

ONLINE APPENDIX

The social consequences of organized crime in Italy

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Pierfrancesco Rolla and Patricia Justino*

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* Rolla: Institute of Development Studies, Brighton and Hove, UK, corresponding author: p.rolla@ids.ac.uk;
Justino: UNU-WIDER, Helsinki, Finland, and Institute of Development Studies, Brighton and Hove, UK.

C Online Appendix: data, variables, and qualitative analysis

Note: Online Appendix was left unchecked.

C1 Data table

Table C1: List of variables, data, and sources

Variable	Time	Source	Unit	Description
Section 4.1 - Reverse causality				
Mafia1900	1900	Cutrera	Municipality	Intensity of Mafia presence: 0 (no) to 3 (major)
trust_law	1885	Damiani (1886) ⁶⁰	Municipality	Dummy = 1 if citizens trust the law, 0 otherwise (mistrust or don't care about the law)
access_to_capital	1885	Damiani (1886)	Municipality	Dummy = 1 if the access to credit is easy, 0 otherwise (expensive or difficult to access)
caves	1886	Squarzina (1965) ⁶¹	Municipality	Number of sulphur mines for each municipality
mean_citrus	Constant	FAO, GAEZ ⁶²	Municipality	Agro-ecological suitability for citrus production (score 0-100)
frag	1799	Damiani (1855) ⁶³	Municipality	Dummy = 1 if small and medium landholdings are present, 0 otherwise (large ones)
scarce	1924	Observatory ⁶⁴	Municipality	Dummy = 1 if there is the presence of underground water basins, 0 otherwise
sp3m1893_n30	1893	Eredia (1918) ⁶⁵	Municipality	Relative rainfall to mean rainfall 1881-1941 interpolated within 30 Km

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⁶⁰ Available to download in digital format in [Dimico et al. \(2017\)](#).

⁶¹ Available to download in digital format in [Buonanno et al \(2015\)](#).

⁶² Available to download in digital format in [Buonanno et al \(2015\)](#).

⁶³ Available to download in digital format in [Buonanno et al \(2015\)](#).

⁶⁴ Available to download in digital format in [Buonanno et al \(2015\)](#).

⁶⁵ Available to download in digital format in [Acemoglu et al \(2019\)](#).

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Variable	Time	Source	Unit	Description
Inpop1861	1861	ISTAT ⁶⁶	Municipality	Log of population density
Insurface	1853	Mortillaro (1854)	Municipality	Log of total area
centre_height	1929	ISTAT	Municipality	Altitude of the town centre
maxheight	1929	ISTAT	Municipality	Maximum altitude of the town centre
slope2	1929	ISTAT	Municipality	Average altitude
pa_pdist1856	1856	Cary (1799)	Municipality	Postal distance from Palermo
port2_pdist1856	1856	Cary (1799)	Municipality	Portal distance from municipality
roads1799	1799	Lo Jacono (1856)	Municipality	Distance from municipality to port taking into account road time
ave_temp	1893	Climate data	Municipality	Average temperature
var_sp3m_n30	1893	Eredia (1918)	Municipality	Variance of spring rainfall (1881-1941)
sp3m_ave_n30	1893	Eredia (1918)	Municipality	Average of spring rainfall (1881-1941)
oc_index_ita	1983	Diff. sources ⁶⁷	Province	Municipality-level organized crime indicator based on economic and violence crimes
violent_ita	1983	Int. Ministry ⁶⁸	Province	Number of violent crimes per 100,000 inhabitants, normalised
economic_ita	1983	Int. Ministry ⁶⁹	Province	Number of economic crimes per 100,000 inhabitants, normalised
interest_politics	1968-1972	Itanes	Province	From 1 (not at all) to 4 (very much), are you interested in politics?
participate_strike	1968-1972	Itanes	Province	Dummy = 1 if interviewee took part in strike of demonstration, 0 otherwise
membership_org	1968-1972	Itanes	Province	Dummy = 1 if interviewee is member of at least on organisation, 0 otherwise
honesty_people_gov	1968-1972	Itanes	Province	From many (0) to almost none (3), are there many dishonest people in Government?
gov_worry_res_think	1968-1972	Itanes	Province	Dummy = 1 if interviewee agrees that Government worries about what people think, 0 otherwise
gov_not_wastes	1968-1972	Itanes	Province	From great part (0) to not much (2), does the Government wastes the tax funds?

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⁶⁶ Available to download in digital format in [Acemoglu et al \(2019\)](#). From this variable until the end of this sub-section, all the data comes from the digitisation effort of these authors.

⁶⁷ See indicators below that comprise the municipality-level organized crime indicator.

⁶⁸ The violent crimes include Mafia murders, Mafia association, extortion and crime association

⁶⁹ The economic crimes include firms seized to organize crime groups, assets seized to organized crime groups, drug trade crimes and pimping & pandering

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Variable	Time	Source	Unit	Description
politics_not_too_complicated	1968-1972	Itanes	Province	Dummy = 1 if interviewee believes politics and government are not too complicated, 0 otherwise
altitude	1951	Guiso et al. (2016)	Province	Altitude
ln_surface	1951	ISTAT	Province	Log of total area
pop_male_rate1951	1951	8mila Census	Province	Ratio of male population over female population
pop_less_six1951	1951	8mila Census	Province	Ratio of population with less than 6 years old over total population
dependence_ratio_old1951	1951	8mila Census	Province	Ratio of over 65 population on population between 15 and 64 years old
average_size_fam1951	1951	8mila Census	Province	Average household size
house_with_property1951	1951	8mila Census	Province	Ratio of house owned on the total number of available houses
access_to_services1951	1951	8mila Census	Province	An index of available services to the houses (drinking water, bathroom and hot water)
ratio_inhabitants_rooms1951	1951	8mila Census	Province	Ratio of inhabitants per squared meter
gender_differences_school1951	1951	8mila Census	Province	Ratio of males with a diploma over females with a diploma
illiterate1951	1951	8mila Census	Province	Ratio of illiterate over total population above 6 years old
occupation1951	1951	8mila Census	Province	Employment rate
pop_density1951	1951	8mila Census	Province	Population density
industry1951	1951	8mila Census	Province	Share of population that works in the industrial sector
uni_completion1951	1951	8mila Census	Province	Share of university graduates over those with middle school one
Section 4.2 - Pooled OLS	—	—	—	—
<i>political participation</i>				
pol_pa_pol_meet	2000 to 2018	Istat ⁷⁰	Individual	Do you inform about politics by attending political meetings?
pol_pa_vol_party	2000 to 2018	Istat	Individual	Have you volunteered for a political party?
pol_pa_money_party	2000 to 2018	Istat	Individual	Have you given money to support a political party?
pol_pa_vote_online	2011 to 2017	Istat	Individual	In the past 3 months, have you voted online?

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⁷⁰ ISTAT on an annual basis administer a questionnaire called *Multiscopo sulle famiglie: aspetti della vita quotidiana*. Istat provides access to the municipality details using the service called ADELE

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Variable	Time	Source	Unit	Description
pol_pa_pol_rallies	2000 to 2018	Istat	Individual	In the past 12 months, have you participated to a political rally?
pol_pa_pol_demonstration	2000 to 2018	Istat	Individual	In the past 12 months, have you participated to a political demonstration?
pol_pa_union_meet	2000 to 2018	Istat	Individual	Do you inform about politics by attending union meetings?
pol_pa_vol_union	2000 to 2018	Istat	Individual	In the last 12 months, have volunteered for a union?
<i>civic engagement</i>				
civ_eng_act_soc	2016	Istat	Individual	In the last 12 months, to solve local issues, have participated on online discussion?
civ_eng_act_tv	2016	Istat	Individual	In the last 12 months, to solve local issues, have you contacted a radio, TV or local newspaper?
civ_eng_act_off	2016	Istat	Individual	In the last 12 months, to solve local issues, have you contacted the local competent office?
civ_eng_act_meet	2016	Istat	Individual	In the last 12 months, to solve local issues, have you participated to local meetings?
civ_eng_act_pro	2016	Istat	Individual	In the last 12 months, to solve local issues, have you participated to protests?
civ_eng_act_vol	2016	Istat	Individual	In the last 12 months, to solve local issues, have you volunteered in local groups?
civ_eng_act_green	2016	Istat	Individual	In the last 12 months, to solve local issues, have you helped maintaining the local green areas?
civ_eng_act_party	2016	Istat	Individual	In the last 12 months, to solve local issues, have you organized street/sport/cultural events?
civ_eng_vol_cso	2000-2018	Istat	Individual	In the last 12 months have you done any free activity of a CSO?
civ_eng_vol_prof_cso	2000-2018	Istat	Individual	In the last 12 months have you done any free activity for a for profit CSO?
civ_eng_money_asso	2000-2018	Istat	Individual	In the last 12 months have you given money to a CSO?
<i>Institutional trust</i>				
t_inst_europe	2012 to 2018	Istat	Individual	On a scale 0 (low) - 10 (high), how much do you trust the European parliament?
t_inst_italy	2012 to 2018	Istat	Individual	On a scale 0 (low) - 10 (high), how much do you trust the Italian parliament?
t_inst_regio	2012 to 2018	Istat	Individual	On a scale 0 (low) - 10 (high), how much do you trust the regional government?
t_inst_prov	2012 to 2018	Istat	Individual	On a scale 0 (low) - 10 (high), how much do you trust the provincial government?
t_inst_mun	2012 to 2018	Istat	Individual	On a scale 0 (low) - 10 (high), how much do you trust the municipal government?
t_inst_parties	2012 to 2018	Istat	Individual	On a scale 0 (low) - 10 (high), how much do you trust the political parties?
t_inst_politics	2000 to 2018	Istat	Individual	Dummy = 1 if interviewee does not get informed on politics for distrust, 0 otherwise

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Variable	Time	Source	Unit	Description
t_inst_judicial	2012 to 2018	Istat	Individual	On a scale 0 (low) - 10 (high), how much do you trust the judiciary system?
t_inst_police	2012 to 2018	Istat	Individual	On a scale 0 (low) - 10 (high), how much do you trust the police?
t_resp_law_tax	2016	Istat	Individual	From 0 (disagree) - 10 (agree), agree that not paying taxes is bad?
t_resp_law_tax2	2016	Istat	Individual	Dummy = 1 if it is never acceptable avoid paying the taxes, 0 otherwise
t_resp_law_receipt	2016	Istat	Individual	Dummy = 1 if interviewee would insist to obtain a fiscal receipt from a shop, 0 otherwise
t_resp_law_black	2016	Istat	Individual	Dummy = 1 if interviewee does not pay under the table when asked, 0 otherwise
t_resp_law_exc	2016	Istat	Individual	From 0 (disagree) - 10 (agree), agree that offering in-kinds/money to official for favours is bad?
t_resp_law_pork	2016	Istat	Individual	From 0 (disagree) - 10 (agree), agree that receiving in-kinds/money for votes is bad?
t_resp_law_corr_nat	2016	Istat	Individual	Dummy = 1 if does not agree with the statement "Corruption is natural and inevitable", 0 otherwise
t_resp_law_corr_den	2016	Istat	Individual	Dummy = 1 if does not agree with the statement "Denouncing corruption is useless"
t_resp_law_law	2016	Istat	Individual	Scale 0=a lot to 3=not at all, reversed, is it important to respect the law?
t_resp_law_hon	2016	Istat	Individual	Scale 0=a lot to 3=not at all, reversed, is it important to live honestly?
<i>Interpersonal trust</i>				
t_proximate_relatives	2013 to 2018	Istat	Individual	Dummy = 1 if interviewee has relatives on which to count on, apart from direct family, 0 otherwise
t_proximate_friends	2013 to 2018	Istat	Individual	Dummy = 1 if interviewee has friends on which to count on, 0 otherwise
t_proximate_neighbours	2013 to 2018	Istat	Individual	Dummy = 1 if interviewee has neighbours on which to count on, 0 otherwise
t_oth_majority	2010 to 2018	Istat	Individual	Dummy = 1 if interviewee trust most of the people, 0 if need to be careful
t_oth_neighbour	2010 to 2018	Istat	Individual	Scale 1=very likely to 4=not likely at all (reversed), probability wallet lost given back by neighbour?
t_oth_police	2010 to 2018	Istat	Individual	Scale 1=very likely to 4=not likely at all (reversed), probability wallet lost given back by police?
t_oth_unknown	2010 to 2018	Istat	Individual	Scale 1=very likely to 4=not likely at all (reversed), probability wallet lost given back by unknown?
t_altr_own	2016	Istat	Individual	Scale 0=not at all to 4=a lot (reversed), it is important to primarily think of your own interests
t_altr_fam	2016	Istat	Individual	Scale 0=not at all to 4=a lot (reversed), it is important to primarily think of your own family
t_altr_succ	2016	Istat	Individual	Scale 0=not at all to 4=a lot (reversed), it is important to primarily think of your own success
t_altr_dis	2016	Istat	Individual	Scale 0=not at all to 4=a lot, it is important to primarily think of those who are worse off

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Variable	Time	Source	Unit	Description
<i>Organized crime index</i>				
oc_index	2000-2018	Istat	Individual	From 1 (none) to 4 (a lot), what is the risk of criminal groups presence in the area where you live?
<i>Control variables</i>				
individual_age	2000-2018	Istat	Individual	How old are you?
individual_is_female	2000-2018	Istat	Individual	Gender of the interviewee
individual_is_married	2000-2018	Istat	Individual	What is your marital status?
hh_size	2000-2018	Istat	Individual	What is the number of people in the household?
individual_education	2000-2018	Istat	Individual	What is your education level?
individual_is_occupied	2000-2018	Istat	Individual	What is your occupation status?
pca	2000-2018	Istat	Individual	Principal component analysis of household items
camab	2000-2018	Istat	Individual	Do you work where you have been interviewed?
altitude	2000-2018	Guiso et al. (2016)	Municipality	Altitude
elevation	2000-2018	Guiso et al. (2016)	Municipality	Elevation
mun_on_mountain	2000-2018	Guiso et al. (2016)	Municipality	Municipality is on mountain
mun_on_coast	2000-2018	Guiso et al. (2016)	Municipality	Municipality is on coast
seminativi	2000-2018	Guiso et al. (2016)	Municipality	Arable land
alberifrutta	2000-2018	Guiso et al. (2016)	Municipality	Presence of fruit trees
prati	2000-2018	Guiso et al. (2016)	Municipality	Presence of meadows
boschi	2000-2018	Guiso et al. (2016)	Municipality	Presence of woods
provincial_capital	2000-2018	Guiso et al. (2016)	Municipality	Municipality is the provincial capital
ln_surface	2000-2018	ISTAT	Municipality	Log of total area
pop_size	2000-2018	ISTAT	Municipality	Population size
immigration_rate	2000-2018	DEMO	Municipality	Immigration rate
income_pro_capite	2000-2018	MEF	Municipality	Income pro capite
gini_income_cont	2000-2018	MEF	Municipality	Author's elaboration of GINI index - income

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Variable	Time	Source	Unit	Description
gender_balance	2000-2018	Int. Ministry	Municipality	Share of female politicians in local councils
education_mun	2000-2018	Int. Ministry	Municipality	Years of education of local politicians
age	2000-2018	Int. Ministry	Municipality	Age of local politicians
<i>Heterogeneity analysis</i>				
stronghold	2000-2018	Int. Ministry	Municipality	Dummy = 1 if interviewee lives in Mafia historic stronghold (Sicily, Calabria and Campania), 0 otherwise
violent_ita_het	2000-2018	Int. Ministry ⁷¹	Province	Dummy = 1 if interviewee lives in municipality where number of violent crimes per 100,000 inhabitants > 75 th pct, in year t , 0 otherwise
violent_Mafia_ita_het	2000-2018	Int. Ministry	Province	Dummy = 1 if interviewee lives in municipality where number of Mafia-type violent crimes per 100,000 inhabitants (Mafia murders, association and extortion) > 75 th pct, in year t , 0 otherwise
violent_foreign_ita_het	2000-2018	Int. Ministry	Province	Dummy = 1 if interviewee lives in municipality where number of foreign-type violent crimes per 100,000 inhabitants (crime association) > 75 th pct, in year t , 0 otherwise
political_ita_het	2000-2018	Int. Ministry ⁷²	Municipality	Dummy = 1 individual lives in a city council dismissed because of Mafia infiltration, in year t , 0 otherwise
economic_ita_het	1983-2018	Int. Ministry ⁷³	Province	Dummy = 1 if interviewee lives in municipality where number of economic crimes per 100,000 inhabitants > 75 th pct, in year t , 0 otherwise
economic_ita1_het	2000-2018	ANBSC	Municipality	Dummy = 1 if interviewee lives in municipality where number of Mafia-type economic crimes per 100,000 inhabitants,

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⁷¹ The violent crimes include Mafia murders, Mafia association, extortion and crime association

⁷² Data is available to download in digital format on the [WikiMafia](#) website

⁷³ The economic crimes include firms seized to organize crime groups, assets seized to organized crime groups, drug trade crimes, money laundering, counterfeit and pimping & pandering

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Variable	Time	Source	Unit	Description
				(assets and firms <i>destinati</i> seized from Mafia groups) & money-laundering (province) > 75 th pct, in year <i>t</i> , 0 otherwise
economic_ita2_het	2000-2018	ISTAT	Municipality	Dummy = 1 if interviewee lives in municipality where number of foreign-type economic crimes per 100,000 inhabitants (drug trade, counterfeit and pimping & pandering) > 75 th pct, in year <i>t</i> , 0 otherwise
Mafia_groups_number_2	2000-2018	DIA	Municipality	Dummy = 1 if interviewee lives in municipality with > 1 organized crime group, 0 otherwise
libero_comune_total_allnord	2000-2018	Guiso et al. (2016)	Municipality	Dummy = 1 if interviewee lives in municipality what was a Free-state - Comune in the Middle Ages, 0 otherwise
bishopcity	2000-2018	Guiso et al. (2016)	Municipality	Dummy = 1 if interviewee lives in what was a Bishop city - Comune in the Middle ages, 0 otherwise
gold_medal	2000-2018	Guiso et al. (2016)	Municipality	Dummy = 1 if interviewee lives in a municipality which won gold medal against Nazism and Fascism, 0 otherwise
small_town	2000 to 2018	Istat	Municipality	Dummy = 1 if interviewee lives in a municipality with less than 5000 residents, 0 otherwise
<i>Persistence</i>				
Mafia1885	1885	Damiani	Municipality	Intensity of Mafia presence, 0 (no) to 3 (major)
Mafia1900	1900	Cutrer ⁷⁴	Municipality	Intensity of Mafia presence, 0 (no) to 3 (major)
Section 4.5 - Synthetic control approach				
<i>Outcomes</i>				
murd	1887-2012	Alesina et al (2019)	Region	Murder per 100,000 inhabitants (Italy base - 100)
social_capital	1861-2020	Diff. sources ⁷⁵	Region	Social capital (Italy base - 100)

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⁷⁴ Available to download in digital format in [Acemoglu et al \(2019\)](#).

⁷⁵ See indicators below.

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Variable	Time	Source	Unit	Description
vote_	1861-2020	Diff. sources ⁷⁶	Region	Number of male voters over electorate in the Senate
ngos_civic_rights	1861-2020	Diff. sources ⁷⁷	Region	Number of political associations over total population
ngos_	1861-2020	Diff. sources ⁷⁸	Region	NGOs over total population
norm_court_disputes	1871-2020	Diff. sources ⁷⁹	Region	Civic proceedings over total population
<i>Control variables</i>				
female_percentage_	1861-1961 ⁸⁰	SVIMEZ	Region	Ratio of female in the regional population
hh_size_	1881;1901-1961	SVIMEZ	Region	Average household size
pop_size	1861-1961	SVIMEZ	Region	Population size
gdp_per_capita_	1871-1961	Felice (2019)	Region	GDP per capita (Italy base - 100)
productivity_	1871-1961	Felice (2019)	Region	Productivity (Italy base - 100)
occupation_felice_	1871-1961	Felice (2019)	Region	Occupation percentage (Italy base - 100)
hdi_	1871;1891;1911;1951;1961	Felice and Vasta (2015) ⁸¹	Region	HDI index
value_added_pc_	1891;1911;1951	Felice (2011)	Region	Value added over total active population in million lire
value_added_industry_pc	1871;1881;1901;1911	Fenoaltea (2001)	Region	Value added in industry per capita (Italy base - 1)
share_industry	1861-1961	ISTAT	Region	Share of active population that works in the industry
share_agriculture	1861-1961	ISTAT	Region	Share of active population that works in the agriculture

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⁷⁶ Data on voters between 1921 and 2001 comes from [Nuzzo \(2006\)](#). Data between 1861 and 1911 comes from [Compendio statistiche elettorali](#). Data from 2011 is an average between electoral data of 2008 and 2013, taken from [Elezioni Storico](#) with data on Valle d'Aosta and from [here](#) and from electoral data of 2013 taken from [Interior ministry](#) and for Valle d'Aosta and Trentino taken from [here](#). Data for 2020 comes from the most recent elections of 2018 from [here](#) and for Valle d'Aosta from [here](#).

⁷⁷ Data on political associations between 1861 and 2001 was kindly sent to us - confidentially - by [Nuzzo \(2006\)](#) and an ISTAT official. Data for 2011 comes from [ISTAT](#) and the data for 2020 is taken from the most recent 2018 survey from [ISTAT](#).

⁷⁸ Data on political associations between 1861 and 2001 was kindly given to me by Giorgio Nuzzo and an ISTAT official. Data for 2011 comes from [I.stat](#) and data for 2020 comes from the most recent 2018 data from [ISTAT](#).

⁷⁹ For 1861, we have used 1863 data on civic proceedings divided by court of appeal from [Annuario Statistico delle Province Italiane](#). For 1871, we have used 1872 data on the total of the civic proceedings divided by court of appeal from the [Annuario Statistico delle Province Italiane](#). For 1881, we have used 1885 data on the total of the civic proceedings divided by court of appeal from the [Annuario Statistico](#). For 1891, we have used 1891 data on the total of the civic proceedings divided by regions from the [Annuario Statistico](#). Data on court disputes come from [Nuzzo \(2006\)](#) between 1901 and 2001. For 2011 we have used data on civic proceedings for work or social security divided by court of appeal from the [Justice ministry](#). Similarly, for 2020 we have used data on civic proceedings for work or social security divided by court of appeal from the [Justice ministry](#).

⁸⁰ Missing data for 1891, as in other controls below that use the census data below, it is because of lack of funding of the Italian state to administer the census.

⁸¹ [Felice and Vasta \(2015\)](#) create an index which is comprised by (i) life expectancy data from series on births and deaths, (ii) education from literacy and enrolment rate and (iii) income from real per capita GDP.

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Variable	Time	Source	Unit	Description
share_other	1861-1961	ISTAT	Region	Share of active population that works in other sectors
outflow_migration_pc	1881-1961	ISTAT	Region	Outflow migration per capita
connectivity_train	1861;1891;1911;1951;1961	SVIMEZ	Region	Number of kilometres of train railroads by 100,000 inhabitants
connectivity_road	1861;1911;1951;1961	SVIMEZ	Region	Number of kilometres of roads by 100,000 inhabitants
mountain_percentage_	1861;1911;1961	SVIMEZ	Region	Percentage of people living in mountain
small_mun_percentage_	1861;1911;1961	SVIMEZ	Region	Percentage of people living in small municipalities
Section 5 - Mechanisms	—	—	—	—
<i>Outcome - social capital</i>				
fear	2012-2014	Istat	Individual	<i>Psychological: fear</i> - Dummy = 1 if in the individual walking alone in the area where she lives feels quite scared, very scared or even does not go out, 0 otherwise
no_aspiration	2012-2014	Istat	Individual	<i>Psychological: resignation</i> - Dummy = 1 if in the next 5 years, individual thinks personal situation will be worse, 0 otherwise
sector_interest_Mafia	2012-2014	Istat	Individual	<i>Propensity to investment</i> Dummy = 1 if the individual works in a sector of Mafia interest
camab	2012-2014	INVALSI ⁸²	Municipality	<i>Capacity for collective action</i> - Dummy = 1 if family member has moved out of the house in previous 12 months, 0 otherwise
no_state_capacity	2012-2014	INVALSI ⁸³	Municipality	<i>State capacity</i> - Dummy = 1 if the individual's level of satisfaction in municipality services is between 1-3 (low), and 0 if above (high)
t_oth_belong	2016	Istat	Individual	Polarisation of views: belonging - Dummy = 1 if individual lives in municipality where the feeling of belonging to the municipality is > 75 th pct, and 0 otherwise
t_inst_vote	2016	Istat	Individual	Polarisation of views: belonging - Dummy = 1 if individual lives in municipality where the idea that voting matters nothing or little is > 75 th pct, and 0 otherwise

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⁸² This data was used by Guiso et al. (2016)

⁸³ This data was used by Guiso et al. (2016)

Table C1 – Continued from previous page

Variable	Time	Source	Unit	Description
cheating	2008	INVALSI	Municipality	<i>Social proximity: cheating</i> - Dummy = 1 if individual lives in a municipality where cheating is > 75 th pct, and 0 otherwise ⁸⁴
t_oth_immigrants	2016	Istat	Individual	<i>Social proximity: immigrants</i> - Dummy = 1 if individual believes that immigrants who are resident should not vote, 0 otherwise
<i>Outcome - civic engagement</i>				
child_below_5	2000-2018	Istat	Individual	<i>Propensity to investment: social returns</i> - Dummy = 1 if individual has small children and 0 otherwise
godab	2000-2018	Istat	Individual	<i>Propensity to investment: economic returns</i> - Dummy = 1 if individual own the house , and 0 otherwise
state_inefficiency_cso	2000	ISTAT	Municipality	<i>state capacity</i> -Dummy = 1 if individual lives in a municipality where number CSOs is above the 75 th percentile in year t
Global				
organized_crime	2006-2019	WEF ⁸⁵	Country	From 1 to 7, how much cost Mafia type crime impose to business?
social_capital	2006-2019	WEF	Country	0-100, index of social cohesion and engagement, community and family network and political behaviour and institutional trust?

⁸⁴ We use a variable on the probability of children in 8th grade primary schools caught cheating in 2008 during a national math exam taken by all schools in Italy, with data taken from the Institute promoting this exam (INVALSI, year 2008).

⁸⁵ Data is available online between 2006-2015, then we have added the single year 2016 and we then found one excel file for the years between 2017-2019. No data is available before 2005 as the methodology changed.

C2 Construction of alternative municipality-level organized crime indicator using administrative data

Note: the references are listed in the working paper. Appendices A and B are also directly included in the working paper.

In this section, we present the step-by-step procedure we use to calculate the municipality-level organized crime indicator using administrative data. This is used on the paper to: (i) conduct the reverse causality test, presented in Section 4 (where we use data available for 1983 on violent presence and economic presence as there are no data on political or territorial presence in 1983); (ii) to implement the heterogeneity analysis in Section 4 (where we create municipality-level indicators between 2000 and 2018 on violence presence, political presence and economic presence);⁸⁶ and (iii) to test alternative organized crime indices, as presented in Appendix B4, where we use the organized crime index averaged over the municipality-level indicators between 2000 and 2018 on economic presence, violent presence, political presence and territorial presence. We discuss below the data used and how each indicator was constructed.

Violent presence: Organized crime groups can be identified across the Italian territory by measuring levels of violence associated to them using administrative data published by the Interior Ministry every year at the province level. We can distinguish between Mafia-type crimes and crimes perpetrated by foreign organized crime groups. Since 1982, the introduction of Article 416-bis *Associazione a delinquere di stampo mafioso* led to murders and crimes having the aggravating factor of 'Mafia-type' added to their reporting and thus be distinguished from non-Mafia type offences.⁸⁷

Using this information, we compiled data on murders and crimes which have been identified as being committed by a Mafia group. These two Mafia-type crimes have been used to approximate Mafia pres-

⁸⁶ The only difference in the construction of these variables for the purpose of the heterogeneity analysis is that instead of having a normalised variable between 0 and 100, we create a dummy variable equal to 1 if the indicator is above the 75th percentile of the distribution, for each year, and 0 otherwise.

⁸⁷ The 1982 law targeted specifically Italian Mafia organisations, which were defined as those groups that "*exploit the power of intimidation granted by membership in the organisation, as well as the condition of subjugation and omertà that descends from it, to commit crimes and gain control of economic activities, concessions, authorisations, and public contracts.*". The Mafia-aggravating factors have not yet been used on foreign organized crime groups.

ence, such as by Peri (2004); G. Daniele and Geys (2015); Pinotti (2015); Alesina et al. (2019). There is, however, judicial evidence that prosecutors outside Mafia historic strongholds have been reluctant to use the Mafia-type aggravating factor (Pinotti and Stanig 2016). For this reason, our municipality-level administrative data on organized crime index includes also an indicator of crimes related to extortion. This indicator, even if not labelled as 'Mafia-type' by the judicial authorities, is an intrinsic aspect of Mafia groups' business in Italy. As suggested to us by a number of prosecutors we interviewed, one of the greatest difficulties for them is to assign the 'Mafia-type' crime in the absence of intimidation (Specialist interview 2.1, March 2021; Specialist interview 2.5, March 2021). Thus, extortion crimes committed by Mafia groups are not labelled Mafia-type due to absence of evidence about intimidation, but are known to have been committed by Mafia groups. With regards violent presence by foreign organized crime groups, we used data on individuals charged of crime association *Associazione a Delinquere*. To construct this variable, we followed these steps:

Step 1: For each municipality m in province p , we calculated the total number of times the violent crime was reported in the province p (or municipality m , if Mafia-type) at time t divided by the provincial (or municipality m , if Mafia-type) population at time t . Then, we multiplied this ratio by 100,000 inhabitants.

$$Violent\ Presence_{m,t} =$$

$$\frac{Number\ of\ crimes_{p,m,t}}{Total\ population_{p,m,t}} \times 100,000\ inhabitants$$

Step 2: To make this indicator comparable, we normalised to 100 as follows:

$$Violent\ Presence_{m,t}100 =$$

$$\frac{Violent\ Presence_{m,t} - Min\ of\ Violent\ Presence_{m,t}}{Max\ of\ Violent\ Presence_{m,t} - Min\ of\ Violent\ Presence_{m,t}} \times 100$$

Economic presence: Organized crime groups can be identified also by levels of economic presence using data from the Interior Ministry at the municipality and province level. As in the case of violent presence, we can distinguish between Mafia-type economic crimes and foreign-type economic crimes. For Mafia-type economic presence, we compiled data on firms and assets seized from Mafia-type organized crime groups since 1980s at the municipality level. We added a further indicator on money-laundering crimes, which are typically done by Mafia groups. For foreign-type economic crime presence, we compiled a list of crimes associated to their typical businesses, at the province level: drug trade, pimping & pandering and counterfeit. These have not been considered as Mafia-type by the judge and hence do not fall under the *Associazione a delinquere di stampo mafioso*.⁸⁸

The crimes selected to represent Mafia-type presence are assets and firms seized from Mafia groups, using data at the municipality level and available from 1983 from the Interior Ministry. The crimes selected for the foreign-type presence are drug trade, money-laundering, counterfeit and pimping & pandering, using data at the provincial level and available between 2000 and 2018 from the Interior Ministry. We calculated the indicator using the same two steps as above:

⁸⁸ To note that these are not the only type of economic crimes provided by the Interior Ministry, but we have selected the ones that are the most prominent for the businesses of foreign organized crime groups, to attenuate possible measurement errors.

$$\text{Economic Presence}_{m,t} =$$

$$\frac{\text{Number of crimes}_{p,m,t}}{\text{Total population}_{p,m,t}} \times 100,000 \text{ inhabitants}$$

$$\text{Economic Presence}_{m,t} 100 =$$

$$\frac{\text{Economic Presence}_{m,t} - \text{Min of Economic Presence}_{m,t}}{\text{Max of Economic Presence}_{m,t} - \text{Min of Economic Presence}_{m,t}} \times 100$$

Political presence: Organized crime groups of Mafia-type can be identified by their political presence using data from the Interior Ministry at the municipality level. We obtained data collected since 1991 on the number of municipal councils dismissed due to infiltration by Mafia-type organized crime groups. Appendix Figure C1 plots the number of municipality councils dissolved between 1993 and 2018 and shows an increasing number of political infiltration in the past few years. These data are at the municipality level and available between 1991 and 2018. This measure applies only to Mafia-type groups but not to foreign groups. As the unit of measurement is already the municipality, we do not need to divide it by the population size but assigned the value to 100 to make the value comparable:

$$\text{Political Presence}_{m,t} 100 = \text{Political Presence}_{m,t} \times 100$$

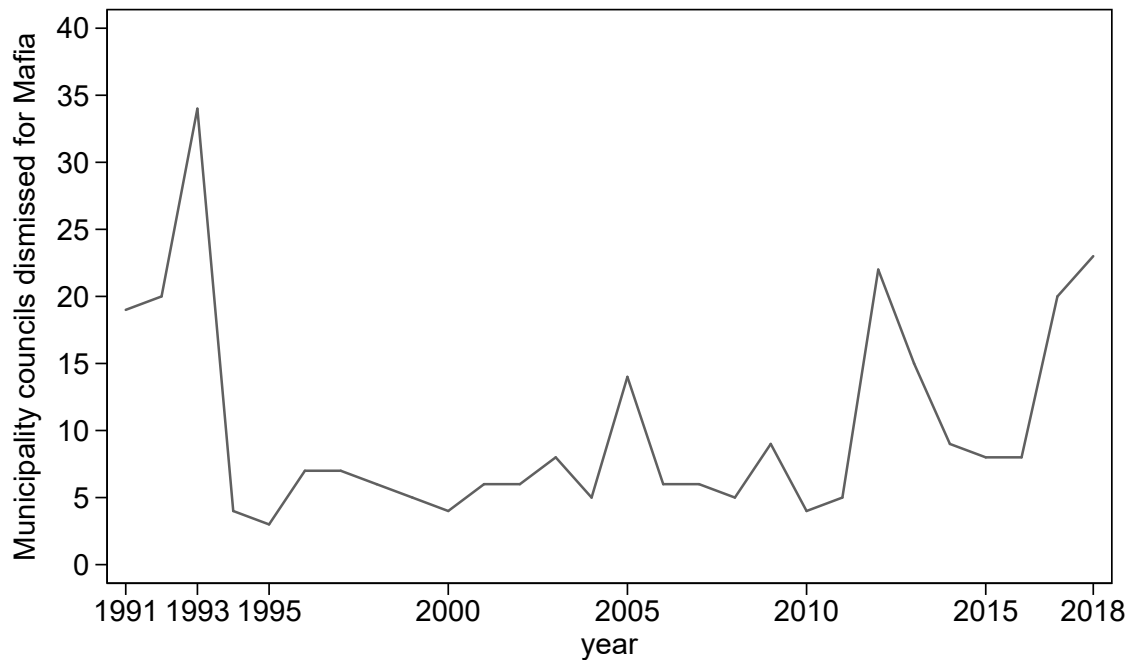
Territorial presence: Organized crime groups presence can also be identified using police reports published by the Direzione Investigativa AntiMafia (DIA onwards) twice a year at the municipality level. The DIA was created in the 1991 by the prosecutor Giovanni Falcone to collect, analyse and publish all the available information on the territorial presence of organized crime groups provided by the Italian police forces. The DIA is an investigative branch of the Interior ministry (comprised by 40% state police, 40% Carabinieri e 20% Guardia di Finanza) with competence across the national territory. Since 1993, twice a year, DIA publishes a report on the organized crime group presence on the Italian territory at the municipality level. We digitised each report. A detailed explanation of how we conducted the digitisation of the reports is available upon request.

We coded a dummy variable equal to 1 if the DIA reports organized crime group presence at the municipality level at least in one of the two terms of year t . If organized crime group presence is only available at the province level without specifying the municipality, we assigned the municipality a value equal to 0.1. If the municipality is cited both with organized crime group presence at the municipality and at the province level, we still assigned it the value of 1. Data are available between 2000 and 2018 from DIA, twice a year. As the unit of measurement is already the municipality, we do not need to divide it by the population size:

$$\text{Territorial Presence}_{m,t} 100 =$$

$$\text{Territorial Presence}_{m,t} \times 100$$

Figure C1: Line plot: municipalities dismissed because of Mafia infiltration (1993–2018)



Municipality councils dismissed: Art. 143 (Tuel): (...) when evident direct or indirect links between the municipality and the organized crime emerge
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Data source: Interior Ministry

To avoid overestimating the presence of organized crime groups in populated areas, we follow Calderoni (2011), Transcrime (2013) and Dugato et al. (2019) and calculate the ratio of each indicator for the population. Each indicator is then normalised using an indexing to their maximum values to allow comparability among variables with different measurement unit. The highest value for each indicator is assigned the value 100, and all the other values are scaled back accordingly.

Municipality-level administrative mean index:

Step 1: The indicator is the equal weighted mean of the four indicators, such that

$$Objective\ Presence_{m,t} =$$

$$\frac{Territorial\ Presence_{m,t}100 + Violent\ Presence_{m,t}100 + Econ\ Presence_{m,t}100 + Polit\ Presence_{m,t}100}{4}$$

Step 2: To make this indicator comparable with our self-reported measure, we normalised its value to 100:

$$Objective\ Presence_{m,t}100 = \frac{Objective\ Presence_{m,t} - Min\ of\ Objective\ Presence_{m,t}}{Max\ of\ Objective\ Presence_{m,t} - Min\ of\ Objective\ Presence_{m,t}} \times 100$$

Self-reported organized crime index: The question from ISTAT (2019) asks: "From 0=not at all to 4=A lot, what is the risk of criminal group presence in the area where you live?"

Step 1: To make this indicator comparable with the administrative data indicator, we normalised its value to 100

$$OC Index_{m,t} 100 = \frac{OC Index_{m,t} - Min\ of\ OC\ Index_{m,t}}{Max\ of\ OC\ Index_{m,t} - Min\ of\ OC\ Index_{m,t}} \times 100$$

Organized crime index averaged with Municipality-level objective mean index: The organized crime index is the equal weighted mean of the administrative and self-reported indicators, such that

$$OC\ Index\ averaged\ with\ Municipality - level_{m,t} = \frac{Objective\ Presence_{m,t} 100 + OC\ Index_{m,t} 100}{2}$$

For interpretation and comparison purposes, we standardised the the organized crime index averaged with the municipality level indicator for each year and created a dummy equal to 1 if the individual is exposed to high-intensity organized crime presence (using both indicators) when the individual has an index which is above the 75th percentile of the distribution, for each year.