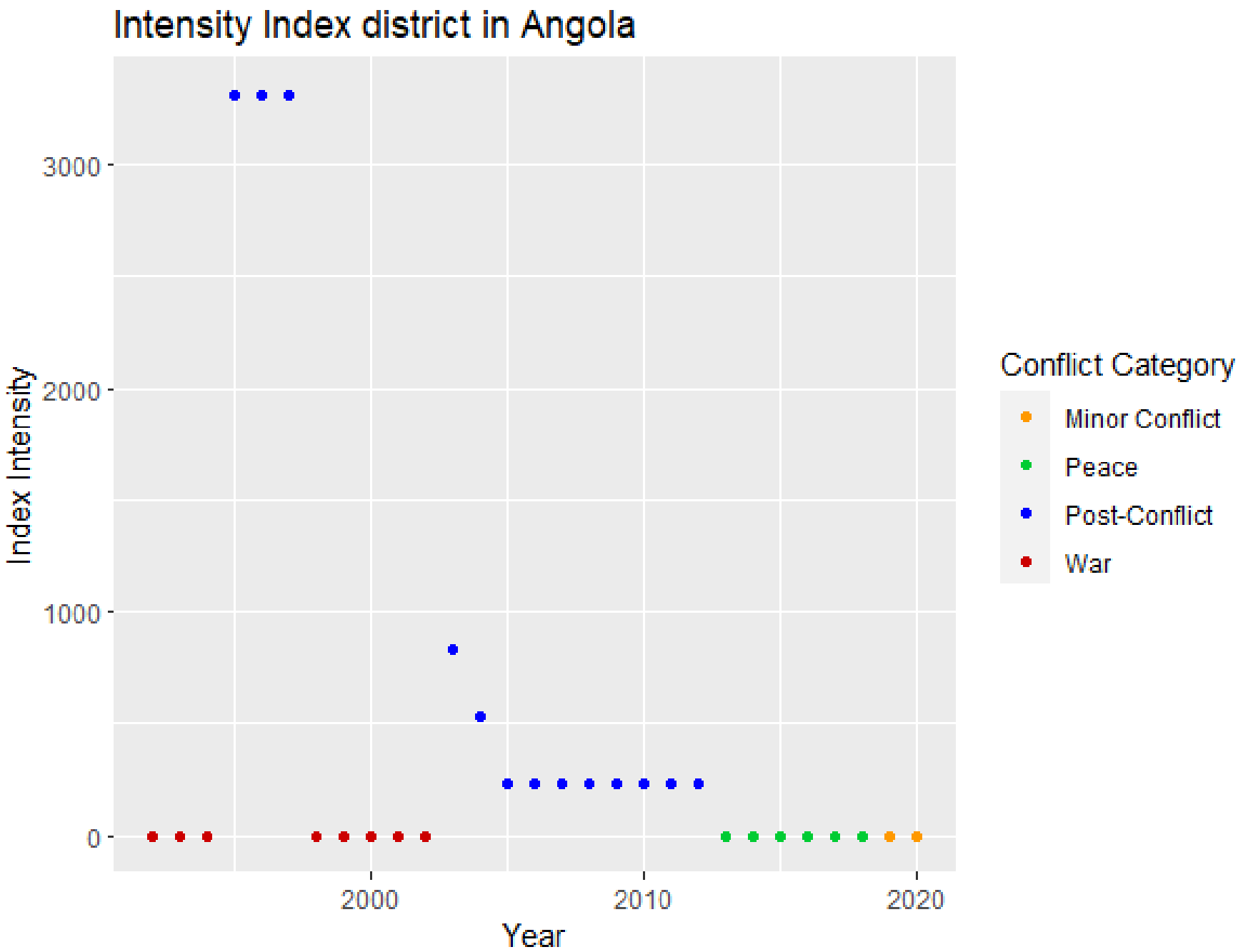
Post-Conflict Intensity Measure

- measures intensity of the fighting during war period
- discounts battle deaths that are longer in the past
- considers intensity of past war experience in case of conflict re-occurrence

$$IntensityIndex_{rt} = \omega_{ct} \times \sum_{i_t=1}^{N_t} \delta_{crt} \frac{i_t}{N_t} + \tau_{ct} \times \sum_{i_z=1}^{N_z} \delta_{crz} \frac{i_z}{N_z} (1 - \frac{\sigma_t}{11})$$

- $\omega \in \{0,1\}$ is 1 if district is within post-conflict country
- δ battle deaths per district at time t
- i year of event within the war
- N total years of consecutive war
- $\tau \in \{0,1\}$ is 1 in case of war re-occurrence
- $\sigma \in [1,...,11]$ denotes time passed since past war ended
- $z = \text{t}-11+\sigma$

▸ Fatalities ▸ Index Intensity


Intensity Index district in Angola
Index Intensity
3000
2000
1000
0
2000
2010
2020
Year
Conflict Category
Minor Conflict
Peace
Post-Conflict
War

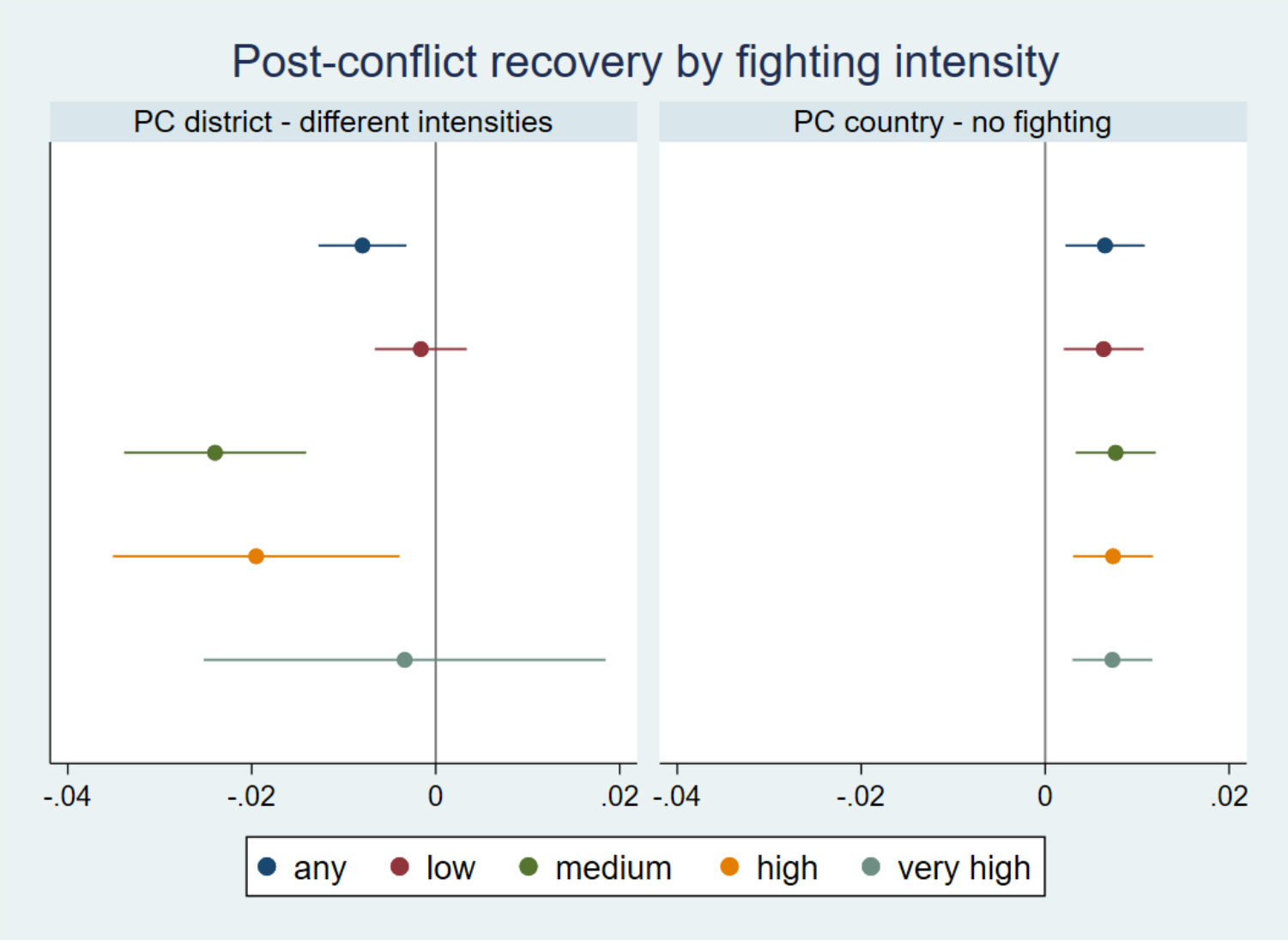
Empirical Strategy

Basic Setup

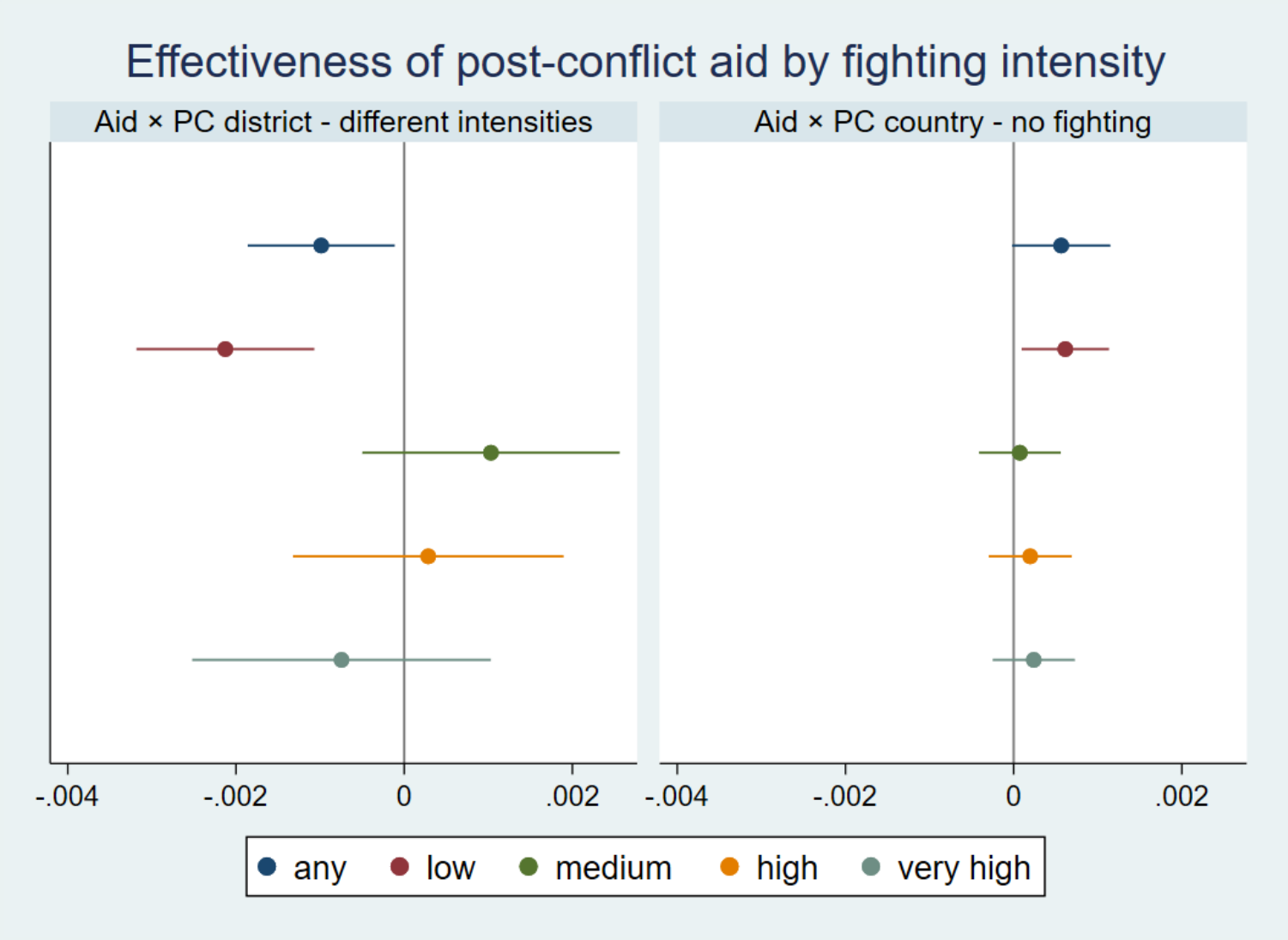
$$\Delta ln(light_{crt}) = \alpha + \beta Aid_{crt-1} +$$
$$\gamma Aid_{crt-1} * PC\,District_{crt} + \omega Aid_{crt-1} * PC\,Country_{ct} +$$
$$\sigma PC\,District_{crt} + \sigma PC\,Country_{ct} +$$
$$\delta_{ct} + \psi_{crt} + \chi_{ct} + \mu_{crt} + \Delta_i T + \eta_r + \rho_c + \tau_t + \epsilon_{crt}$$

- $\Delta ln(light_{crt})$: annual growth rate of log nighttime light values
- Aid_{crt-1}: log of foreign aid disbursement (district level)
- $PC\,District_{crt}/PC\,Country_{ct}$: post-conflict dummy for district/country
- δ_{ct}/ψ_{crt}: vector for conflict category dummies on country/district
- χ_{ct}/μ_{crt}: vector for country-level/district-level controls
- $\Delta_i T$, η_r, ρ_c and τ_t: district- and country-specific trends, district, country and year fixed effects

Post-Conflict Recovery



Post-Conflict Recovery



Post-Conflict Recovery

	Dependent variable: $\Delta \ln(NTL_{crt})$				
Intensity	Any	Low	Medium	High	Very High
$\ln(Aid_{t-1})$	0.0002**	0.0002*	0.0002*	0.0002*	0.0002*
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Post-Conflict District	-0.0080***	-0.0016	-0.0240***	-0.0195**	-0.0034
	(0.0024)	(0.0025)	(0.0050)	(0.0079)	(0.0111)
$\ln(Aid_{t-1}) \times$ Post-Conflict District	-0.0010**	-0.0021***	0.0010	0.0003	-0.0007
	(0.0004)	(0.0005)	(0.0008)	(0.0008)	(0.0009)
Post-Conflict Country	0.0065***	0.0064***	0.0077***	0.0074***	0.0073***
	(0.0022)	(0.0022)	(0.0022)	(0.0022)	(0.0022)
$\ln(Aid_{t-1}) \times$ Post-Conflict Country	0.0006*	0.0006**	0.0001	0.0002	0.0002
	(0.0003)	(0.0003)	(0.0002)	(0.0003)	(0.0002)
Observations	135025	135025	135025	135025	135025
Districts	5401	5401	5401	5401	5401
District, Country & Year FE	✓	✓	✓	✓	✓
Country-Year FE					
District- & Country-specific Trends	✓	✓	✓	✓	✓
District & Country Controls	✓	✓	✓	✓	✓
Dep. Var. Mean	0.004	0.004	0.004	0.004	0.004
Dep. Var. Std.	0.151	0.151	0.151	0.151	0.151
R2	0.157	0.157	0.157	0.157	0.157

Dummy for post-conflict district conditioned on intensity index. E.g. in column (2) PC District dummy is one if intensity index is above 0 and at maximum 25. Any corresponds to intensity index $[> 0, max]$, low is $[> 0, 25]$, medium is $[> 25, 250]$, high is $[> 250, 1000]$, and very high is > 1000. For columns (2)-(5), control for all other intensity bins, therefore baseline is no involvement. Standard errors in the parentheses are clustered at the district level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Robustness Checks

- **Alternative specifications** ▸ Robustness Baseline
  - alternative specifications of the baseline, using different FE, controls, trends and timeframes
- **IV's** ▸ IV's
  - two different shift-share variable approaches
- **Country $\times$ Year FE** ▸ C $\times$ Y
- **Alternative data** ▸ AidData ▸ ACLED
  - using ACLED data for conflicts and AidData for aid disbursements
- **Subsamples** ▸ Subsamples
  - countries ever experiencing post-conflict period, DiD-style with first-time aid recipients during post-conflict period
- **Bad Controls** ▸ Confounders
  - controlling for local peacekeeping troops and chinese aid flows
- **Dropping different country groups**
  - e.g. dropping the five overall richest, richest by per capita and North African countries
- **Different lags for aid**
  - using different lags for aid to see its effects within a certain timeline
- **Variable Transformations**

Additional Results

	Dependent variable: $\Delta \ln(NTL_{crt})$				
Intensity	Any	Low	Medium	High	Very High
$\ln(Aid_{t-1})$	0.0004***	0.0004***	0.0004***	0.0004***	0.0004***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Agriculture	-0.0053**	-0.0054**	-0.0054**	-0.0054**	-0.0054**
	(0.0023)	(0.0023)	(0.0023)	(0.0023)	(0.0023)
Agriculture × PC District	-0.0227***	-0.0253***	0.0002	-0.0055	-0.0088
	(0.0077)	(0.0082)	(0.0125)	(0.0106)	(0.0096)
Agriculture × PC Country	0.0124**	0.0052	0.0014	0.0017	0.0010
	(0.0063)	(0.0049)	(0.0046)	(0.0047)	(0.0046)
Observations	135025	135025	135025	135025	135025
Districts	5401	5401	5401	5401	5401
District, Country & Year FE	✓	✓	✓	✓	✓
District- & Country-specific Trends	✓	✓	✓	✓	✓
District & Country Controls	✓	✓	✓	✓	✓
Dep. Var. Mean	0.004	0.004	0.004	0.004	0.004
Dep. Var. Std.	0.151	0.151	0.151	0.151	0.151
R2	0.157	0.157	0.157	0.157	0.157

Dummy for post-conflict district conditioned on intensity index. E.g. in column (2) PC District dummy is one if intensity index is above 0 and at maximum 25. Any corresponds to intensity index $[> 0, max]$, low is $[> 0, 25]$, medium is $[> 25, 250]$, high is $[> 250, 1000]$, and very high is > 1000. For columns (2)-(5), control for all other intensity bins, therefore baseline is no involvement. Standard errors in the parentheses are clustered at the district level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Additional Results

Post-Conflict Endurance ▸ Lasting Peace ▸ War Recurrence

- *Lasting Peace*
  - stronger positive effects if peace endures
- *War Recurrences*
  - if war recurs between PC periods, aid shows slightly more negative but insignificant pattern

Timing of Aid ▸ Timing during PC years

- development assistance is most effective during the early days of post-conflict periods and again at later periods, however, less during years 4 to 7

Sectoral Aid ▸ Main Sectors ▸ Sub Sectors

- heterogeneity of aid effectiveness in regards to sectors, especially for post-conflict districts

Conclusion

- local context matters
- past local conflict dynamics shape future development outcomes
- depending on past fighting involvement, differential effects on growth and development project outcomes
- aid to post-conflict locations has potential adverse effects on growth
- development projects need to adapt to local economic pre-conditions

Thank you for your feedback!

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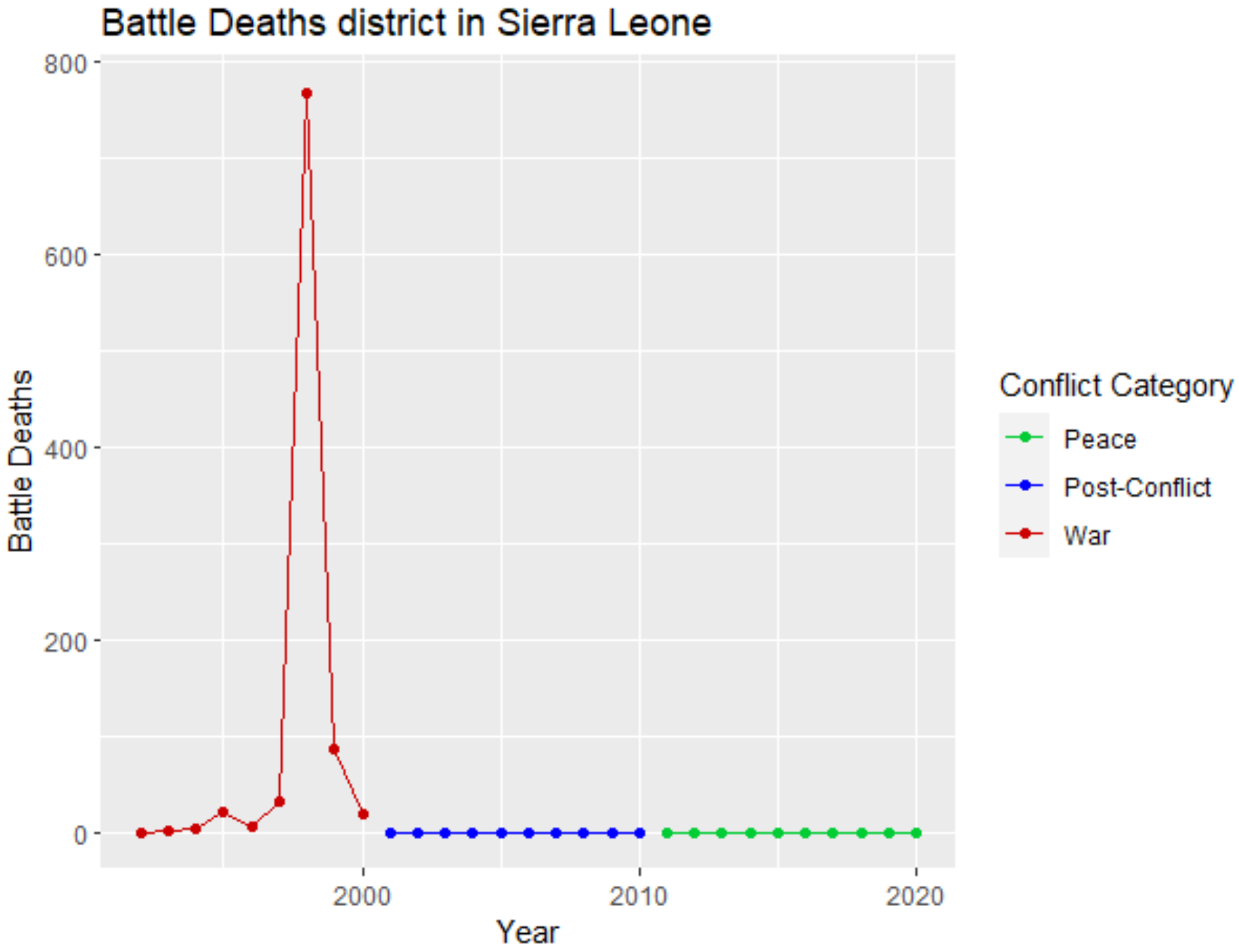
Summary Statistics

Variable	N	Mean	St. Dev.	Min	Max
$\Delta ln(light_{crt})$	135,025	0.004	0.15	−2.59	2.08
$\ln(Aid)_{t-1}$ (GODAD)	135,025	3.62	6.01	0.00	21.18
$\ln(Aid)_{t-1}$ (AidData)	108,020	3.03	5.41	0.00	17.73
ln $Nightlight_{t-2}$	135,025	1.02	1.28	0.00	4.16
Precipitation	135,025	81.01	52.76	0.03	305.89
Temperature	135,025	23.36	4.02	9.21	31.03
Pop. Density District	135,025	1,010	4,539	0.00	95,668
Pop. District	135,025	177,809	291,230	0.00	6,094,831
Pop. Density Country	135,025	77.54	76.24	2.00	529.62
Pop. Growth Country	135,025	2.45	0.91	−0.92	16.75
Peacekeeping	135,025	0.02	0.13	0	1
Chinese Aidflows	135,025	0.01	0.08	0	3
PC Intensity Index (UCDP)	135,025	24.44	638.01	0.00	74,791

Treatment Statistics

Category	Treated	Non-treated	Share
Post-Conflict District (any fighting*)	126,488	8,612	0.064
PC District (low*)	129,939	5,161	0.038
PC District (medium*)	132,747	2,353	0.017
PC District (high*)	134,437	663	0.005
PC District (very high*)	134,700	400	0.003
Post-Conflict Country	112,341	22,759	0.168
War Country	107,811	27,289	0.202
Minor Conflict Country	111,447	23,653	0.175
Post-minor Conflict Country	127,931	7,169	0.053
Peaceful Country	80,870	54,230	0.401
PC Districts early periods	131,649	3,451	0.026
PC Districts mid periods	131,769	3,331	0.025
PC Districts late periods	133,270	1,830	0.014
PC Districts with lasting peace	127,886	7,214	0.053

*based on Intensity Index



▸ Conflict Categorization

Anecdotal Evidence

"[...] despite changing dynamics in the different states, there was no reorientation of funding.
The reasons for this were considered to be a lack of flexibility within projects and a **lack of systematic conflict analysis** *among donors and international organizations." (SADEV Report 2012)*

"We just **don't have a post-conflict stabilization model** *that works. Every time we have one of these things, it is a pick-up game. I don't have confidence that if we did it again, we would do any better." (US National Security Advisor Stephen Hadly, SIGAR Report 08/2021)* ▸ Motivation

Data

Post-conflict Locations

- UCDP GED dataset with geocoded conflict/war coverage from 1989 to 2020 for 47 African countries

  Country Categorization:
  - **Conflict country:** battle deaths > 1000 or currently BD[4] > 300 and two year average of BD > 500
  - **Post-Conflict country:** no active fighting anymore [5], considered 1 to 10 years after last fighting
  - **Minor Conflict country:** BD > 25 and is not considered as peace country
  - **Post Minor Conflict country:** the first two years after a minor conflict
  - **Peace country:** less than 25BD per year or three year average is lower than 25BD

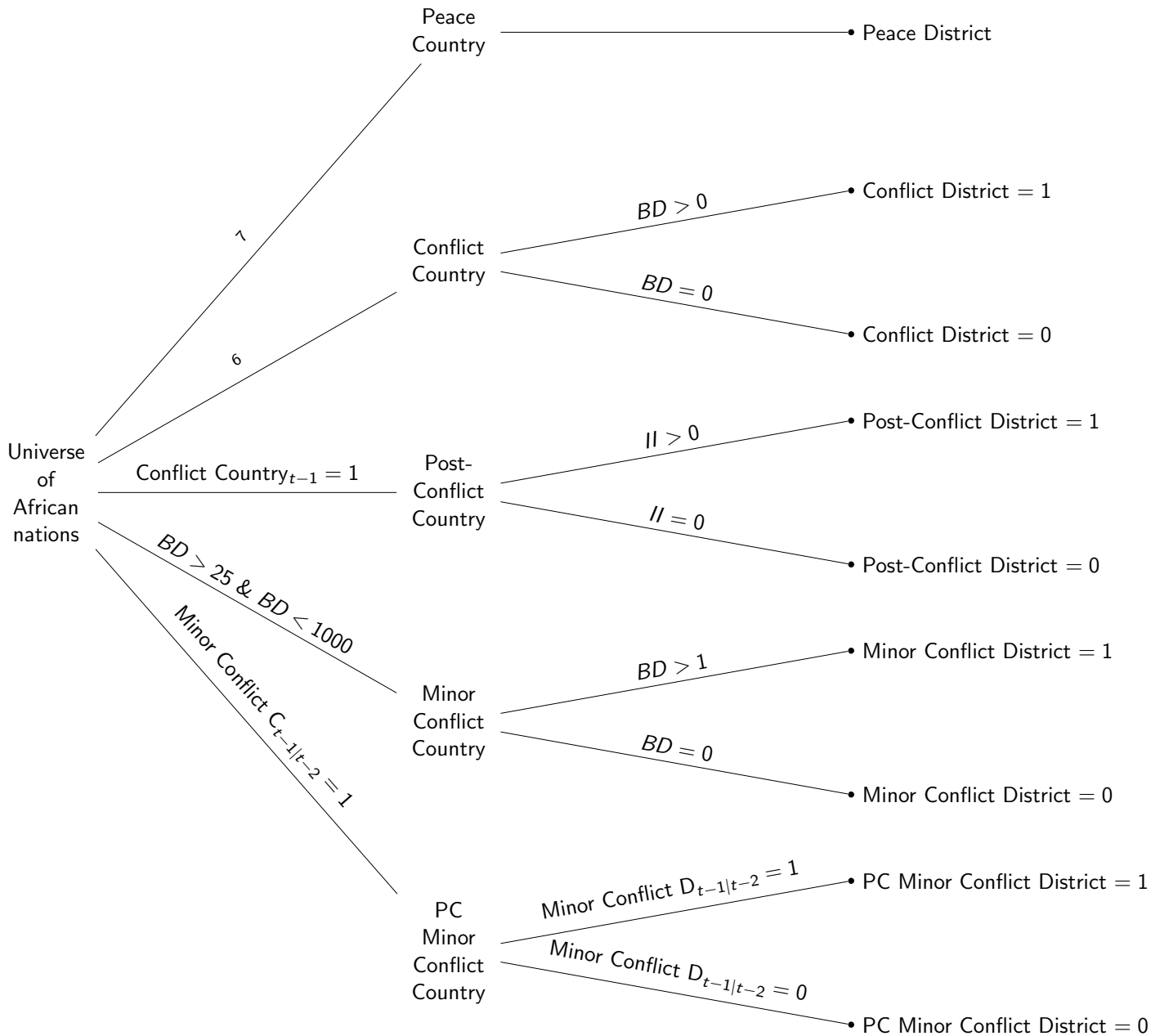
[4] Battle Deaths

[5] conditions of war country are not met anymore due to lower BD

Data

District Categorization: ▸ Data

- conditioned on the country categorization and battle deaths within the district
  - **Post-Conflict district:** district within post-war country and intensity index > 0
  - **War district:** district within war country and battle deaths within district > 1
  - **Minor Conflict district:** district within minor conflict country and battle deaths within district > 1
  - **Post-Conflict minor district:** first two years after minor conflict district



[6] Conflict Country $= BD > 1000 \mid (BD > 500 \;\&\; BD_i = \frac{1}{2}\sum_{j=i}^{i+1} a_j > 300)$

[7] Peace Country $=$ Conflict C.$_t = 0$ & PC C.$_t = 0$ & $BD < 25$ & $BD_i = \frac{1}{3}\sum_{j=i}^{i+2} a_j < 25$

▸ Partial Tree

Robustness Baseline

	Dependent variable: $\Delta \ln(NTL_{crt})$							
	(1)	(2)	(3)	(4)	(5)	(6)	1995–2015	2000–2020
$\ln(Aid_{t-1})$	0.0002**	0.0002**	0.0001	0.0002**	0.0000	0.0001	0.0004***	0.0003**
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Post-Conflict District	-0.0080***	-0.0103***	-0.0035*	-0.0057***	-0.0036*	-0.0052**	0.0035	-0.0066**
	(0.0024)	(0.0024)	(0.0021)	(0.0021)	(0.0021)	(0.0023)	(0.0026)	(0.0028)
$\ln(Aid_{t-1}) \times$ Post-Conflict District	-0.0010**		-0.0008**	-0.0009**	-0.0008**	0.0007	-0.0007	-0.0011**
	(0.0004)		(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0005)
Post-Conflict Country	0.0065***	0.0078***	0.0073***	0.0045**	0.0075***		-0.0048**	0.0143***
	(0.0022)	(0.0022)	(0.0018)	(0.0018)	(0.0018)		(0.0022)	(0.0030)
$\ln(Aid_{t-1}) \times$ Post-Conflict Country	0.0006*		0.0007***	0.0005**	0.0007***	0.0000	0.0001	0.0002
	(0.0003)		(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Observations	135025	135025	135100	135025	135100	135025	108020	113421
Districts	5401	5401	5404	5401	5404	5401	5401	5401
District FE	✓	✓	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓		✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Country-Year FE						✓		
District-specific Trends	✓	✓				✓	✓	✓
Country-specific Trends	✓	✓					✓	✓
District Controls	✓	✓		✓		✓	✓	✓
Country Controls	✓	✓			✓		✓	✓
Dep. Var. Mean	0.004	0.004	0.004	0.004	0.004	0.004	0.015	0.003
Dep. Var. Std.	0.151	0.151	0.151	0.151	0.151	0.151	0.114	0.158
R2	0.157	0.157	0.088	0.105	0.089	0.264	0.140	0.171

Dummy for post-conflict district conditioned on intensity index. E.g. PC District dummy "any" is one if there is any fighting involvement and corresponds to intensity index $[> 0, max]$. Standard errors in the parentheses are clustered at the district level. Any coefficients including $\ln(Aid)_{t-1}$ are jointly significant. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Robustness - IV's

▸ Robustness

	Dependent variable: $\Delta \ln(NTL_{crt})$					
	GoDAD Data			**AidData**		
	OLS	IV–IDA	IV–UNSC	OLS	IV–IDA	IV–UNSC
$\ln(Aid_{t-1})$ (GoDAD)	0.0002***	-0.0000	0.0299**			
	(0.0001)	(0.0002)	(0.0120)			
$\ln(Aid_{t-1})$ (GoDAD) × PC District		-0.0011***	0.0045			
		(0.0003)	(0.0045)			
$\ln(Aid_{t-1})$ (AidData)				0.0001*	0.0003	0.0260***
				(0.0001)	(0.0003)	(0.0082)
$\ln(Aid_{t-1})$ (AidData) × PC District					-0.0009***	-0.0022
					(0.0002)	(0.0022)
Observations	108020	102619	108020	108020	102619	108020
Districts	5401	5401	5401	5401	5401	5401
District, Country & Year FE	✓	✓	✓	✓	✓	✓
District & Country Controls	✓	✓	✓	✓	✓	✓
Dep. Var. Mean	0.015	0.013	0.015	0.015	0.013	0.015
Dep. Var. Std.	0.114	0.106	0.114	0.114	0.106	0.114
Kleibergen-Paap Wald F stat		587.168	4.901		196.062	7.426

Standard errors in the parentheses are clustered at the district level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Robustness - Alternative Data

▸ Robustness

	Dependent variable: $\Delta \ln(NTL\_crt)$				
Panel A: GoDAD-based Aid (1995–2015)					
Intensity	Any	Low	Medium	High	Very High
$\ln(Aid_{t-1})$	0.0004***	0.0004***	0.0004***	0.0004***	0.0004***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Post-Conflict District	0.0383**	0.0028	0.0020	0.0055	0.0208**
	(0.0151)	(0.0026)	(0.0063)	(0.0055)	(0.0090)
$\ln(Aid_{t-1}) \times$ Post-Conflict District	-0.0009*	-0.0014**	-0.0004	0.0009	-0.0007
	(0.0005)	(0.0007)	(0.0008)	(0.0007)	(0.0009)
Post-Conflict Country	-0.0050**	-0.0047**	-0.0043**	-0.0042*	-0.0043**
	(0.0022)	(0.0022)	(0.0022)	(0.0022)	(0.0022)
$\ln(Aid_{t-1}) \times$ Post-Conflict Country	0.0001	0.0000	-0.0002	-0.0003	-0.0002
	(0.0003)	(0.0002)	(0.0003)	(0.0003)	(0.0003)
Observations	108020	108020	108020	108020	108020
Districts	5401	5401	5401	5401	5401
Dep. Var. Mean	0.015	0.015	0.015	0.015	0.015
Dep. Var. Std.	0.114	0.114	0.114	0.114	0.114
R2	0.140	0.140	0.140	0.140	0.140
Panel B: AidData-based Aid (1995–2015)					
$\ln(Aid_{t-1})$	0.0004***	0.0004***	0.0004***	0.0004***	0.0004***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Post-Conflict District	0.0364**	0.0010	0.0005	0.0058	0.0271***
	(0.0147)	(0.0027)	(0.0066)	(0.0062)	(0.0098)
$\ln(Aid_{t-1}) \times$ Post-Conflict District	0.0001	-0.0001	0.0004	0.0010*	-0.0013
	(0.0004)	(0.0006)	(0.0007)	(0.0006)	(0.0009)
Post-Conflict Country	-0.0031	-0.0032	-0.0030	-0.0030	-0.0031
	(0.0022)	(0.0022)	(0.0022)	(0.0022)	(0.0022)
$\ln(Aid_{t-1}) \times$ Post-Conflict Country	-0.0007**	-0.0006**	-0.0007***	-0.0007***	-0.0006**
	(0.0003)	(0.0003)	(0.0002)	(0.0003)	(0.0002)
Observations	108020	108020	108020	108020	108020
Districts	5401	5401	5401	5401	5401
Dep. Var. Mean	0.015	0.015	0.015	0.015	0.015
Dep. Var. Std.	0.114	0.114	0.114	0.114	0.114
R2	0.140	0.140	0.140	0.140	0.140

Standard errors in the parentheses are clustered at the district level. The baseline specification applies for fixed effects and controls. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Robustness - Alternative Data

▸ Robustness

	Dependent variable: $\Delta \ln(NTL\_crt)$				
Panel A: UCDP-based Conflict (2000–2020)					
Intensity	Any	Low	Medium	High	Very High
$\ln(Aid_{t-1})$	0.0003**	0.0003**	0.0003**	0.0003**	0.0003**
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Post-Conflict District	0.0012	0.0021	-0.0298***	-0.0241***	0.0180
	(0.0174)	(0.0030)	(0.0058)	(0.0091)	(0.0162)
$\ln(Aid_{t-1}) \times$ Post-Conflict District	-0.0009*	-0.0025***	0.0016**	0.0005	-0.0019*
	(0.0005)	(0.0006)	(0.0008)	(0.0009)	(0.0011)
Post-Conflict Country	0.0145***	0.0141***	0.0161***	0.0155***	0.0154***
	(0.0030)	(0.0031)	(0.0031)	(0.0031)	(0.0031)
$\ln(Aid_{t-1}) \times$ Post-Conflict Country	0.0002	0.0003	-0.0004*	-0.0002	-0.0002
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Observations	113421	113421	113421	113421	113421
Districts	5401	5401	5401	5401	5401
Dep. Var. Mean	0.003	0.003	0.003	0.003	0.003
Dep. Var. Std.	0.158	0.158	0.158	0.158	0.158
R2	0.171	0.171	0.171	0.171	0.171
Panel B: ACLED-based Conflict (2000–2020)					
$\ln(Aid_{t-1})$	0.0005***	0.0005***	0.0005***	0.0005***	0.0005***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Post-Conflict District	0.0709	0.0014	-0.0147**	-0.0226**	0.0023
	(0.0625)	(0.0040)	(0.0064)	(0.0101)	(0.0115)
$\ln(Aid_{t-1}) \times$ Post-Conflict District	-0.0001	-0.0014**	0.0015**	0.0025***	0.0009
	(0.0005)	(0.0007)	(0.0008)	(0.0009)	(0.0007)
Post-Conflict Country	0.0306***	0.0298***	0.0316***	0.0312***	0.0309***
	(0.0028)	(0.0028)	(0.0028)	(0.0028)	(0.0028)
$\ln(Aid_{t-1}) \times$ Post-Conflict Country	-0.0016***	-0.0013***	-0.0019***	-0.0018***	-0.0017***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Observations	113282	113282	113282	113282	113282
Districts	5401	5401	5401	5401	5401
Dep. Var. Mean	0.003	0.003	0.003	0.003	0.003
Dep. Var. Std.	0.158	0.158	0.158	0.158	0.158
R2	0.172	0.172	0.172	0.172	0.172

Standard errors in the parentheses are clustered at the district level. The baseline specification applies for fixed effects and controls.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Robustness - Subsamples

▸ Robustness

	Dependent variable: $\Delta \ln(NTL\_crt)$				
Panel A: Subsample Post-Conflict Countries					
Intensity	Any	Low	Medium	High	Very High
$\ln(Aid_{t-1})$	0.0007***	0.0007***	0.0007***	0.0007***	0.0007***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Post-Conflict District	0.0010	-0.0033	-0.0256***	-0.0204**	0.0035
	(0.0167)	(0.0026)	(0.0052)	(0.0082)	(0.0119)
$\ln(Aid_{t-1}) \times$ Post-Conflict District	-0.0008*	-0.0021***	0.0011	0.0003	-0.0008
	(0.0005)	(0.0006)	(0.0008)	(0.0008)	(0.0009)
Post-Conflict Country	0.0060**	0.0058*	0.0073**	0.0070**	0.0069**
	(0.0030)	(0.0030)	(0.0030)	(0.0030)	(0.0030)
$\ln(Aid_{t-1}) \times$ Post-Conflict Country	0.0002	0.0003	-0.0003	-0.0001	-0.0001
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Observations	69900	69900	69900	69900	69900
Districts	2796	2796	2796	2796	2796
Dep. Var. Mean	0.004	0.004	0.004	0.004	0.004
Dep. Var. Std.	0.167	0.167	0.167	0.167	0.167
R2	0.158	0.158	0.158	0.158	0.158
Panel B: Subsample Firsttime aid during PC					
$\ln(Aid_{t-1})$	0.0001	0.0001	0.0001	0.0001	0.0001
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Post-Conflict District	-0.0184*	0.0012	0.0028	0.0020	0.0320***
	(0.0108)	(0.0038)	(0.0061)	(0.0069)	(0.0109)
$\ln(Aid_{t-1}) \times$ Post-Conflict District	0.0002	0.0005	0.0010*	-0.0006	-0.0013*
	(0.0005)	(0.0008)	(0.0005)	(0.0014)	(0.0008)
Post-Conflict Country	-0.0128***	-0.0130***	-0.0129***	-0.0131***	-0.0132***
	(0.0044)	(0.0044)	(0.0044)	(0.0043)	(0.0044)
$\ln(Aid_{t-1}) \times$ Post-Conflict Country	-0.0000	0.0000	-0.0000	0.0002	0.0003
	(0.0005)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Observations	17100	17100	17100	17100	17100
Districts	684	684	684	684	684
Dep. Var. Mean	-0.005	-0.005	-0.005	-0.005	-0.005
Dep. Var. Std.	0.158	0.158	0.158	0.158	0.158
R2	0.213	0.213	0.213	0.213	0.213

Standard errors in the parentheses are clustered at the district level. The baseline specification applies for fixed effects and controls.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Robustness - Bad Controls

▸ Robustness

	Dependent variable: $\Delta \ln(NTL_{crt})$				
Intensity	Any	Low	Medium	High	Very High
$\ln(Aid_{t-1})$	0.0002*	0.0002*	0.0002*	0.0002*	0.0002*
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Post-Conflict District	-0.0080***	-0.0016	-0.0241***	-0.0201**	-0.0040
	(0.0024)	(0.0025)	(0.0050)	(0.0079)	(0.0111)
$\ln(Aid)_{t-1} \times$ Post-Conflict District	-0.0010**	-0.0021***	0.0010	0.0003	-0.0008
	(0.0004)	(0.0005)	(0.0008)	(0.0008)	(0.0009)
Post-Conflict Country	0.0064***	0.0062***	0.0075***	0.0073***	0.0072***
	(0.0022)	(0.0022)	(0.0022)	(0.0022)	(0.0022)
$\ln(Aid_{t-1}) \times$ Post-Conflict Country	0.0006*	0.0006**	0.0001	0.0002	0.0002
	(0.0003)	(0.0003)	(0.0002)	(0.0003)	(0.0002)
Peacekeeping	0.0105**	0.0107**	0.0104**	0.0106**	0.0107**
	(0.0046)	(0.0046)	(0.0046)	(0.0046)	(0.0046)
Chinese Aid	0.0018	0.0017	0.0017	0.0017	0.0017
	(0.0039)	(0.0039)	(0.0039)	(0.0039)	(0.0039)
Observations	135025	135025	135025	135025	135025
Districts	5401	5401	5401	5401	5401
Country, District & Year FE	✓	✓	✓	✓	✓
District-, & Country-specific Trends	✓	✓	✓	✓	✓
District & Country Controls	✓	✓	✓	✓	✓
Dep. Var. Mean	0.004	0.004	0.004	0.004	0.004
Dep. Var. Std.	0.151	0.151	0.151	0.151	0.151
R2	0.157	0.157	0.157	0.157	0.157

Standard errors in the parentheses are clustered at the district level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Robustness - Country × Year FE

▸ Robustness

	Dependent variable: $\Delta \ln(NTL_{crt})$				
Intensity	Any	Low	Medium	High	Very High
$\ln(Aid_{t-1})$	0.0001	0.0001	0.0001	0.0001	0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Post-Conflict District	-0.0052**	-0.0050**	-0.0046	0.0026	0.0169
	(0.0023)	(0.0025)	(0.0046)	(0.0071)	(0.0139)
$\ln(Aid_{t-1})$ × Post-Conflict District	0.0007	-0.0004	0.0010	0.0009	0.0003
	(0.0004)	(0.0005)	(0.0007)	(0.0008)	(0.0009)
$\ln(Aid_{t-1})$ × Post-Conflict Country	0.0000	0.0004	0.0001	0.0002	0.0003
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Observations	135025	135025	135025	135025	135025
Districts	5401	5401	5401	5401	5401
Country FE	-	-	-	-	-
District FE	✓	✓	✓	✓	✓
Year FE	-	-	-	-	-
Country-Year FE	✓	✓	✓	✓	✓
District-specific Trends	✓	✓	✓	✓	✓
Country-specific Trends					
District Controls	✓	✓	✓	✓	✓
Country Controls					
Dep. Var. Mean	0.004	0.004	0.004	0.004	0.004
Dep. Var. Std.	0.151	0.151	0.151	0.151	0.151
R2	0.264	0.264	0.264	0.264	0.264

Standard errors in the parentheses are clustered at the district level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Sectoral Aid - Main Sectors

▸ Additional Results

	Dependent variable: $\Delta \ln(NTL_{crt})$		
Sector	Social Infrastructure	Economic Infrastructure	Production
$\ln(Aid_{t-1})$	-0.0003*	0.0003**	0.0005***
	(0.0002)	(0.0001)	(0.0001)
Sector	0.0105***	-0.0018	-0.0076***
	(0.0029)	(0.0021)	(0.0022)
PC District	-0.0078***	-0.0080***	-0.0087***
	(0.0024)	(0.0024)	(0.0025)
Sector × PC District	-0.0145**	-0.0187***	-0.0216***
	(0.0062)	(0.0071)	(0.0075)
PC Country	0.0074***	0.0063***	0.0072***
	(0.0022)	(0.0022)	(0.0023)
Sector × PC Country	0.0052	0.0118**	0.0087
	(0.0040)	(0.0048)	(0.0058)
Observations	135025	135025	135025
Districts	5401	5401	5401
District, Country & Year FE	✓	✓	✓
District- & Country-specific Trends	✓	✓	✓
District % Country Controls	✓	✓	✓
Dep. Var. Mean	0.004	0.004	0.004
Dep. Var. Std.	0.151	0.151	0.151
R2	0.157	0.157	0.157

Standard errors in the parentheses are clustered at the district level. Sector_{t-1} is a dummy indicating if part of the aid is disbursed in the corresponding sector. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Sectoral Aid - Sub Sectors

▸ Additional Results

	Dependent variable: $\Delta \ln(NTL\_crt)$					
Panel A: Sub-Sectors (I)	Education	Health	Water	Government	Transport	Energy
$\ln(Aid_{t-1})$	0.0003***	0.0002	0.0004***	-0.0001	0.0003**	0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0001)
Sector	-0.0017	0.0041*	-0.0017	0.0075***	-0.0008	0.0065**
	(0.0022)	(0.0023)	(0.0023)	(0.0025)	(0.0021)	(0.0030)
Sector × PC District	-0.0153**	-0.0217***	-0.0064	-0.0113*	-0.0082	-0.0090
	(0.0065)	(0.0079)	(0.0070)	(0.0060)	(0.0070)	(0.0097)
Sector × PC Country	-0.0001	0.0108*	-0.0141***	0.0070*	-0.0067	0.0211***
	(0.0049)	(0.0057)	(0.0049)	(0.0041)	(0.0041)	(0.0066)
Panel B: Sub-Sectors (II)	Agriculture	Mining	Banking	Industry	Communications	
$\ln(Aid_{t-1})$	0.0004***	0.0003**	0.0003**	0.0002*	0.0002*	
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	
Sector	-0.0053**	-0.0076	-0.0023	0.0077**	0.0017	
	(0.0023)	(0.0052)	(0.0030)	(0.0036)	(0.0043)	
Sector × PC District	-0.0227***	0.0880	-0.0125	-0.0302*	-0.0077	
	(0.0077)	(0.0628)	(0.0114)	(0.0176)	(0.0164)	
Sector × PC Country	0.0124**	-0.0296	0.0080	0.0218*	0.0364***	
	(0.0063)	(0.0286)	(0.0077)	(0.0121)	(0.0101)	
Observations	135025	135025	135025	135025	135025	
Districts	5401	5401	5401	5401	5401	
District, Country & Year FE	✓	✓	✓	✓	✓	
District- & Country-specific Trends	✓	✓	✓	✓	✓	
District & Country Controls	✓	✓	✓	✓	✓	
Dep. Var. Mean	0.004	0.004	0.004	0.004	0.004	
Dep. Var. Std.	0.151	0.151	0.151	0.151	0.151	
R2	0.157	0.157	0.157	0.157	0.157	

Standard errors in the parentheses are clustered at the district level. Sector_{t-1} is a dummy indicating if part of the aid is disbursed in the corresponding sector. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Lasting Peace

▸ Additional Results

	Dependent variable: $\Delta \ln(NTL_{crt})$				
Intensity	Any	Low	Medium	High	Very High
$\ln(Aid_{t-1})$	0.0008***	0.0007***	0.0008***	0.0007***	0.0008***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
PC District	-0.0073	-0.0014	-0.0388***	-0.0302***	0.0061
	(0.0145)	(0.0030)	(0.0065)	(0.0106)	(0.0195)
Lasting Peace	0.0161***	0.0218***	0.0157***	0.0190***	0.0196***
	(0.0034)	(0.0032)	(0.0030)	(0.0030)	(0.0030)
$\ln(Aid_{t-1}) \times$ Lasting Peace	0.0018***	0.0013***	0.0017***	0.0018***	0.0017***
	(0.0006)	(0.0005)	(0.0005)	(0.0005)	(0.0005)
Lasting Peace $\times$ PC District	0.0079*	-0.0091*	0.0326***	0.0239*	-0.0114
	(0.0046)	(0.0051)	(0.0082)	(0.0131)	(0.0186)
$\ln(Aid_{t-1}) \times$ Lasting Peace $\times$ PC District	-0.0005	0.0007	-0.0010	-0.0038**	-0.0009
	(0.0009)	(0.0010)	(0.0015)	(0.0016)	(0.0016)
PC Country	-0.0105***	-0.0124***	-0.0095**	-0.0110***	-0.0113***
	(0.0038)	(0.0039)	(0.0038)	(0.0038)	(0.0039)
Observations	69900	69900	69900	69900	69900
Districts	2796	2796	2796	2796	2796
District, Country & Year FE	✓	✓	✓	✓	✓
District-, & Country-specific Trends	✓	✓	✓	✓	✓
District & Country Controls	✓	✓	✓	✓	✓
Dep. Var. Mean	0.004	0.004	0.004	0.004	0.004
Dep. Var. Std.	0.167	0.167	0.167	0.167	0.167
R2	0.158	0.158	0.158	0.158	0.158

Standard errors in the parentheses are clustered at the district level. Lasting peace is a dummy, which is treated if the post-conflict period results in peace. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

War Recurrences

▸ Additional Results

	Dependent variable: $\Delta \ln(NTL_{crt})$				
Intensity	Any	Low	Medium	High	Very High
$\ln(Aid_{t-1})$	0.0006***	0.0006***	0.0006***	0.0006***	0.0006***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
PC District	-0.0042	-0.0096*	-0.0340***	-0.0197*	0.0146
	(0.0226)	(0.0050)	(0.0072)	(0.0119)	(0.0193)
War recurrence	0.0278***	0.0298***	0.0287***	0.0304***	0.0309***
	(0.0027)	(0.0026)	(0.0025)	(0.0025)	(0.0025)
$\ln(Aid_{t-1}) \times$ War recurrence	-0.0006	-0.0006	-0.0007	-0.0004	-0.0005
	(0.0006)	(0.0005)	(0.0005)	(0.0005)	(0.0005)
War recurrence $\times$ PC District	0.0078*	0.0011	0.0173*	0.0020	-0.0289
	(0.0046)	(0.0054)	(0.0090)	(0.0134)	(0.0200)
$\ln(Aid_{t-1}) \times$ War recurrence $\times$ PC District	-0.0001	0.0003	0.0010	-0.0016	-0.0009
	(0.0009)	(0.0011)	(0.0015)	(0.0017)	(0.0018)
PC Country	-0.0077**	-0.0092***	-0.0075**	-0.0086***	-0.0088***
	(0.0032)	(0.0032)	(0.0031)	(0.0031)	(0.0031)
Observations	69900	69900	69900	69900	69900
Districts	2796	2796	2796	2796	2796
District, Country & Year FE	✓	✓	✓	✓	✓
District- & Country-specific Trends	✓	✓	✓	✓	✓
District & Country Controls	✓	✓	✓	✓	✓
Dep. Var. Mean	0.004	0.004	0.004	0.004	0.004
Dep. Var. Std.	0.167	0.167	0.167	0.167	0.167
R2	0.159	0.159	0.159	0.159	0.159

Standard errors in the parentheses are clustered at the district level. Lasting peace is a dummy, which is treated if the post-conflict period results in peace. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Timing of Aid

▸ Additional Results

	Dependent variable: $\Delta \ln(NTL\_crt)$				
Panel A: Early Post-Conflict Period					
Intensity	Any	Low	Medium	High	Very High
$\ln(Aid_{t-1})$	0.0007***	0.0007***	0.0007***	0.0007***	0.0007***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Post-Conflict District	-0.0087	-0.0091***	-0.0005	-0.0024	0.0425***
	(0.0199)	(0.0035)	(0.0040)	(0.0068)	(0.0094)
$\ln(Aid_{t-1}) \times$ Post-Conflict District	0.0005	-0.0001	0.0008	0.0016**	-0.0002
	(0.0004)	(0.0005)	(0.0007)	(0.0007)	(0.0012)
Post-Conflict Country	0.0033	0.0030	0.0032	0.0032	0.0031
	(0.0029)	(0.0029)	(0.0029)	(0.0029)	(0.0029)
$\ln(Aid_{t-1}) \times$ Post-Conflict Country	-0.0003	-0.0002	-0.0003	-0.0003	-0.0002
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Panel B: Mid Post-Conflict Period					
$\ln(Aid_{t-1})$	0.0007***	0.0007***	0.0007***	0.0007***	0.0007***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Post-Conflict District	0.0077	0.0062**	-0.0166***	-0.0084	-0.0339***
	(0.0121)	(0.0030)	(0.0045)	(0.0106)	(0.0102)
$\ln(Aid_{t-1}) \times$ Post-Conflict District	-0.0015***	-0.0025***	-0.0010	-0.0006	0.0009
	(0.0004)	(0.0006)	(0.0007)	(0.0011)	(0.0009)
Post-Conflict Country	0.0032	0.0034	0.0038	0.0039	0.0040
	(0.0029)	(0.0029)	(0.0029)	(0.0029)	(0.0029)
$\ln(Aid_{t-1}) \times$ Post-Conflict Country	0.0000	-0.0000	-0.0001	-0.0002	-0.0002
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Panel C: Late Post-Conflict Period					
$\ln(Aid_{t-1})$	0.0006***	0.0006***	0.0006***	0.0006***	0.0006***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Post-Conflict District	-0.0006	0.0052	-0.0398***	-0.0356*	-0.0430*
	(0.0242)	(0.0036)	(0.0071)	(0.0195)	(0.0243)
$\ln(Aid_{t-1}) \times$ Post-Conflict District	0.0008	-0.0016*	0.0036**	0.0012	0.0031*
	(0.0007)	(0.0009)	(0.0014)	(0.0015)	(0.0019)
Post-Conflict Country	0.0048	0.0043	0.0049*	0.0046	0.0045
	(0.0029)	(0.0029)	(0.0029)	(0.0029)	(0.0029)
$\ln(Aid_{t-1}) \times$ Post-Conflict Country	-0.0002	-0.0001	-0.0003	-0.0002	-0.0002
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Observations	69900	69900	69900	69900	69900
Districts	2796	2796	2796	2796	2796

Standard errors in the parentheses are clustered at the district level. Fixed effects and controls follow the baseline specification. The mean of the dependent variable is 0.004 and the standard deviation is 0.167. Within each separate panel, any shown post-conflict dummies are conditioned on the specified time period. E.g. PC District in Panel A would be a PC District during years one to three after the war period and with respect to the intensity condition. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$