

Economic Ideas And Policy Implementation: Evidence from Malthusian Training in British Indian Bureaucracy

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Economic ideas

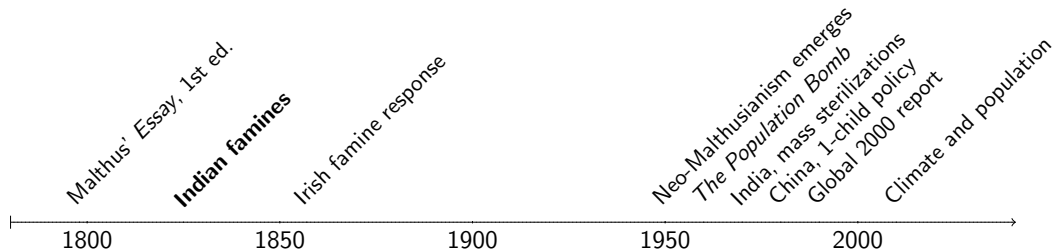
- Does exposure to economic ideas matter?
 - ▶ Judiciary: law and economics training ([Ash et al., 2025](#))
 - ▶ Private sector: MBA training ([Acemoglu et al., 2023](#))
- College-level economic training ubiquitous but thin evidence for later life choices and decision-making
- Important factor for bureaucrats and government policy?
 - ▶ Scale of consequences may be large: public goods, services
 - ▶ Case in point: Malthusian ideas and China's one child policy ([Greenhalgh, 2008](#))
 - ▶ Counterpoint: may not really matter, merely invoked to justify policy

Economic ideas

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 - ▶ Counterpoint: may not really matter, merely invoked to justify policy
- **How does exposing bureaucrats to economic ideas affect policy implementation?**

Background: Malthusian Population Theory

- Malthusian population theory
 - ▶ Living standards determined by level of population
 - ▶ Self-regulating: government measures to limit distress unnecessary, counterproductive



- Evidence of persistent influence of Malthusian population theory over the last 200+ years

Context

- East India Company College at Haileybury trained civil servants, 1805-1858
- Political economy: Malthus (1805 to 1834 death), Jones (1835 to 1854)
- Cohort-level variation in exposure to Malthusian ideas
- Promotions by seniority: timing dependent on resignation, promotion, or death of senior servants
- Droughts strike districts at different times, random



- “[T]hese are **incontrovertible truths**:”
 - ▶ Natural law: geometric population, linear food

John Venn, Malthus student:

- “The great idea upon which Malthus was always harping was the **terrible increase of our populations**”

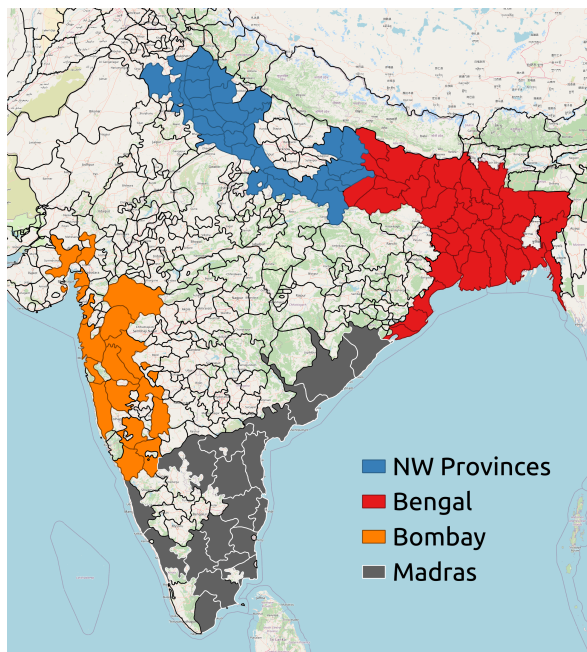


- “The facts... are **utterly inconsistent** with the dogma that population is always increasing... beyond the supplies of food”
- CP Hobhouse, Jones student:
 - ▶ “I can recollect to this day” the “**contemptuous way** in which he settled **Malthus’s theory of “misery, vice, and moral restraint”**”

Region of study

Four provinces governed by civil service

- Northwest Provinces, Bengal, Bombay, Madras
- Omits semi-autonomous “princely states”
 - ▶ Mysore, Hyderabad, etc.
- Omits provinces administered by the British military
 - ▶ Punjab, Central Provinces, etc.



Focus on responses of collector: crises

- Collectors played a central role during periods of crisis in the district
- “[T]he Collector has to interest himself in all matters affecting the well-being of the people... In times of stress and difficulty his duties and responsibilities are increased tenfold... **Should the District be attacked by famine he is responsible for the lives of the people**; he must watch minutely, and keep the Government informed of the progress of events, and **must organize and carry out the measures of relief**” - [Nathan et al. \(1909\)](#)
- Collectors held extreme discretion over local proceedings
 - ▶ Controlled local treasury
 - ▶ Discretionary adjustments: taxes, public expenditures, etc.

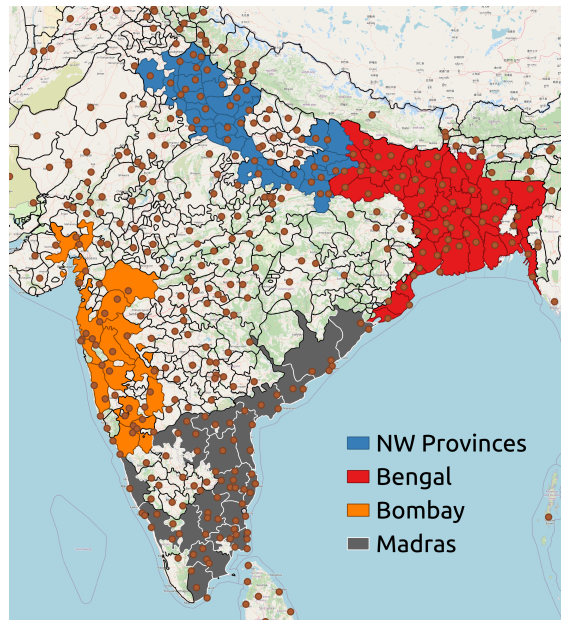
Data Sources

Archival records

- Collector training at the college, cohort
 - ▶ Attendance records
- Local policy official in each district-year
 - ▶ Collector assignments (registers)
- Rainfall in each district-year
 - ▶ Rainfall (next slide)
- Policy ultimately implemented in each district-year
 - ▶ Tax records (collections, write-offs)
 - ▶ Public works expenditures
 - ▶ Textual accounts of relief measures
- And much more...

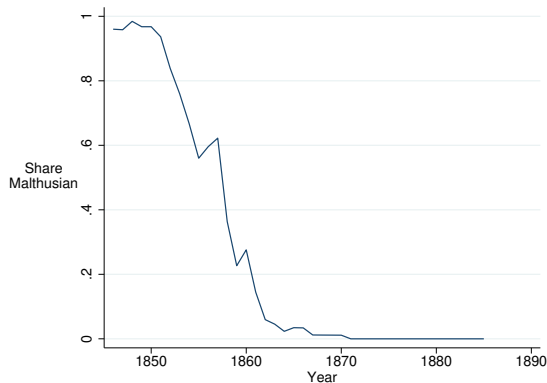
Income shocks: proxied by rainfall

- Income shocks: 458 stations across India, monthly rainfall
 - ▶ Aggregated to panel dimension, by district
- Standardized within district across years with land revenue records
- Drought: rainfall at least one standard deviation below district mean
 - ▶ Proxy for income shocks, raise probability of famine Prices & famines



Identification strategy

- Panel data: British districts, observed over many years
- Two sources of variation:
 - ▶ Death of Malthus: Malthusians slowly replaced by Jonesians
 - ▶ Incidence of drought: randomly strike the panel



Identification strategy

- Panel data: British districts, observed over many years
- Two sources of variation:
 - ▶ Death of Malthus: Malthusians slowly replaced by Jonesians
 - ▶ Incidence of drought: randomly strike the panel
- Comparison during drought (grey cells):
 - ▶ Within year, across districts
 - ▶ Within district, across years

Year 1

M	M	M
J	M	J
M	J	M

Year 2

M	J	J
J	M	J
M	J	J

Policy responses: empirical specification

$$y_{dt} = \underbrace{\delta_1 \text{drought}_{dt}}_{\text{Avg. drought response}} + \underbrace{\delta_2 \text{drought}_{dt} \times \text{Malthusian}_{dt}}_{\text{Avg. deviation, Malthusians}} + \beta \text{Malthusian}_{dt} + \gamma_t + \lambda_d + \epsilon_{dt}$$

- Responses to drought_{dt}
 - ▶ Malthus: “unfavourable seasons” are naturally felt “most severely” - *Essay*, 1826
- Malthusian_{dt} : collector studied with Malthus at Haileybury

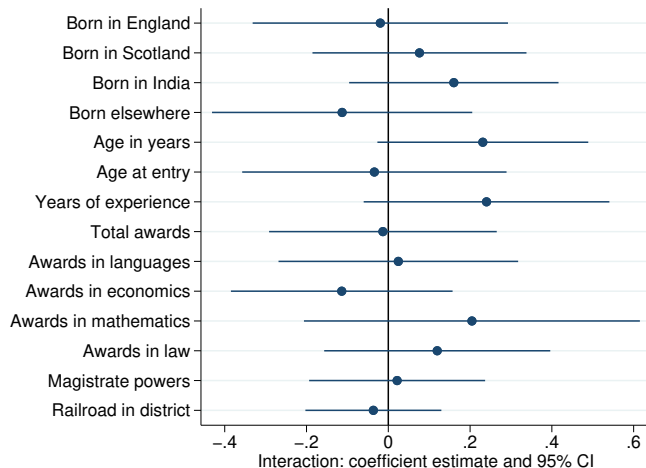
Identifying assumptions

- A1: $\mathbb{E}[\epsilon_{dt} | drought_{dt} \times Malthusian_{dt}] = 0$
 - ▶ OVB threat: some other characteristic driving policy responses to drought
 - ▶ District, collector characteristics; by chance or strategic assignment
- A2: Differences between Malthusian and control collectors only due to differences in relative exposure to economic ideas (not skills, etc.)
- Evidence supporting identification:
 - ▶ Balance of collector & district characteristics (next slide)
 - ▶ Heterogeneity
 - ▶ Weighted specifications
 - ▶ Placebo outcomes

Balance of standardized collector and district characteristics

$$y_{dt} = \delta_1 \text{drought}_{dt} + \underbrace{\delta_2 \text{drought}_{dt} \times \text{Malthusian}_{dt}}_{\text{Differences in characteristics during drought}} + \beta \text{Malthusian}_{dt} + \gamma_t + \lambda_d + \epsilon_{dt}$$

Differences in characteristics during drought



Tax write-offs during drought, results

	Land tax write-offs ('000 Rs.)			
	(1) PPML	(2) PPML	(3) OLS	(4) OLS
δ_1 : Drought (≥ 1 SD below mean)				
δ_2 : Malthusian $\times$ drought				
$\delta_1 + \delta_2$: Avg. Malthusian response				
Observations	2281	2281	2296	2296
Outcome mean	45.35	45.35	45.05	45.05
Outcome SD	127.7	127.7	127.3	127.3
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

Intensity

Tax write-offs during drought, results

	Land tax write-offs ('000 Rs.)			
	(1) PPML	(2) PPML	(3) OLS	(4) OLS
δ_1 : Drought (≥ 1 SD below mean)	0.0767 (0.0961)	0.105 (0.0950)	-9.813* (5.459)	-9.506* (5.613)
δ_2 : Malthusian $\times$ drought	-0.322** (0.162)	-0.325* (0.171)	-14.82** (7.417)	-13.74* (7.284)
$\delta_1 + \delta_2$: Avg. Malthusian response	-0.245** (0.119)	-0.220* (0.134)	-24.633*** (8.521)	-23.242*** (8.163)
Observations	2281	2281	2296	2296
Outcome mean	45.35	45.35	45.05	45.05
Outcome SD	127.7	127.7	127.3	127.3
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

Intensity

Madras log public expenditures during droughts, results

	Log total, imperial works		Log new works	Log repairs
	(1) OLS	(2) OLS	(3) OLS	(4) OLS
δ_1 : Drought (≥ 1 SD below mean)				
δ_2 : Malthusian $\times$ drought				
$\delta_1 + \delta_2$: Avg. Malthusian response				
Observations	308	291	291	291
Outcome mean	182.06	179.58	80.85	98.73
Outcome SD	126.53	127.08	87.04	71.17
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	No	No	No	No

Madras log public expenditures during droughts, results

	Log total, imperial works		Log new works	Log repairs
	(1) OLS	(2) OLS	(3) OLS	(4) OLS
δ_1 : Drought (≥ 1 SD below mean)	0.00781 (0.0674)	0.0491 (0.0684)	0.148 (0.137)	0.0946 (0.0654)
δ_2 : Malthusian $\times$ drought	-0.137 (0.118)	-0.236* (0.128)	-0.374* (0.195)	-0.273** (0.117)
$\delta_1 + \delta_2$: Avg. Malthusian response	-0.129 (0.123)	-0.186 (0.127)	-0.226 (0.216)	-0.179* (0.090)
Observations	308	291	291	291
Outcome mean	182.06	179.58	80.85	98.73
Outcome SD	126.53	127.08	87.04	71.17
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	No	No	No	No

Intervention probabilities during droughts, extensive margin results

	Government works	Gratuitous relief	Food imports	Government advances
	(1) OLS	(2) OLS	(3) OLS	(4) OLS
δ_1 : Drought (≥ 1 SD below mean)				
δ_2 : Malthusian $\times$ drought				
$\delta_1 + \delta_2$: Avg. Malthusian coef.				
Observations	2296	2296	2296	2296
Outcome Mean	1.858	1.142	0.566	1.700
Outcome SD	9.317	9.361	5.627	9.536
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	No	No	No	No

- **No financial records**
- Imputed from textual accounts
- Common: Famine Commission (1880)
- Accounts from Imperial Gazetteer

Intensity

Intervention probabilities during droughts, extensive margin results

	Government works	Gratuitous relief	Food imports	Government advances
	(1) OLS	(2) OLS	(3) OLS	(4) OLS
δ_1 : Drought (≥ 1 SD below mean)	2.914*** (0.928)	1.101 (0.733)	1.012** (0.464)	3.072*** (0.958)
δ_2 : Malthusian $\times$ drought	-2.196** (0.899)	-0.841 (0.823)	-0.640* (0.354)	-1.762* (0.971)
$\delta_1 + \delta_2$: Avg. Malthusian coef.	0.718** (0.323)	0.260 (0.309)	0.371 (0.268)	1.309** (0.560)
Observations	2296	2296	2296	2296
Outcome Mean	1.858	1.142	0.566	1.700
Outcome SD	9.317	9.361	5.627	9.536
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	No	No	No	No

- **No financial records**
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Intensity

Additional results

- Bureaucrat performance Performance

- Heterogeneity Heterogeneity
 - ▶ By discretion/authority
 - ▶ By academic ability

- Famines and mortality Famines

Contributions to literature

- Literature on bureaucrats and performance ([Khan et al., 2016, 2019](#); [Bandiera et al., 2021](#); [Bertrand et al., 2020](#); [Xu, 2018](#); [Mehmood et al., 2021](#); [Spenkuch et al., 2021](#); [Khan, 2025](#))
 - ▶ **Contribution:** New evidence on how ideas affect policy implemented by bureaucrats
- Literature on the consequences of spreading ideas ([Yanagizawa-Drott, 2014](#); [Fuchs-Schündeln & Masella, 2013](#); [Stokes, 1959](#); [Ash et al., 2025](#); [Bai et al., 2023](#))
 - ▶ **Contribution:** Demonstrate how spread of ideas alters public services delivered to citizens
- Literature on the causes of famine/extreme food insecurity ([Smith, 1776](#); [Malthus, 1798](#); [Sen, 1981](#); [Roy, 2016](#))
 - ▶ **Contribution:** Evaluate whether training of bureaucrats shapes state responses to hunger

Conclusion

- **Conclusion:** Exposure to economic ideas changes policy implemented by bureaucrats
- **Empirical findings:**
 - ▶ Types of ideas matter
 - ▶ Training affects discretion for decades
 - ▶ Heterogeneity: more senior bureaucrats exhibit greatest effects
- **Policy:** training can align implementation with goals of principals
 - ▶ Agency heads seem like the highest-value targets
 - ▶ Either select those already with training expected to align
 - ▶ Or possibly target training to them if you expect alignment
- **Future research:** Which types of training will be most effective?

Appendix

The appendix begins here

Did these responses align with principal priorities?

	Named for performance	
	(1) OLS	(2) OLS
δ_1 : Drought (≥ 1 SD below mean)	0.0629 (0.0583)	0.0554 (0.0597)
δ_2 : Malthusian $\times$ drought	-0.132 (0.0971)	-0.0814 (0.0939)
Observations	1010	1010
Outcome mean	0.23	0.23
Controls	No	Yes

All specifications include district and year fixed effects.

Intensity

Relative alignment with priorities: by intensity of adverse shock

	(1)	(2)
Malthusian $\times$ shock (0.01-0.5 SD)	-0.0932 (0.0834)	-0.0434 (0.0836)
Malthusian $\times$ shock (0.5-1.0 SD)	-0.123 (0.0816)	-0.0621 (0.0887)
Malthusian $\times$ shock (1.0-1.5 SD)	-0.0851 (0.112)	-0.0512 (0.112)
Malthusian $\times$ shock (1.5+ SD)	-0.361*** (0.125)	-0.222* (0.120)
Observations	1010	1010
Outcome mean	0.23	0.23
District FE	Yes	Yes
Year FE	Yes	Yes
Controls	No	Yes

Back

Heterogeneity: relative tax write-offs by collector authority and discretion

Interaction variable:	Landlord district	Magistrate powers	Years of experience	District area, '00 square km
	(1) PPML	(2) PPML	(3) PPML	(4) PPML

Drought (≥ 1 SD below mean)

Malthusian $\times$ drought

Malthusian $\times$ drought $\times$ interaction var

Average differential response,
at 5th percentile interaction var

Average differential response,
at 95th percentile interaction var

Observations	2281	2281	2281	2281
5th percentile interaction var	0	0	13	35.42
95th percentile interaction var	1	1	30	218.07

All specifications include district and year fixed effects.

Heterogeneity: relative tax write-offs by collector authority and discretion

Interaction variable:	Landlord district	Magistrate powers	Years of experience	District area, '00 square km
	(1) PPML	(2) PPML	(3) PPML	(4) PPML
Drought (≥ 1 SD below mean)	0.0732 (0.0946)			
Malthusian $\times$ drought	-0.366** (0.181)			
Malthusian $\times$ drought $\times$ interaction var	0.333 (0.357)			
Average differential response, at 5th percentile interaction var	-0.366** (0.181)			
Average differential response, at 95th percentile interaction var	-0.033 (0.352)			
Observations	2281	2281	2281	2281
5th percentile interaction var	0	0	13	35.42
95th percentile interaction var	1	1	30	218.07

All specifications include district and year fixed effects.

Heterogeneity: relative tax write-offs by collector authority and discretion

Interaction variable:	Landlord district	Magistrate powers	Years of experience	District area, '00 square km
	(1) PPML	(2) PPML	(3) PPML	(4) PPML
Drought (≥ 1 SD below mean)	0.0732 (0.0946)	0.261** (0.113)		
Malthusian $\times$ drought	-0.366** (0.181)	-0.181 (0.206)		
Malthusian $\times$ drought $\times$ interaction var	0.333 (0.357)	-0.133 (0.272)		
Average differential response, at 5th percentile interaction var	-0.366** (0.181)	-0.181 (0.206)		
Average differential response, at 95th percentile interaction var	-0.033 (0.352)	-0.315* (0.174)		
Observations	2281	2281	2281	2281
5th percentile interaction var	0	0	13	35.42
95th percentile interaction var	1	1	30	218.07

All specifications include district and year fixed effects.

Heterogeneity: relative tax write-offs by collector authority and discretion

Interaction variable:	Landlord district	Magistrate powers	Years of experience	District area, '00 square km
	(1) PPML	(2) PPML	(3) PPML	(4) PPML
Drought (≥ 1 SD below mean)	0.0732 (0.0946)	0.261** (0.113)	-0.975 (0.784)	
Malthusian $\times$ drought	-0.366** (0.181)	-0.181 (0.206)	1.897 (1.998)	
Malthusian $\times$ drought $\times$ interaction var	0.333 (0.357)	-0.133 (0.272)	-0.0850 (0.0755)	
Average differential response, at 5th percentile interaction var	-0.366** (0.181)	-0.181 (0.206)	0.793 (1.021)	
Average differential response, at 95th percentile interaction var	-0.033 (0.352)	-0.315* (0.174)	-0.652** (0.310)	
Observations	2281	2281	2281	2281
5th percentile interaction var	0	0	13	35.42
95th percentile interaction var	1	1	30	218.07

All specifications include district and year fixed effects.

Heterogeneity: relative tax write-offs by collector authority and discretion

Interaction variable:	Landlord district	Magistrate powers	Years of experience	District area, '00 square km
	(1) PPML	(2) PPML	(3) PPML	(4) PPML
Drought (≥ 1 SD below mean)	0.0732 (0.0946)	0.261** (0.113)	-0.975 (0.784)	0.277 (0.208)
Malthusian $\times$ drought	-0.366** (0.181)	-0.181 (0.206)	1.897 (1.998)	-0.0821 (0.294)
Malthusian $\times$ drought $\times$ interaction var	0.333 (0.357)	-0.133 (0.272)	-0.0850 (0.0755)	-0.00159 (0.00175)
Average differential response, at 5th percentile interaction var	-0.366** (0.181)	-0.181 (0.206)	0.793 (1.021)	-0.138 (0.244)
Average differential response, at 95th percentile interaction var	-0.033 (0.352)	-0.315* (0.174)	-0.652** (0.310)	-0.428** (0.214)
Observations	2281	2281	2281	2281
5th percentile interaction var	0	0	13	35.42
95th percentile interaction var	1	1	30	218.07

All specifications include district and year fixed effects.

Heterogeneity: relative tax write-offs by collector awards

Awards variable:	Total	Languages	Economics	Mathematics
	(1)	(2)	(3)	(4)
	PPML	PPML	PPML	PPML

Drought (≥ 1 SD below mean)

Malthusian $\times$ drought

Malthusian $\times$ drought $\times$ awards

Back

Average differential response,
at 5th percentile awards

Average differential response,
at 95th percentile awards

Observations	2281	2281	2281	2281
5th percentile awards	0	0	0	0
95th percentile awards	8	4	1	1

All specifications include district and year fixed effects.

Heterogeneity: relative tax write-offs by collector awards

Awards variable:	Total	Languages	Economics	Mathematics
	(1)	(2)	(3)	(4)
	PPML	PPML	PPML	PPML
Drought (≥ 1 SD below mean)	0.158 (0.113)	0.184 (0.122)	0.0955 (0.0981)	0.125 (0.108)
Malthusian $\times$ drought	-0.464** (0.219)	-0.450** (0.208)	-0.467** (0.185)	-0.371* (0.189)
Malthusian $\times$ drought $\times$ awards	0.0878 (0.0771)	0.191 (0.163)	0.867** (0.416)	0.538** (0.229)
Average differential response, at 5th percentile awards	-0.464** (0.219)	-0.450** (0.208)	-0.467** (0.185)	-0.371* (0.189)
Average differential response, at 95th percentile awards	0.238 (0.498)	0.313 (0.536)	0.401 (0.357)	0.167 (0.204)
Observations	2281	2281	2281	2281
5th percentile awards	0	0	0	0
95th percentile awards	8	4	1	1

[Back](#)

All specifications include district and year fixed effects.

Famines and mortality, results

	Famine, Gazzetteer		Famine, Srivastava		Mortality
	Incidence (1) OLS	Intensity (2) OLS	Incidence (3) OLS	Intensity (4) OLS	Log deaths (5) OLS
δ_1 : Drought	0.0847*** (0.0199)	0.0416*** (0.0117)	0.115*** (0.0255)	0.0669*** (0.0129)	-0.0628 (0.0413)
δ_2 : Malthusian $\times$ drought	-0.0469 (0.0284)	-0.0158 (0.0201)	0.0327 (0.0849)	-0.0584** (0.0261)	-0.0599 (0.0511)
Observations	2296	2296	1609	1609	834
Outcome mean (levels)	0.08	0.05	0.20	0.09	22,239
Outcome SD (levels)	0.28	0.17	0.40	0.21	15,313
District FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Controls	No	No	No	No	No

- Opposite directions, null
- No extensive margin with drought
- Consistent with relief magnitude

Back

Tax write-off responses: rainfall shortage intensity

	Land tax write-offs ('000 Rs.)			
	(1)	(2)	(3)	(4)
δ_1 : Negative rainfall shock (SD)	0.110 (0.0698)	0.134* (0.0752)	-5.135 (3.674)	-4.883 (3.737)
δ_2 : Malthusian $\times$ shock (SD)	-0.347*** (0.133)	-0.363** (0.155)	-16.73* (8.943)	-16.40* (9.092)
$\delta_1 + \delta_2$: Avg. Malthusian response	-0.237* (0.125)	-0.229 (0.147)	-21.862** (10.459)	-21.287** (10.732)
Observations	2281	2281	2296	2296
Specification	PPML	PPML	OLS	OLS
Outcome mean	45.35	45.35	45.05	45.05
Outcome SD	127.7	127.7	127.3	127.3
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

Public expenditures and interventions: rainfall shortage

	Imperial works	Govt. works	Gratuitous relief	Food imports	Govt. advances
	(1)	(2)	(3)	(4)	(5)
δ_1 : Negative rainfall shock (SD)	0.119 (0.0989)	1.669*** (0.537)	1.068** (0.498)	0.579** (0.249)	1.948*** (0.615)
δ_2 : Malthusian $\times$ shock (SD)	-0.0223 (0.131)	-1.414** (0.570)	-1.048* (0.531)	-0.503** (0.220)	-1.530** (0.696)
$\delta_1 + \delta_2$: Avg. Malthusian coef.	0.097 (0.152)	0.255 (0.241)	0.020 (0.185)	0.076 (0.092)	0.417 (0.434)
Observations	308	2296	2296	2296	2296
Outcome Mean	182.06	1.858	1.142	0.566	1.700
Outcome SD	126.53	9.317	9.361	5.627	9.536
District FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Controls	No	No	No	No	No

Collector commendations: rainfall shortage intensity

	(1)	(2)
δ_1 : Negative rainfall shock (SD)	0.0406 (0.0355)	0.0299 (0.0344)
δ_2 : Malthusian $\times$ shock (SD)	-0.135** (0.0573)	-0.0781 (0.0565)
Observations	1010	1010
Outcome mean	0.23	0.23
Controls	No	Yes

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