

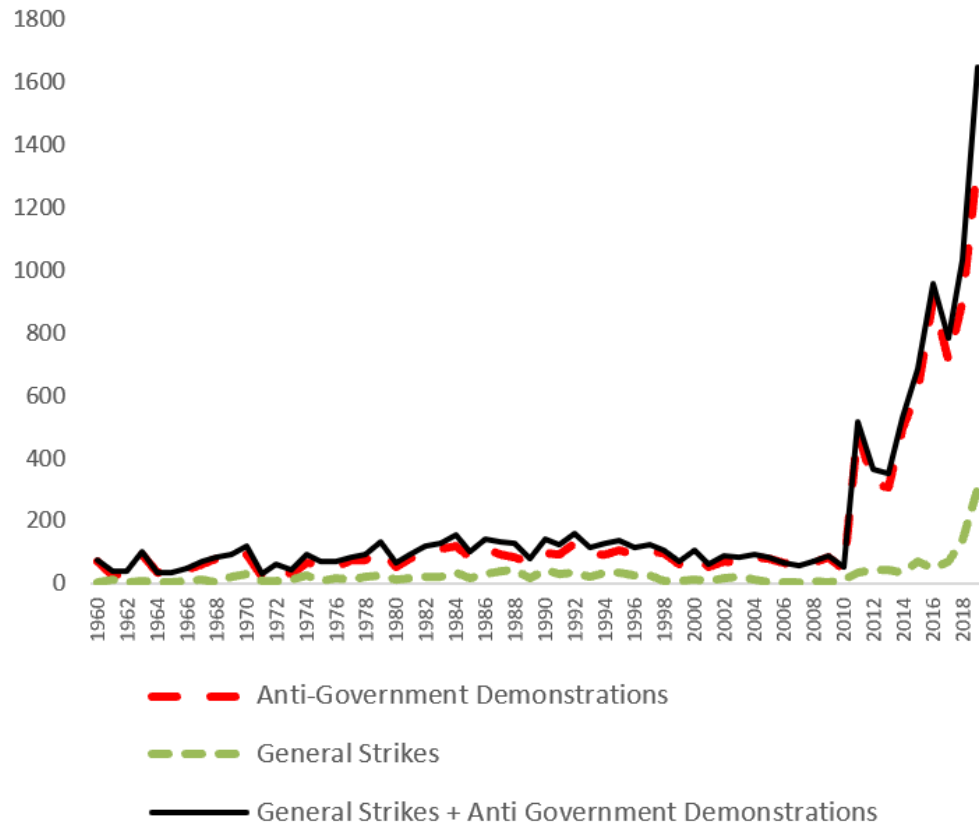
Perceptions, Contagion, and Civil Unrest

Annual Bank Conference on Development Economics
Poster Session 2: Perceptions and Realities Driving Social Unrest
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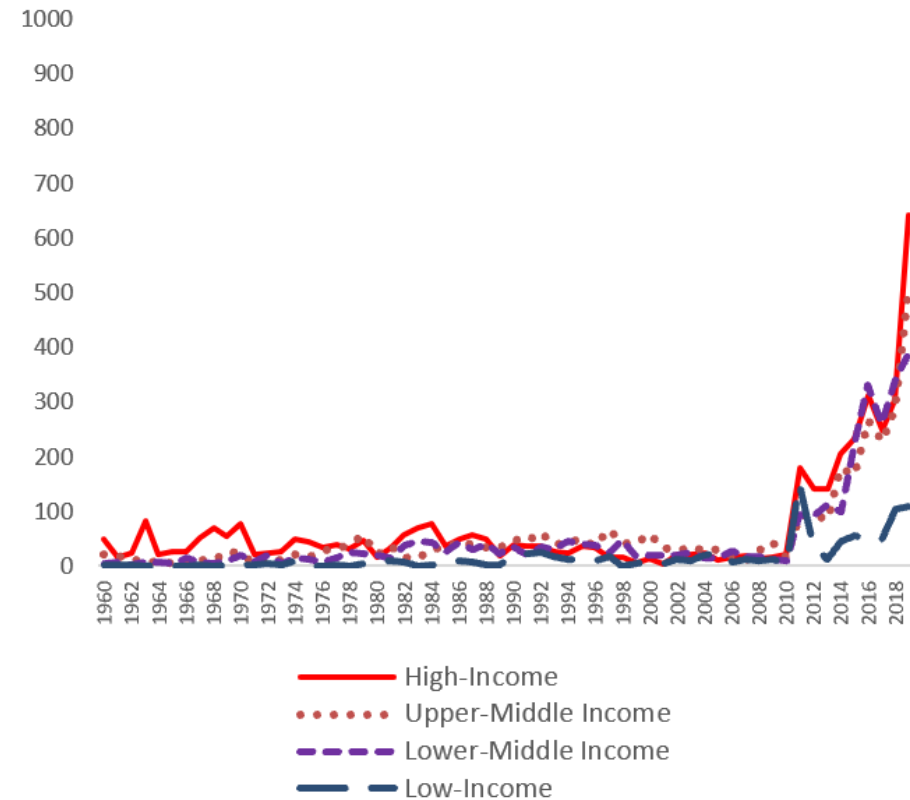
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Motivation: The Age of Protests

General Strikes and Anti-Government Demonstrations (Aggregate)



General Strikes and Anti-Government Demonstrations (By Income Group)



Questions and Contributions

➤ **Underlying Question**

- What drives protests? Economics and politics? Or *perceptions* of economic and political conditions?

➤ **Building on Existing Literature**

- Drivers and Determinants of Civil Resistance: Grievance-based approaches, resource mobilization, modernization theory, political opportunity approaches
- Life Satisfaction: Witte et al. (2020)
- Contagious Protests: Arezki et al (World Bank Policy Research Working Paper No. 9321, 2020)

➤ **What We Do**: Estimate determinants of the frequency of civil unrest (non-violent protests and strikes) w.r.t. economic conditions, political conditions, and *perceptions* of these conditions

- Leverage regional public opinion barometer survey data
- Political and economic perceptions, controlling for objective variables and protest contagion
- Robustness across samples, measurement, control variables, and estimation methods

➤ **Findings**: Perceptions of political conditions and contagion dominate over all else

- Sharp rise in protest frequency potentially through contagious protests

Baseline Estimations and Results: OLS with Fixed Effects

Table 1 – OLS with Country and Year Fixed Effects Regression Results (Full Sample)

Model	OLS with Country and Year Fixed Effects (Full Sample)												
Outcome Variable	Civil Resistance (Transformed at the Hyperbolic Inverse Sine)												
	Consists of the Number of General Strikes and Anti-Government Demonstrations												
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
% Thinking Economic Conditions Are Bad or Very Bad	0.147 (0.342)	0.138 (0.364)	0.097 (0.378)	0.133 (0.369)	0.079 (0.388)	-0.034 (0.396)	-0.034 (0.407)	0.017 (0.418)	-0.013 (0.439)	-0.009 (0.441)	-0.017 (0.446)	-0.021 (0.448)	-0.142 (0.467)
% Generally Not Satisfied with Democracy	1.613*** (0.534)	1.545*** (0.535)	1.537*** (0.532)	1.642*** (0.526)	1.668*** (0.554)	1.820*** (0.497)	1.775*** (0.530)	1.793*** (0.533)	1.829*** (0.547)	1.805*** (0.547)	1.814*** (0.550)	1.897*** (0.565)	1.923*** (0.572)
Log of GDP per Capita (Constant 2010 US\$)		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
GDP Per Capita Growth (Annual %)			YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Log of Total Population				YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Inflation (CPI) (Annual %)					YES	YES	YES	YES	YES	YES	YES	YES	YES
Unemployment, Total (% of Total Labor Force)						YES	YES	YES	YES	YES	YES	YES	YES
Oil Rents (% of GDP)							YES	YES	YES	YES	YES	YES	YES
Infant Mortality Rate (Per 1,000 Live Births)								YES	YES	YES	YES	YES	YES
Polity5 - Institutionalized Autocracy Score									YES	YES	YES	YES	YES
Political Terror Scale (Average)										YES	YES	YES	YES
Mobile Cellular Subscriptions (Per 100 People)											YES	YES	YES
Urban population (% of total population)												YES	YES
World Governance Indicators (Average of Sub-Indexes)													YES
Constant	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Number of observations	975	939	939	939	892	879	824	824	784	784	784	784	742
R2	0.526	0.450	0.450	0.455	0.463	0.477	0.397	0.399	0.401	0.401	0.401	0.403	0.405
Adjusted R2	0.513	0.434	0.434	0.438	0.445	0.458	0.374	0.375	0.375	0.375	0.374	0.375	0.378

note: *** p<0.01, ** p<0.05, * p<0.1. Robust Standard Errors Reported, clustered at the country level

Conducting Robustness Checks and Addressing Endogeneity Concerns

➤ **Conducting Robustness Checks**

- Sample Splits: By geography and income levels
- Count Data Models: Conditional-mean Poisson, negative binomial with country dummies
- Introducing Protest Contagion: Upholds results but erases international heterogeneity (*Mini Deep Dive*)
- Survey Harmonization: Scales, weights

➤ **Addressing Endogeneity Concerns**

- Omitted Variable Bias: By including a comprehensive array of control variables in the main specification
- Simultaneity Bias: By using an Instrumental Variables method with 3 and 5 instruments (lagged growth, lagged perceptions, perceptions contagion)

Mini Deep Dive: Introducing Protest Contagion

Table 4 – OLS Estimates with Distance Weighted-Protest Contagion Variable

Outcome Variable	Civil Resistance (Hyperbolic Inverse Sine of the Number of General Strikes and Anti-Government Demonstrations)				
	OLS with Country and Year Fixed Effects				
Model	(1)	(2)	(3)	(4)	(5)
% of Citizens Thinking Current Economic Conditions Are Bad or Very Bad	0.236 (0.334)	0.926** (0.439)	0.602* (0.361)	0.618 (0.423)	0.460 (0.330)
Economic Perception x Euro Dummy		-1.761*** (0.607)	-0.650 (0.553)		
Economic Perception x High-Income Dummy				-1.212* (0.632)	-0.368 (0.488)
% of Citizens Generally Not Satisfied with Democracy in Their Country	0.879*** (0.340)	0.953* (0.497)	0.741** (0.317)	1.198** (0.492)	0.838** (0.327)
Democratic Perception x Euro Dummy		2.332** (1.086)	0.193 (0.711)		
Democratic Perception x High-Income Dummy				1.541 (1.091)	-0.010 (0.638)
Distance-Weighted Protest Contagion	0.951*** (0.116)		0.943*** (0.117)		0.949*** (0.117)
Overdispersion					
Control Variables	YES	YES	YES	YES	YES
Country Fixed Effects	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES
Number of observations	742	742	742	742	742

note: *** p<0.01, ** p<0.05, * p<0.1

- After controlling for international contagion of civil unrest, international heterogeneity disappears
- However, the impact of dissatisfaction with lack of voice in the political system appears to be a robust central tendency in the data

Conclusions

- Perceptions of political conditions matter, as does international contagion
- Economic conditions and nature of political regimes do not seem to be robust determinants of the incidence of civil unrest events (anti-government protests + strikes)
- Protest contagion gets rid of international heterogeneity and is potentially behind the sharp rise in protest incidence worldwide
- Implications? Transparency; state legitimacy; insufficiency of reforms alone

Appendix

Appendix – Correlation Matrix for Baseline Sample

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Civil Resistance (Transformed)	1														
Perception of Economic Conditions	0.08**	1													
Perception of Political Conditions	0.21***	0.50***	1												
Ln of GDP per Capita	0.07***	-0.01	-0.37***	1											
GDP Per Capita Growth (Annual %)	-0.05***	-0.28***	-0.11***	0.03***	1										
Ln of Total Population	0.37***	-0.04	0.12***	-0.22***	0.01	1									
Inflation (CPI) (Annual %)	0.02*	0.04	0.13***	-0.04***	-0.05***	0.03**	1								
Total Unemployment (% of Labor Force)	-0.01	0.39***	0.16***	0.10***	-0.01	-0.17***	-0.01	1							
Oil Rents (% of GDP)	-0.08***	-0.16***	0.12***	0.11***	0.03**	0.01	-0.01	0.01	1						
Infant Mortality Rate (/1000)	-0.14***	-0.04	0.15***	-0.75***	-0.05***	0.08***	0.04***	-0.13***	0.03***	1					
Institutionalized Autocracy Score	-0.19***	-0.09***	-0.02	-0.33***	-0.02*	-0.14***	-0.01	-0.09***	0.38***	0.47***	1				
Average of Political Terror Scale Indicator	0.19***	-0.04	0.40***	-0.51***	-0.05***	0.46***	0.06***	-0.03**	0.12***	0.39***	0.29***	1			
Mobile Cellular Subscriptions (/100)	0.21***	0.00	-0.02	0.39***	0.00	0.04***	-0.05***	0.00	0.00	-0.45***	-0.28***	-0.16***	1		
Urban Population (% of Population)	0.15***	-0.16***	-0.15***	0.83***	0.00	-0.12***	-0.01	0.08***	0.15***	-0.67***	-0.29***	-0.29***	0.32***	1	
Average World Governance Indicators	-0.05***	-0.04	-0.52***	0.81***	-0.04***	-0.31***	-0.22***	0.02	0.27***	-0.67***	-0.39***	-0.74***	0.43***	0.52***	1

note: *** p<0.01, ** p<0.05, * p<0.1.

Appendix – Count Data Estimates

Table 3 – Count-Data Estimates

Outcome Variable	Civil Resistance (Count) <i>Consists of the Number of General Strikes and Anti-Government Demonstrations</i>											
	Model	Conditional-Mean Poisson					Negative Binomial with Country Dummies					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
% of Citizens Thinking Current Economic Conditions Are Bad or Very Bad	-0.510 (0.604)	-0.301 (0.532)	1.003* (0.517)	1.623*** (0.621)	1.017** (0.493)	1.501** (0.600)	-0.008 (0.403)	0.483 (0.549)	1.226** (0.534)	2.225*** (0.789)	1.076** (0.544)	1.848** (0.798)
Economic Perception x Euro Dummy			-3.414*** (1.019)	-3.576*** (0.847)					-2.700*** (0.774)	-2.980*** (1.000)		
Economic Perception x High-Income Dummy					-3.136*** (0.940)	-3.076*** (0.923)					-2.160*** (0.731)	-2.234** (0.967)
% of Citizens Generally Not Satisfied with Democracy in Their Country	2.957*** (0.788)	4.268*** (0.892)	2.006*** (0.561)	2.471*** (0.847)	1.923*** (0.531)	2.450*** (0.893)	2.929*** (0.566)	3.411*** (0.747)	1.753** (0.734)	1.652* (0.998)	2.022*** (0.739)	1.977* (1.010)
Democratic Perception x Euro Dummy			1.764 (1.180)	2.687* (1.595)					2.528** (1.109)	3.462** (1.569)		
Democratic Perception x High-Income Dummy					1.724 (1.248)	2.777* (1.566)					1.697 (1.068)	2.671* (1.490)
Overdispersion							-0.925*** (0.123)	-1.003*** (0.173)	-0.979*** (0.126)	-1.070*** (0.179)	-0.974*** (0.127)	-1.050*** (0.178)
Control Variables	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Country Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Number of observations	924	675	924	675	924	675	975	742	975	742	975	742

note: *** p<0.01, ** p<0.05, * p<0.1

Appendix – IV Estimates

Table 5 – OLS and TSLS Estimates with Protest Contagion Variable

Outcome Variable	Civil Resistance (Transformed)	Civil Resistance (Transformed)	% of Citizens Thinking Current Economic Conditions Are Bad or Very Bad	% of Citizens Generally Not Satisfied with Democracy in Their Country	Civil Resistance (Transformed)	% of Citizens Thinking Current Economic Conditions Are Bad or Very Bad	% of Citizens Generally Not Satisfied with Democracy in Their Country
	OLS Regression	Second Stage	First Stage	First Stage	Second Stage	First Stage	First Stage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
% of Citizens Thinking Current Economic Conditions Are Bad or Very Bad	0.303 (0.473)	0.164 (0.469)			-0.051 (0.364)		
% of Citizens Generally Not Satisfied with Democracy in Their Country	1.288** (0.517)	2.377** (1.015)			1.890*** (0.552)		
% of Citizens Thinking Current Economic Conditions Are Bad or Very Bad (1-Year Lag)			0.661*** (0.040)	0.068* (0.035)		0.406*** (0.038)	0.059* (0.030)
% of Citizens Generally Not Satisfied with Democracy in Their Country (1-Year Lag)			-0.151** (0.060)	0.370*** (0.052)		-0.112** (0.051)	0.186*** (0.041)
GDP Per Capita Growth (1-Year Lag)			-0.003* (0.002)	-0.001 (0.001)		-0.000 (0.001)	0.000 (0.001)
Contagion: % of Citizens Thinking Current Economic Conditions Are Bad or Very Bad						1.357*** (0.111)	-0.204** (0.088)
Contagion: % of Citizens Generally Not Satisfied with Democracy in Their Country						-0.129 (0.126)	1.574*** (0.100)
Distance-Weighted Protest Contagion	0.934*** (0.150)	0.905*** (0.065)	0.002 (0.008)	0.022*** (0.007)	0.915*** (0.060)	-0.010 (0.007)	0.009 (0.005)
Control Variables	YES	YES	YES	YES	YES	YES	YES
Country Fixed Effects	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES
Number of observations	468	468	468	468	468	468	468
Under-Identification Test (p-value)		0.0000			0.0000		
Weak Identification Test (Cragg-Donald Wald F Statistic)		26.225			91.820		
Stock-Yogo weak ID test critical values:							
10% maximal IV size		13.43			19.45		
15% maximal IV size		8.18			11.22		
20% maximal IV size		6.40			8.38		
25% maximal IV size		5.45			6.89		
Over-Identification Test (Chi-Square p-value for Sargan Statistic)		0.348			0.292		
Adjusted R2	0.619	0.715			0.718		

note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors reported