

Lecture 17

Gangs & Organized Crime II

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29 May 2019

Four big kinds of question in the study of organized crime

Interventions & program evaluation

Principal-agent problems in criminal organizations

Origins of organized crime

Political impacts of organized crime

Interventions & program evaluation

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Beginning to see a growing number of experimental and non-experimental anti-gang programs

- ▶ Ferraz et al 20??, Magaloni et al 2015: Police pacification of Rio's favelas
 - ▷ Occupation and presence of the police decreased violent crime only so long as police presence remained
- ▶ Blattman et al 20??: Experimental attempts to reduce gang governing presence, recruitment
 - ▷ Can intensive government displace gang-provided public goods (security, justice, regulation)?
 - ▷ What are the incentives motivating young men to join risky occupations? Status? Poor information on death risk? What are the marginal responses to changing these?

Parallels to a counterinsurgency literature

- ▶ Insurgents parallel criminal groups in their use of violence, their reliance on secrecy, and the importance of civilian collaboration
- ▶ A number of studies have grown out of massive data sharing by local governments and US military in Philippines, Iraq, Afghanistan
 - ▷ Berman et al 2011 *JPE*: Effects of US reconstruction spending on levels of violence in Iraq
 - ▷ Crost et al 2014 *AER*: RD of development program on conflict causalities

Dell 2015: Impact of crackdowns on violence & trafficking

Including spillover effects through cost-minimization over road network

Figure 1: Illustration of Spillovers Methodology

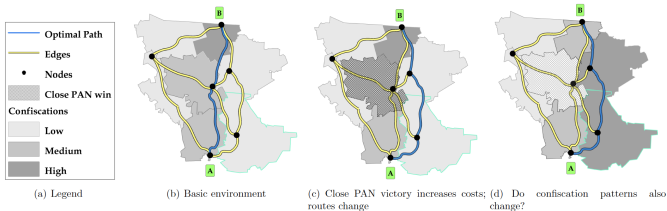
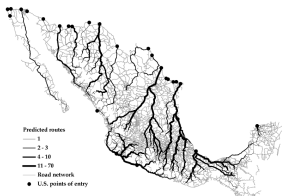


Figure 2: Road Network and Predicted Trafficking Routes



Notes: The least cost routes plotted in this figure are predicted using the network model with congestion costs.

Comments

- ▶ What made this paper stand out?

Comments

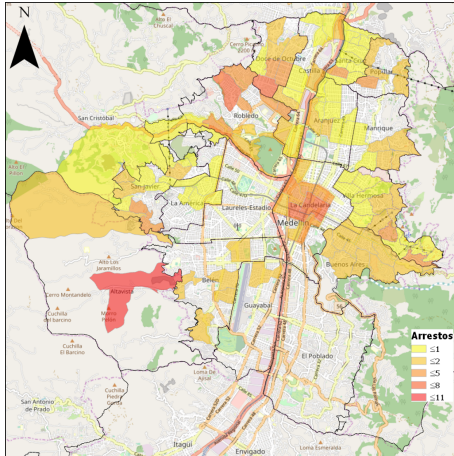
- ▶ What made this paper stand out?
 - ▷ Attention to spillovers (whack-a-mole)
 - ▷ Identification of alternate routes
- ▶ Potential limitations

Comments

- ▶ What made this paper stand out?
 - ▷ Attention to spillovers (whack-a-mole)
 - ▷ Identification of alternate routes

- ▶ Potential limitations
 1. No direct measure of crackdowns
 - ▶ What other PAN-specific policies come as part of a PAN mayor?
 2. What is the LATE in this RD? Why might it be different from the ATE of crackdowns?
 - ▶ Post-inauguration period
 - ▶ Are politicians in close elections different? Will they act differently?
 3. Only calculates routes for domestically-produced illicit goods, not cocaine trafficking
 - ▶ Does this simply add noise to spillover estimates? Or is it a more serious identification concern?
 - ▶ Can we use this method when transshipment routes do not have known, fixed points of origin?

In Medellin, we can examine the arrest of leaders



- ▶ We mapped the territories under control of about 100 leaders arrested between 2016 and 2018
- ▶ Used difference-in-differences to look at the effects of the arrest of a leader on homicides in controlled territories

In progress and largely imprecise... but there are some indications that arrests may be slightly destabilizing in the short run (and also that arrests may follow spikes in homicides)

<u>Independent Variables</u>	Outcome: Homicide happened on day	
	Full sample 2016-2018	8-weeks before an arrest, 4 weeks after
Any arrest on day	0.0085 [0.00968]	0.0113 [0.00997]
	1.228	0.1200
Between 1 and 28 days after arrest	0.00241 [0.00159]	0.00395* [0.0023]
	0.349	0.4180
Between 1 and 28 days before arrest	.00394*** [0.00167]	0.0033 [0.00227]
	0.525	0.3520
P-value of lag terms	0.091	0.223
P-value of lead terms	0.146	0.063
Constant	.00625***	0.00692
Observations	101,530	18,978
R-squared	0.019	0.068
Unit of analysis	Barrio-Day	Barrio-Day
Day-fixed effects	Yes	Yes
Barrio-fixed effects	Yes	Yes
Sample	Full sample	8-weeks before, 4 after

Why might anti-crime interventions increase violence?

Many studies find that police and counter-insurgency interventions raise violence. Should we be too surprised? Some rationales:

Why might anti-crime interventions increase violence?

Many studies find that police and counter-insurgency interventions raise violence. Should we be too surprised? Some rationales:

- ▶ Direct effect of more state battles are more battle deaths
- ▶ Intervention destabilizes the delicate balance of power between many players (criminal gangs, insurgents) and leads to a struggle for power
- ▶ Strategic response on part of non-state armed group to signal strength or punish collaborators

Interventions & program evaluation

Principal-agent problems in criminal organizations

Origins of organized crime

Political impacts of organized crime

Internal organization of armed groups

- ▶ Only some criminal organizations involve themselves in protection services and governance of others
- ▶ But *all* armed organizations need to coordinate their activities, develop internal mechanisms of governance and performance management, and prevent internal predation and conflict
- ▶ Peter Leeson (2007) looks at three kinds of historical organization:
 - ▷ Merchant ships
 - ▷ Pirates
 - ▷ Privateers

Leeson's comparison

Merchant ships

- ▶ K-intensive voyages need investors
- ▶ Problem: Absentee owners cannot monitor crew for months
 - ▷ Crew could shirk, embezzle, damage cargo, fail to defend, or even steal vessel itself
 - ▷ Many or most pirates came from merchant ships
- ▶ Made captains autocrats on the ship
- ▶ To align captain interests, owners:
 - ▷ Hired family
 - ▷ Paid captain both wages and shares in profits
- ▶ Problem: Led to coercive, predatory treatment of crews
 - ▷ Constrained partly by reputations
 - ▷ Drove many crew to join pirates

Leeson's comparison

Merchant ships

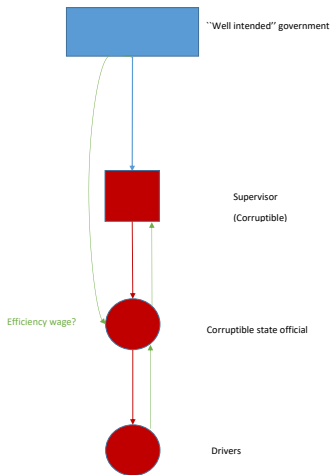
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Pirates

- ▶ Violent plundering required crew cooperation and effort, not capital
- ▶ Ship was often jointly owned by crew
- ▶ Still needed captains
 - ▷ Centralized, hierarchical decision-making often efficient
- ▶ Problem: How to constrain coercive or predatory tendencies of captains?
 - ▷ Democratic elections
 - ▷ Separation of powers across roles
 - ▷ Written constitutions
- ▶ "Constitutions" also provided rule-based incentives for crew productivity and to punish shirking
- ▶ Captain's lodging, provisions, and pay often equal to that of crew

Sanchez de la Sierra & Titeca 2019: Corruption in hierarchies

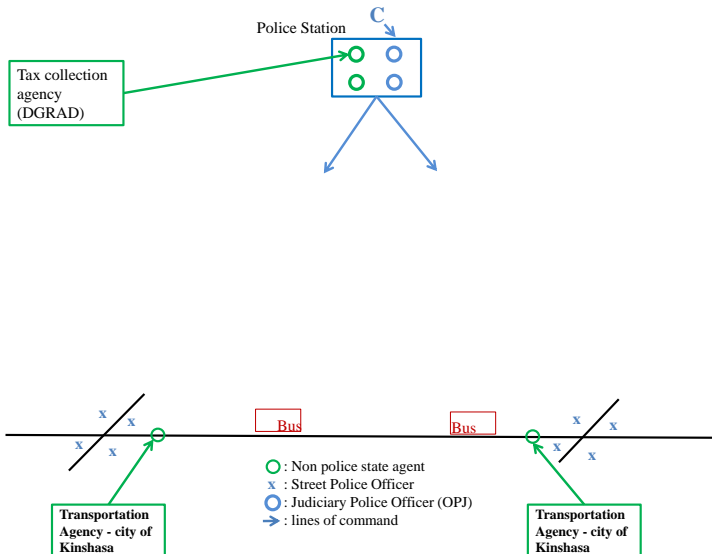
Innovative merger of qual & quant data, experiments, structural estimates



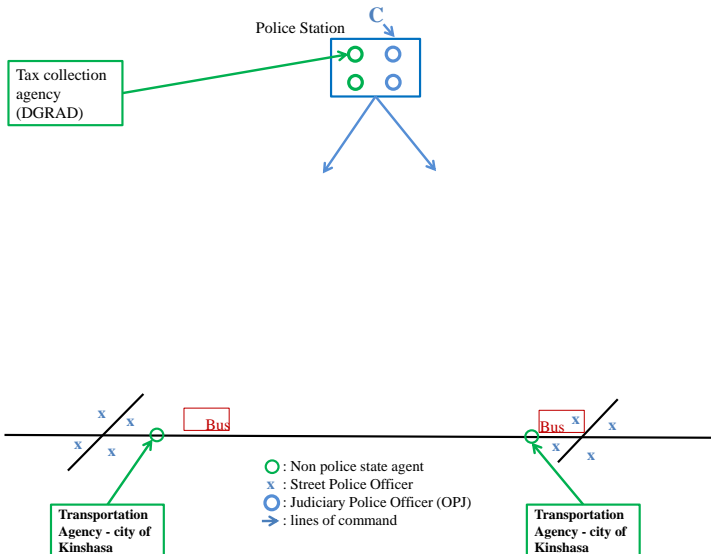
Why should street cop be residual claimant on bribes?



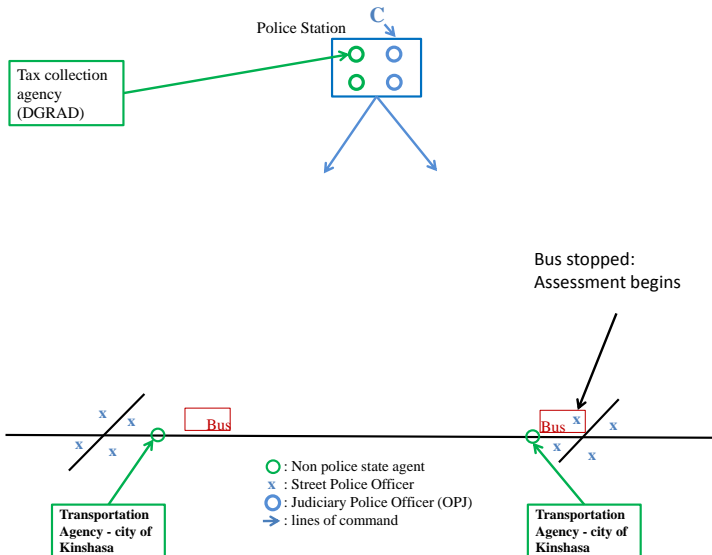
Enforcement of safety regulation



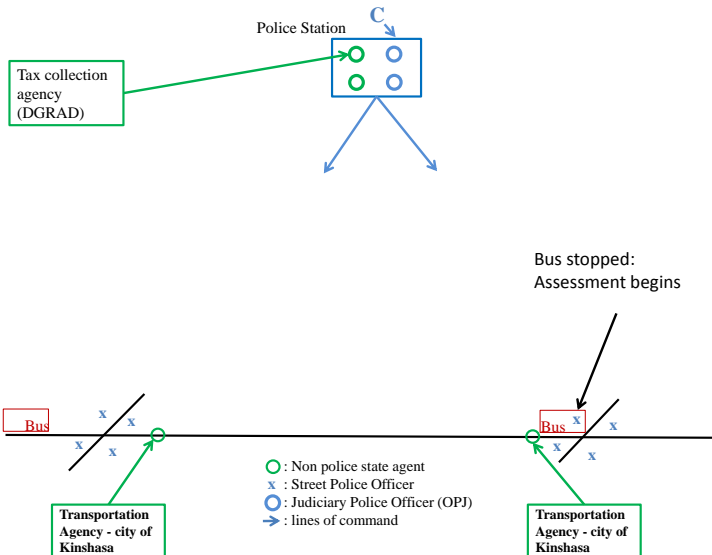
Corrupt hierarchy, illustrated



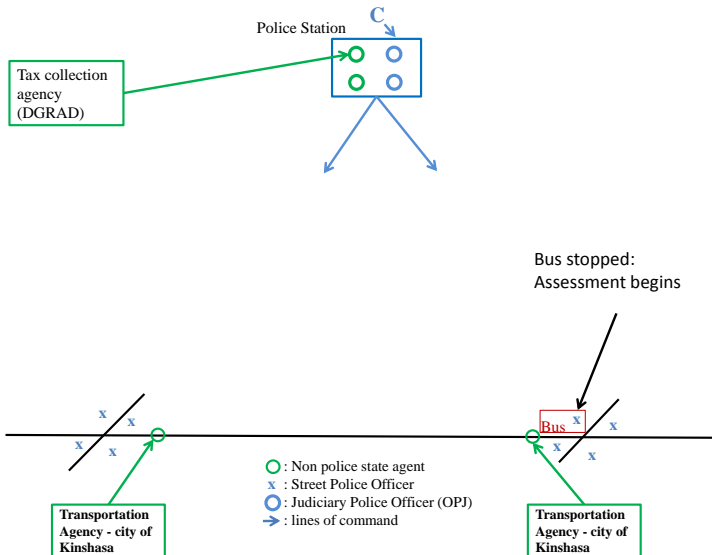
Corrupt hierarchy, illustrated



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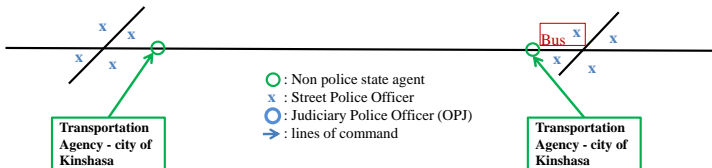


Corrupt hierarchy, illustrated

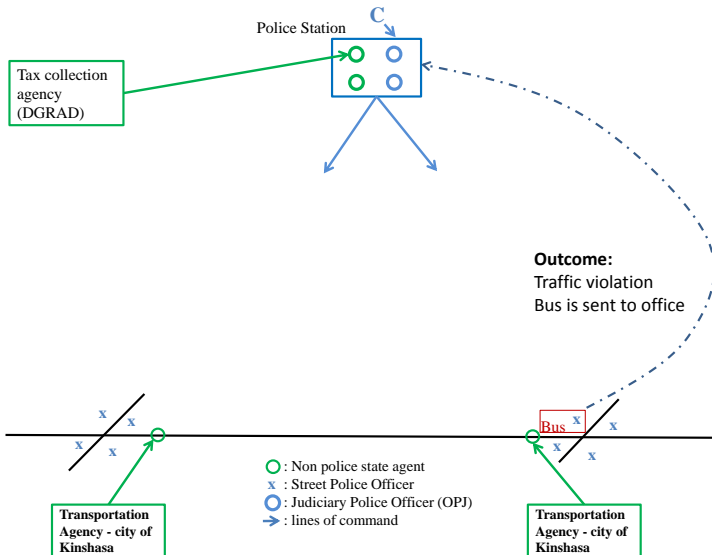


Outcome:

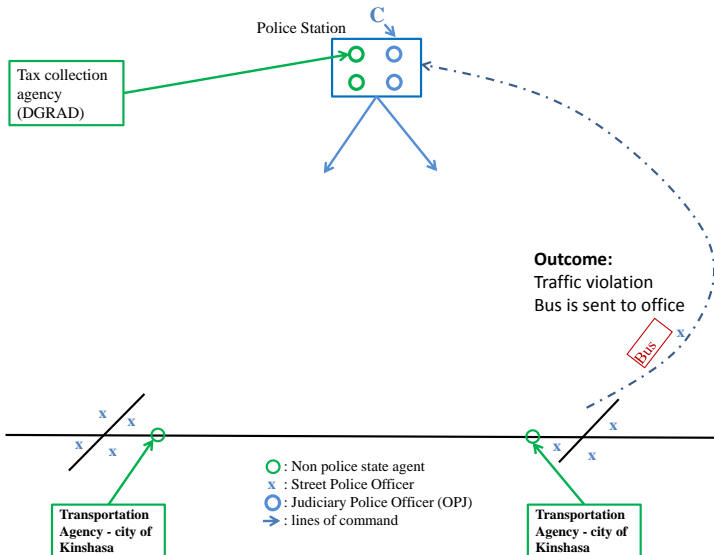
Traffic violation
Bus is sent to office



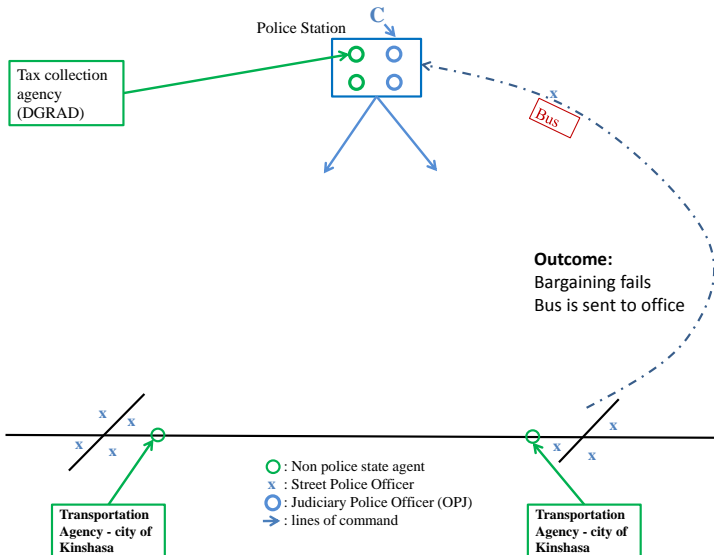
Corrupt hierarchy, illustrated



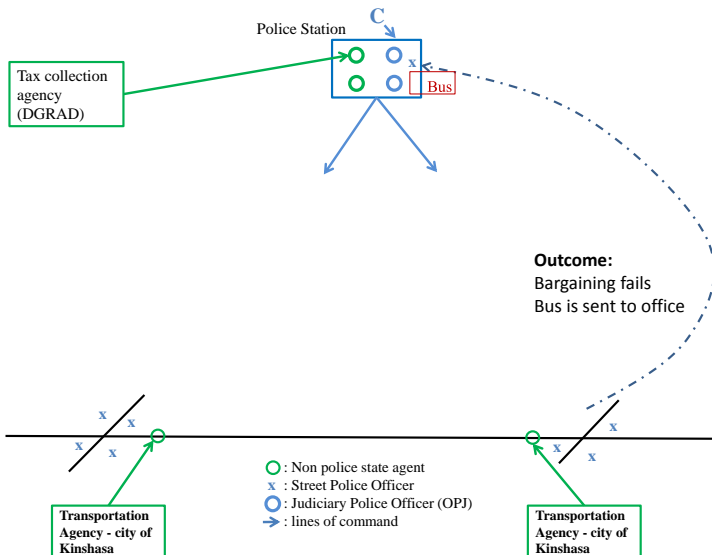
Corrupt hierarchy, illustrated



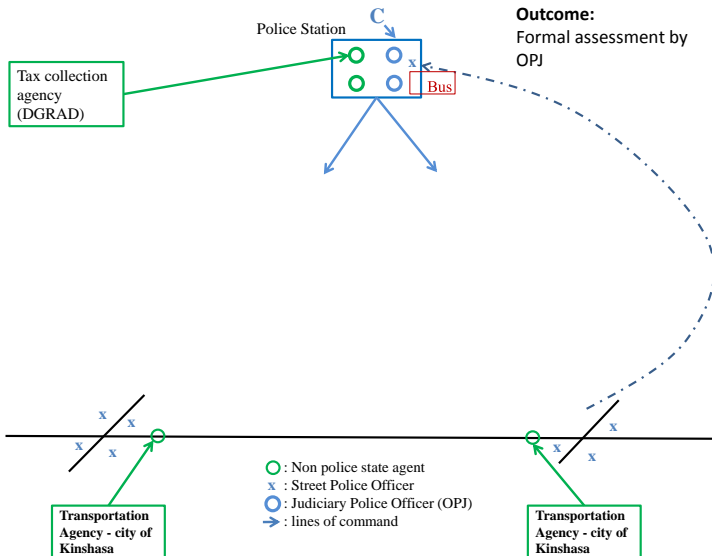
Corrupt hierarchy, illustrated



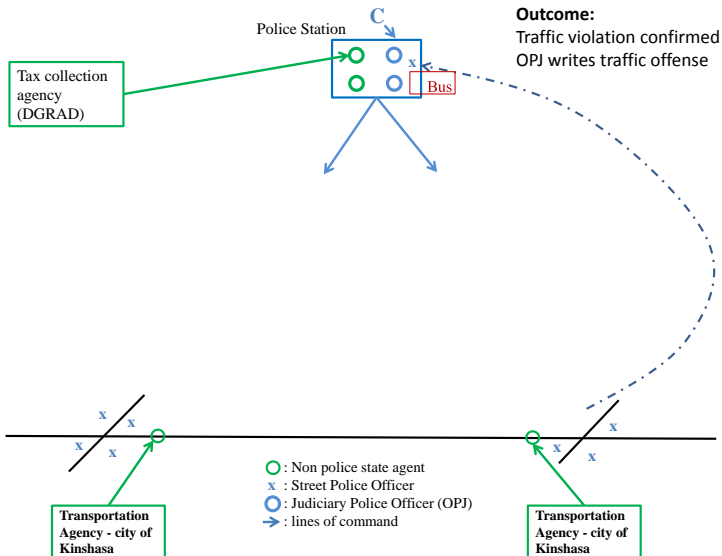
Corrupt hierarchy, illustrated



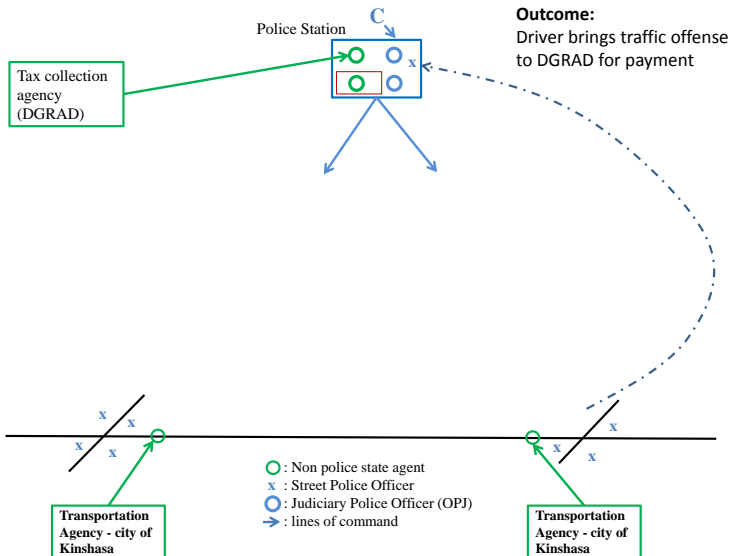
Corrupt hierarchy, illustrated



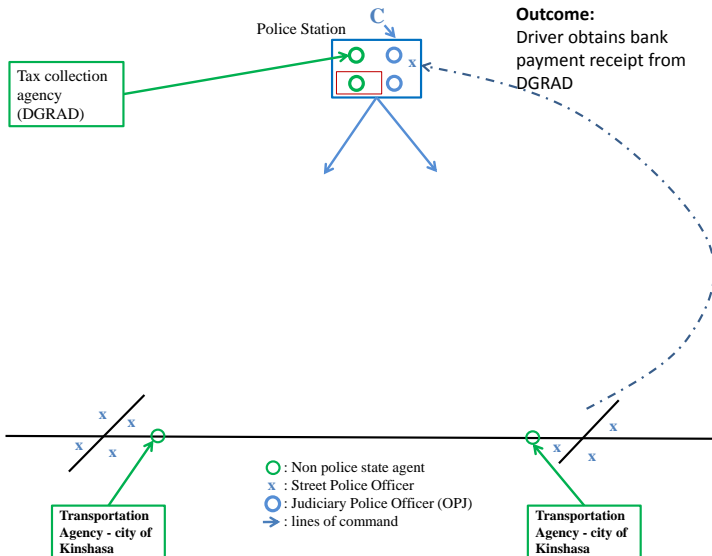
Corrupt hierarchy, illustrated



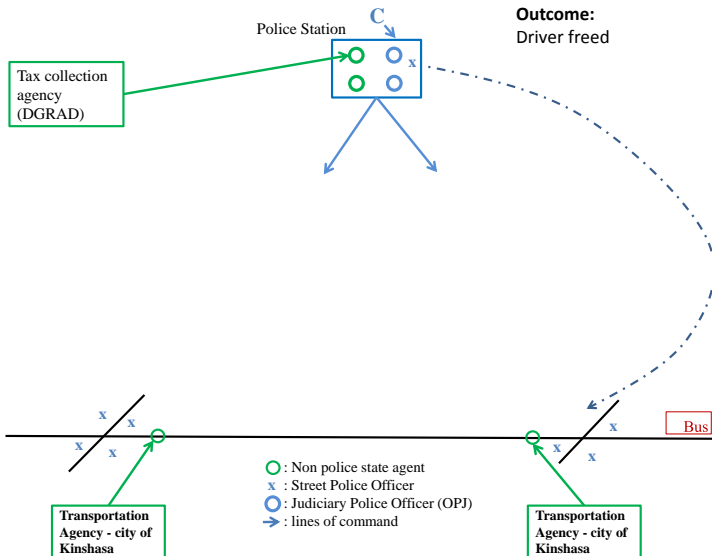
Corrupt hierarchy, illustrated



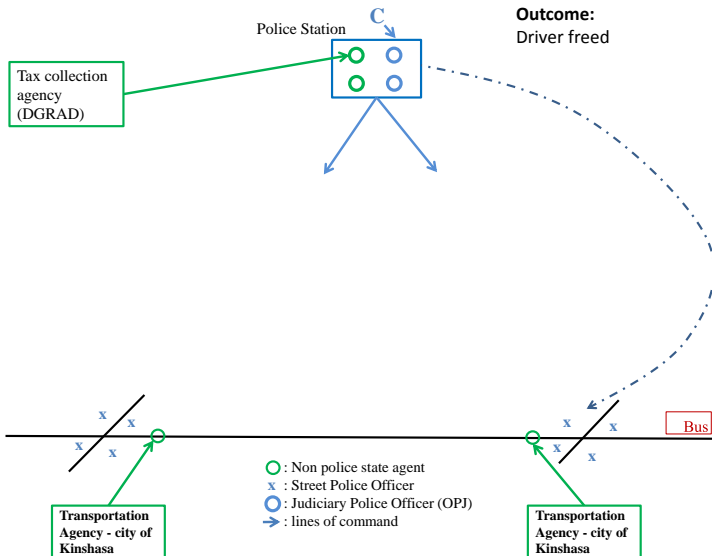
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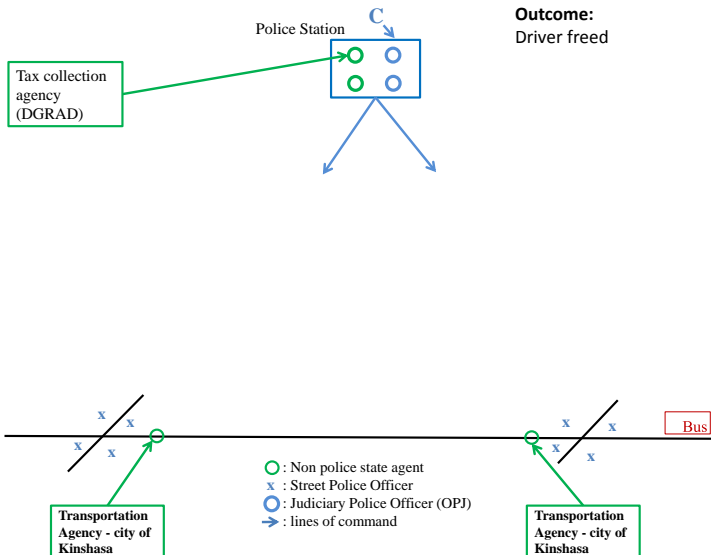
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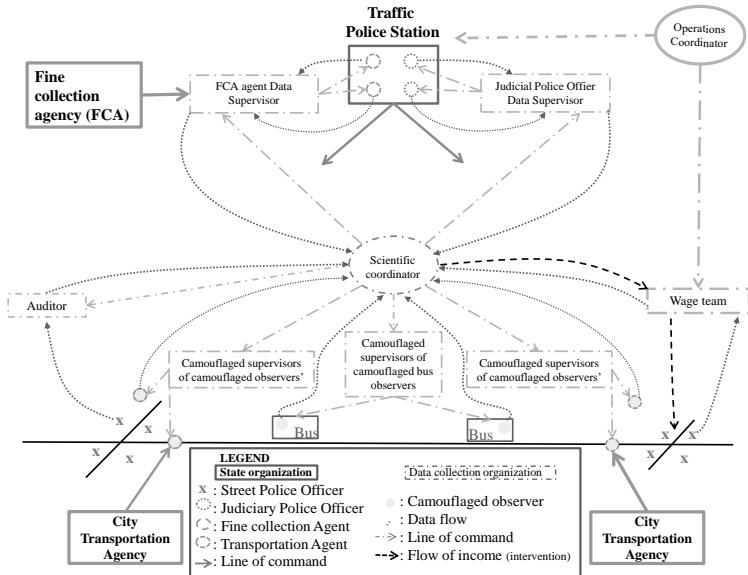
Corrupt hierarchy, illustrated



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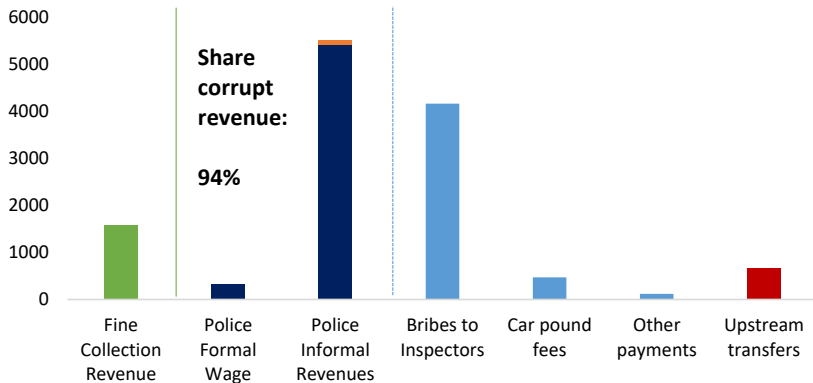
Corrupt hierarchy: data



A case of tax farming, at best

A state-sanctioned criminal syndicate at worst

Total monthly revenue, police station (USD)



Is there a principal agent problem here?

- ▶ Supervisors offer good assignments and protection to street police in return for a share of corrupt revenues
- ▶ Supervisors also appear to have superior power to fine drivers
- ▶ Why organize in this fashion, where the street officer physically brings cars to the station?
 - ▷ Unclear why drivers don't increase bribe to avoid supervisor
 - ▷ Is this a principal-agent problem or something else?
- ▶ Possibilities
 1. Supervisors have better technology of extraction and drivers simply don't know that (information asymmetry with drivers)
 2. Bribe extraction is hard to do, and highly uncertain. Street police have a hard time convincing their supervisors that they tried hard enough. Easier to let supervisor try directly.

Sanchez de la Sierra & Titeca's contribution

► Experiments

1. Transitory income shock to officers (morning cash payment)
2. Compensate supervisors for a public reduction in daily quotas

► Empirics bear our predictions of a model

- ▷ Increasing street police pay reduces bribes taken, but $1/3$ captured by supervisor
- ▷ But now police agents less likely to show up to intersection and congestion worsens

Interventions & program evaluation

Principal-agent problems in criminal organizations

Origins of organized crime

Political impacts of organized crime

A huge Sicilian mafia literature on this question, qualitative and quantitative

- ▶ Mafias grow out of a demand for private protection
 - ▷ Partly due to low levels of trust and social capital
 - ▷ Partly due to (endogenous) low state presence
- ▶ Gambetta (1993): Not enough to have low trust and state, also need
 - ▷ Ready labor supply of those trained in violence
 - ▷ Dense number of transactions (urban) as well as markets
 - ▷ Structure of production that there are economies of scale in protection
- ▶ A number of economics papers emphasize effect of economic stocks or shocks on the demand for protection:
 - ▷ Bandiera (2003): Land reform increased number of land owners
 - ▷ Dimico et al. (2017): Presence and revenue spike in citrus, due to vulnerability to vandalism and litigation
 - ▷ Del Monte and Pennacchio (2012) and Buonanno et al. (2015): Presence of rich mines

Acemoglu, De Feo & De Luca 2017 build on these literatures

- ▶ In origins, close parallels to Sanchez de la Sierra's story from DRC
 - ▷ Sicilian mafia partly filled the void created by a weak state
 - ▷ Also a product of unusually low social capital and cooperative institutions & trust
 - ▷ There is a pre-existing presence of a group that has a comparative advantage in violence — providing protection, proving order
 - ▷ Circumstances (exogenous shocks) give it an opportunity to expand
- ▶ Long run impacts
 - ▷ Endogenously seek to preserve power
 - ▷ In democracies, this means capturing politicians, and using violence to influence democratic politics
 - ▷ May also work consciously or unconsciously to undermine social trust and order, since this increases the demand for their services
 - ▷ Ultimately contributed to the continued weakness of state institutions and to economic underdevelopment

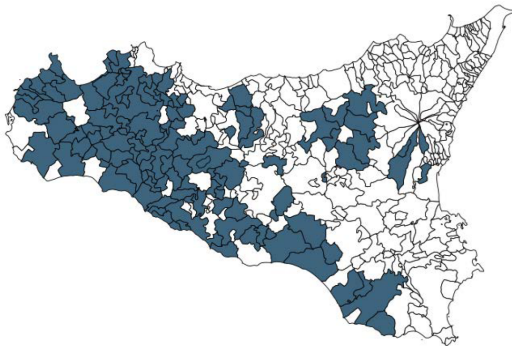


Figure 1: Presence of Peasant Fasci organizations in Sicily in the period 1893-4. Source: Renda (1977).

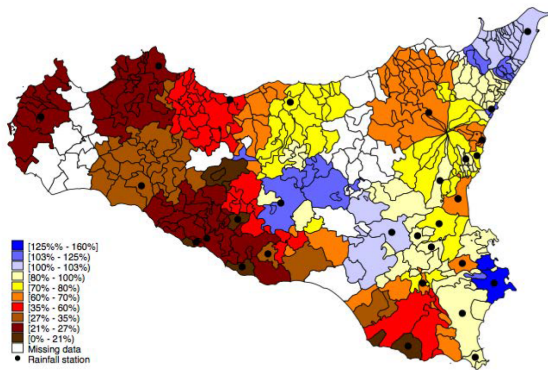


Figure 2: Drought intensity in spring 1893. Ratio of the rainfall in spring 1893 to long-run average spring rainfall.

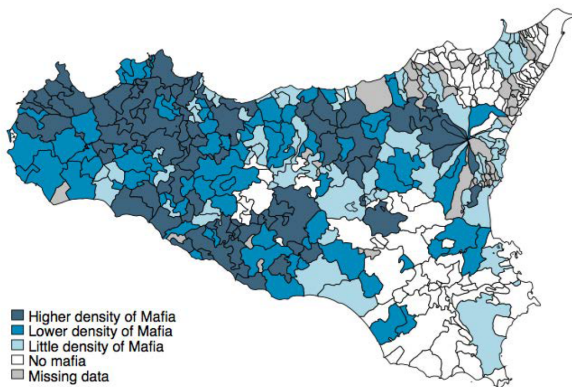


Figure 3: Mafia intensity in 1900 according to the Police inspector Cutrera. Source: Cutrera (1900).

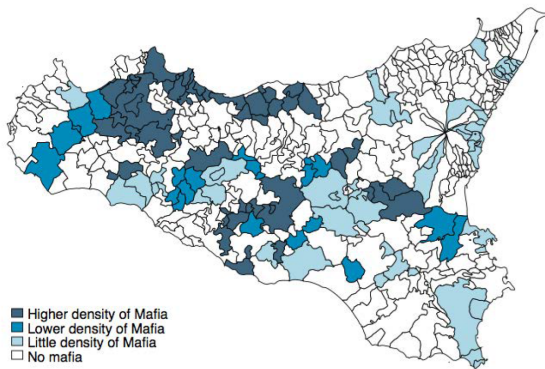


Figure 4: Spatial distribution of the Mafia presence according to its intensity as reported in Damiani (1885).

Miscellaneous observations

- ▶ Sample selection: $N=245$ of 333 areas
 - ▷ Would be good to confirm that missingness is uncorrelated with M , F or R (where data available) and examine correlation with available X
- ▶ What is the best way to operationalize a rainfall shock?
 - ▷ Linear versus non-linear?
- ▶ Some of the data deserve more scrutiny and discussion of possible misreporting and error
 - ▷ Mafia presence in 1900 result of a single police officer's research
 - ▷ Pre-1893 mafia presence self-reported by local officials

Two reduced-form estimates, γ , on the origins of the mafia:

$$F_i = \gamma^F R_i^{1893} + X_i' \beta^F + \epsilon_i^{Fasci}$$

$$M_i = \gamma^M R_i^{1893} + X_i' \beta^M + \epsilon_i^M$$

And two 2SLS estimates, α , where R is used as an instrument for F and M in order to identify the effects of the Fasci on Mafia, and Mafia on long term outcomes y .

$$M_i = \alpha^M F_i + X_i' \beta^M + \epsilon_i^M$$

$$y_i = \alpha^y M_i + X_i' \beta^y + \epsilon_i^y$$

A good paper to teach because there are substantive lessons as well as lessons on identification with IV and conditional unconfoundedness

“Medium-run” impacts of mafia presence: 2SLS results

Table 9: The Impact of Mafia on State Capacity and Politics

Dependent variable:	Infant mortality in 1909			Aqueduct in 1909			Development Expenditure 1912			HHI in 1909		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A: IV results												
Mafia 1900	0.04 (0.02)	0.04 (0.02)	0.05 (0.02)	-0.06 (0.10)	-0.05 (0.05)	-0.12 (0.13)	-2.31 (1.10)	-2.02 (0.96)	-1.44 (0.86)	0.40 (0.17)	0.32 (0.14)	0.30 (0.13)
Panel B: OLS results												
Mafia 1900	0.006 (0.002)	0.006 (0.002)	0.004 (0.002)	0.01 (0.02)	0.00 (0.02)	0.01 (0.02)	0.04 (0.16)	0.01 (0.16)	0.02 (0.14)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)
Province FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Determinants of Fasci	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Determinants of Mafia		✓	✓		✓	✓		✓	✓		✓	✓
Geographic controls			✓			✓			✓			✓
Observations	243	243	243	245	245	245	245	245	245	242	242	242

Important because it illustrates the persistence of “extractive” institutions and the endogenous preservation of these coercive, criminal privileges through the democratic system

Shocks-based strategies are more interesting for understanding impact of Mafia rather than a theory of Mafia origins

Recall the criteria for a valid instrument

Simplifying (e.g. adjusting Mafia, Fasci and Rainfall for covariates):

$$M = \alpha F + e$$

$$F = \gamma R + \mu$$

then

$$\hat{\alpha}_{IV} = \text{Cov}(M, R) / \text{Cov}(F, R)$$

► Criteria for a valid instrument:

1. Strong first stage (i.e. $\gamma \neq 0$)
2. Exogenous (as good as randomly assigned, conditional on covariates)
3. Exclusion restriction: R only affects M through F
4. Monotonicity (no defiers)

► Customary to focus on 3, but first I want us to pay attention to 2

At first glance the first stage looks good

Table 2: The Impact of Relative Rainfall 1893 on Peasant Fasci

Dependent variable: Peasant Fasci				
	(1)	(2)	(3)	(4)
Panel A: without province fixed effects				
Relative Rainfall 1893	-1.00 (0.13)	-0.95 (0.13)	-0.94 (0.14)	-0.79 (0.22)
Panel B: with province fixed effects				
Relative Rainfall 1893	-0.76 (0.21)	-0.84 (0.25)	-0.77 (0.26)	-0.76 (0.27)
Determinants of Fasci		✓	✓	✓
Determinants of Mafia			✓	✓
Geographic controls				✓
Observations	245	245	245	245

$$\mu_R = .64, \sigma_R = .28, \text{ range } 0.6\text{--}1.28$$

$$\mu_F = .31, \sigma_F = .46, \text{ range } 0\text{--}1$$

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FE and controls have only a modest effect on estimates (as we would expect from an exogenous shock) and we observe similar γ estimates in B1, A4 and B4

But is $R_i^{1893} \perp \epsilon_i^{Mafia}$?

Table 4: Relative Rainfall 1893 and Mafia

Dependent variable: Mafia 1900				
	(1)	(2)	(3)	(4)
Panel A: without province fixed effects				
Relative Rainfall 1893	-2.06 (0.45)	-1.99 (0.40)	-1.84 (0.37)	-1.32 (0.35)
F-statistic	20.72	24.74	25.23	14.06
Panel B: with province fixed effects				
Relative Rainfall 1893	-0.66 (0.34)	-0.87 (0.29)	-1.01 (0.30)	-1.14 (0.39)
F-statistic	3.80	9.21	11.54	8.73
Determinants of Fasci		✓	✓	✓
Determinants of Mafia			✓	✓
Geographic controls				✓
Observations	245	245	245	245

$\mu_R = .64, \sigma_R = .28, \text{range } 0.6\text{--}1.28$

$\mu_M = 1.43, \sigma_M = 1.15, \text{range } 0\text{--}3$

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A HUGE drop in γ from adding FE or controls to a supposed exogenous shock (although A4 and B4 estimates similar). Perhaps $RelativeRainfall_i^{1893}|X \perp \epsilon_i^{Mafia}|X$?

What is the consequence of an unobservable W correlated with rainfall and mafia presence?

$$M = \alpha F + e$$

$$F = \gamma R + \mu$$

where $e = \pi W + v$ and $v \perp R$ then

$$\begin{aligned}\hat{\alpha}_{IV} &= \text{Cov}(M, R) / \text{Cov}(F, R) \\ &= \text{Cov}(\alpha F + e, R) / \text{Cov}(F, R) \\ &= \alpha + \text{Cov}(e, R) / \text{Cov}(F, R) \\ &= \alpha + \pi \text{Cov}(W, R) / \text{Cov}(F, R) + \text{Cov}(v, R) / \text{Cov}(F, R) \\ &= \alpha + \pi \frac{\text{Cov}(W, R)}{\text{Cov}(F, R)}\end{aligned}$$

This logic holds for violations of the exclusion restriction through W as well.

Predictable bias

$$\hat{\alpha}_{IV} = \alpha + \frac{\text{Cov}(W, M)}{\text{Var}(W)} \frac{\text{Cov}(W, R)}{\text{Cov}(F, R)}$$

Thus if $R \mid X$ is not independent of the error term in Table 4, we expect that:

- ▶ Any bias is increasing in the weakness of the instrument, $\text{Cov}(F, R)$ (not a huge concern in this case)
- ▶ We will tend to *overstate* α if $\text{Cov}(W, M) > 0$ and $\text{Cov}(W, R) > 0$
 - ▷ e.g. Historical drought propensities and market relationships with Palermo both associated with increased mafia presence
- ▶ We will tend to *understate* α if $\text{Cov}(W, M) < 0$ and $\text{Cov}(W, R) > 0$
- ▶ This was the rationale for including so many controls

And note that $R_i^{1893} \perp \epsilon_i^{Mafia}$ is
fundamental to the empirical strategy

$$y_i = \alpha^y M_i + X_i' \beta^y + \epsilon_i^y$$
$$M_i = \gamma^M R_i^{1893} + X_i' \beta^M + \epsilon_i^{Mafia}$$

There are two key identification assumptions:

1. Conditional unconfoundedness in the first stage (they have all the relevant X 's, and there are no remaining W 's)
2. The exclusion restriction: The 1993 drought affects long run outcomes only through mafia presence not through other lasting economic, demographic, or political changes

for 1, it would be useful to see regression of M on X and R on X to understand endogeneity and what is driving coefficient change

An underused method of sensitivity analysis (Imbens 2003)

- ▶ We are worried about the case where $\text{Cov}(W, M) \neq 0$ and $\text{Cov}(W, R) \neq 0$
- ▶ We can benchmark this by looking at what the observed X 's do to our estimates
- ▶ Imbens plots these values (in partial R^2) alongside a curve beyond which the X would have reduced the γ by half

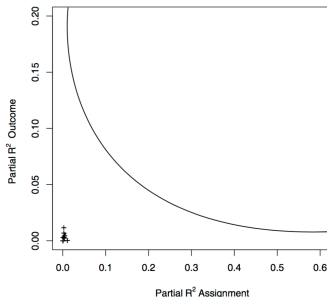


Figure 1: Replication of Imbens's Figure 1.

So much focus on Sicily has disadvantages for the literature

- ▶ Mafia presence is overdetermined
 - ▷ Doesn't help answer "what shocks matter" or "what opportunities lead to armed group rise"
 - ▷ e.g. many places get droughts, maybe many of these places have armed groups
 - ▷ What are the armed group characteristics or environments that are more conducive to this form of economic and political organization?
- ▶ What about the dogs that don't bark — this is a general problem in the "long run impacts of historical episodes" literature
- ▶ A better question might be: What is our model of emergence and perpetuation of criminal orgs?

So much focus on Sicily has disadvantages for the literature

- ▶ What are the alternatives to mafia rule?
 - ▷ Systems of political patronage and institutionalized corruption?
 - ▷ Severe underdevelopment and low cooperation (Banfield)
 - ▷ Non-violent political entrepreneurs such as notaries, priests
 - ▷ Ruling classes as quasi-state — lords, upper class, feudal forces who have means of violence
- ▶ Miscellaneous directions:
 - ▷ Do mafias have a comparative advantage where trust and social capital are weakest?
 - ▷ Gambetta: “the mafioso himself has an interest in making regulated injections of distrust into the market to increase the demand for the good he sells: protection. . . the income he receives and the power he enjoys are primarily the fruits of distrust”

Interventions & program evaluation

Principal-agent problems in criminal organizations

Origins of organized crime

Political impacts of organized crime

An ability to use corruption and violence to subvert democracy and state strength

- ▶ Distort public goods investment and undermine public goods quality (Barone & Narciso 2015)
- ▶ Violent lobbying: Bribe or threaten politicians to weaken criminal enforcement (Acemoglu et al 2013, Dal Bo & Di Tella 2003, 2006)
- ▶ Reduce political competition
 - ▷ Pre-election violence to repress turnout or intimidate disfavored politicians
 - ▷ Like parties, may use post election violence and ethnic cleansing as a “redistricting” tool (Kasara 2016)
 - ▷ Creates an electoral violence cycle (Alesina et al 2016)

Alesina et al 2016

Effects of mafia on electoral violence rising in electoral competitiveness

Figure 5: Electoral violence, by election

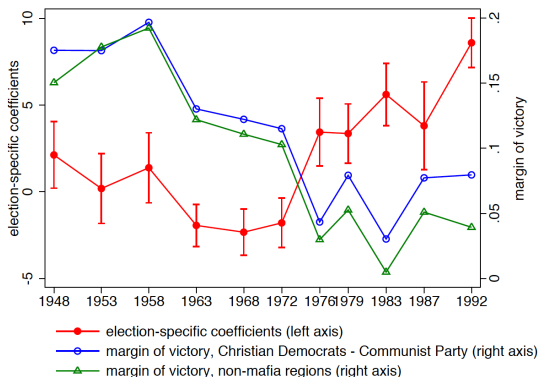


Figure: Differential effect of the electoral cycle on homicides in mafia regions relative to non-mafia regions, and the differential between the voting share of the Christian Democrats and the Italian Communist Party

Parallels to insurgency literature

Condra et al forthcoming *AER*

Figure 1: Daily Direct Fire Attacks, 2003 to 2015. Dashed red lines represent election dates.

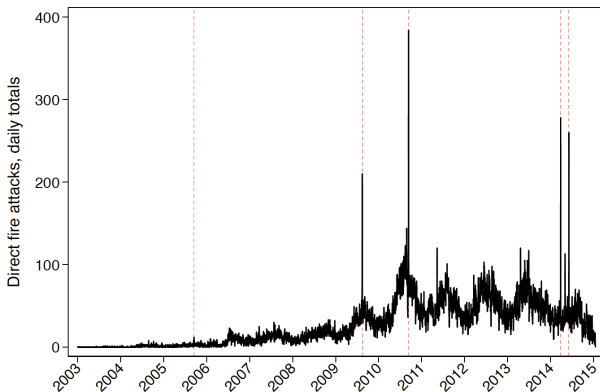


Figure: Time and place of violent acts is coordinated to maximize vote suppression while minimizing actual civilian deaths (to avoid backlash)

Acemoglu et al.

It is possible, but unusual, that there is no observed lasting effect on politics other than mafia presence

A concern with persistence papers is that we don't have a theory of what shocks matter (and we select on shocks & mediators that have persistent effects)

Table 11: Migration and Persistence of Socialist Support

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Migration						
Dependent variable:	Δ population 1881-1901			Δ population 1881-1971		
Relative Rainfall 1893	0.01 (0.08)	0.00 (0.09)	-0.07 (0.09)	0.11 (0.26)	0.09 (0.27)	-0.04 (0.29)
Panel B: Socialist Support						
Dependent variable:	Peasant Leagues in 1908			Socialist votes in 1913		
Relative Rainfall 1893	0.00 (0.01)	0.00 (0.02)	-0.01 (0.02)	0.31 (0.24)	0.30 (0.25)	0.17 (0.26)
Province FE	✓	✓	✓	✓	✓	✓
Determinants of Fasci	✓	✓	✓	✓	✓	✓
Determinants of Mafia		✓	✓		✓	✓
Geographic controls			✓			✓
Observations	245	245	245	245	245	245