Pitchforks

Strategic Allocation of Policy Benefits Under Autocracy

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Question

And tentative framing

Do autocrats favour **loyal or opposing** communities?

- Maintain coalition → loyalists: integrity of ruling coalition by private goods distribution (Bueno de Mesquita, Smith, et al. 2003), critiqued in Clarke and Stone 2008; Gallagher and Hanson 2015;
- Prevent revolution → opponents: material benefits "buy off" problematic segments of society (Bueno de Mesquita and Smith 2010), e.g.:
  - workers (Kim and Gandhi 2010),
  - citizens threatening collective-action (Chen, Pan, and Xu 2016).

Preview

The argument: buying off opponents

- Case study of **development under autocracy**:
  - *Battle for Wheat*: flagship agricultural policy in fascist Italy.
- The policy improved wheat productivity by distributing agricultural inputs:
  - Strikes signal **collective-action potential** (e.g. Lorentzen 2013; Chen and Xu 2017)
  - ↑ development ⇒ ↓ propensity to rebel.
- Hence:
  - more inputs were allocated to more threatening communities,
  - and they had **better than expected policy outcomes**.
- Problems:
  - Inputs are unobserved,
  - agricultural characteristics influence outcomes → decomposition based on GAEZ v3 data,
  - strikes are not random → IV based on anomalous rainfall.

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History

A threat proxy: agrarian strikes of 1920

Two Red Years (1919-1920) saw **massive mobilization** (Di Paola 2009).
In agriculture:

- harvest-time strikes,
- land seizures (De Felice 1965),

often met with harsh repression (Bianchi 2006; Clark 1973).

History

Allocating development: The Battle for Wheat

Battle for Wheat (1925-1941):

- seed selection (Salvi, Porfiri, and Ceccarelli 2013),
- subsidies for machinery and fertilizers,
- boosted *Travelling Chairs of Agriculture*.

Impact on the diet is debated (Cohen 1979) but it led to wheat **productivity gains** (Carillo 2021).

no change in other crops

Data

Core municipal-level variables

Dependent variable:

- **Wheat productivity gains**: $Gain_i = \bar{y}_{1923-1928} - y_{1929}$ from the Agricultural Cadastre of 1929, digitized by Carillo 2021,

decomposed with:

- **Theoretical yield improvements**: FAO GAEZ v.3, shift from low to intermediate input.

Explanatory variable:

- **Strike data**: agricultural strikes in 1920 from the Ministry's 1921 Labor Bulletin,

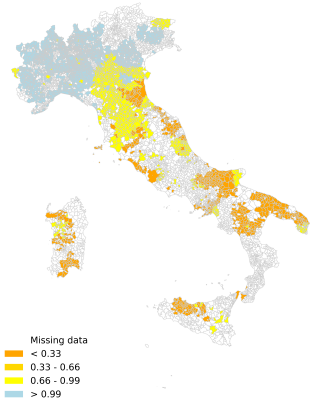
instrumented with:

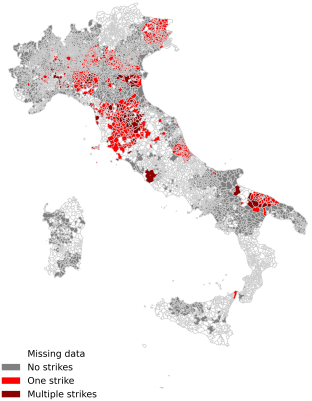
- **Rainfall**: excess rainfall in winter-spring 1919 and 1920 relative to mean from Hydrographic Bulletins (1915-79, 427 stations),

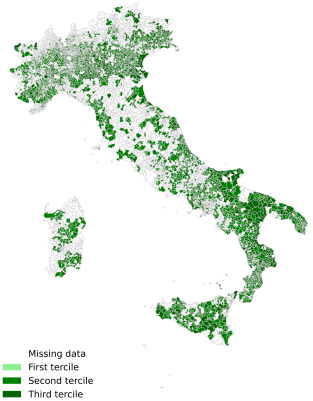
both collected by Acemoglu et al. 2022.

Data

Geographic coverage



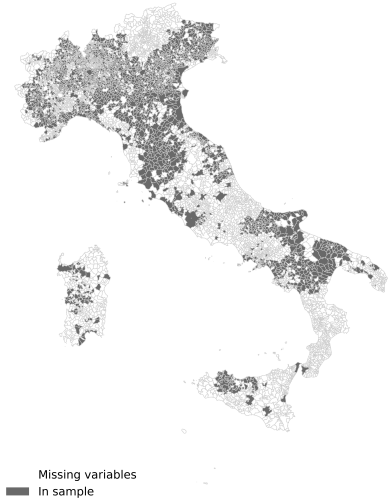




Data

Municipal-level control sets

- *Geographic*: distance from waterways and urban centres, density of railroads, historical malaria, elevation, ruggedness, municipal area;
- *Social*: literacy, workforce composition, average farm size, land GINI;
- *Political*: fascist organisation (branch and donors), fascist violence, new towns, PNF and PSU vote shares.



Analysis

OLS - Opposition and productivity gains

Table: Strikes and Productivity Gains - OLS

	BfW			
'20 Agrarian Strikes	0.519***	0.408***	0.422***	0.421***
	(0.162)	(0.133)	(0.140)	(0.140)
Fascist vote %	0.008	0.003	0.003	0.003
	(0.007)	(0.011)	(0.011)	(0.011)
Socialist vote %	0.363***	0.114	0.121	0.128
	(0.131)	(0.113)	(0.118)	(0.119)
Province FEs	✓	✓	✓	✓
Geographic		✓	✓	✓
Social			✓	✓
Political				✓
Mean outcome	0.089	0.089	0.077	0.077
Adjusted R^2	0.417	0.463	0.473	0.473
F-stat	5.872	3.999	2.605	3.278
Municipalities	4461	4460	4171	4171

Analysis

OLS - Problems

Omitted variable bias, e.g.:

1. agricultural features
2. socio-economic features

Tackled by:

1. *decomposition*: prediction based on theoretical productivity gains → focus on socio-economic dimension,
2. *instrumentation*: strikes as caused by anomalous rain → $LATE$ of strikes.

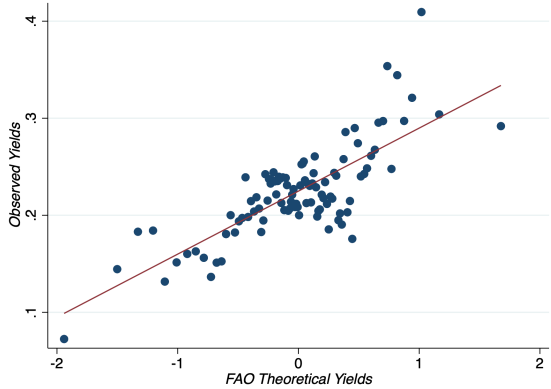
Analysis - Outcome variable

Theoretical gains as predictors

Theoretical gains: low → intermediate level of input in FAO's GAEZ v.3 equation

- $\hat{Gain}_i$: geomorphological/agricultural component
- $\tilde{Gain}$: unexplained component

$$\text{Gain}_i = \alpha + \beta \text{PRI}_i + \delta_p + \tilde{\text{Gain}}_i$$



Analysis

OLS - Opposition and decomposed gains

Table: Decomposed Gains and Strikes - OLS

	Fitted				Residuals			
'20 Agrarian Strikes	0.061***	0.019*	0.017*	0.017*	0.451***	0.386***	0.402***	0.400***
	(0.022)	(0.010)	(0.009)	(0.009)	(0.147)	(0.132)	(0.139)	(0.139)
Fascist vote %	0.003**	0.002**	0.002***	0.002***	0.006	0.003	0.003	0.003
	(0.001)	(0.001)	(0.001)	(0.001)	(0.008)	(0.010)	(0.010)	(0.010)
Socialist vote %	0.195***	0.066**	0.066**	0.061**	0.158	0.063	0.072	0.084
	(0.051)	(0.028)	(0.028)	(0.028)	(0.127)	(0.112)	(0.119)	(0.119)
Province FEs	✓	✓	✓	✓	✓	✓	✓	✓
Geographic		✓	✓	✓		✓	✓	✓
Social			✓	✓			✓	✓
Political				✓				✓
Mean outcome	0.069	0.069	0.071	0.071	0.038	0.038	0.024	0.024
Adjusted R^2	0.633	0.805	0.807	0.808	0.385	0.400	0.409	0.410
F-stat	7.707	27.696	20.811	21.190	3.629	2.048	1.460	2.049
Municipalities	4509	4508	4217	4217	4393	4392	4108	4108

Analysis - Explanatory variable

Instrumentation: rainfall 1918-1920

Anomalous rainfall in 1918-1920 $\rightarrow$ exogenous variation in strikes in 1920:

$$\hat{\text{strikes}}_i = \alpha_1 + \beta_1 \mathbf{rain}_i + \Theta_1 \mathbf{X}_{it} + \delta_{pt}$$

$$\text{gain}_i = \alpha_2 + \beta_2 \hat{\text{strikes}}_i + \Theta_2 \mathbf{X}_{it} + \delta_{pt} + \epsilon_{it}$$

Controls $\mathbf{X}_{it}$ include:

- time-varying vote shares,
- overall rain deviation from the mean in 1918-1928.

Analysis - IV Results

Strikes lead to higher "unexplained" gains

Table: Effects of Strikes on Decomposed Policy Outcome - IV

	Actual		Fitted		Residuals	
'20 Agrarian Strikes	2.071**	2.165**	0.359	0.343	1.739*	1.834*
	(0.975)	(1.006)	(0.271)	(0.266)	(0.981)	(1.014)
Province FE	✓	✓	✓	✓	✓	✓
1918-28 Rain Variability	✓	✓	✓	✓	✓	✓
1919 PSU %	✓	✓	✓	✓	✓	✓
Geographic	✓	✓	✓	✓	✓	✓
Social	✓	✓	✓	✓	✓	✓
Political		✓		✓		✓
Mean outcome	0.079	0.078	0.075	0.094	0.022	0.003
Cragg-Donald F	26.225	24.226	28.236	25.619	26.900	24.500
Kleibergen-Paap F	2.729	2.670	2.535	2.520	2.819	2.731
Municipalities	3810	3383	3850	3412	3751	3324

Reduced form: 25th to 75th percentile of rain deviation $\rightarrow$ 4/5 SD change in *Gain*.

Analysis

IV - Some problems

1. **Relevance**: weak instrument
   → refine with original data,
2. **Excludability**:
   - Acemoglu et al. 2022 use rain in 1919 as robustness check
     → reciprocally controlled,
   - rain might affect yields directly
     → control for rain variation 1918-28,
3. Alternative interpretations, e.g. ↑ strikes:
   - ↑ labor organisation
   - ↑ bottom-up coercion of public officials

Conclusion

What this case study suggests

Empirically:

- exogenous variation in agrarian strikes ($\sim$ collective-action threat) $\Rightarrow$ higher productivity gains ($\sim$ policy benefits)

Interpretation:

- strikes are informative of level of threat $\Rightarrow$ **autocrat allocates more policy benefits to more threatening communities**

Thank you!

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IV

PRI Composition

$$PRI_{low,i} = \sum_c \frac{\bar{p}_0^w \hat{q}_{c,(low)}^w}{\sum_j \bar{p}_0^j \hat{q}_{c,(low)}^j} P(c|c \in i) \tag{1}$$

$$PRI_{int,i} = \sum_c \frac{\bar{p}_0^w \hat{q}_{c,(int)}^w}{\sum_j \bar{p}_0^j \hat{q}_{c,(low)}^j} P(c|c \in i) \tag{2}$$

$$PRI_i = PRI_{int,i} - PRI_{low,i} \tag{3}$$

i are municipalities, j crops, and c GAEZ cells, all at constant '19 prices (p).

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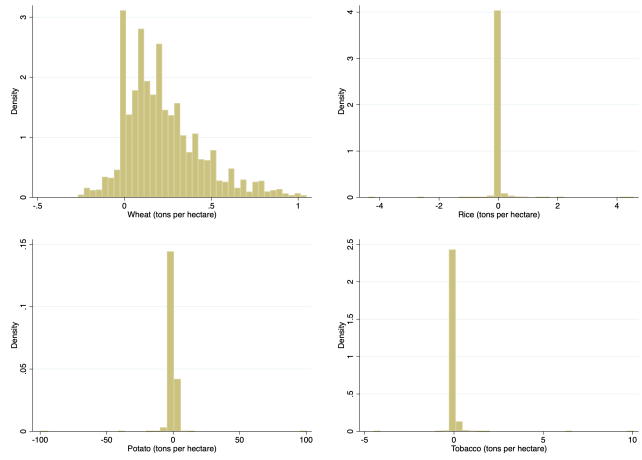
IV

Crops Change



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Rain: Reduced Form

Table: Anomalous Rain and Productivity Gains - Reduced Form

	BfW		$B\hat{f}W$		$B\tilde{f}W$	
'19-'20 Anomalous Rain	0.620	0.800**	0.117	0.115*	0.556	0.724*
	(0.378)	(0.388)	(0.072)	(0.064)	(0.394)	(0.399)
Province FEs	✓	✓	✓	✓	✓	✓
1918-28 Rain Variability	✓	✓	✓	✓	✓	✓
1919 PSU %	✓	✓	✓	✓	✓	✓
Geographic	✓	✓	✓	✓	✓	✓
Social	✓	✓	✓	✓	✓	✓
Political		✓		✓		✓
Mean outcome	0.079	0.078	0.075	0.094	0.022	0.003
Adjusted R^2	0.471	0.474	0.813	0.812	0.409	0.413
F-stat	2.816	4.508	27.986	152.818	1.614	4.557
Municipalities	3810	3383	3850	3412	3751	3324

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