

# State Repression, Exit, and Voice

## Living in the Shadow of Cambodia's Killing Fields

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# Motivation

- Over a billion people live in countries with a history of state repression, having suffered mass killing or political persecution
    - Cultural Revolution in China
    - Stalin's Soviet Union
    - Khmer Rouge in Cambodia
  - Democratic progress has been slow
  - Coercion still exists in many post-conflict societies
- Difficult to assess the impact of historical state repression
- a) Do people have preferences for democracy (*voice*)?
  - b) Are people afraid to express their beliefs publicly (*exit*)?
  - c) Are economic and policy outcomes affected by *exit* or *voice*?

- We study the impact of historical state repression in Cambodia
  - During a short window of reduced state coercion (2012-2017):
    - free and (relatively) fair elections
    - the authoritarian incumbent faced a clear opposition party
    - (relatively) free expression of beliefs
- ⇒ peek into the individual responses to state repression:

1. How does state repression affect political beliefs and behavior?

↑ *voice*: Citizens show preferences for democracy

↑ *exit*: Citizens are more careful in expressing their views publicly

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  - *voice*: increases electoral accountability
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## Political causes and consequences of violence

- Causes of one-sided violence (state repression)  
Besley & Persson 2011; Yanagizawa-Drott 2014, Rogall 2021
- Causes/consequences of two-sided violence (interstate and civil war)  
Bellows & Miguel 2009; Blattman 2009; Blattman & Miguel 2010 ; Voors et al. 2012; Bauer et al. 2016

## How state-society relations shape political development

- State and civil society  
Martinez-Bravo et al. 2017; Acemoglu and Robinson 2018; Dell et al. 2018; Besley and Persson 2019, Tur-Prats & Valencia Caicedo 2020
- Persistence of preferences  
Alesina & Fuchs-Schündeln 2007; Nunn & Wantchekon 2011, Malmendier & Nagel 2011; Madestam & Yanagizawa-Drott 2011

## Memory-based norms and salience

- Emergence of a collective memory  
Bordalo et al. 2012, 2020; Fouka & Voth, 2021
- Impact of collective memory  
Madedstam et al. 2013; Depetris-Chauvin et al. 2020



# Khmer Rouge and the genocide 1975-1978

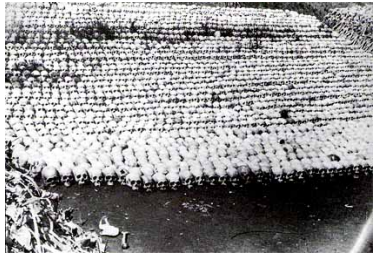
- Collectivized economy banning money, markets, and private property
- Large parts of population displaced as KR aimed to transform economy via four-year plans to increase rice production
- Forced labor brought to work in large labor camps across Cambodia



Communal eating hall and labor camp site in 1977-78

# Khmer Rouge and the genocide 1975-1978

- Hierarchical military command governed country and camps
  - committees organized production, deploying work brigades
  - Political committees organized propaganda and confession sessions: neighbors rewarded for informing on neighbors, friends for informing on friends, and children for informing on parents
- Many areas close to camps eventually known as *Killing Fields* as people died from execution, starvation, and overwork



Mass graves

► [Killing Fields](#)

► [More context](#)

# Killing Fields today

- Annual ceremonies held at grave sites to remember violence and also used by long-term incumbent to legitimize new regime

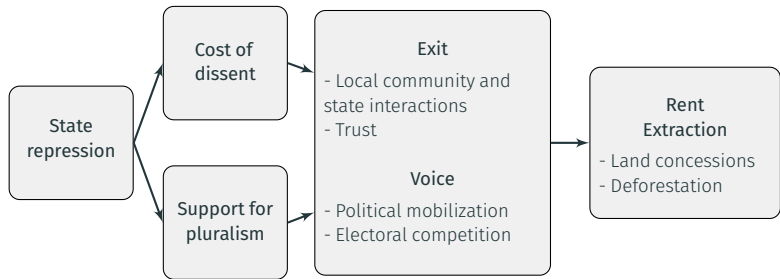
*"Remains of those killed during Democratic Kampuchea will not be cremated because they remain the only evidence of the regime" (Hun Sen)*

- Sites used for political meetings during election years



Contemporary Stupa with remains of victims

# How does State Repression affect political beliefs and behavior?

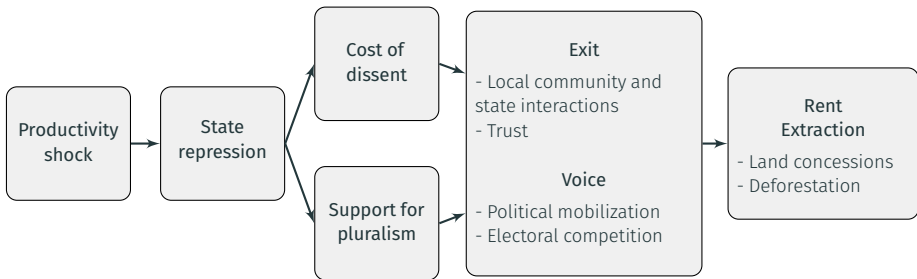


- *cost of dissent*: Fear of persecution or violence
- *support for pluralism*: favor democracy to avoid concentration of power

# Empirical strategy:

## Use exogenous shock to state repression

- *endogeneity*: individuals are targeted based on political views



# The Khmer Rouge and Productivity

TABLE 3

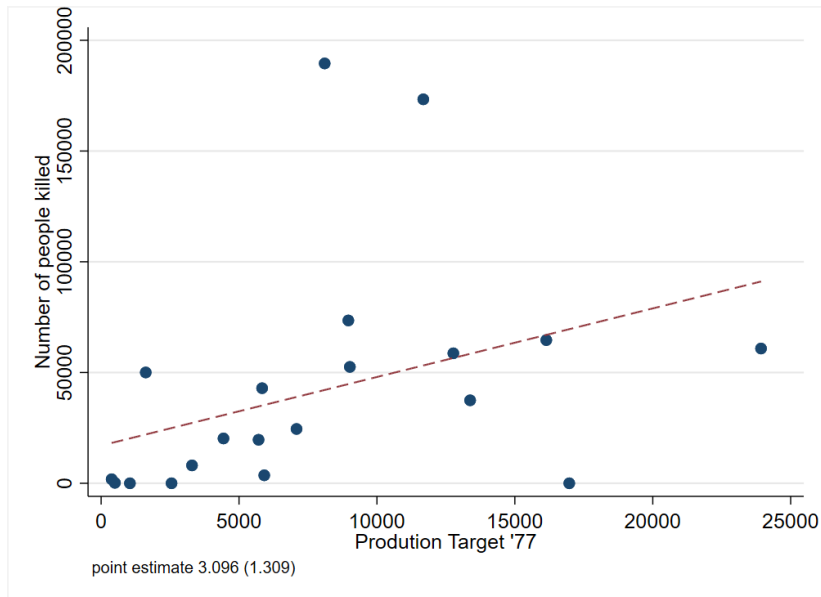
PLAN FOR RICE PRODUCTION THROUGHOUT THE COUNTRY DURING THE PERIOD 1977 - 1980

Zone and Region	1977	1978	1979	1980	Total For Four Years
1. NW	1,620,000T	1,900,000T	2,250,000T	2,600,000T	8,370,000T
2. East	1,290,000T	1,410,000T	1,510,000T	1,620,000T	5,830,000T
3. SW	1,140,000T	1,210,000T	1,320,000T	1,440,000T	5,110,000T
4. North	695,000T	758,000T	935,000T	912,000T	3,200,000T
5. West	432,000T	450,000T	480,000T	510,000T	1,872,000T
6. NE	73,000T	78,000T	84,000T	90,000T	335,000T
7. Region 106	306,000T	336,000T	366,000T	384,000T	1,392,000T
8. Region 103	42,000T	48,000T	54,000T	60,000T	204,000T
9. Centre Armed Forces	18,000T	24,000T	30,000T	35,000T	108,000T
10. Zone Armed Forces	39,000T	54,000T	66,000T	90,000T	249,000T
<b>Total:</b>	<b>5,555,000T</b>	<b>6,268,000T</b>	<b>6,995,000T</b>	<b>7,742,000T</b>	<b>26,560,000T<sup>a</sup></b>

<sup>a</sup> Total rice produced. Total production for fields harvested twice per year is figured as 6 tons per hectare; ordinary fields harvested once per year is estimated at 3 tons per hectare.

Notes: Example of a rice production plan across different regions of Cambodia From: *Pol Pot Plans the Future Confidential Leadership Documents from Democratic Kampuchea, 1976-1977.*

# The Khmer Rouge and Productivity



# Empirical strategy

## The Khmer Rouge and Productivity

1. Khmer Rouge's four year plan:
  - Identify high productive regions
2. Identify local productivity during KR using rainfall:
  - *"Heavy rains in September and October are essential. (yet) Too much rain causes flooding in the lower fields."* (Nesbitt, 1997, p. 16)
  - calculate standardized rainfall  $z_c$  during the wet-season
  - Validate relationship using modern survey data



# Empirical strategy

## Validation: Rainfall → Productivity

Figure 1: Rice yields and standardized rainfall

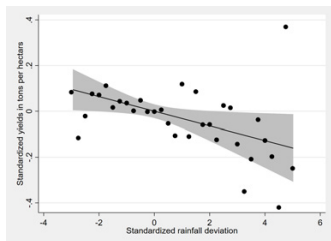


Table 1: Rice yields and productivity across different seasons

	(1)	(2)	(3)	(4)
	Standardized yields			
<i>State Repression = 1 [z_c^{SR} ≤ z_p^{SR}]</i>				
Productive during wet season	0.061*** (0.025) [0.018]			0.061*** (0.027) [0.018]
Productive during growing season		-0.002 (0.024) [0.035]		-0.011 (0.029) [0.037]
Productive during dry season			0.024 (0.032) [0.038]	0.021 (0.032) [0.039]
Pre-genocide commune characteristics	Yes	Yes	Yes	Yes
Observations	3,738	3,738	3,738	3,738

# Empirical strategy

## The Khmer Rouge and Productivity

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  - calculate standardized rainfall  $z_c$  during the wet-season
  - Validate relationship using modern survey data
3. Approximate KR allocation rule by

$$\text{State Repression}_c = \mathbb{I} [z_c^{KR} \leq z_p^{KR}]$$

send labor to areas with (relatively) less rainfall  $\Rightarrow$  higher productivity during the wet-season

# Empirical strategy

## Validation: Rainfall → State Repression

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	#Bodies		#Mass graves		Genocide memorial		Standardized violence	
State Repression	377.914*** (171.222) [141.584]	388.624*** (150.530) [138.740]	8.501*** (3.529) [2.909]	8.001*** (3.188) [2.847]	0.020*** (0.011) [0.008]	0.022*** (0.010) [0.008]	0.127*** (0.045) [0.033]	0.135*** (0.043) [0.031]
Pre-genocide commune characteristics		Yes		Yes		Yes		Yes
Mean	407.873	407.873	7.094	7.094	0.035	0.035		
Observations	1,621	1,621	1,621	1,621	1,621	1,621	1,621	1,621

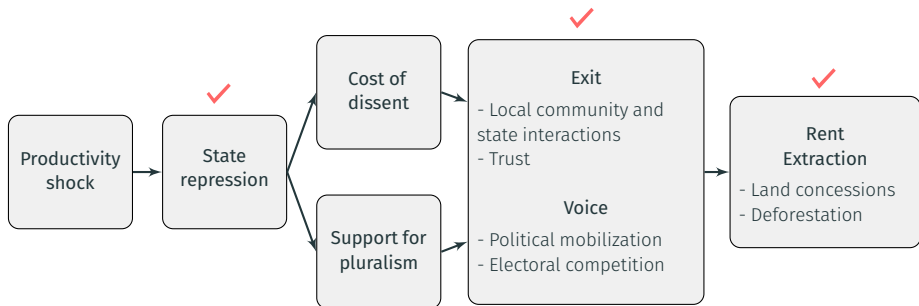
Notes: The unit of observation is a commune. *State Repression* is a dummy variable equal to 1 if the commune experienced above-average standardized province productivity during the wet season in the Khmer Rouge period (1975-1977). '#Bodies' is the number of dead bodies recovered after the genocide, '#Mass graves' is the number of mass graves recovered after the genocide, and 'Genocide memorial' is a dummy variable equal to 1 if the commune has a memorial commemorating the genocide. 'Standardized violence' is the standardized index of '#Bodies', '#Mass graves', and 'Genocide memorial', accounting for the covariance between these variables. 'Mean' denotes the mean in communes without state repression. Province fixed effects and a second-degree polynomial in latitude and longitude are included in all regressions. Standard errors clustered by 24 provinces are shown in parentheses and corrected for spatial dependence within 1 degree in brackets. Symbols reflect the significance level for spatially corrected standard errors: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

▶ per-capita measures of violence

▶ Balance of covariates

▶ Placebo

# Summary (skipping intermediate results)



- State Repression causes citizens to increase their support of democratic values in elections (*voice*) but to engage less in civil society (*exit*)
- Increased electoral accountability decreases politicians' scope to extract rents

# Persistence across generations

⇒ Effects persist across generations

- No differences in:

- × population
- × age composition
- × education or school investments
- × assets or wealth
- × rates of poverty or income inequality
- × migration
- × market access and public infrastructure

- Differences in the perception of violence:

- × No difference in violence
- ✓ People live in fear of violence

⇒ State Repression formed a collective memory

# Collective memory

- A collective memory emerges when those without firsthand experience of an event identify with those who had
- A collective memory can influence a citizen's cultural identity (Halbwachs, 1992; Dessí, 2008; Assmann, 2011; Fouka & Voth, 2021)
- If true, a “connective structure” linking the historical political repression of the Khmer Rouge to the present should exist.

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⇒ Two candidates:

1. Genocide memorials (stupas)

*“we just kept it [the remains] as evidence for a new generation to understand ... just as evidence to know ... how cruel they [were] to their own people, to let the new generation understand about the government, of that leader, especially to understand, just know that, in that period they killed many, many people”* Fleischman (2017, p. 190)

2. Commemorative ceremonies

# Collective memory

## The Day of Anger

- Held annually on May 20<sup>th</sup> to commemorate the victims of the Khmer Rouge
- Community members, survivors, and school children participate in the ceremonies, which include dramatic reenactments of the Khmer Rouge period and the violence that was inflicted





# Collective memory

## The Day of Anger

- Ideal to test “connective structure” linking past to present
  - Event is held outdoors
- ⇒ Rainfall on May 20<sup>th</sup> decreases attendance

$$y_{i,t} = \beta \text{ State Repression}_c + \\ \delta \text{ State Repression}_c \times \text{Rainy Days of Anger} + \\ \theta \text{ Rainy Days of Anger}_c + X'_{c,t} + X'_i + \Gamma'_c + \gamma_p + \varepsilon_i$$

- $\beta$  The effect of state repression on political beliefs and behavior
- $\delta$  Reducing the collective memory's impact on political beliefs and behavior (via lower attendance)
- ⇒ If a collective memory exists,  $\beta$  and  $\delta$  are of opposite signs

# Collective memory: Genocide Memorials and the Day of Anger

	(1) Genocide memorial	(2)	(3)	(4) Day of Anger	(5)	(6)
		Voting Behavior		Political Beliefs and Civic Participation		
		Votes Opposi- tion	Turnout	Voter in- formed- ness	Local civic par- ticipation	Trust
$\beta$ : State Regression	0.022*** (0.010) [0.008]	5.661*** (1.154) [0.827]	5.895*** (1.469) [0.899]	0.137*** (0.053) [0.036]	-0.120*** (0.033) [0.031]	-0.257*** (0.040) [0.035]
Rainy Days of Anger		0.423 (0.941) [0.801]	3.844 (1.602) [1.112]	0.035** (0.015) [0.014]	0.004 (0.017) [0.014]	-0.084*** (0.022) [0.015]
$\delta$ : State Regression $\times$ Rainy Days of Anger		-2.698*** (1.108) [0.880]	-4.935*** (1.567) [1.186]	-0.038** (0.020) [0.016]	0.032* (0.019) [0.017]	0.081*** (0.020) [0.016]
Individual characteristics				Yes	Yes	Yes
Observations	1,621	1,621	1,621	1,999	1,999	1,999
Mean	0.035	37.512	77.274	0.593		
$\beta$ : State Regression + State Regression $\times$ Rainy Days of Anger		2.964 (0.869)	0.960 (1.453)	0.099 (0.036)	-0.089 (0.019)	-0.176 (0.027)

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# Context: Cambodia pre-electoral democracy

1953-70

- Independence (from France) and country ruled by King Sihanouk
- Increasing political tension as Vietnam War escalates and Sihanouk ousted by right-wing General Lon Nol in 1970

1970-75

- Sihanouk sides with KR against US-supported Lon Nol
- Civil war and heavy bombings by US in support of Lon Nol

1975-79

- April 1975, KR captures Phnom Penh and ends civil war
- KR reign of terror continues until Vietnamese invasion in 1979

1979-91

- Ruled by CPPs predecessor PRK and occupied by Vietnamese
- Hun Sen prime minister in 1985
- Continued fighting with KR rebels until 1991 UN peace agreement

# Context: Cambodia post-electoral democracy

1993

- First multi-party election, power shared between CPP and Royalist party, Hun Sen takes over through coup in 1997

1998-2012

- Conflict with KR finally ends in 1998
- Series of elections (1998, 2003, 2008) all won by CPP. In 2008, CPP gained 58% of popular vote

2012-2017

- Commune elections in 2012/2017 and national elections in 2013
- During 2012, two largest opposition parties form alliance, CNRP
- CNRPs platform incl higher public-sector wages, improved legal system, and combatting corruption

2017-

- Main opposition party, CNRP, banned and leader jailed
- Closing of newspapers and union leaders imprisoned
- National election in 2018 won by Hun Sen, with CPP capturing all 125 seats in the National Assembly

# Empirical strategy

## Validation: state regression orthogonal

$$\chi_C = \delta \text{State Regression}_C + \Gamma'_C + \gamma_P + \varepsilon_C$$

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Control		Treatment			Exogeneity test		
	Mean	S.D.	Mean	S.D.	$\beta$	s.e.	T-Stat	p-value
<i>Pre-genocide commune characteristics</i>								
Commune with commune office	0.383	0.486	0.386	0.487	0.001	0.029	0.048	0.961
Commune with post office	0.017	0.131	0.016	0.125	-0.003	0.005	-0.529	0.597
Commune with school	0.670	0.471	0.705	0.456	0.026	0.025	1.046	0.296
Commune with telephone	0.004	0.061	0.006	0.078	0.002	0.003	0.579	0.563
log Population density	5.189	1.521	5.096	1.576	-0.024	0.133	-0.182	0.856
log Rice field area	5.691	2.841	6.239	2.430	0.392	0.349	1.123	0.261
log Area partially inundated	3.250	3.246	2.894	3.085	-0.125	0.247	-0.504	0.614
log Area covered by dense forests	4.081	3.941	3.911	3.594	-0.281	0.469	-0.599	0.549
log Commune area	3.864	1.619	3.814	1.152	-0.134	0.114	-1.173	0.241
log Distance to Phnom Penh	4.448	1.450	4.549	0.937	-0.067	0.069	-0.967	0.334
log Distance to closest road	0.397	1.416	0.387	1.465	0.032	0.116	0.272	0.786
log Distance to province capital	2.440	2.851	2.810	2.125	-0.003	0.103	-0.032	0.974
log Bomb load 1965-1973	4.932	3.356	4.630	3.188	0.095	0.236	0.402	0.688
log Potential yields (Rice)	1.013	0.014	1.015	0.013	0.000	0.000	0.850	0.395
log Potential yields (Banana)	0.397	0.660	0.401	0.586	0.019	0.028	0.680	0.496
log Potential yields (Coconut)	-0.157	1.660	-0.400	2.068	-0.021	0.092	-0.234	0.815
log Potential yields (Maize)	0.857	0.048	0.861	0.043	-0.000	0.001	-0.255	0.799



## Table 2: Main Findings and Alternative Production Shocks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	State Regression				$SR_{z_c-z_p}^i$				$SR_{z_c-z_p}^{ii}$				$SR_{z_c}^{iii}$			
	beta	s.e.	p-value	FDR adj. p-value	beta	s.e.	p-value	FDR adj. p-value	beta	s.e.	p-value	FDR adj. p-value	beta	s.e.	p-value	FDR adj. p-value
<i>Violence Indicators</i>																
#Bodies	388.624	138.740	0.005	0.007	155.189	50.585	0.002	0.007	347.416	120.825	0.004	0.003	1043.625	382.410	0.006	0.007
#Mass graves	8.001	2.847	0.005	0.007	3.929	1.531	0.010	0.012	6.971	2.369	0.003	0.003	24.186	6.862	0.000	0.002
Genocide memorial	0.022	0.008	0.004	0.007	0.012	0.004	0.001	0.007	0.012	0.005	0.011	0.006	0.033	0.018	0.065	0.025
Bodies per capita	1.266	0.461	0.006	0.007	0.609	0.211	0.004	0.008	1.229	0.324	0.000	0.001	3.602	1.196	0.003	0.005
Bodies per sqkm	7.517	4.913	0.126	0.019	2.879	2.416	0.233	0.091	5.578	4.660	0.231	0.017	32.333	9.932	0.001	0.004
Mass graves per capita	0.026	0.013	0.055	0.018	0.014	0.008	0.076	0.047	0.023	0.009	0.015	0.006	0.079	0.033	0.015	0.012
Mass graves per sqkm	0.261	0.077	0.001	0.003	0.117	0.040	0.003	0.008	0.191	0.063	0.003	0.003	0.682	0.176	0.000	0.001
log Bodies	0.184	0.076	0.015	0.009	0.081	0.046	0.075	0.047	0.193	0.055	0.000	0.001	0.323	0.207	0.119	0.036
log Bodies, per capita	0.073	0.024	0.002	0.006	0.029	0.015	0.049	0.043	0.072	0.018	0.000	0.001	0.153	0.064	0.017	0.012
log Bodies, per sqkm	0.148	0.039	0.000	0.001	0.070	0.022	0.001	0.007	0.139	0.031	0.000	0.001	0.306	0.104	0.003	0.005
log Mass graves	0.110	0.036	0.002	0.006	0.043	0.024	0.069	0.047	0.089	0.026	0.001	0.001	0.244	0.114	0.033	0.019
log Mass graves, per capita	0.015	0.006	0.014	0.009	0.007	0.004	0.052	0.043	0.012	0.004	0.004	0.003	0.043	0.015	0.003	0.005
log Mass graves, per sqkm	0.054	0.012	0.000	0.001	0.024	0.007	0.001	0.007	0.038	0.009	0.000	0.001	0.134	0.028	0.000	0.001
Body count $\geq$ 500	0.024	0.009	0.007	0.007	0.009	0.006	0.122	0.071	0.024	0.007	0.000	0.001	0.045	0.025	0.073	0.025

Notes: The unit of observation is a commune for the results on *Violence Indicators*, *Elections*, and *Rent Extraction* and the survey respondent for the results on *Political Beliefs*, *Civic Participation*, *Perception of Violence as a Problem in Cambodia*, and *Community and State Avoidance*. *State Regression* is a dummy variable equal to 1 if the commune experienced above-average standardized province productivity during the wet season in the Khmer Rouge period (1975-1977).  $SR_{z_c-z_p}^i$ ,  $SR_{z_c-z_p}^{ii}$ , and  $SR_{z_c}^{iii}$  are alternative formulations of productivity, which in turn predict state regression during the Khmer Rouge era. The variables under each row-heading are defined in the relevant table in the main text except for the additional outcomes measuring incidence of violence. 'Bodies per capita' is the number of dead bodies recovered after the genocide relative to the pre-genocide commune population, 'Bodies per sqkm' is the number of dead bodies recovered after the genocide relative to the pre-genocide commune area measured in square kilometers, 'Mass graves per capita' is the number of mass graves recovered after the genocide relative to the pre-genocide commune population, 'Mass graves per sqkm' is the number of mass graves recovered after the genocide relative to the pre-genocide commune area measured in square kilometers, 'log Bodies' is the natural logarithm of the number of dead bodies recovered after the genocide, 'log Bodies, per capita' is the natural logarithm of the number of dead bodies recovered after the genocide relative to the pre-genocide commune population, 'log Bodies, per sqkm' is the natural logarithm of the number of dead bodies recovered after the genocide relative to the pre-genocide commune area measured in square kilometers, 'log Mass graves' is the natural logarithm of the number of mass graves recovered after the genocide, 'log Mass graves, per capita' is the natural logarithm of the number of mass graves recovered after the genocide relative to the pre-genocide commune population, 'log Mass graves, per sqkm' is the natural logarithm of the number of mass graves recovered after the genocide relative to the pre-genocide commune area measured in square kilometers, and 'Body count  $\geq$  500' is a dummy variable equal to 1 if the number of dead bodies recovered after the genocide was equal to or greater than 500. Every cell constitutes a separate regression of the productivity measure on the dependent variable in the row header. Province fixed effects, survey-year fixed effects, a second-degree polynomial in latitude and longitude, and commune and individual (for *Political Beliefs*, *Civic Participation*, *Perception of Violence as a Problem in Cambodia* and *Community and State Avoidance*, where province is replaced by zone fixed effects for the former) characteristics are included in all regressions. Standard errors and p-values are corrected for spatial dependence within 1 degree.

### Table 3: Main Findings and Alternative Production Shocks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	State Regression			$SR_{z_t-z_p}^a$				$SR_{z_t-z_p}^b$				$SR_{z_t}^c$				
				FDR				FDR				FDR				
	beta	s.e.	p-value	adj. p-value	beta	s.e.	p-value	adj. p-value	beta	s.e.	p-value	adj. p-value	beta	s.e.	p-value	adj. p-value
<i>Political Beliefs, Civic Participation, and Perception of Violence as a Problem in Cambodia</i>																
Voter informedness	0.070	0.021	0.001	0.001	0.054	0.015	0.000	0.001	0.046	0.022	0.034	0.018	0.105	0.055	0.054	0.028
Support for pluralism	0.044	0.012	0.000	0.001	0.021	0.006	0.000	0.001	0.021	0.008	0.011	0.011	0.073	0.024	0.003	0.006
Local civic participation	-0.074	0.018	0.000	0.001	-0.039	0.012	0.001	0.001	-0.042	0.014	0.003	0.007	-0.133	0.051	0.009	0.009
Trust	-0.120	0.028	0.000	0.001	-0.079	0.016	0.000	0.001	-0.083	0.017	0.000	0.001	-0.321	0.082	0.000	0.001
Perception of violence	0.091	0.034	0.007	0.002	0.063	0.025	0.012	0.003	0.053	0.029	0.066	0.028	0.129	0.078	0.100	0.042
<i>National Elections</i>																
Vote share CNRP	4.872	0.573	0.000	0.001	2.926	0.302	0.000	0.001	3.309	0.338	0.000	0.001	13.278	1.851	0.000	0.001
Vote share CPP	-4.201	0.593	0.000	0.001	-2.555	0.310	0.000	0.001	-2.868	0.333	0.000	0.001	-11.112	1.841	0.000	0.001
Turnout	2.870	1.212	0.018	0.010	1.199	0.770	0.119	0.051	1.510	0.890	0.090	0.038	3.056	3.115	0.327	0.151
Absolute Majority CPP	-0.155	0.025	0.000	0.001	-0.090	0.010	0.000	0.001	-0.102	0.013	0.000	0.001	-0.401	0.072	0.000	0.001
Margin  CPP-CNRP	-1.723	1.250	0.168	0.035	-1.412	0.768	0.066	0.035	-1.709	0.855	0.046	0.024	-4.639	3.636	0.202	0.113

Notes: The unit of observation is a commune for the results on *Violence Indicators, Elections, and Rent Extraction* and the survey respondent for the results on *Political Beliefs, Civic Participation, Perception of Violence as a Problem in Cambodia, and Community and State Avoidance*. State Regression is a dummy variable equal to 1 if the commune experienced above-average standardized province productivity during the wet season in the Khmer Rouge period (1975-1977).  $SR_{z_t-z_p}^a$ ,  $SR_{z_t-z_p}^b$ , and  $SR_{z_t}^c$  are alternative formulations of productivity, which in turn predict state repression during the Khmer Rouge era. The variables under each row-heading are defined in the relevant table in the main text except for the additional outcomes measuring incidence of violence. "Bodies per capita" is the number of dead bodies recovered after the genocide relative to the pre-genocide commune population, "Bodies per sqkm" is the number of dead bodies recovered after the genocide relative to the pre-genocide commune area measured in square kilometers, "Mass graves per capita" is the number of mass graves recovered after the genocide relative to the pre-genocide commune population, "Mass graves per sqkm" is the number of mass graves recovered after the genocide relative to the pre-genocide commune area measured in square kilometers, "log Bodies" is the natural logarithm of the number of dead bodies recovered after the genocide, "log Bodies, per capita" is the natural logarithm of the number of dead bodies recovered after the genocide relative to the pre-genocide commune population, "log Bodies, per sqkm" is the natural logarithm of the number of dead bodies recovered after the genocide relative to the pre-genocide commune area measured in square kilometers, "log Mass graves" is the natural logarithm of the number of mass graves recovered after the genocide, "log Mass graves, per capita" is the natural logarithm of the number of mass graves recovered after the genocide relative to the pre-genocide commune population, "log Mass graves, per sqkm" is the natural logarithm of the number of mass graves recovered after the genocide relative to the pre-genocide commune area measured in square kilometers, and "Body count  $\geq 500$ " is a dummy variable equal to 1 if the number of dead bodies recovered after the genocide was equal to or greater than 500. Every cell constitutes a separate regression of the productivity measure on the dependent variable in the row header. Province fixed effects, survey-year fixed effects, a second-degree polynomial in latitude and longitude, and commune and individual (for *Political Beliefs, Civic Participation, Perception of Violence as a Problem in Cambodia and Community and State Avoidance*, where province is replaced by zone fixed effects for the former) characteristics are included in all regressions. Standard errors and p-values are corrected for spatial dependence within 1 degree.

# Adjusting Political Beliefs, Civic Participation, and Perception of Violence for Multiple Hypothesis Testing

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	With individual characteristics				Summary statistics			
	beta	s.e.	p-value	FDR adj. p-value	Less State Repression Mean	Less State Repression S.D.	More State Repression Mean	More State Repression S.D.
<i>Category: Voter informedness</i>								
Can name representative	0.055	0.017	0.002	0.012	0.116	0.321	0.182	0.386
Know parties are different	0.003	0.052	0.946	0.683	2.715	1.239	2.744	1.255
Know whether representative visited	0.030	0.020	0.134	0.202	0.194	0.396	0.229	0.420
Know role of parties in assembly	0.020	0.022	0.372	0.307	0.305	0.461	0.347	0.476
Understands purpose of democracy	0.025	0.025	0.319	0.307	0.580	0.494	0.542	0.499
Frequency: Listen to radio	0.058	0.032	0.076	0.146	1.798	0.873	1.818	0.876
Frequency: Watch TV	0.124	0.049	0.012	0.038	2.870	1.411	3.028	1.451
<b>z-score</b>	0.070	(0.021)						
<i>Category: Support for pluralism</i>								
All Political parties should hold events	0.027	0.013	0.041	0.106	0.905	0.293	0.924	0.265
Government and people are equals	0.041	0.030	0.170	0.198	0.366	0.482	0.434	0.496
Democracy preferred to strong leader	0.005	0.014	0.707	0.380	0.904	0.295	0.892	0.311
One can vote against the government	-0.026	0.020	0.193	0.198	0.854	0.353	0.839	0.368
Not voted because told to vote	0.030	0.019	0.113	0.157	0.941	0.236	0.967	0.180
Democracy empowers people	0.039	0.018	0.026	0.106	0.141	0.348	0.137	0.345
Women make own choice in voting	0.034	0.012	0.005	0.058	0.858	0.349	0.889	0.314
Women as a representative	0.039	0.036	0.274	0.224	1.080	0.901	1.115	0.893
Would like to see more women	0.012	0.011	0.268	0.224	0.944	0.230	0.954	0.209
Reserved top list place for women	0.048	0.024	0.042	0.106	0.542	0.499	0.570	0.496
<b>z-score</b>	0.044	(0.012)						
<i>Category: Local civic participation</i>								
Member of #civil associations (CA)	-0.112	0.042	0.008	0.009	0.416	0.910	0.346	0.825
Took part in a meeting of a CA	-0.039	0.019	0.044	0.023	0.218	0.413	0.208	0.422
Helped reach a decision of a CA	-0.037	0.012	0.002	0.004	0.129	0.336	0.120	0.325
Local government affects my life	-0.130	0.033	0.000	0.001	0.535	0.499	0.434	0.496
Would report election crime	-0.097	0.054	0.072	0.030	3.228	1.065	3.170	1.129
<b>z-score</b>	-0.074	(0.018)						
<i>Category: Trust</i>								
Trust in neighborhood	-0.186	0.059	0.002	0.004	2.485	0.702	2.257	0.780
Trust in general	-0.037	0.022	0.090	0.048	0.196	0.397	0.202	0.402
<b>z-score</b>	-0.120	(0.028)						
<i>Category: Perception of violence</i>								
Biggest Problem in Cambodia: Violence	0.013	0.007	0.076	0.040	0.030	0.171	0.034	0.181
Biggest Problem in Commune: Violence	0.022	0.008	0.004	0.009	0.039	0.195	0.053	0.224
<b>z-score</b>	0.091	(0.034)						

## Table 4: Population, Age, and Education

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Population: Census 1998				Population: Census 2008			
	log Pop- ulation ≤ 15	log Pop- ulation ∈ [10,19]	log Pop- ulation ∈ [15,64]	log Pop- ulation density	log Pop- ulation ≤ 15	log Pop- ulation ∈ [10,19]	log Pop- ulation ∈ [15,64]	log Pop- ulation density
State Regression	0.013 (0.036) [0.031]	0.002 (0.040) [0.033]	0.001 (0.042) [0.034]	0.002 (0.039) [0.034]	0.038 (0.038) [0.035]	0.027 (0.040) [0.036]	0.026 (0.044) [0.039]	0.031 (0.042) [0.037]
Age: Cambodia Socio-Economic Survey 1996-2016								
	Age ∈ [0,9]	Age ∈ [10,19]	Age ∈ [20,29]	Age ∈ [30,39]	Age ∈ [40,49]	Age ∈ [50,59]	Age ∈ [60,69]	Age ∈ [70,79]
State Regression	0.002 (0.002) [0.002]	-0.003 (0.002) [0.002]	0.001 (0.002) [0.002]	0.001 (0.001) [0.001]	-0.002 (0.002) [0.001]	0.000 (0.001) [0.001]	-0.000 (0.001) [0.001]	0.000 (0.001) [0.001]
Education: Cambodia Socio-Economic Survey 1996-2016								
	Can read	Can write	Speaking English	Speaking French	Lower sec- ondary school	Upper sec- ondary school	Bachelor	Years of educa- tion
State Regression	0.003 (0.007) [0.003]	0.004 (0.006) [0.004]	-0.004 (0.005) [0.002]	-0.001 (0.001) [0.001]	0.000 (0.001) [0.001]	-0.001 (0.002) [0.001]	-0.003* (0.002) [0.001]	0.003 (0.070) [0.033]
Pre-genocide commune characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations population	1,570	1,570	1,570	1,570	1,614	1,614	1,614	1,614
Mean population	7.822	7.307	8.039	4.870	7.716	7.378	8.276	4.906
Observations age	393,591	393,591	393,591	393,591	393,591	393,591	393,591	393,591
Mean age	0.208	0.237	0.181	0.128	0.103	0.074	0.042	0.020
Observations education	266,586	266,600	347,794	347,794	289,062	289,062	289,062	289,062
Mean education	0.710	0.736	0.065	0.019	0.017	0.027	0.020	5.762

Notes: The unit of observation is a commune (survey respondent) in the upper (middle and lower) row. State Regression is a dummy variable equal to 1 if the commune experienced above-average standardized province productivity during the wet season in the Khmer Rouge period (1975-1977). 'log Population ≤ 15' is the log of the commune population below age 16, 'log Population ∈ [10,19]' is the log of the commune population between ages 10 and 19, 'log Population ∈ [15,64]' is the log of the commune population between ages 15 and 64, and 'log Population density' is the log of the commune population per commune area; regressions on age feature a dummy variable equal to 1 if the age of the individual is within the indicated interval and 0 otherwise. 'Can read' is a dummy variable equal to 1 if the individual is able to read a simple message, 'Can write' is a dummy

### Table 5: Assets and Consumption

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Rooms per capita	log Farm value	log Size of farm	log Con- sumption per capita	log Food expendi- ture per capita	log Non-food expendi- ture per capita	log Total expendi- ture per capita	log Alcohol & tobacco expendi- ture
	All							
State Regression	-0.001 (0.004) [0.004]	0.069 (0.271) [0.220]	-0.050 (0.152) [0.123]	0.003 (0.019) [0.016]	0.011 (0.016) [0.014]	0.011 (0.028) [0.026]	0.007 (0.018) [0.016]	-0.054 (0.093) [0.095]
	Never moved							
State Regression	-0.008 (0.006) [0.006]	0.266 (0.238) [0.209]	0.051 (0.153) [0.119]	0.016 (0.024) [0.025]	0.029 (0.022) [0.022]	0.037 (0.040) [0.047]	0.021 (0.022) [0.023]	-0.014 (0.279) [0.219]
Pre-genocide commune characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Survey-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean all	0.378	8.329	4.852	8.361	7.870	6.735	8.259	0.700
Observations all	52,222	68,938	68,938	77,201	77,105	77,119	77,205	49,336
Mean never moved	0.32	12.446	7.477	7.766	7.318	5.869	7.636	1.129
Observations never moved	11,241	13,659	13,659	18,745	18,735	18,720	18,747	6,153

Notes: The unit of observation is a survey respondent. *State Regression* is a dummy variable equal to 1 if the commune experienced above-average standardized province productivity during the wet season in the Khmer Rouge period (1975-1977). Every cell constitutes a separate regression of the productivity measure on the dependent variable in the header using individual-level data. The row names define the sample used: 'All' includes the full sample, and 'Never moved' only includes individuals that never moved from the current residence. 'Rooms per capita' is the number of rooms in a house other than a kitchen, toilet or bathrooms divided by the household size, 'log Farm value' is the log of the cost (in Cambodian riel) of a similar plot of farm land had it been sold in the village today, 'log Size of farm' is the log of the area in square meters of a plot of land, 'log Consumption per capita' is the log of the monetary value (in Cambodian riel) of total household non-food and food consumption over the last twelve months divided by the household size, 'log Food expenditure per capita' is the log of the monetary value (in Cambodian riel) of expenditure on purchased and non-purchased (own production, wages in kind, gifts and free collection) food over the last twelve months divided by the household size, 'log Non-food expenditure per capita' is the log of the monetary value (in Cambodian riel) of in cash and in-kind expenditures on non-food items over the last twelve months divided by the household size. 'log Total expenditure per capita' is the log of the monetary value (in Cambodian riel) of food and non-food expenditures over

**Table 6: Poverty and Income Inequality**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Poverty rate (Head Count Ratio)	Head Count Ratio	Poverty gap	Poverty gap	Poverty severity	Poverty severity	Gini coefficient	Gini coefficient
State Regression	-0.009 (0.016) [0.015]	-0.006 (0.011) [0.010]	-0.005 (0.007) [0.007]	-0.004 (0.005) [0.005]	-0.003 (0.004) [0.004]	-0.002 (0.003) [0.003]	0.001 (0.004) [0.003]	0.001 (0.004) [0.004]
Pre-genocide commune characteristics		Yes		Yes		Yes		Yes
Observations	1,470	1,470	1,470	1,470	1,470	1,470	1,470	1,470
Mean	0.388	0.388	0.119	0.119	0.052	0.052	0.304	0.304

Notes: The unit of observation is a commune. *State Regression* is a dummy variable equal to 1 if the commune experienced above-average standardized province productivity during the wet season in the Khmer Rouge period (1975-1977). 'Poverty rate (Head Count Ratio)' is proportion of the commune population living below the poverty line, 'Poverty gap' is the ratio by which the mean income of the poor falls below the poverty line, 'Poverty severity' is the square of the poverty gap relative to the poverty line, and 'Gini coefficient' is the degree of income inequality in the commune. 'Mean' denotes the mean in communes without state regression. Province fixed effects, a second-degree polynomial in latitude and longitude, and pre-genocide commune characteristics are included in all regressions. Standard errors clustered by 24 provinces are shown in parentheses and corrected for spatial dependence within 1 degree in brackets. Symbols reflect the significance level for spatially corrected standard errors: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

## Table 7: Migration

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Returned 1979/1980		Returned 1979		Return after displacement		In village during KR	
Alive during the Khmer Rouge period								
State Regression	0.004 (0.013) [0.012]	0.011 (0.012) [0.013]	-0.004 (0.008) [0.009]	0.001 (0.008) [0.009]	0.001 (0.008) [0.007]	0.004 (0.007) [0.007]	0.021 (0.016) [0.014]	0.011 (0.016) [0.014]
Older than 18 during the Khmer Rouge period								
State Regression	0.007 (0.015) [0.014]	0.018 (0.016) [0.016]	-0.004 (0.010) [0.010]	0.002 (0.010) [0.011]	0.007 (0.010) [0.008]	0.012 (0.009) [0.009]	0.027* (0.017) [0.014]	0.008 (0.016) [0.014]
Pre-genocide commune characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Survey-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual characteristics		Yes		Yes		Yes		Yes
Mean alive during KR	0.219	0.205	0.163	0.150	0.071	0.062	0.426	0.415
Observations alive during KR	75,112	60,707	75,112	60,707	75,112	60,707	75,112	60,707
Mean older than 18 during KR	0.281	0.271	0.209	0.194	0.092	0.082	0.421	0.399
Observations older than 18 during KR	33,245	23,671	33,245	23,671	33,245	23,671	33,245	23,671

Notes: The unit of observation is a survey respondent. *State Regression* is a dummy variable equal to 1 if the commune experienced above-average standardized province productivity during the wet season in the Khmer Rouge period (1975-1977). Every cell constitutes a separate regression of the productivity measure on the dependent variable in the header using individual-level data. The row names define the sample used: 'Alive during the Khmer Rouge period' includes respondents born before 1979, and 'Older than 18 during the Khmer Rouge period' includes respondents that were at least 18 years old in 1978. 'Returned 1979/1980' is a dummy variable equal to 1 if an individual returned to the current residence in 1979 or 1980 (and has not migrated since), 'Returned 1979' is a dummy variable equal to 1 if an individual returned to the current residence in 1979 (and has not migrated since), 'Returned after displacement' is a dummy variable equal to 1 if an individual who returned to the current residence in 1979 responded that the reason was because of being displaced, and 'In village during KR' is a dummy variable equal to 1 if the individual was in the current residence during the genocide. 'Mean' denotes the mean in communes without state regression. Province fixed effects, a second-degree polynomial in latitude and longitude, and pre-genocide commune characteristics are included in all regressions. Individual characteristics are defined in Table ?? Standard errors clustered by 24 provinces are shown in parentheses and corrected for spatial dependence within 1 degree in brackets. Symbols reflect the significance level for spatially corrected standard errors: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

# Table 8: Market Access, Public Infrastructure, and School Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Market access and public infrastructure								
	Distance to food store	Distance to bank	Distance to extension worker	Distance to market	Distance to agricultural market	% Pop with electricity	% Pop with piped water	% Pop with public hospital
State Regression	-0.337 (0.493) [0.493]	-0.136 (0.675) [0.645]	-1.159 (1.100) [1.010]	-0.385 (0.666) [0.620]	-0.217 (0.653) [0.591]	0.008 (0.017) [0.014]	-0.003 (0.020) [0.013]	0.028 (0.019) [0.019]
School characteristics								
	Distance to school	Village with school	Director with degree	log p.c. School income	Enrollment rate	# Teachers	Student-teacher-ratio	Number of classes
State Regression	0.060 (0.059) [0.074]	0.081 (0.229) [0.170]	0.002 (0.002) [0.002]	0.041 (0.069) [0.058]	0.881 (1.004) [0.941]	0.573 (3.526) [3.286]	0.601 (1.627) [1.647]	-0.085 (0.314) [0.274]
Pre-genocide commune characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Survey-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean market access	6.272	10.698	18.123	7.060	7.190	0.370	0.272	0.119
Observations market access	3,593	3,665	3,724	3,684	3,614	3,812	3,812	3,027
Mean school characteristics	1.370	6.404	0.002	8.529	39.705	53.023	41.727	7.908
Observations school characteristics	1,593	1,621	1,543	1,436	4,518	1,592	1,592	1,592

Notes: The unit of observation is a commune. *State Regression* is a dummy variable equal to 1 if the commune experienced above-average standardized province productivity during the wet season in the Khmer Rouge period (1975-1977). 'Distance to x' is the distance in kilometers from home to the nearest x, where x=food store, bank, extension worker, market, and agricultural market.



**Table 9: Night-Time Lights and Public Investments**

	(1)	(2)	(3)	(4)	(5)	(6)
	Maximum night-time light	Any night-time light 2013	Night-time light in 2013	Market density	Accessibility of the nearest health facility	Radio station in commune
State Regression	-1.128 (0.970) [0.805]	0.025 (0.029) [0.018]	-0.216 (0.613) [0.458]	-0.020 (0.028) [0.032]	0.027 (0.030) [0.033]	0.022 (0.019) [0.018]
Pre-genocide commune characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Controlling for 1992 value		Yes	Yes			
Observations	1,621	1,621	1,621	1,621	1,621	1,621
Mean	9.404	0.409	7.164	0.424	0.688	0.881

*Notes:* The unit of observation is a commune. *State Regression* is a dummy variable equal to 1 if the commune experienced above-average standardized province productivity during the wet season in the Khmer Rouge period (1975-1977). 'Maximum night-time light' is the highest observed mean luminosity in the commune, 'Any night-time light in 2013' is a dummy variable equal to 1 if the mean in 2013 was non-zero, 'Market density' is the number of larger business areas in the commune, 'Accessibility of the nearest health facility' is an index variable where 0 represents immediate access and 22 (the maximum) represents no access to the next health post, health center, or referral hospital in the commune, and 'Radio station in commune' is a dummy variable equal to 1 if there is a local radio station broadcasting in the commune. 'Mean' denotes the mean in communes without state regression. Province fixed effects, a second-degree polynomial in latitude and longitude, and pre-genocide commune characteristics are included in all regressions. Standard errors clustered by 24 provinces are shown in parentheses and corrected for spatial dependence within 1 degree in brackets. Symbols reflect the significance level for spatially corrected standard errors: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

# Appendix: Fear of Violence

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Perceived problems facing Cambodia				Presence of violent events			
	Violence	Economic issues	Institutional issues	Health and education issues	GDELT	UCDP	ACLED	GDELT + UCDP + ACLED
	All							
State Repression	0.091*** (0.039) [0.034]	-0.020 (0.013) [0.013]	0.009 (0.012) [0.011]	-0.016 (0.018) [0.015]	-0.003 (0.016) [0.016]	-0.016 (0.018) [0.014]	-0.011 (0.009) [0.009]	-0.025 (0.020) [0.018]
	Alive during the Khmer Rouge period							
State Repression	0.097* (0.058) [0.051]	-0.021 (0.016) [0.016]	0.005 (0.014) [0.012]	-0.018 (0.024) [0.017]				
	Born after the Khmer Rouge period							
State Repression	0.094* (0.056) [0.054]	-0.019 (0.015) [0.014]	0.020 (0.022) [0.017]	-0.019 (0.022) [0.023]				
Observations	1,999	1,999	1,999	1,999	1,621	1,621	1,621	1,621
Observations alive during KR	1,321	1,321	1,321	1,321				
Observations born after KR	681	681	681	681				
Mean					0.148	0.070	0.052	0.222

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# Appendix:

## The Khmer Rouge and Productivity

TABLE 3

PLAN FOR RICE PRODUCTION THROUGHOUT THE COUNTRY DURING THE PERIOD 1977 - 1980

Zone and Region	1977	1978	1979	1980	Total For Four Years
1. NW	1,620,000T	1,900,000T	2,250,000T	2,600,000T	8,370,000T
2. East	1,290,000T	1,410,000T	1,510,000T	1,620,000T	5,830,000T
3. SW	1,140,000T	1,210,000T	1,320,000T	1,440,000T	5,110,000T
4. North	695,000T	758,000T	935,000T	912,000T	3,200,000T
5. West	432,000T	450,000T	480,000T	510,000T	1,872,000T
6. NE	73,000T	78,000T	84,000T	90,000T	335,000T
7. Region 106	306,000T	336,000T	366,000T	384,000T	1,392,000T
8. Region 103	42,000T	48,000T	54,000T	60,000T	204,000T
9. Centre Armed Forces	18,000T	24,000T	30,000T	35,000T	108,000T
10. Zone Armed Forces	39,000T	54,000T	66,000T	90,000T	249,000T
<b>Total:</b>	<b>5,555,000T</b>	<b>6,268,000T</b>	<b>6,995,000T</b>	<b>7,742,000T</b>	<b>26,560,000T<sup>a</sup></b>

<sup>a</sup> Total rice produced. Total production for fields harvested twice per year is figured as 6 tons per hectare; ordinary fields harvested once per year is estimated at 3 tons per hectare.

Notes: Example of a rice production plan across different regions of Cambodia From: *Pol Pot Plans the Future Confidential Leadership Documents from Democratic Kampuchea, 1976-1977.*

# Appendix:

## The Khmer Rouge and Productivity

TABLE 10

YEARLY RICE HECTARAGE - E ZONE

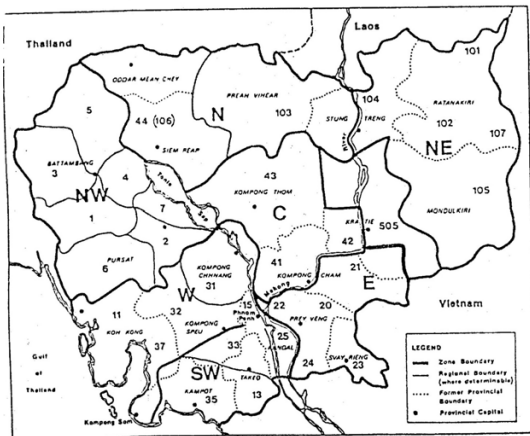
Region	Rice Hectarage Cultivated Once A Year	Hectarage of No. 1 Riceland, Cultivated Twice A Year Which Must Be Increased Each Year			
		1977	1978	1979	1980
20	125,000 ha	8,000 ha	12,000	15,000	20,000
21	54,000 ha	10,000 ha	15,000	20,000	25,000
22	80,000 ha	10,000 ha	15,000	20,000	25,000
23	160,000 ha	5,000 ha	8,000	10,000	12,000
24	92,000 ha	7,000 ha	10,000	12,000	14,000
	100%	11%	17%	22%	27%

- In all there are 511,000 hectares, but we calculate that 350,000 hectares are cultivated once, producing three tons per hectare per year.
- Concerning No. 1 land, good land cultivated twice, with water and sufficient fertilizer, a target would be six tons per hectare per year. This land must be expanded in every Region, every year.

*Notes: Example of a rice production plan within the Eastern Zone of Cambodia From: Pol Pot Plans the Future Confidential Leadership Documents from Democratic Kampuchea, 1976-1977.*

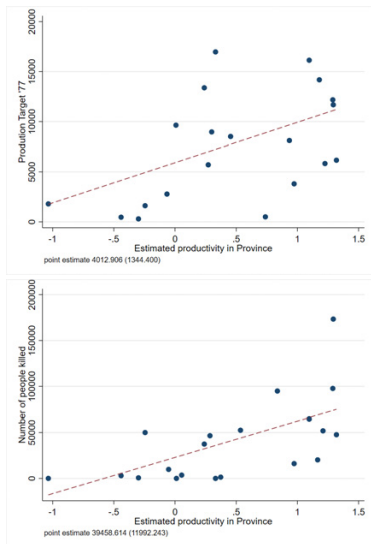
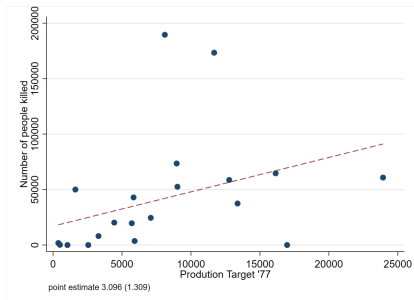
# Appendix: The Khmer Rouge and Productivity

## Administrative Divisions of Democratic Kampuchea 1975–1979

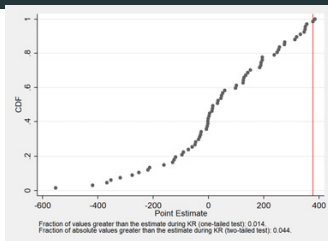


Notes: Zones in Democratic Kampuchea From: Pol Pot Plans the Future Confidential Leadership Documents from Democratic Kampuchea, 1976-1977.

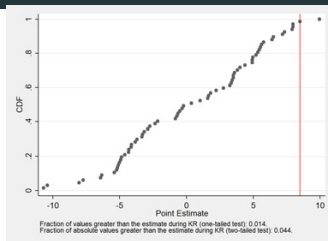
# Appendix: The Khmer Rouge and Productivity



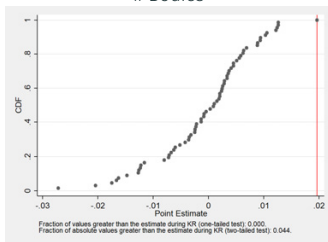
# Empirical strategy: Rainfall and State Repression, placebo estimates



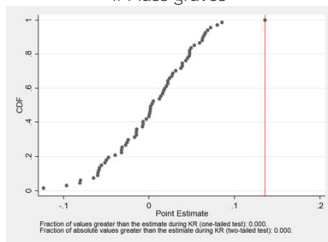
# Bodies



# Mass graves



War memorial



Standardized violence index