

# Nothing to lose – nothing to gain? How poverty perpetuates dictatorship

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# Problem statement & Context

- The classical model of autocracy in the academic literature supposes that it is the rule of a few in the interest of a few at the expense of the most (de Mesquita & Root, 2002; Olson, 1993). «**Economic logic of autocracy**» (de Mesquita & Smith, 2011): take money from the poor, give money to the rich;
- So the poor are willing revolt (Acemoglu & Robinson, 2006)?
- The poor, who are the main losers of authoritarianism at the same time appear to be main supporters of dictatorship (de Mesquita & Smith, 2012; Simpser, 2013): PRI support in the poorest counties in Mexico (Magaloni, 2006);

# Problem statement, Research question & Subject

## The puzzle

Lack of actual general theory with an explicit causal mechanism, explaining the interplay between poverty and dictatorship

## Research question

How does the people's poverty affect political institutions to prolong authoritarian survival?

## Subject matter

Social and economic origins of the political regimes.

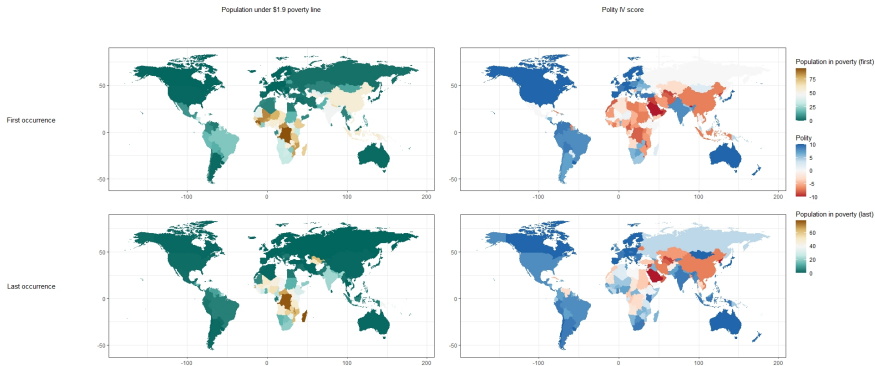


Figure: Poverty and political regimes after 1991

- 1 Social structure and political regimes: middle class and democracy (Moore Jr., 1966), democracy as the bargain between the people and the elites (Acemoglu & Robinson, 2006), income and regimes (Przeworski et al., 2000; Sanhueza, 1999);
- 2 Persistence as the social equilibria, feature of certain social groups (Acemoglu et al., 2020; Acemoglu & Robinson, 2012);
- 3 Consequences of poverty: biased time preferences (Shah et al., 2012), risk aversion (Haushofer & Fehr, 2014), less trust (Su et al., 2020) and social capital (Hamilton et al., 2016);

## Goal

The analysis of the effect of poverty on authoritarian persistence and the mechanism of such influence

## The **tasks**:

- 1 Create a formal theoretical model, explaining the impact of poverty (and its implications) on the political regime;
- 2 Empirically verify the model's predictions;
- 3 Check the robustness of the empirical investigations;
- 4 Test the proposed mechanism.

Rational choice **methodology**: limited rationality of the agents and their strategic choices.

## Methods:

- Game-theoretical formal modeling;
- Panel data analysis;
- Binary response models: conditional & Bayesian logit;
- Two-step least squares regressions;
- Causal mediation analysis;

# Formal model: setup 1

- In dictatorship citizens with different income choose between *revolt*, *staying at home* or *being co-opted*;
- *Revolting* is associated with additional costs compare with *staying at home*, *being co-opted* increases the utility (Magaloni, 2006);
- If enough citizens choose to *revolt*, the regime changes and all citizens benefit from it;
- Benefit from the regime change is delayed and the poor have biased time-preferences (Shah et al., 2012)  $\Rightarrow$  they choose to be co-opted and not to *revolt*;
- With higher poverty rates dictatorship is sustainable;



## Formal model: setup 2

- Exogenous shocks might open a democratic window of opportunity (Brückner & Ciccone, 2011; Brückner et al., 2012; Houle & Kayser, 2019);
- It reduces income so that the poor have nothing to lose and choose to *revolt*;
- But after the shock the game returns to the baseline setup and the poor do not pressure the regime anymore;

- ① Higher proportion of the poor reduces the probability of revolt, thus the regime remains non-democratic;
- ② Exogenous shocks can open up the window of opportunity for the poor to revolt;
- ③ However, this effect is short-term;

***Hypothesis 1*** States with higher levels of poverty are less democratic

***Hypothesis 2*** States with higher levels of poverty have a lower probability of the authoritarian regime breakdown

***Hypothesis 3*** In presence of an exogenous income shock higher levels of poverty result into the democratization process

***Hypothesis 4*** Higher poverty rates can hinder the democratizing effect of an exogenous income shock

Unbalanced time-series cross-sectional dataset for 170 unique country entries from 1960 to 2020:

- 1 Worldbank WDI poverty estimates (World Bank, 2020);
- 2 FH, Polity IV, Geddes' and V-dem political regime estimates (Coppedge et al., 2020; Freedom House, 2018; Geddes et al., 2014; Marshall & Jaggers, 2016);
- 3 Income shocks and economic crisis data from (Kotschy & Sunde, 2021; Reinhart et al., 2021)
- 4 Controls: economic indicators from WDI, inequality estimate from SWIID (Solt, 2020), social and political indexes from V-dem (Coppedge et al., 2020).

- a) states with higher levels of poverty are significantly less democratic, moreover, poverty causes lower democratic institutions quality;
- b) poverty statistically significant decreases the probability of the authoritarian breakdown;
- c) the interaction between the poverty rates and the exogenous negative income shocks does cause the short-term democratization;
- d) nonetheless, it does not have a positive impact on the long-term quality of the democratic institutions;
- result are robust for different regime and poverty measures, various model estimates, and additional controls for alternative explanations (urbanization and agriculture employment (Campante et al., 2019));

# Mechanism

Higher (instrumentalized) **poverty** rates significantly **reduce participation** in politics, which **lowers the quality of the democratic institutions**:

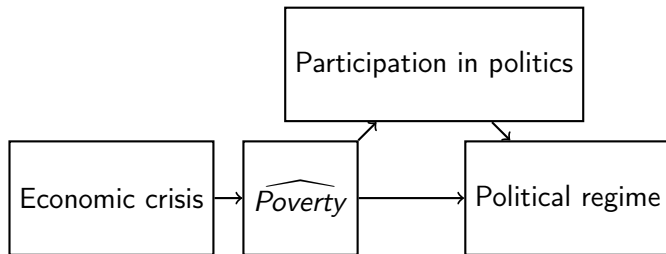


Figure: Mediation analysis scheme

The overestimation of the short-term consumption compare to the long-term benefits by the poor:

- (a) makes them vulnerable for the co-optation by the regime
- (b) reduces their ability to spend time participating in politics

This effect makes the states with higher poverty rates

- ① less democratic
- ② less likely to overthrow the dictatorship
- ③ less likely to benefit from the democratic window of opportunity, opened up by the exogenous income shocks

- Anecdotal evidence supports findings (LAO PDR, Angola, Guinea-Bissau, Haiti);
- Concrete social groups and their strategies (not just society at large) matter, as they affect institutional equilibria (Acemoglu et al., 2020); interplay between society and state, participation matters (Acemoglu & Robinson, 2019);
- Limitations: sample size, primitive formal model;
- Further development: individual-level data to verify the micro-level theoretical mechanism;



Thanks for you attention!

# Results

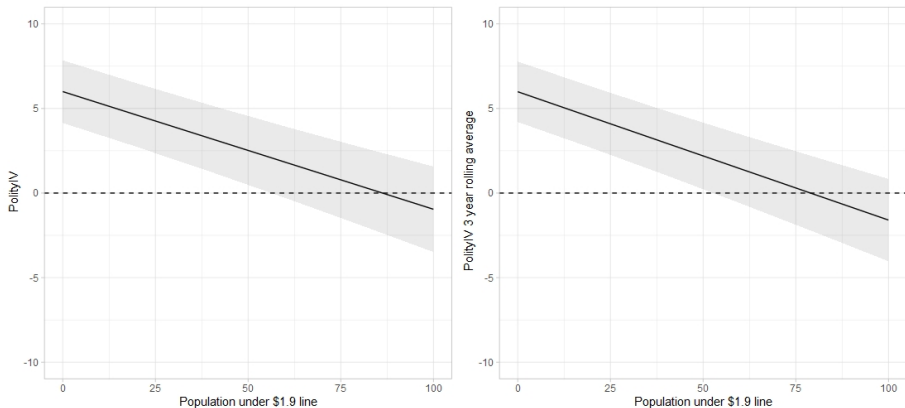


Figure: Predicted values of PolityIV

# Results

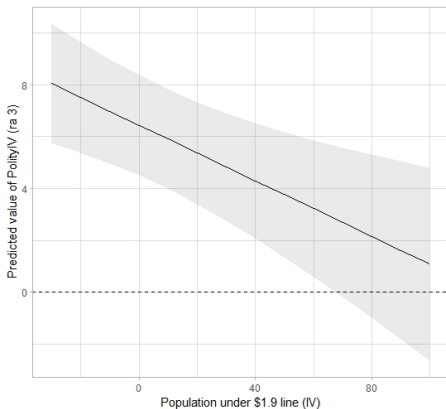
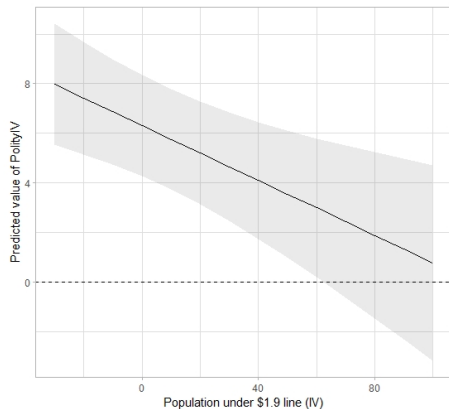


Figure: Predicted PolityIV score, 2SLS models

# Results

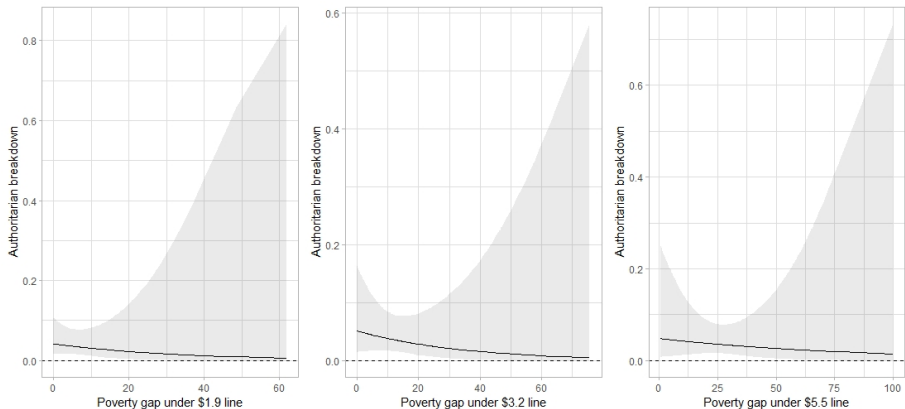
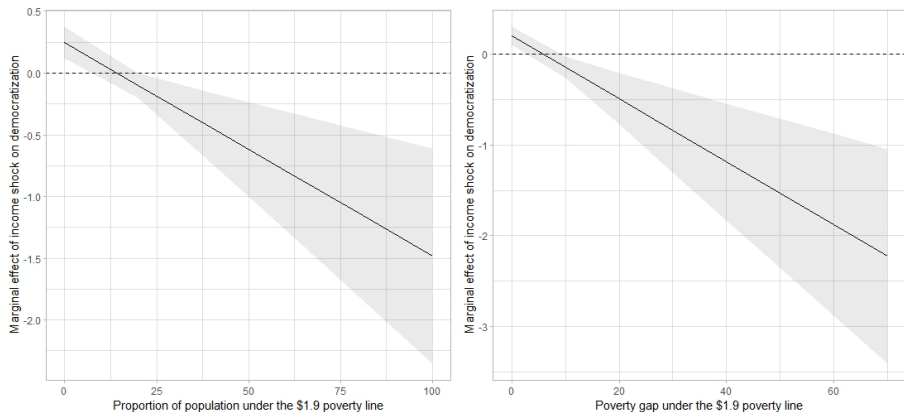


Figure: Predicted probabilities of authoritarian breakdown

# Results



**Figure:** Margin effect of negative income shock on democratization

# Results

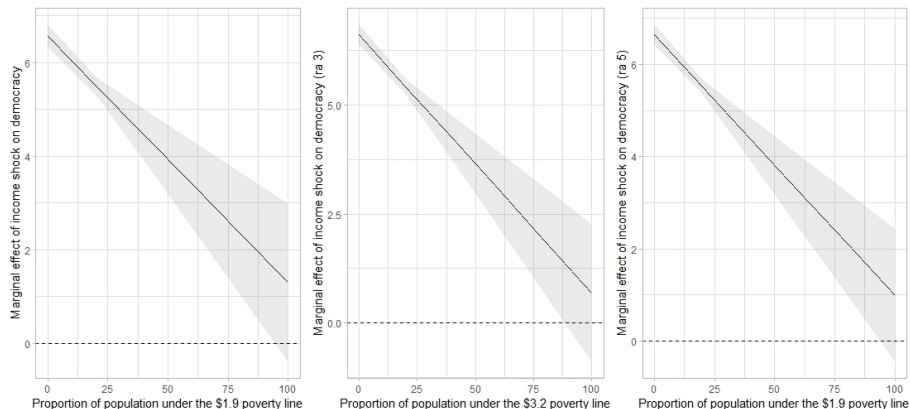


Figure: Margin effect of negative income shock on democratic quality

# Mechanism

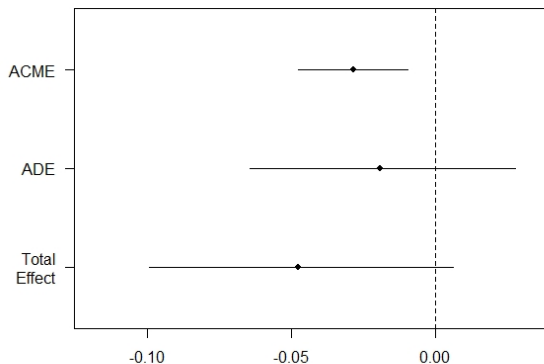


Figure: Average causal mediation, direct, and total effects

# Results

	<i>Dependent variable:</i>			
	PolityIV (lag)		PolityIV ra 3	
	(1)	(2)	(3)	(4)
Population under \$1.9 poverty line	-0.070** (0.032)		-0.076** (0.034)	
Population under \$1.9 poverty line (IV)		-0.055** (0.027)		-0.054** (0.026)
Mean years of schooling	-0.005 (0.288)	-0.011 (0.351)	0.006 (0.295)	-0.040 (0.353)
Log of GDP pc (PPP)	-0.922 (0.682)	-1.226* (0.651)	-1.060 (0.666)	-1.190* (0.648)
Gini market	0.056 (0.062)	0.004 (0.055)	0.061 (0.064)	0.016 (0.057)
<i>Fixed effects:</i>				
Country	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Observations	1,389	1,176	1,326	1,176
R <sup>2</sup>	0.048	0.009	0.065	0.009
Adjusted R <sup>2</sup>	-0.082	-0.146	-0.069	-0.146
F Statistic	15.329*** (df=4;1221)	2.389** (df=4;1016)	20.131*** (df=4;1159)	2.427** (df=4;1016)

*Heteroskedasticity-robust standard-errors*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01



# Results

	<i>Dependent variable:</i>		
	Authoritarian regime breakdown		
	(1)	(2)	(3)
Population under \$1.9 poverty line	−0.096** (0.070)		
Population under \$3.2 poverty line		−0.073* (0.060)	
Population under \$5.5 poverty line			−0.036 (0.072)
Mean years of schooling	0.415 (0.973)	0.578 (0.998)	0.748 (1.007)
Log of GDP pc (PPP)	−1.427 (3.275)	−2.496 (3.596)	−3.547 (3.995)
Gini market	−0.524 (0.745)	−0.321 (0.823)	−0.239 (0.835)
<i>Fixed effects:</i>			
Country	Yes	Yes	Yes
Year	No	No	No
Observations	219	219	219
R <sup>2</sup>	0.019	0.016	0.008
Max. Possible R <sup>2</sup>	0.115	0.115	0.115
Log Likelihood	−11.289	−11.635	−12.478
Wald Test (df = 4)	7.540	6.110	2.780
LR Test (df = 4)	4.141	3.447	1.763
Score (Logrank) Test (df = 4)	3.930	3.176	1.620

*Robust standard-errors in parentheses*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

# Results

	<i>Dependent variable:</i>	
	$\Delta$ Polity IV (lagged)	
	(1)	(2)
Population under \$1.9 poverty line	-0.018** (0.009)	
Poverty gap under \$1.9 poverty line		-0.037** (0.017)
PolityIV	-0.160*** (0.029)	-0.159*** (0.030)
Negative shock	-0.074 (0.072)	-0.076 (0.076)
Population under \$1.9 line:Negative shock	0.009** (0.004)	
Poverty gap under \$1.9 line:Negative shock		0.024** (0.010)
<i>Fixed effects:</i>		
Country	Yes	Yes
Year	Yes	Yes
Observations	1,358	1,358
R <sup>2</sup>	0.098	0.100
Adjusted R <sup>2</sup>	-0.047	-0.044
F Statistic (df = 4; 1169)	31.868***	32.605***
<i>Heteroskedasticity-robust standard-errors</i>		

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

# Results

	<i>Dependent variable:</i>		
	Polity IV (1)	Polity ra 3 (2)	Polity ra 5 (3)
Population under \$1.9 poverty line	−0.053 (0.034)	−0.059* (0.033)	−0.057* (0.033)
Negative shock	0.167 (0.239)	0.199 (0.225)	0.172 (0.222)
Population under \$1.9 line:Negative shock	0.002 (0.016)	0.001 (0.015)	0.004 (0.013)
<i>Fixed effects:</i>			
Country	Yes	Yes	Yes
Year	Yes	Yes	Yes
Observations	1,359	1,358	1,358
R <sup>2</sup>	0.025	0.036	0.039
Adjusted R <sup>2</sup>	−0.131	−0.118	−0.115
F Statistic (df = 3; 1170)	9.954***	14.472***	15.856***

*Heteroskedasticity-robust standard-errors*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

# Robustness

	<i>Dependent variable:</i>		
	Regime change (lagged)		
	(1)	(2)	(3)
Population under \$1.9 poverty line	−0.001*** (0.0003)		
Population under \$3.2 poverty line		−0.001*** (0.0002)	
Population under \$5.5 poverty line			−0.0005** (0.0002)
DD	−0.047*** (0.010)	−0.054*** (0.012)	−0.044*** (0.014)
Population under \$1.9 line:DD	0.001*** (0.0003)		
Population under \$3.2 line:DD		0.001*** (0.0002)	
Population under \$5.5 line:DD			0.0003 (0.0002)
<i>Fixed effects:</i>			
Country	Yes	Yes	Yes
Year	Yes	Yes	Yes
Observations	1,388	1,388	1,388
R <sup>2</sup>	0.019	0.021	0.012
Adjusted R <sup>2</sup>	−0.117	−0.115	−0.125
F Statistic (df = 6; 1218)	3.983***	4.398***	2.556**
<i>Controls included</i>			

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

# Robustness

	<i>Dependent variable:</i>	
	PolityIV (lag)	PolityIV ra 3
	(1)	(2)
Population under \$1.9 poverty line	−0.075** (0.034)	−0.084** (0.038)
Mean years of schooling	0.208 (0.365)	0.179 (0.369)
Log of GDP pc (PPP)	−0.880 (0.828)	−0.810 (0.849)
Gini market	−0.00005 (0.069)	0.013 (0.070)
Urban population proportion	0.007 (0.080)	0.006 (0.079)
Agriculture employment	0.064 (0.079)	0.089 (0.082)
State capacity	0.562 (0.351)	0.524* (0.308)
<i>Fixed effects:</i>		
Country	Yes	Yes
Year	Yes	Yes
Observations	789	789
R <sup>2</sup>	0.058	0.077
Adjusted R <sup>2</sup>	−0.162	−0.138
F Statistic (df = 7; 639)	5.622***	7.615***

*Heteroskedasticity-robust standard-errors*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01



# Robustness

	<i>Dependent variable:</i>	
	PCA regime (1)	PCA regime (lag) (2)
Population under \$1.9 poverty line	-0.069** (0.033)	-0.004** (0.002)
Mean years of schooling	0.122 (0.260)	0.013 (0.017)
Log of GDP pc (PPP)	-0.782 (0.667)	-0.043 (0.040)
Gini market	0.011 (0.055)	-0.001 (0.003)
Urban population proportion	0.002 (0.060)	0.001 (0.004)
Agriculture employment	0.057 (0.052)	0.003 (0.004)
State capacity	0.639** (0.275)	0.031* (0.017)
<i>Fixed effects:</i>		
Country	Yes	Yes
Year	Yes	Yes
Observations	789	789
R <sup>2</sup>	0.088	0.066
Adjusted R <sup>2</sup>	-0.125	-0.152
F Statistic (df = 7; 639)	8.773***	6.471***

Heteroskedasticity-robust standard-errors

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

# Robustness

	<i>Dependent variable:</i>		
	Authoritarian regime breakdown		
	(1)	(2)	(3)
Poverty gap under \$1.9 poverty line	-0.038 (0.104)		
Poverty gap under \$3.2 poverty line		-0.088 (0.083)	
Poverty gap under \$5.5 poverty line			-0.083 (0.080)
Mean years schooling	0.415 (0.973)	0.578 (0.998)	0.748 (1.007)
Log of GDP pc (PPP)	-1.427 (3.275)	-2.496 (3.596)	-3.547 (3.995)
Gini market	-0.524 (0.745)	-0.321 (0.823)	-0.239 (0.835)
<i>Fixed effects:</i>			
Country	Yes	Yes	Yes
Year	No	No	No
Observations	219	219	219
R <sup>2</sup>	0.008	0.013	0.013
Max. Possible R <sup>2</sup>	0.115	0.115	0.115
Log Likelihood	-12.532	-11.953	-11.978
Wald Test (df = 4)	2.640	4.830	5.270
LR Test (df = 4)	1.654	2.813	2.762
Score (Logrank) Test (df = 4)	1.586	2.787	2.641
<i>Robust standard-errors</i>	*p<0.1; **p<0.05; ***p<0.01		

# Robustness

	<i>Dependent variable:</i>		
	Regime change (lagged)		
	(1)	(2)	(3)
Population under \$1.9 poverty line	-0.046 (0.049)		
DD	-2.444 (1.494)	-2.548 (1.589)	-2.194 (1.709)
Population under \$1.9 poverty line:DD	0.037 (0.066)		
Mean years of schooling	0.072 (0.253)	0.059 (0.257)	0.096 (0.257)
Log of GDP pc (PPP)	-0.350 (0.789)	-0.404 (0.829)	-0.215 (0.811)
Gini market	0.057 (0.108)	0.060 (0.109)	0.047 (0.107)
Population under \$3.2 poverty line		-0.030 (0.032)	
Population under \$3.2 poverty line:DD		0.015 (0.041)	
Population under \$5.5 poverty line			-0.006 (0.026)
Population under \$5.5 poverty line:DD			0.004 (0.026)
<i>Fixed effects:</i>			
Country	Yes	Yes	Yes
Year	No	No	No
Num.Obs.	1388	1388	1388
AIC	475.8	475.7	477.2
BIC	1669.5	1669.4	1670.9
Log.Lik.	-9.878	-9.825	-10.596



# Robustness

	<i>Dependent variable:</i>	
	Authoritarian breakdowns	
	(1)	(2)
Population under \$1.9 poverty line	-0.089** (0.078)	-0.192*** (0.123)
Mean years of schooling	0.597 (1.155)	-0.831 (1.442)
Log of GDP pc (PPP)	-1.604 (3.810)	-2.453 (5.841)
Gini market	0.216 (0.962)	-0.055 (1.190)
State capacity	-0.534 (2.180)	
Urban population share		0.641** (0.461)
Agriculture employment		0.142 (0.247)
<i>Fixed effects:</i>		
Country	Yes	Yes
Year	No	No
Observations	204	211
R <sup>2</sup>	0.012	0.029
Max. Possible R <sup>2</sup>	0.100	0.117
Log Likelihood	-9.454	-10.060
Wald Test	9.250* (df = 5)	28.400*** (df = 6)
LR Test	2.476 (df = 5)	6.153 (df = 6)
Score (Logrank) Test	2.587 (df = 5)	5.392 (df = 6)
<i>Robust standard-errors</i>		

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

# Robustness

	<i>Dependent variable:</i>	
	$\Delta$ PCA regime (lag)	
	(1)	(2)
PCA regime	-0.012*** (0.003)	-0.011*** (0.003)
Population under \$1.9 poverty line	-0.001* (0.001)	
Poverty gap under \$1.9 line		-0.002** (0.001)
Negative shock	0.003 (0.004)	0.003 (0.004)
Mean years of schooling	-0.003 (0.004)	-0.002 (0.003)
Log of GDP pc (PPP)	-0.009 (0.011)	-0.004 (0.010)
Gini market	0.001 (0.001)	0.001* (0.001)
Urban population proportion	-0.001 (0.001)	-0.0005 (0.001)
Agriculture employment	0.001 (0.001)	0.001 (0.001)
Population under \$1.9 line:Negative shock	0.0001 (0.0002)	
Population under \$1.9 line:Negative shock		0.0003 (0.0004)
<i>Fixed effects:</i>		
Country	Yes	Yes
Year	Yes	Yes
Observations	1,159	1,159
R <sup>2</sup>	0.076	0.080
Adjusted R <sup>2</sup>	-0.075	-0.071
F Statistic (df = 9, 995)	9.101***	9.582***

Heteroskedasticity-robust standard-errors

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

# Robustness

	<i>Dependent variable:</i>		
	PCA regime (1)	PCA regime (lag) (2)	PCA regime ra 3 (3)
Population under \$1.9 poverty line	-0.068** (0.027)	-0.004*** (0.002)	-0.065*** (0.023)
Negative shock	0.228 (0.161)	0.009 (0.011)	0.200 (0.152)
Mean year of schooling	0.036 (0.177)	0.002 (0.012)	0.037 (0.168)
Log of GDP pc (PPP)	-0.129 (0.553)	-0.020 (0.035)	-0.317 (0.498)
Gini market	0.038 (0.044)	0.002 (0.003)	0.035 (0.038)
Urban population proportion	-0.018 (0.041)	-0.002 (0.003)	-0.028 (0.043)
Agriculture employment	0.036 (0.043)	0.001 (0.003)	0.029 (0.043)
Population under \$1.9 line:Negative shock	-0.012 (0.010)	-0.001 (0.001)	-0.009 (0.009)
<i>Fixed effects:</i>			
Country	Yes	Yes	Yes
Year	Yes	Yes	Yes
Observations	1,159	1,160	1,159
R <sup>2</sup>	0.091	0.078	0.101
Adjusted R <sup>2</sup>	-0.057	-0.072	-0.046
F Statistic	12.473*** (df = 8; 996)	10.518*** (df = 8; 997)	13.917*** (df = 8; 996)
<i>Heteroskedasticity-robust standard-errors</i>			

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table: Causal mediation analysis

	Estimate	95% CI Lower	95% CI Upper	p-value
ACME	-0.0284	-0.0475	-0.01	0.004***
ADE	-0.0193	-0.0646	0.03	0.432
Total Effect	-0.0476	-0.0994	0.01	0.074*
Prop. Mediated	0.5672	-1.2828	2.91	0.078*

*Quasi-Bayesian Confidence Intervals*

\* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

# Data

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Population under \$1.9 poverty line	1,685	10.458	17.780	0.000	0.300	11.800	94.100
Population under \$3.2 poverty line	1,685	19.995	25.991	0.000	0.700	30.500	98.500
Population under \$5.5 poverty line	1,685	33.135	32.469	0.000	2.200	57.600	100.000
Poverty gap under \$1.9 poverty line	1,685	4.040	7.926	0.000	0.100	3.900	63.600
Poverty gap under \$3.2 poverty line	1,685	8.636	13.440	0.000	0.300	10.900	77.100
Poverty gap under \$5.5 poverty line	1,685	16.289	19.791	0.000	0.900	25.000	100.000
PolityIV	8,710	0.980	7.408	-10.000	-7.000	8.000	10.000
FH score	7,547	1.966	0.816	1.000	1.000	3.000	3.000
PCA regime	7,068	0.557	0.358	0.000	0.160	0.920	1.000
Authoritarian breakdown	3,808	0.047	0.212	0.000	0.000	0.000	1.000
GDP pc (PPP)	5,585	14,836.280	18,451.890	285.586	2,695.894	20,235.200	154,095.700
GDP growth	9,469	3.831	6.192	-64.047	1.412	6.308	149.973
Gini market	5,594	45.552	6.815	21.800	41.325	49.400	72.500
Mean years of schooling	8,959	6.175	3.288	0.040	3.400	8.700	14.100
Regime change	8,805	0.014	0.118	0.000	0.000	0.000	1.000
DD (democracy-dictatorship)	8,208	0.455	0.498	0.000	0.000	1.000	1.000
State capacity	7,012	-0.006	1.007	-3.512	-0.779	0.662	2.862
Agriculture employment	5,580	29.520	24.310	0.059	7.405	46.887	92.303
Urban population share	11,955	48.882	24.532	2.080	28.585	68.400	100.000
Participation	9,898	0.387	0.209	0.015	0.195	0.575	0.897

PLM:

$$d_{i,t+k|k \in \{1,5\}} = \beta p_{i,t} + \sigma w_{i,t} + \mu_i + \tau_t + \varepsilon_{i,t} \quad (1)$$

2SLS:

$$p_{i,t} = \gamma s_{i,t-m|m \in \{0,3\}} + \sigma w_{i,t} + \mu_i + \tau_t + \varepsilon_{i,t} \quad (2a)$$

Fitted values from the equation above are used as a predictor for the political regime measure:

$$d_{i,t+k|k \in \{1,5\}} = \beta \hat{p}_{i,t} + \sigma w_{i,t} + \mu_i + \tau_t + \varepsilon_{i,t} \quad (2b)$$

Conditional logit:

$$\begin{aligned} P(y_{i,1} \dots y_{i,n_i} | \sum_{j=1}^{n_i} y_{i,j} = k_{1,i}) &= \\ &= \frac{\exp(\sum_{j=1}^{n_i} y_{i,j} \cdot (\beta p_{i,t} + \sigma w_{i,t} + \mu_i + \varepsilon_{i,t}))}{\sum_{d_i \in S_i} \exp(\sum_{j=1}^{n_i} y_{i,j} \cdot (\beta p_{i,t} + \sigma w_{i,t} + \mu_i + \varepsilon_{i,t}))} \end{aligned} \quad (3)$$

And linear probability models as for the rare event data if the response gets positive value in 25% cases or less frequently (and authoritarian breakdowns take place in 4.7% cases and regime changes as such in just 1.4% cases, see Figure 9) linear probability model is preferable to the logit (Timoneda, 2021):

$$ab_{i,t} = \beta p_{i,t} + \sigma w_{i,t} + \mu_i + \tau_t + \varepsilon_{i,t} \quad (4)$$

# Methods

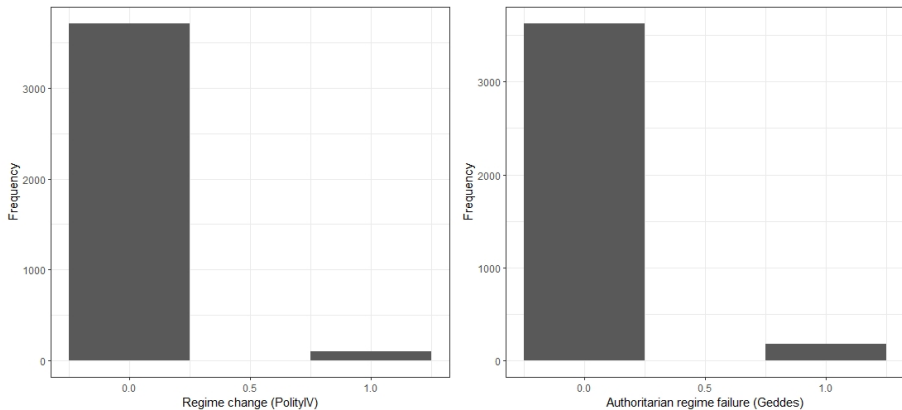


Figure: Regime breakdowns distributions



Placebo test: LPM

$$rc_{i,t} = \beta p_{i,t} + \eta DD_{i,t} + \gamma[p_{i,t} \cdot DD_{i,t}] + \sigma w_{i,t} + \mu_i + \tau_t + \varepsilon_{i,t} \quad (5)$$

Bayesian logit:

$$\begin{aligned} \beta, \eta, \gamma, \sigma &\sim N(\mu_j = 0, \varsigma_j^2) \\ \varsigma_j^2 &\sim \text{Inv-}\chi^2(\nu_j = 1, s_j = 2.5) \end{aligned} \quad (6a)$$

Estimating the following equation:

$$\log \left[ \frac{P(rc_{i,t} = 1)}{1 - P(rc_{i,t} = 1)} \right] = \beta p_{i,t}^\dagger + \eta DD_{i,t}^\dagger + \gamma[p_{i,t}^\dagger \cdot DD_{i,t}^\dagger] + \sigma w_{i,t}^\dagger + \mu_i + \varepsilon_{i,t} \quad (6b)$$

Income shocks and democratic institutions quality:

$$d_{i,t+k|k \in \{1,5\}} = \alpha s_{i,t-m|m \in \{0,3\}} + \beta p_{i,t} + \gamma [s_{i,t-m} \cdot p_{i,t}] + \sigma w_{i,t} + \mu_i + \tau_t + \varepsilon_{i,t} \quad (7)$$

Democratization:

$$\Delta d_{i,t+k|k \in \{1,5\}} = \eta d_{i,t} + \alpha s_{i,t-m|m \in \{0,3\}} + \beta p_{i,t} + \gamma [s_{i,t-m} \cdot p_{i,t}] + \sigma w_{i,t} + \mu_i + \tau_t + \varepsilon_{i,t} \quad (8)$$

## Methods: lagged effect

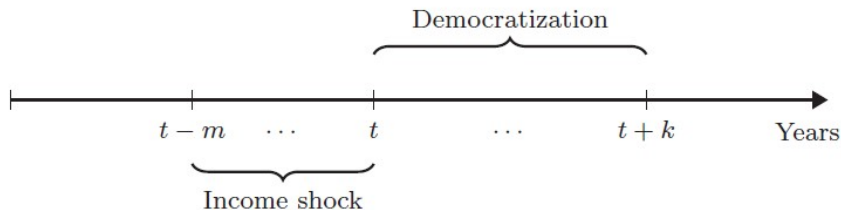


Figure: Lagged effect of income shock on democratization

# Methods

Auxiliary regression:

$$p_{i,t} = \gamma s_{i,t-m|m \in \{0,3\}} + \sigma w_{i,t} + \mu_i + \tau_t + \varepsilon_{i,t} \quad (9a)$$

Fitted values of poverty  $\hat{p}_{i,t}$  used as a treatment in the causal mediation analysis (Imai et al., 2010; Tingley et al., 2014). The following equations estimate the total effect of the instrumentalized poverty on the regime:

$$d_{i,t+k|k \in \{1,5\}} = \beta_1 \hat{p}_{i,t} + \sigma w_{i,t} + \mu_i + \tau_t + \varepsilon_{i,t} \quad (9b)$$

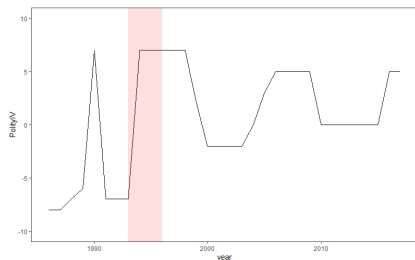
The effect of the instrumentalized poverty on the mediator:

$$m_{i,t} = \beta_m \hat{p}_{i,t} + \sigma_m w_{i,t} + \mu_i + \tau_t + \varepsilon_{i,t} \quad (9c)$$

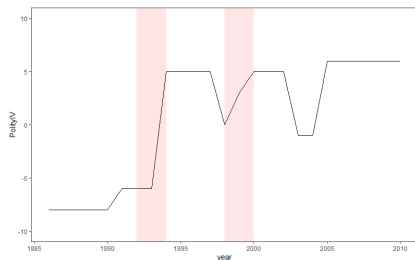
And the effect of the mediator and the treatment on the political regime:

$$d_{i,t+k|k \in \{1,5\}} = \beta_2 \hat{p}_{i,t} + \varphi m_{i,t} + \sigma w_{i,t} + \mu_i + \tau_t + \varepsilon_{i,t} \quad (9d)$$

# Discussion



(a) Haiti



(b) Guinea-Bissau

**Figure:** Failed democratization, red filled area – negative income shock

# Formal Model 1

- $N \in \{1, 2, \dots, n\}$  citizens of two types: with  $\tau_i = L$  (Low) or  $\tau_i = H$  (High) income.  $S$  is the share of the citizens with the Low income.
- Each citizen chooses  $a_i \in \{r, s, c\}$  where  $r$  denotes "revolt",  $s$  "stay at home" and  $c$  "co-opted by the regime".
- Revolting is associated with additional costs  $-c$  compare with staying at home ( $U_r = U_s - c < U_s$ ), being co-opted increases the utility by  $p$  ( $U_s < U_s + p = U_c$ )

## Formal model 2

- $t$  – the threshold for the amount of citizens choosing to "revolt" for the revolution to succeed, otherwise the dictatorship remains,  $t$  is the public information;
- All the citizens benefit from the revolution regardless of whether they participated or not (all citizens receive payoff  $P$ ):

$$U_{r,R} = P - c < U_{s,R} = P < U_{c,R} = P + p$$

- The benefit from revolt is delayed  $\delta P$  instead of simply  $P$ . Discount is higher for the citizens with high income ( $\delta_H > \delta_L$ )  $\Rightarrow$  the poor prefer to be co-opted  $a_i^{L*} = c$  (and those with high income to revolt);

- Negative exogenous income shock happens, which reduces the citizens' income, but does not affect their utility if the revolution succeeds.
- Equilibria reverts:  $a_i^{L,shock*} = r$ ,  $a_i^{H,shock*} = c$ , as the citizens with Low income have nothing to lose anymore, so they revolt;



# Formal model: utilities 1

Utilities for baseline: for type  $\tau_i = H$

$$U_{r,F}^H < U_{c,F}^H < U_{r,R}^H < U_{c,R}^H \quad (10a)$$

And for type  $\tau_i = L$

$$U_{r,F}^L < U_{r,R}^L < U_{c,F}^L < U_{c,R}^L \quad (10b)$$

Newer utilities are the following: for type  $\tau_i = H$

$$U_{r,F}^{H,shock} < U_{r,R}^{H,shock} < U_{c,F}^{H,shock} < U_{c,R}^{H,shock} \quad (11a)$$

And for type  $\tau_i = L$

$$U_{r,F}^{L,shock} < U_{c,F}^{L,shock} < U_{r,R}^{L,shock} < U_{c,R}^{L,shock} \quad (11b)$$

**Proposition 1** If  $N - S \cdot N < t$  there is no revolution in equilibria.

**Proposition 2** If  $N - S \cdot N \geq t$  there are multiple equilibria.

**Proposition 3** In presence of shock if  $S \cdot N \geq t$  there are multiple equilibria.

**Proposition 4** In presence of shock if  $S \cdot N < t$  there is no revolution in equilibria.

# Response

causal mediation analysis american political science review -sensitivity



Результатов: примерно 16 900 (0,12 сек.)

## Bias in perceptions of public opinion among political elites

[DE Broockman, C Skovron](#) - [American Political Science Review](#), 2018 - [cambridge.org](#)

... effort we undertook to shed new light on what contemporary **American politicians** believe about ... metric polarization generally persists (Shor 2015) but where variation gives **us** leverage to ... Our **analysis** excludes respondents from New Hampshire's House of Representatives districts, who ...

☆ 99 Цитируется: 149 Похожие статьи Все версии статьи (10) 🔗

[\[PDF\] cambridge.org](#)

[Full View](#)

## Does exposure to the refugee crisis make natives more hostile?

[D Hangartner, E Dinas, M Marbach...](#) - [American Political Science Review](#), 2019 - [cambridge.org](#)

... Time for interaction with the same person was minimal, and **casual** contact did not occur in a ... To estimate the **causal** effect of exposure to the refugee crisis on natives' exclusionary attitudes, **policy** prefer ... Hence, this robustness test was not prespecified in the pre-**analysis** plan ...

☆ 99 Цитируется: 213 Похожие статьи Все версии статьи (17) 🔗

[\[PDF\] cambridge.org](#)

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## [HTML] Education and anti-immigration attitudes: Evidence from compulsory schooling reforms across Western Europe

[C Cavaille, J Marshall](#) - ... [American Political Science Review](#), 2019 - [search.proquest.com](#)

... To explain this pattern, researchers and pundits have emphasized the **mediating** role of anti-immigration ... ordinal scales impose a linear relationship that may not hold if the **causal** relationship is ... We emphasize our **analysis** of the pooled data, which maximizes the design's power ...

☆ 99 Цитируется: 61 Похожие статьи Все версии статьи (6) 🔗

[\[HTML\] proquest.com](#)

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## Who leads? Who follows? Measuring issue attention and agenda setting by legislators and the mass public using social media data

[P Barberá, A Casas, J Nagler, PJ Egan...](#) - [American Political Science Review](#), 2019 - [cambridge.org](#)

... Our observational **analysis** is necessarily of a descriptive rather than a **causal** nature ...

[\[PDF\] cambridge.org](#)

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# Response

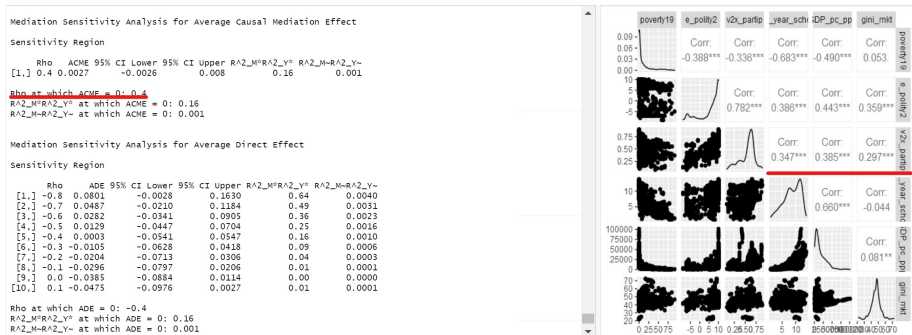


Figure: Sensitivity