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THREAT OF TAXATION, STAGNATION AND SOCIAL UNREST: EVIDENCE FROM 19TH CENTURY SICILY

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Centre for Economic Policy Research
33 Great Sutton Street, London EC1V 0DX, UK
Tel: +44 (0)20 7183 8801
www.cepr.org

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Abstract

Taxation may trigger social unrest, as highlighted by historical examples. At the same time, tax incomes could boost state capacity which may in turn foster political stability. Understanding better the a priori ambiguous taxation-turmoil nexus is particularly relevant for low-income countries today -- yet unfortunately any causal evidence on this has been very scarce. We exploit a unique policy experiment in 19th century Sicily to identify with the help of a regression discontinuity design (RDD) the effect of taxation on social unrest. It turns out that it is mostly the threat of taxation that may distort economic investment and ultimately result in higher levels of political turmoil.

JEL Classification: D74, H20, H26, J10, N43, O10

Keywords: taxation, Fiscal, conflict, Unrest, growth, regression discontinuity design, state capacity

Gema Lax-Martinez - gema.laxmartinez@unil.ch
University of Lausanne

Dominic Rohner - dominic.rohner@unil.ch
University of Lausanne and CEPR

Alessandro Saia - alessandro.saia@unil.ch
University of Lausanne

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Threat of Taxation, Stagnation and Social Unrest: Evidence from 19*th* Century Sicily*

Gema Lax-Martinez† Dominic Rohner‡ Alessandro Saia§

June 29, 2020

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†Department of Economics, University of Lausanne. E-mail: gema.laxmartinez@unil.ch.

‡Department of Economics, University of Lausanne and CEPR. E-mail: dominic.rohner@unil.ch.

§Department of Economics, University of Lausanne. E-mail: alessandro.saia@unil.ch.

1 Introduction

Taxation and fiscal policy are key roles of the state, and their design may have wide-ranging implications on political stability. Strikingly, we still know only very little about how tax policies affect civil unrest. To start with, even conceptually, the effects of increased taxation are ambiguous, as on the one hand one could expect extractive taxation to trigger revolt (think of the Boston Tea Party and American Revolution), while on the other hand greater fiscal revenues could lead to bigger state capacity, making it thereby more difficult for would-be rebels to challenge the state (as argued e.g. by Collier et al. (2009) and Besley and Persson (2011)). Fiscal expansion could also go along with greater accountability and lower inequality, which may also foster pacification (as discussed in more detail below). Finally, one could even think of indirect effects of increased taxation, affecting places and people that have escaped the taxman: For example, if the tax system contains discontinuities and loopholes allowing to avoid taxation, the "shadow of taxes" can distort incentives and hinder economic growth (think e.g. of the stylized fact that informality is associated with lower productivity – La Porta and Shleifer (2014)). And a faltering economy can, in turn, result in low opportunity costs of rebellion and hence trigger civil unrest.

One of the reasons for the scarcity of empirical evidence on these issues may be that it is very difficult to find some exogenous variation in taxation, limiting most possible analyses to pure correlations. In the current paper we aim to address this shortcoming of the existing literature (discussed in detail below), by exploiting a unique policy experiment in 19th century Sicily. In particular, we exploit the fact that a property tax *(imposta fondiaria)* was introduced in Sicily in 1810, but only in municipalities with more than 2000 inhabitants. This discontinuity allows us to perform a regression discontinuity design (RDD). To the best of our knowledge, the current paper is the first one to study the impact of arguably exogenous variation in taxation on conflict and to investigate potential channels of transmission.

In particular, we first study whether in the neighborhood of the 2000 inhabitants' threshold a municipality's exogenous exposure to the property tax impacted the extent to which social unrest took place there in 1860 (when the Kingdom of the Two Sicilies was overthrown and integrated into Italy), as well as in the revolution of 1848 (as a major robustness check). For this purpose we have assembled a novel dataset on tax assignment, population and social unrest, drawing on a variety of original sources from archives. We detect a strong and robust effect of tax exposure around the threshold lowering the propensity for engaging in political violence. In a next step we investigate potential channels of transmission, starting off with a series of proxies for state capacity and public spending, some of which we have freshly collected from archival records. It turns out that we do not detect any strong impact of tax exposure on measurable public spending or state capacity building, which is in line with historians' unequivocal assessment

of King Ferninand II's regime being repressive and public spending being dismal and outright ineffective.

We then turn to an alternative mechanism, namely that places right below the 2000 inhabitants' threshold may be held back by the desire to avoid costly taxation. We indeed find substantial evidence for this, with the population (and typically also the economy) of municipalities right above the tax threshold thriving much more than their counterparts right below. Importantly, this divergent growth path is only detected for the period of the differential tax treatment, while before and afterwards we do not find any differences in population growth above and below the threshold. These results are consistent with the notion that it is not taxes per se but rather the threat of taxation that can stir up social unrest – due to distorted incentives holding back growth and development. In terms of external validity, the current results may extend to past and current contexts where fiscal rules create major distortions in incentives, threatening growth and development. In contrast, we expect fewer –or possibly even no– averse effects of taxation on violence in settings where the tax collection is designed in a none distortionary way.

In terms of the existing literature, we are not aware of papers that examine the effect of exogenous variation in tax rates on conflict. This being said, a series of related literatures are relevant for the current paper, in particular with respect to potential mechanisms linking fiscal policies to conflict. A first, obvious effect of taxation could be to trigger direct resistance against tax collection, leading to riots and unrest. A series of papers have studied e.g. protests linked to the fiscal burden of the welfare state (Burg (2004), Martin and Gabay (2012)) or to austerity measures (Ponticelli and Voth (2019), Passarelli and Tabellini (2017)).

Second, taxes may contribute to fostering state capacity which has been found to reduce conflict. There is indeed a substantial literature making the point that weak state capacity is correlated with political instability (Fearon and Laitin (2003), Collier et al. (2009), Besley and Persson (2010), Besley and Persson (2011), Gennaioli and Voth (2015), and Acemoglu et al. (2020)).

Third, taxation could also imply greater accountability and hence better governance. In turn, it has typically been argued in the literature that the state's accountability and good governance are major factors for preventing popular discontent and political unrest (see e.g. Collier and Rohner (2008), Hegre and Nygård (2015)). Fourth, to the extent that tax revenues are used in part for redistribution, lowered inequality could reduce the scope for fighting (see Esteban et al. (2012)).

Beyond these straightforward, direct mechanisms, taxation may not only affect those who end up paying their fiscal dues. The threat of fiscal burdens may distort economic choices, giving way to costly tax avoidance (see e.g. the discussion in Feldstein (1999)). In particular, in the context of arbitrary population thresholds for the tax base, as in our setting of income taxation in Sicily in the early 19th century, villages below the 2000 heads' threshold have –at least in the

short run– strategic incentives to hold back on demographic (and economic) growth for avoiding being subject to income taxation. And economic slowdown and lack of growth can be powerful drivers of political turmoil (see e.g. Miguel et al. (2004), König et al. (2017)).[1]

In a nutshell, the current paper is novel in various dimensions. It is –to the best of our knowledge– the first one to be able to exploit an exogenous variation in fiscal duties to assess the impact of taxation on the risk of conflict. Further, we have also constructed a novel dataset of civil unrest in 19th century Sicily and carry out an analysis of possible channels of transmission linking taxation to political stability.

The remainder of the paper is organized as follows. Section 2 contains a discussion of the historical context, and Section 3 presents the data. Section 4 outlines our identification strategy, and displays our baseline results, as well as a battery of robustness checks. The mechanisms at work are investigated in Section 5, and Section 6 concludes. The Online Appendix contains robustness checks and additional information on the data construction.

2 Historical Background

Before the Unification of Italy, the southern part of the country was governed by the Bourbon Kingdom (1816-1861), the so-called "Kingdom of the Two Sicilies".[2] It was formed after the union of the Kingdom of Naples and the Kingdom of Sicily – with the Spanish Kings being in charge of this kingdom. This period of Sicilian history has been characterized by popular grievances against the domination by outside forces that was perceived as oppressive, unjust and arbitrary. In particular, King Ferdinand II was initially greeted by liberals, but rapidly turned authoritarian, repressing severely a number of liberal and national revolts (including that of the Bandiera brothers in 1844). The Sicilian population was not only upset about the repression, but also about the capital of the new kingdom being established in Naples and about the abolition of the Sicilian Parliament and the Constitution of 1812. One climax of the civil unrest was reached in the well-documented "Sicilian Revolution" of 1848, and social turmoil continued until the general Giuseppe Garibaldi conquered "The Kingdom of the Two Sicilies" with the help of a thousand volunteers (i.e. in the "Expedition of the Thousand") and incorporated it in 1861 into the newly proclaimed Kingdom of Italy.

Of particular interest for our study is the adoption in 1810, i.e. six years before the union of the two southern kingdoms, of a property tax by King Ferdinand I at the General Parliament of the Kingdom of Sicily, which was levied in the Sicilian municipalities with more than 2000

[1] The current paper is also related to the nascent literature on exploiting policy experiments for studying the effects of particular public policies on conflict prevention (see e.g. Cilliers et al. (2016) on reconciliation ceremonies or Rohner and Saia (2019) on school construction).

[2] The discussion in this section draws on a series of historical sources, notably several entries in the Encylopedia Britannica (www.britannica.com), as well as Horner (1860).

inhabitants. It consisted of 5 percent of the urban rents according to the last cadastre.[3] The population data of 1806 was used as reference to determine which municipalities were to be exempted of the tax.[4] This tax has been widely judged as extractive, with only a very modest part of it being used for public spending and infrastructure. Indeed, as stressed in Balletta et al. (2010), during the first half of the 19th century Sicily suffered from a lack of public investment, and, to put it in the worlds of Carano-Donvito (1910), "very little was spent [for the citizens], and this was spent badly".

3 Data

We start from the comprehensive list of municipalities provided by "Parlamenti Generali del Regno di Sicilia" which allows us to disentangle which municipalities paid the property tax in 1810, and which ones did not. We also draw on population data for 1748, 1806, 1861, 1871 from a variety of sources. The one for 1806, the most important for our study, is retrieved from Pagano (1952), whereas 1748 stems from Maggiore-Perni (1892), 1861 comes from Ministero d'Agricoltura (1864) and 1871 from Ministero d'Agricoltura (1874). We observe almost perfect compliance of the treatment (tax obligation) with respect to the 1806 census population, with only very few exceptions.[5]

As discussed above, several rebellions took place on the island of Sicily against the House of Bourbon (a cadet branch of the Spanish royal family) during our period of interest. We measure social unrest using the Medal of Honor recipients for riots in 1848 and 1860, recorded in the National Archives in Palermo. Our data contains very detailed information on these recipients, including, crucially, their municipality of origin. These measures capture very well the extent of social unrest at various locations of Sicily, as the awarding of medals was carried out by an external commission, who reported directly to the Italian State, created by two laws in December 1860 and February 1861. The procedure was designed to exhaustively find all citizens deserving the medal (having displayed great bravery, and being injured or killed in combat), and the process of examining each file was extremely stringent. Our measures are unlikely to suffer from large measurement error, due to the aim for exhaustively locating all citizens meeting the criteria, and –if anything– under-reporting of combat involvement would downward bias our estimates. Concerning non-classical measurement error, there are also no reasons to think that the commission would systematically accept more applications from citizens originating from

[3]The base of the property tax were the net rents of the funds after deducing the expenses for maintenance. See Dias (1856) for more details.

[4]See the Law of September 28^{th}, 1810 by the General Parliament of The Kingdom of Sicily.

[5]Within our data-driven bandwidth, the only municipalities (population of 1806 in brackets) with more than 2000 inhabitants that should be paying the tax but are exempted are Saponara (2183), Savoca (2196), Santo Stefano di Camastra (2218) and Cianciana (2614). We shall in the whole baseline analysis remove these four exceptions and perform a sharp RDD. However, in Appendix B.7 we show that our results are virtually unchanged if we include them.

control (or treated) municipalities. Still, we will carry out a series of robustness checks aimed at addressing concerns about measurement error.

Using the aforementioned data we code as dependent variable a binary measure of social unrest taking a value of one if in a given municipality at least one Medal of Honor for rebellion against the House of Bourbon in 1860 has been awarded, and zero otherwise.[6]

In Appendix Table A1 we display descriptive summary statistics. We see that while in the social unrest of 1860 (our main variable) exactly half of the municipalities had citizens involved in the fighting, in the social unrest of 1848 (used in a robustness check) only 14 percent of municipalities had at least one citizen participating. As far as the tax is concerned, it was levied in 58 percent of municipalities. The table also contains summary statistics about the more than a dozen controls and additional variables.

4 Empirical Analysis

4.1 Identification Strategy

As mentioned above, in 1810 a property tax, consisting of 5% of the urban rents, was introduced and levied exclusively in the municipalities with more than 2000 inhabitants. We exploit the discontinuity in the treatment to investigate whether the introduction of the property tax in 1810 had an effect on the likelihood of observing social unrest in the municipality, performing a Regression Discontinuity Design (RDD). Our sample consists of 338 Sicilian municipalities with population numbers ranging from 108 to 155,740. Out of these, 196 (i.e. 58%) are subject to the tax.

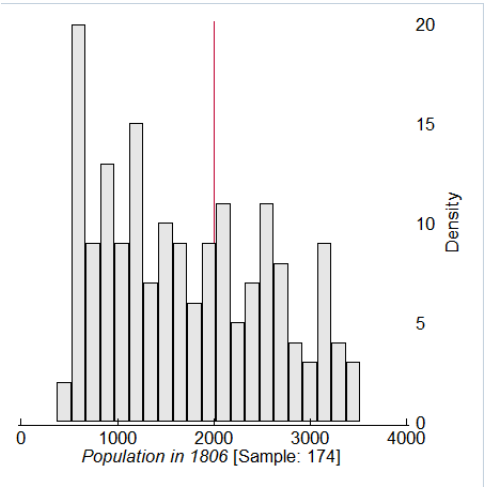
The identification assumption required to hold for the validity of an RDD is that there is no sorting around the threshold, i.e. that there is a "smooth" distribution of municipalities in the neighborhood of the known threshold (2000) of the forcing variable population. Figure 1, Panel A illustrates (using bins of 150 inhabitants) that the density in numbers of municipalities of a given size is "smooth" in the neighborhood of the threshold. This is confirmed by a formal test following Cattaneo et al. (2019).[7]

We perform a sharp RDD analysis to estimate the casual impact of taxation around the threshold of 2000 inhabitants. The treatment effect, identified at the threshold of 2000 inhabitants, is

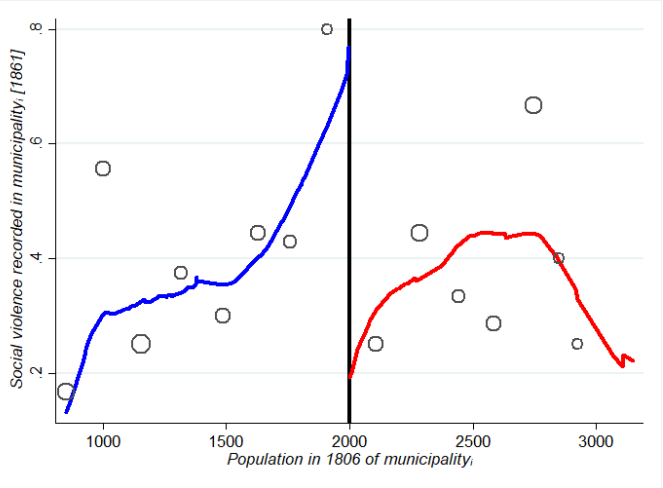
[6] We follow the approach in the conflict literature that often uses as main dependent variable a dummy of conflict incidence (see e.g. Fearon and Laitin (2003), Collier et al. (2009), Berman et al. (2017), Harari and Ferrara (2018)). Further, moving beyond a municipality-level dummy would have been extremely complicated, due to the poor condition of the archival records for individuals.

[7] According to their test, which does not require pre-binning the data, we cannot reject the null hypothesis of no difference of the population data in 1806 around the 2000 inhabitants' cutoff (the t-stat is 0.86 for the sample of our baseline Table 1).

Figure 1: Density plot and relation between social unrest and population



A) Density of municipalities



B) Social Unrest and Population

Panel A displays the density in numbers of Sicilian municipalities in 1806 with population around the cut-off of 2000 inhabitants. Panel B shows the lowess (Locally Weighted Scatterplot Smoothing) smoothed relationship between Medals of Honor and population in municipalities below and above 2000 inhabitants in 1806, represented by the blue and red lines. The scatter-plot averages over intervals of 150 inhabitants and the bin size (represented by the size of the circles) is a function of the number of municipalities in the corresponding interval.

given by

$$E[y_{i1} - y_{i0}|X_i = 2000] = \lim_{X_i \to 2000^-} E[y_i|X_i = x] - \lim_{X_i \to 2000^+} E[y_i|X_i = x] \quad (1)$$

where the outcome variable y_i is social unrest in municipality i defined in Section 3. It can take two potential values: y_{i1} for municipality i subject to the treatment, and y_{i0} otherwise. X_i is the forcing variable, i.e. the number of inhabitants in municipality i.

We estimate non-parametrically the regression function $E[y_i|X_i = x]$ at each side of the threshold, separately for control and treated municipalities.[8] In practice it is like estimating by OLS the following regression equation including only observations ranging from $2000 - h$ to $2000 + h$ inhabitants, where $h > 0$ is a data-driven bandwidth, as suggested by Cattaneo et al. (2017)[9]:

$$y_i = \beta_0 + \beta_1 \mathbb{1}\{X_i \geq 2000\} + \beta_2(X_i - 2000) + \beta_3 \mathbb{1}\{X_i \geq 2000\} \cdot (X_i - 2000) + \beta_3 Q_i + \epsilon_i \quad (2)$$

where $\mathbb{1}\{X_i \geq 2000\}$ is the threshold indicator function, $(X_i - 2000)$ is the continuous, normalized population measure and Q_i represents the quadratic version of the former, i.e. $Q_i = (X_i -$

[8] Our baseline estimates uses a second-order polynomial. The use of a quadratic regression follows Gelman and Imbens (2019). The Online Appendix B.4 displays the results for a local linear regression, leading to very similar findings.

[9] This approach selects the bandwidth, taking into consideration the bias-variance trade-off, so that the mean square error of the point estimator is minimized. Section B.5 in the Online Appendix presents the results for different manually-chosen bandwidths of 500, 750, 1000 and 1500 inhabitants.

$2000)^2 + \mathbb{1}\{X_i \geq 2000\} \cdot (X_i - 2000)^2$. The coefficient of $\mathbb{1}\{X_i \geq 2000\}$ is the treatment effect at the cutoff.[10]

4.2 Main Results

In the current subsection we shall report the main baseline results of the RDD analysis. Figure 1, Panel B depicts graphically the main finding. In particular, it displays the lowess (Locally Weighted Scatterplot Smoothing) smoothed relationship between medals of honor and population in municipalities below and above 2000 inhabitants in 1806, represented by the blue and red lines. The scatter-plot averages over intervals of 150 inhabitants and the bin size (represented by the size of the circles) is a function of the number of municipalities in the corresponding interval. On the horizontal axes are ordered in growing size all Sicilian municipalities below 3500 inhabitants, with the ones with above 2000 inhabitants having to pay the tax, while the others are exempted. On the vertical axis we display the count of incidence of social unrest in a given municipality (as measured by our variable on medals of honor from the National Archives in Palermo). We find that there is a much larger extent of political violence in municipalities exempted by the fiscal levy compared to the more peaceful treated group of municipalities.

In what follows, we investigate in further detail this relationship, starting with baseline Table 1. We perform sharp RDD estimations with a data-driven bandwidth (following Cattaneo et al. (2017), as discussed above), and display the coefficient of the impact of the property tax exemption (according to 1806 population data) on social unrest in 1860, measured using a dummy variable indicating whether someone from the municipality has received a Medal of Honor in that year. This captures whether there has been at least one incident of anti-government unrest in a given municipality in the year 1860.

Column 1 displays the results of the unconstrained regression. It confirms the negative, statistically significant effect of being subject to taxation on unrest previously found above in Figure 1, Panel B. Quantitatively, municipalities just below the threshold of 2000 inhabitants tend to have on average four times more episodes of social unrest compared to the municipalities just above the threshold.

Column 2 includes a battery of controls, namely a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers

[10] The baseline regression is weighted by a triangular kernel function $K\left(\frac{x_i - 2000}{h}\right)$. The triangular kernel function $K(x) = (1 - |x|)1(|x| \leq 1)$ assigns a positive weight to the municipalities inside the interval $(2000 - h, 2000 + h)$ that declines, as their distance from the cutoff increases. Section B.6 in the Online Appendix depicts the results for the unweighted regression (rectangular kernel), which are consistent with our baseline estimates.

from one of Sicily's five largest cities, land suitability for cereals, citrus fruits and olives and the type of municipality, i.e. *demaniale* (royal, cities that are part of the State property) and *baronale* (baronial, subordinated to a feudatory).

In the third column we add fixed effects for historical provinces (from 1806, called *valli*, there are 3), while, similarly, in column four we include fixed effects for more recent province boundaries (from 1861, there are 7). Column five includes at the same time controls and valli fixed effects, while the sixth column includes both controls and province fixed effects. In all columns we find a negative, significant effect of tax exposure on social unrest. Reassuringly, the coefficient of interest is extremely stable across specifications.

Table 1: Baseline results of the effect of taxation on social unrest

Dep. Variable: Social Unrest$_i$	(1)	(2)	(3)	(4)	(5)	(6)
Tax in 1810$_i$	-0.534**	-0.656***	-0.546**	-0.563***	-0.633***	-0.684***
	(0.239)	(0.207)	(0.239)	(0.214)	(0.206)	(0.198)
Observations	128	145	137	129	153	149
Bandwidth	[846-3154]	[685-3315]	[774-3226]	[839-3161]	[622-3378]	[657-3343]
Controls	No	Yes	No	No	Yes	Yes
Valli FEs	No	No	Yes	No	Yes	No
Province FEs	No	No	No	Yes	No	Yes
Sample Mean	0.375	0.373	0.370	0.369	0.370	0.369

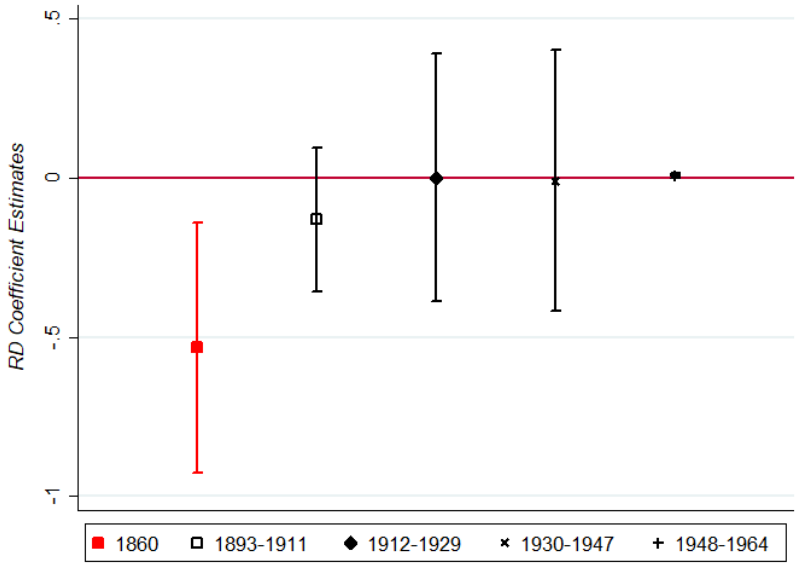
NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on social unrest in 1860, measured with a dummy variable indicating whether someone from the municipality has received a Medal of Honor in that year. A data-driven bandwidth is implemented. Column 1 is the unconstrained regression. Column 2 adds the following controls: a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers from one of Sicily's five largest cities (urban), land suitability for cereals, citrus fruits and olives and the type of municipality, i.e. *demaniale* or *baronale*. The third column adds province (from 1806, called *valli*, there are 3) fixed effects. The fourth column adds province FE (from 1861, there are 7). Robust standard errors are reported in parenthesis. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

4.3 Robustness checks

The first robustness check that we present is a placebo analysis of our main baseline results. In particular, we report in Figure 2 the coefficient of our baseline estimate (in red) together with a placebo exercise (in black) where we rely on the same explanatory variables as in the baseline Table 1 but include a proxy of social unrest for other years, i.e. the presence of a political opponent to the government (anarchists, republicans, socialists, etc.). Every point estimate represented in the figure corresponds to a period of equal length. We see that –as expected– social unrest was only impacted during the period when the differential tax policy was in place.[11]

[11]Note that we have also studied whether Peasant Fasci at the end of the 19th century and mafia presence during the 20th century were affected by our unequal tax treatment in the early 19th century. In line with

Figure 2: Placebo - Effect of taxation on social unrest after 1860 - Different time-windows



NOTES: The figure shows the coefficient estimates (and the 90% confidence intervals) from a set of unconstrained RD regressions of the impact of the property tax exemption (given by population data in 1806) on social unrest in 1860 (in red), and the presence of subversive individuals for different periods of equal length (in black). The coefficient estimate shown in red corresponds to that in Column 1 in Table 1. Social unrest data from 1860 comes from the National Archives in Palermo (Sicily), population data on 1806 comes from Pagano (1952) and data on subversive individuals from 1893 onwards is retrieved from the National Archives *(Archivio Centrale dello Stato)*.

In the Online Appendix B.1, we provide additional variants of this placebo analysis, finding, as above, an effect for the period when this differentially applied tax was active, but not for any other time period.

A variety of further robustness checks are relegated to the Online Appendix. We shall briefly describe here the tests performed and results found. In particular, we implement a series of sensitivity tests linked to alternative ways of computing RDD coefficients and standard errors (Section B.2) and alternative definitions of the dependent variable (Section B.3), and we allow for other functional forms of the RD function (Section B.4) and manual bandwidths (Section B.5). In Section B.6 we use an uniform kernel, and in Section B.7 a fuzzy RDD is applied. Finally, in Section B.8 we include the battery of control variables used in Acemoglu et al. (2020), while in Section B.9 we perform sensitivity tests with respect to the geographical controls included. Our results remain statistically significant and of similar magnitude in all these sensitivity specifications.

the results of Figure 2, we find no effect on these later phenomena. This is consistent with the notion that the differential tax policy's impact was limited to the period when it was in place, and that it did not generate persistent effects carrying over until today.

5 Channels

Below we study through which channels of transmission the Sicilian property tax may have affected social unrest. We first explore different proxies for state capacity such as whether the municipality has its own municipal administration, district judge and the presence of police stations. Second, we investigate different measures of population growth as a proxy for economic progress.

5.1 State capacity

An obvious potential mechanism explaining why being above the tax threshold curbs conflict could be that tax collection is associated to building up state capacity (see Tilly (2017) and Besley and Persson (2011)) and, in turns, greater state capacity helps preventing social unrest (Fearon and Laitin (2003), Collier et al. (2009), Besley and Persson (2010), Besley and Persson (2011), Gennaioli and Voth (2015), and Acemoglu et al. (2020)). While this nexus has been uncovered in several contexts, it seems a priori not very plausible for the Kingdom of the Two Sicilies in the early and mid 19th century, given that Ferdinand II's repressive regime has been infamous for spending little and badly on public policies (as discussed above in Section 2). Still, in what follows, Appendix Table A14 performs a RDD analysis of the impact of being above the tax threshold on a series of indicators and proxies of state capacity.

Columns 1-2 focus on a municipality having an own administration, Col. 3-4 on the (log) value of public buildings, Col. 5-6 on the existence of municipal level judiciary, Col. 7-8 on the municipality being mentioned in legal texts, and, finally Col. 9-10 on a principal component analysis of the aforementioned indicators.[12] While the coefficients found have in general a positive sign, they are in almost all cases very far from statistical significance, with the exception of the legal mention where the coefficient of tax assignment is positive and significant at the 10 percent level. Thus overall, this table does not provide strong support for the notion that the main channel of transmission through which taxes impacted social unrest was through the building of state capacity. Obviously, as always, the absence of evidence of an effect is not to be mistaken for evidence of absence of an effect, and we cannot rule out that these non-results are partly due to noisy measures of state capacity leading to attenuation bias.

[12]Information on which municipalities have an own administration is retrieved from a chorographic dictionary with detailed information on any Sicilian municipality (De Luca (1852)); value of public buildings comes from Mortillaro (1854), that quantifies the value of buildings such as mills, industries like foundries, silk, cotton or wool manufactures for every municipality. Records on the so-called *district judges* are taken from Serristori (1842) (apart from the magistrates listed in this source, every district counted as having a single investigating judge). Using automatic text extraction algorithms, we retrieve the number of times a municipality is mentioned in over 12,000 pages of legal texts related to the period 1806-1860. The full list of legal texts used in this exercise is available in Appendix Section D.

5.2 Population growth

One other potential mechanism why in places without tax more social unrest took place could entail that these municipalities may have been slowed down in their development by the desire to not reach the 2000 inhabitants' threshold and thereby escape taxation. For the 19th century in Sicily we lack good indicators of economic growth at the municipality level. However, a reasonable proxy for overall demographic and economic development of a place is the population growth rate. In case some municipalities stagnated – held back by the treat of taxation – we should see this in immobility of population numbers. Hence, in this subsection we investigate how the discontinuous tax duties have affected population growth in the municipalities subject to the tax with respect to the ones exempted from this fiscal levy.

Table 2 provides the main estimates with as dependent variable population growth between 1806 and 1833 (and 1806 and 1861). The same control variables are included as in the baseline Table 1. In all four specifications we find a strong and statistically significant positive effect of taxation driving up population growth. Put differently, we indeed find that –in the neighborhood of the population threshold– the municipalities exempted from the tax have experienced a much smaller demographic development than their taxed counterparts.

Table 2: Channel - Effect of taxation on population growth

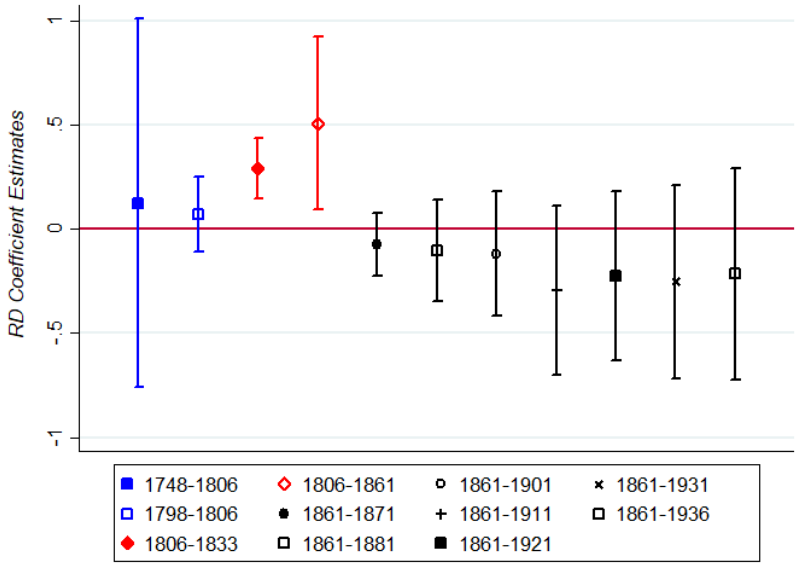
	(1)	(2)	(3)	(4)
Dep. Variable:	*Pop. Growth 1806-1833$_i$*		*Pop. Growth 1806-1861$_i$*	
Tax in 1810$_i$	0.292***	0.259***	0.507**	0.394**
	(0.0893)	(0.0680)	(0.252)	(0.193)
Observations	142	138	136	136
Bandwidth	[730-3270]	[717-3283]	[781-3219]	[726-3274]
Controls	No	Yes	No	Yes
Province FEs	No	Yes	No	Yes
Sample Mean	0.255	0.262	0.591	0.585

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on population growth 1806-1833 and 1806-1861. A data-driven bandwidth is implemented. Columns 1 and 3 show results from the unconstrained regression. Columns 2 and 4 adds province FE (from 1861, there are 7) and the following controls: a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers from one of Sicily's five largest cities (urban), land suitability for cereals, citrus fruits and olives and the type of municipality, i.e. *demaniale* or *baronale*. Robust standard errors are reported in parenthesis. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

A major robustness check for the aforementioned results is performed in Figure 3 where we

present placebo estimation results using population growth before the introduction of the tax and after 1861 (when they removed the exemption because the Kingdom of the Two Sicilies was absorbed by Italy). Again, as expected, no effect is found for these "before" and "after" periods where our differential fiscal treatment does not apply. Note that in Online Appendix C.2 we carry out a further placebo analysis, finding again only an effect for the period when this differentially used tax was active, but not for any other time period. In Online Appendix Section C.3 we also show that the results of Table A17 are robust for using predicted instead of actual population growth.

Figure 3: Placebo - Effect of taxation on population growth after 1860 - Different time-windows



NOTES: The figure shows the coefficient estimates (and the 90% confidence intervals) from a set of unconstrained RD regressions of the effect of the property tax exemption (given by population data in 1806) on population growth over different periods. Estimated coefficients shown in red corresponds to those presented in columns 1 and 3 in Table 2. Sources are Pagano (1952), Maggiore-Perni (1892), Ministero d'Agricoltura (1864), Ministero d'Agricoltura (1874) and Italian National Institute of Statistics (ISTAT).

6 Conclusion

In this paper we have exploited a property tax *(imposta fondiaria)* introduced in Sicilian municipalities in 1810 to provide novel evidence about the impact of taxation on social unrest. To do so we have collected novel historical data on population and Medals of Honor recipients for riots in 1848 and 1860, among others. We find a statistically significant, quantitatively sizeable impact (as paying the tax reduces the baseline social unrest risk by more than half). In terms of channels of transmission, we fail to detect an impact of taxation on increasing state capacity and fostering public investments, but we find that municipalities right below the threshold experience much reduced demographic (and typically economic) growth compared to municipalities right above the taxation threshold. These findings are consistent with the notion that it is not fiscal levies per se but rather the threat of taxation that leads to distorted

incentives slowing down growth and development – which in turn can fuel unrest.

While the current study is arguably the first one being able to exploit exogenous variation in tax exposure to investigate drivers of social violence, the generalizability of results is limited to contexts of ill-designed, distortionary taxation. Hence, an important avenue for future research would be to study the causal impact of taxation on unrest in a setting of a well-crafted fiscal system where tax revenues are used for building up infrastructure and state capacity. Another understudied aspect is the impact on social unrest of communicating the usefulness of taxation and accountability of the use of fiscal revenues.

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ONLINE APPENDIX
Threat of Taxation, Stagnation and Social Unrest:
Evidence from 19*th* Century Sicily

Gema Lax-Martinez [†] Dominic Rohner[†] Alessandro Saia[‡]

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In the Online Appendices below we provide additional information and further results for the various sections of the paper. We shall always start the title of a given Online Appendix section with the same wording as the corresponding section in the main text.

In the current Online Appendix we will present a series of robustness checks, focusing first in Online Appendix A on descriptive summary statistics, then in B on investigating the sensitivity of the main baseline results before assessing below in Online Appendix C the robustness of our results on channels of transmission. Finally, in Online Appendix D we provide a list of legal texts that serve as basis for coding the state capacity measures.

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[†]Department of Economics, University of Lausanne. E-mail: gema.laxmartinez@unil.ch.

[‡]Department of Economics, University of Lausanne and CEPR. E-mail: dominic.rohner@unil.ch.

[§]Department of Economics, University of Lausanne. E-mail: alessandro.saia@unil.ch.

A Online Appendix: Data

Below in Table A1 we display descriptive summary statistics of all main variables (see discussion in the main text).

Table A1: Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Social Unrest Variables					
Social Unrest in 1860	0.497	0.501	0	1	338
Social Unrest in 1848	0.139	0.347	0	1	338
Social Unrest [1894-1945]	0.669	0.471	0	1	338
Tax Variable					
Tax in 1810	0.58	0.494	0	1	338
Population Variables					
Population in 1748	4772.841	15348.585	81	200096	296
Population in 1798	5207.429	12328.246	179	201741	310
Population in 1806	4537.601	9465.844	108	155740	338
Population in 1833	5537.804	11340.95	76	172835	336
Population in 1861	6756.086	13266.985	125	194463	336
Population in 1871	7620.66	15555.46	387	223689	309
Population in 1881	8606.48	17413.17	413	244898	309
Population in 1901	10435.12	22246.23	463	309566	309
Population in 1911	11174.71	24840.06	501	339465	309
Population in 1921	12407.25	29820.29	2.606	397486	309
Population in 1931	11365.58	27893.77	5.752	379905	309
Population in 1936	11632.02	30001.3	470	411879	309
State Capacity Variables					
Own administration	0.614	0.488	0	1	308
(log) Value Public Building	6.431	1.776	0	10.587	288
Judge seat	0.389	0.488	0	1	319
(log) Munic. in legal texts	1.291	1.01	0	3.219	338
Main Controls Variables					
Postal road in 1799	0.524	0.5	0	1	319
Distance to closest river in km	10.177	7.754	0.552	42.075	319
Distance to closest port in km	37.936	20.123	0.132	83.919	319
Water scarcity	0.624	0.485	0	1	319
Urban Municipality	0.147	0.355	0	1	319
Munic. type: baronale (1) or demaniale (2)	1.143	0.350	1	2	336
Average land suitability for cereals	16.496	10.728	1.49	62.585	318
Average land suitability for citrus	14.812	7.418	0	42.533	318
Average land suitability for olive	29.244	12.827	0	69.273	318
Average terrain ruggedness	227.096	112.334	27.619	578.288	319

Notes: For data sources see main text.

B Online Appendix: Robustness Checks For Main Results

B.1 Placebo for baseline results

Below we present in Table A2 placebo estimations using data on subversive activities (social unrest) for the period after 1894. This alternative measure, which started to be collected after the passing of *circolare* 5116 on 25 May 1894 related to public security, is a similar measure of social unrest as our baseline measure of medals of honor. It quantifies the number of political opponents (anarchists, republicans, socialists, etc.) that might be considered dangerous to public security. The National Archives (Archivio Centrale dello Stato) contain more than 150,000 personal files with informative notes, interrogatories, police files, among others. While information starts being collected from 1878 onwards, the biggest part of the data spans over the 1894 to 1945 period. In the following Table A3 we carry out the same exercise, but we divide the sample in four periods of equal length. Both tables taken together, as expected, no effect is found for periods for which there is no more differential fiscal treatment.

Table A2: Placebo - Effect of taxation on social unrest after 1860

Dep. Variable: Social Unrest [1894-1945]$_i$	(1)	(2)	(3)	(4)	(5)	(6)
Tax in 1810$_i$	0.00193	-0.135	-0.120	-0.0733	-0.162	-0.0318
	(0.247)	(0.226)	(0.234)	(0.224)	(0.229)	(0.228)
Observations	139	136	133	142	130	141
Bandwidth	[767-3233]	[745-3255]	[819-3181]	[727-3273]	[793-3207]	[711-3289]
Controls	No	Yes	No	No	Yes	Yes
Valli FEs	No	No	Yes	No	Yes	No
Province FEs	No	No	No	Yes	No	Yes
Sample Mean	0.597	0.596	0.604	0.594	0.607	0.591

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on a dummy variable indicating whether there are individuals living in that municipality considered to be dangerous for the order and public security over the period 1894-1945. A data-driven bandwidth is implemented. Column 1 is the unconstrained regression. Column 2 adds the following controls: a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers from one of Sicily's five largest cities (urban), land suitability for cereals, citrus fruits and olives, the type of municipality, i.e. *demaniale* or *baronale* and the number of sulfur mines in the municipality (1886). The third column adds province (from 1806, called *valli*, there are 3) fixed effects. The fourth column adds province FE (from 1861, there are 7). Robust standard errors in parentheses. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A3: Placebo - Effect of taxation on social unrest after 1860 - Different time-windows

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Variable: Social Unrest$_i$	*1894-1911*$_i$		*1912-1929*$_i$		*1930-1947*$_i$		*1948-1964*$_i$	
Tax in 1810$_i$	-0.131	-0.145*	0.000124	-0.123	-0.00998	-0.0406	0.00597	-0.00205
	(0.137)	(0.0779)	(0.236)	(0.194)	(0.249)	(0.230)	(0.00502)	(0.00879)
Observations	134	156	120	114	135	143	270	231
Bandwidth	[808-3192]	[592-3408]	[909-3091]	[919-3081]	[788-3212]	[703-3297]	[2979-6979]	[1952-5952]
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Province FEs	No	Yes	No	Yes	No	Yes	No	Yes
Sample Mean	0.045	0.048	0.108	0.102	0.600	0.583	0.007	0.004

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on a dummy variable indicating whether there are individuals living in that municipality considered to be dangerous for the order and public security over different periods. A data-driven bandwidth is implemented. Odd columns display results from unconstrained regressions. Even columns display results obtained with the inclusion of province FE (from 1861, there are 7) and the following controls: a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers from one of Sicily's five largest cities (urban), land suitability for cereals, citrus fruits and olives and the type of municipality, i.e. *demaniale* or *baronale*. Robust standard errors are reported in parenthesis. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B.2 Alternative RDD methods for computing coefficients and standard errors

Online Appendix Table A4 below displays for the baseline results alternative methods for computing the RDD coefficients and standard errors. The first set of coefficients correspond to our our baseline estimate (conventional RDD estimates with a conventional variance estimator). The second and third sets of coefficients correspond to bias-corrected RDD estimates with a conventional variance estimator and bias-corrected estimates with a robust variance estimator, respectively. It turns out that our results are very similar, no matter which of these methods we apply.

Table A4: Robustness coefficients/s.e. - Effect of taxation on social unrest

Dep. Variable: Social Unrest$_i$	(1)	(2)	(3)	(4)	(5)	(6)
Conventional	-0.534**	-0.656***	-0.546**	-0.563***	-0.633***	-0.684***
	(0.239)	(0.207)	(0.239)	(0.214)	(0.206)	(0.198)
Bias-corrected	-0.602**	-0.792***	-0.629***	-0.616***	-0.742***	-0.816***
	(0.239)	(0.207)	(0.239)	(0.214)	(0.206)	(0.198)
Robust	-0.602**	-0.792***	-0.629**	-0.616***	-0.742***	-0.816***
	(0.263)	(0.222)	(0.267)	(0.239)	(0.227)	(0.221)
Observations	128	145	137	129	153	149
Bandwidth	[846-3154]	[685-3315]	[774-3226]	[839-3161]	[622-3378]	[657-3343]
Controls	No	Yes	No	No	Yes	Yes
Valli FEs	No	No	Yes	No	Yes	No
Province FEs	No	No	No	Yes	No	Yes
Sample Mean	0.375	0.373	0.370	0.369	0.370	0.369

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on social unrest in 1860, measured with a dummy variable indicating whether someone from the municipality has received a Medal of Honor in that year. A data-driven bandwidth is implemented. Column 1 is the unconstrained regression. Column 2 adds the following controls: a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers from one of Sicily's five largest cities (urban), land suitability for cereals, citrus fruits and olives and the type of municipality, i.e. *demaniale* or *baronale*. The third column adds province (from 1806, called *valli*, there are 3) fixed effects. The fourth column adds province FE (from 1861, there are 7). Robust standard errors are reported in parenthesis. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B.3 Alternative outcomes

Table A5 follows the structure of Table 1, but replaces the dependent variable by a proxy of social unrest in 1848. We have relegated this alternative dependent variable to the appendix, as the insurrection that took place in 1848 was less widespread than the one occurring in 1860. In fact, around 13% of the Sicilian municipalities saw someone taking part of the 1848 insurrections, compared to almost half of the municipalities in 1860. The results are similar and continue to be statistically significant in most columns. We then carry on in Tables A6 and A7 to use as dependent variable a combination of the two instances of social unrest, both as count variable (Table A6) and as dummy (Table A7). Again, the results are very similar, and we always detect a statistically significant negative effect.

Table A5: Robustness - Effect of taxation on social unrest in 1848

Dep. Variable: Social Unrest [1848]$_i$	(1)	(2)	(3)	(4)	(5)	(6)
Tax in 1810$_i$	-0.228	-0.231*	-0.266	-0.295**	-0.232*	-0.222**
	(0.191)	(0.124)	(0.171)	(0.135)	(0.123)	(0.0987)
Observations	109	133	110	113	134	136
Bandwidth	[1041-2959]	[771-3229]	[1006-2994]	[939-3061]	[763-3237]	[727-3273]
Controls	No	Yes	No	No	Yes	Yes
Valli FEs	No	No	Yes	No	Yes	No
Province FEs	No	No	No	Yes	No	Yes
Sample Mean	0.055	0.043	0.054	0.053	0.043	0.042

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on social unrest in 1848, measured with a dummy variable indicating whether someone from the municipality has received a Medal of Honor in that year. A data-driven bandwidth is implemented. Column 1 is the unconstrained regression. Column 2 adds the following controls: a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers from one of Sicily's five largest cities (urban), land suitability for cereals, citrus fruits and olives and the type of municipality, i.e. *demaniale* or *baronale*. The third column adds province (from 1806, called *valli*, there are 3) fixed effects. The fourth column adds province FE (from 1861, there are 7). Robust standard errors are reported in parenthesis. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A6: Robustness - Effect of taxation on social unrest in 1848 and 1860 - Intensive margin

Dep. Variable: Tot. Social Unrest [1848-1860]$_i$	(1)	(2)	(3)	(4)	(5)	(6)
Tax in 1810$_i$	-0.787**	-0.878***	-0.810***	-0.839***	-0.868***	-0.875***
	(0.327)	(0.253)	(0.310)	(0.238)	(0.259)	(0.232)
Observations	114	143	123	133	145	151
Bandwidth	[953-3047]	[695-3305]	[875-3125]	[809-3191]	[683-3317]	[633-3367]
Controls	No	Yes	No	No	Yes	Yes
Valli FEs	No	No	Yes	No	Yes	No
Province FEs	No	No	No	Yes	No	Yes
Sample Mean	0.447	0.424	0.427	0.418	0.418	0.419

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on social unrest in 1848 and 1860, measured with a 0/1/2 variable indicating whether someone from the municipality has received a Medal of Honor in none, one or two of the revolutions, respectively. A data-driven bandwidth is implemented. Column 1 is the unconstrained regression. Column 2 adds the following controls: a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers from one of Sicily's five largest cities (urban), land suitability for cereals, citrus fruits and olives and the type of municipality, i.e. *demaniale* or *baronale*. The third column adds province (from 1806, called *valli*, there are 3) fixed effects. The fourth column adds province FE (from 1861, there are 7). Robust standard errors are reported in parenthesis. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A7: Robustness - Effect of taxation on social unrest in 1848 and 1860 - Extensive margin

Dep. Variable: Social Unrest$_i$	(1)	(2)	(3)	(4)	(5)	(6)
Tax in 1810$_i$	-0.548**	-0.699***	-0.572**	-0.591***	-0.677***	-0.743***
	(0.239)	(0.209)	(0.242)	(0.212)	(0.206)	(0.201)
Observations	129	136	135	132	148	144
Bandwidth	[841-3159]	[731-3269]	[784-3216]	[825-3175]	[660-3340]	[693-3307]
Controls	No	Yes	No	No	Yes	Yes
Valli FEs	No	No	Yes	No	Yes	No
Province FEs	No	No	No	Yes	No	Yes
Sample Mean	0.380	0.378	0.382	0.376	0.378	0.382

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on social unrest in 1848 and 1860, measured with dummy variable indicating whether someone from the municipality has received a Medal of Honor for at least one of the two revolutions. A data-driven bandwidth is implemented. Column 1 is the unconstrained regression. Column 2 adds the following controls: a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers from one of Sicily's five largest cities (urban), land suitability for cereals, citrus fruits and olives and the type of municipality, i.e. *demaniale* or *baronale*. The third column adds province (from 1806, called *valli*, there are 3) fixed effects. The fourth column adds province FE (from 1861, there are 7). Robust standard errors are reported in parenthesis. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B.4 Alternative Polynomials

Below in Table A8 we replicate our main results of Table 1, but focus on a polynomial of order 1. The results are virtually unchanged.

Table A8: Robustness polynomials - Effect of taxation on social unrest

Dep. Variable: Social Unrest$_i$	(1)	(2)	(3)	(4)	(5)	(6)
Tax in 1810$_i$	-0.548**	-0.699***	-0.572**	-0.591***	-0.677***	-0.743***
	(0.239)	(0.209)	(0.242)	(0.212)	(0.206)	(0.201)
Observations	129	136	135	132	148	144
Bandwidth	[841-3159]	[731-3269]	[784-3216]	[825-3175]	[660-3340]	[693-3307]
Controls	No	Yes	No	No	Yes	Yes
Valli FEs	No	No	Yes	No	Yes	No
Province FEs	No	No	No	Yes	No	Yes
Sample Mean	0.380	0.378	0.382	0.376	0.378	0.382

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on social unrest in 1860, measured with a dummy variable indicating whether someone from the municipality has received a Medal of Honor in that year. A data-driven bandwidth is implemented. Column 1 is the unconstrained regression. Column 2 adds the following controls: a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers from one of Sicily's five largest cities (urban), land suitability for cereals, citrus fruits and olives and the type of municipality, i.e. *demaniale* or *baronale*. The third column adds province (from 1806, called *valli*, there are 3) fixed effects. The fourth column adds province FE (from 1861, there are 7). Robust standard errors in parentheses. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B.5 Manual bandwidths

In Table A9 we replicate our results of columns 4 and 6 of Table 1 when using a series of manual bandwidths, yielding again very similar findings.

Table A9: Robustness bandwidths - Effect of taxation on social unrest

Dep. Variable: Social Unrest$_i$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tax in 1810$_i$	-0.712**	-1.293***	-0.581**	-0.693***	-0.571**	-0.739***	-0.442**	-0.628***
	(0.284)	(0.203)	(0.265)	(0.220)	(0.247)	(0.210)	(0.221)	(0.194)
Observations	52	50	86	84	112	109	169	158
Bandwidth	[1500-2500]	[1500-2500]	[1250-2750]	[1250-2750]	[1000-3000]	[1000-3000]	[500-3500]	[500-3500]
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Valli FEs	No	No	No	No	No	No	No	No
Province FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample Mean	0.423	0.423	0.395	0.395	0.402	0.402	0.379	0.379

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on social unrest in 1860, measured with a dummy variable indicating whether someone from the municipality has received a Medal of Honor in that year. Manual bandwidths are implemented. Even columns display the unconstrained regression. Odd columns adds province FE (from 1861, there are 7) and the following controls: a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers from one of Sicily's five largest cities (urban), land suitability for cereals, citrus fruits and olives and the type of municipality, i.e. *demaniale* or *baronale*. Robust standard errors in parentheses. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B.6 Uniform Kernel

The next robustness check that we perform below is to make use of an uniform Kernel. Table A10 displays the results. It turns out that our findings are very similar as in the baseline Table 1 and we continue to find a statistically significant negative coefficient.

Table A10: Robustness kernel - Effect of taxation on social unrest

Dep. Variable: Social Unrest$_i$	(1)	(2)	(3)	(4)	(5)	(6)
Tax in 1810$_i$	-0.605**	-0.742***	-0.576**	-0.480*	-0.670***	-0.690***
	(0.253)	(0.241)	(0.265)	(0.252)	(0.241)	(0.250)
Observations	101	98	99	76	99	90
Bandwidth	[1106-2894]	[1124-2876]	[1130-2870]	[1288-2712]	[1115-2885]	[1190-2810]
Controls	No	Yes	No	No	Yes	Yes
Valli FEs	No	No	Yes	No	Yes	No
Province FEs	No	No	No	Yes	No	Yes
Sample Mean	0.406	0.400	0.400	0.416	0.406	0.391

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on social unrest in 1860, measured with a dummy variable indicating whether someone from the municipality has received a Medal of Honor in that year. A data-driven bandwidth is implemented. Column 1 is the unconstrained regression. Column 2 adds the following controls: a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers from one of Sicily's five largest cities (urban), land suitability for cereals, citrus fruits and olives and the type of municipality, i.e. *demaniale* or *baronale*. The third column adds province (from 1806, called *valli*, there are 3) fixed effects. The fourth column adds province FE (from 1861, there are 7). Robust tandard errors in parentheses. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B.7 Fuzzy Regression Discontinuity Design

As in a very small number of cases there is non-compliance to the treatment (see discussion above), one option is to run a fuzzy RDD, which is what we do below in Table A11. All our results remain very similar.

Table A11: Robustness Fuzzy RDD - Effect of taxation on social unrest

Dep. Variable: Social Unrest$_i$	(1)	(2)	(3)	(4)	(5)	(6)
Tax in 1810$_i$	-0.553**	-0.678***	-0.552**	-0.607**	-0.650***	-0.743***
	(0.258)	(0.232)	(0.271)	(0.259)	(0.237)	(0.242)
Observations	128	136	138	127	149	140
Bandwidth	[866-3134]	[781-3219]	[797-3203]	[869-3131]	[680-3320]	[723-3277]
Controls	No	Yes	No	No	Yes	Yes
Valli FEs	No	No	Yes	No	Yes	No
Province FEs	No	No	No	Yes	No	Yes
Sample Mean	0.383	0.376	0.381	0.383	0.376	0.374

NOTES: Fuzzy RD Estimates of the impact of the property tax exemption (given by population data in 1806) on social unrest in 1860, measured with a dummy variable indicating whether someone from the municipality has received a Medal of Honor in that year. The received treatment is defined as for the list of municipalities that paid the tax in 1810. A data-driven bandwidth is implemented. Column 1 is the unconstrained regression. Column 2 adds the following controls: a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers from one of Sicily's five largest cities (urban), land suitability for cereals, citrus fruits and olives and the type of municipality, i.e. *demaniale* or *baronale*. The third column adds province (from 1806, called *valli*, there are 3) fixed effects. The fourth column adds province FE (from 1861, there are 7). Robust tandard errors in parentheses. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B.8 Using district controls from Acemoglu et al. (2020)

In Table A12 we replicate our baseline Table 1 when controlling for a battery of district controls included in Acemoglu et al. (2020). This specification yields very similar findings.

Table A12: Robustness district level controls - Effect of taxation on social unrest

Dep. Variable: Social Unrest$_i$	(1)	(2)	(3)	(4)	(5)	(6)
Tax in 1810$_i$	-0.534**	-0.523***	-0.546**	-0.563***	-0.514***	-0.643***
	(0.239)	(0.188)	(0.239)	(0.214)	(0.193)	(0.202)
Observations	128	131	137	129	133	137
Bandwidth	[846-3154]	[826-3174]	[774-3226]	[839-3161]	[809-3191]	[771-3229]
Controls	No	Yes	No	No	Yes	Yes
Valli FEs	No	No	Yes	No	Yes	No
Province FEs	No	No	No	Yes	No	Yes
Sample Mean	0.375	0.371	0.370	0.369	0.373	0.370

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on social unrest in 1860, measured with a dummy variable indicating whether someone from the municipality has received a Medal of Honor in that year. A data-driven bandwidth is implemented. Column 1 is the unconstrained regression. Column 2 adds the following controls: a dummy variable indicating whether the municipality is an agro-town, share of cultivated land in 1853, share of cultivated land devoted to grains, citrus, vineyards, olives in 1853, altitude of the town center, maximum altitude, average altitude, a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), and the type of municipality, i.e. *demaniale* or *baronale*. The third column adds province (from 1806, called *valli*, there are 3) fixed effects. The fourth column adds province FE (from 1861, there are 7). Robust standard errors in parentheses. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B.9 One geographic control at the time

In this Section we replicate in Table A13 our main findings of Table 1 when adding geographical controls one at a time. We again find that the results are stable over specifications.

Table A13: Robustness controls - Effect of taxation on social unrest

Dep. Variable: Social Unrest$_i$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Tax in 1810$_i$	-0.534**	-0.647***	-0.628***	-0.610***	-0.596***	-0.636***	-0.632***	-0.622***	-0.641***	-0.629***	-0.656***	-0.684***
	(0.239)	(0.205)	(0.202)	(0.199)	(0.202)	(0.208)	(0.208)	(0.209)	(0.211)	(0.208)	(0.207)	(0.198)
Observations	128	137	136	136	147	153	153	153	149	147	145	149
Bandwidth	[846-3154]	[740-3260]	[751-3249]	[755-3245]	[666-3334]	[636-3364]	[629-3371]	[625-3375]	[661-3339]	[673-3327]	[685-3315]	[657-3343]
Roads in 1799	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dist. rivers	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avg ruggedness	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Water scarcity	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dist. ports	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Urban	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Avg. Cereals Suitability	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Avg. Citrus Suitability	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
Avg. Olive Suitability	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
Mun. type	No	No	No	No	No	No	No	No	No	No	Yes	Yes
Province FEs	No	No	No	No	No	No	No	No	No	No	No	Yes

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on social unrest in 1860, measured with a dummy variable indicating whether someone from the municipality has received a Medal of Honor. A data-driven bandwidth is implemented. Robust standard errors in parentheses. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

C Online Appendix: Robustness Checks For Channels

C.1 Impact of Tax Treatment on State Capacity

We display below in Table A14 the regression results of the impact of tax treatment on state capacity. As discussed in more detail in the main text, overall we do not detect any strong capacity building effects from being subject to the taxation treatment.

Table A14: Effect of taxation on state capacity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dep. Variable:	*Own Administration*$_i$		*(log) Value Public Build.*$_i$		*Judge Seat*$_i$		*(log) Munic. in Legal Texts*$_i$		*PCA*$_i$	
Tax in 1810$_i$	-0.106	0.0575	1.074	0.613	0.0340	0.120	0.819*	0.734*	0.450	0.465
	(0.271)	(0.217)	(0.794)	(0.596)	(0.160)	(0.162)	(0.432)	(0.420)	(0.594)	(0.572)
Observations	132	154	100	98	119	126	114	133	110	111
Bandwidth	[728-3272]	[393-3607]	[1013-2987]	[1013-2987]	[870-3130]	[792-3208]	[945-3055]	[777-3223]	[784-3216]	[782-3218]
Controls	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes
Province FEs	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes
Sample Mean	0.470	0.464	5.860	5.860	0.134	0.138	1.165	1.183	-0.637	-0.631

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on different proxies for state capacity. Columns 1-2 focus on a municipality having an own administration, Col. 3-4 on the (log) value of public buildings, Col. 5-6 on the existence of municipal level judiciary, Col. 7-8 on the municipality being mentioned in legal texts, and, finally Col. 9-10 on a principal component analysis of the aforementioned indicators. A data-driven bandwidth is implemented. Odd columns shows the unconstrained regressions. Even columns display results obtained with the inclusion of province FE (from 1861, there are 7) and the following controls: a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers from one of Sicily's five largest cities (urban), land suitability for cereals, citrus fruits and olives and the type of municipality, i.e. *demaniale* or *baronale*. Robust standard errors are reported in parenthesis. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

C.2 Placebos on population growth over different periods

Below in Tables A15 and A16 we present placebo estimation results using population growth before the introduction of the tax and after 1861 (when they removed the exemption because the kingdom of the Two Sicilies was absorbed by Italy). Again, as expected, no effect is found for these periods where the differential fiscal treatment does not apply.

Table A15: Placebo - Effect of taxation on population growth - Different time-windows - Unconstrained estimates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Dep. Var.: Pop. Growth$_i$	*1748-1806*	*1798-1806*	*1806-33*	*1806-61*	*1806-71*	*1806-81*	*1861-1901*	*1861-1911*	*1861-1921*	*1861-1931*	*1861-1936*
Tax in 1810$_i$	0.125	0.0714	0.292***	0.507**	-0.0751	-0.102	-0.119	-0.295	-0.226	-0.254	-0.215
	(0.539)	(0.108)	(0.0893)	(0.252)	(0.0918)	(0.148)	(0.182)	(0.245)	(0.246)	(0.281)	(0.308)
Observations	98	111	142	136	114	107	117	110	133	111	105
Bandwidth	[976-3024]	[868-3132]	[730-3270]	[781-3219]	[895-3105]	[970-3030]	[864-3136]	[930-3070]	[758-3242]	[928-3072]	[1006-2994]
Controls	No	No	No	No	No	No	No	No	No	No	No
Province FEs	No	No	No	No	No	No	No	No	No	No	No
Sample Mean	-0.040	-0.046	-0.049	-0.050	-0.045	-0.040	-0.046	-0.039	-0.050	-0.039	-0.037

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on population growth over different periods. A data-driven bandwidth is implemented. Columns display unconstrained regressions. Robust standard errors in parentheses. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A16: Placebo - Effect of taxation on population growth - Different time-windows - Constrained estimates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Dep. Var.: Pop. Growth$_i$	*1748-1806*	*1798-1806*	*1806-33*	*1806-61*	*1806-71*	*1806-81*	*1861-1901*	*1861-1911*	*1861-1921*	*1861-1931*	*1861-1936*
Tax in 1810$_i$	-0.265	0.0832	0.259***	0.394**	-0.0243	-0.0659	-0.107	-0.300	-0.237	-0.167	-0.172
	(0.666)	(0.0891)	(0.0680)	(0.193)	(0.116)	(0.149)	(0.160)	(0.205)	(0.298)	(0.276)	(0.283)
Observations	97	117	138	136	107	107	111	108	113	109	107
Bandwidth	[977- 3023]	[816- 3184]	[717- 3283]	[726- 3274]	[978- 3022]	[983- 3017]	[919- 3081]	[938- 3062]	[898- 3102]	[937- 3063]	[971- 3029]
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample Mean	-0.040	-0.047	-0.052	-0.049	-0.040	-0.040	-0.039	-0.041	-0.045	-0.040	-0.040

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on population growth over different periods. A data-driven bandwidth is implemented. All columns display results obtained with the inclusion of province FE (from 1861, there are 7) and the following controls: a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers from one of Sicily's five largest cities (urban), land suitability for cereals, citrus fruits and olives and the type of municipality, i.e. *demaniale* or *baronale*. Robust standard errors in parentheses. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

C.3 Robustness with respect to predicted population growth versus actual population growth

In Table A17 we confront actual population growth with the predicted one. The dependent variable is the difference between actual population in 1833 (columns 1-2) and 1861 (columns 3-4) and the predicted population.[1] As expected, we find that municipalities with a heavier tax burden do grow more (with respect to this counterfactual).

Table A17: Robustness - Effect of taxation on population growth

	(1)	(2)	(3)	(4)
	Diff. Between		*Diff. Between*	
Dep. Variable:$_i$	*Actual Pop. - Pred. Pop. 1833*$_i$		*Actual Pop. - Pred. Pop. 1861*$_i$	
Tax in 1810$_i$	506.2**	645.9***	1,111*	1,514***
	(247.5)	(245.9)	(578.3)	(477.6)
Observations	116	112	108	105
Bandwidth	[829-3171]	[829-3171]	[883-3117]	[883-3117]
Controls	No	Yes	No	Yes
Province FEs	No	Yes	No	Yes
Sample Mean	151.522	151.522	427.387	427.387

NOTES: Sharp RD Estimates of the impact of the property tax exemption (given by population data in 1806) on predicted population growth. A data-driven bandwidth is implemented. Odd columns shows the unconstrained regressions. Even columns display results obtained with the inclusion of province FE (from 1861, there are 7) and the following controls: a dummy variable indicating whether the municipality had access to a postal road that connected the largest towns of Sicily at the beginning of the 1800s (Cary (1799)), the distance of each municipality to the nearest non-seasonal river and commercial port, average terrain ruggedness in the municipality, a dummy for water scarcity, a dummy variable that indicates whether the municipality is within 10 kilometers from one of Sicily's five largest cities (urban), land suitability for cereals, citrus fruits and olives and the type of municipality, i.e. *demaniale* or *baronale*. Robust standard errors in parentheses. Statistical significance is represented by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

[1] The predicted population in 1833 (and similarly for 1861) is computed as follows: Predicted population$_{1833}$ = $population_{1806} \cdot (1 + \text{yearly growth rate}_{1748-1806} \cdot (1833 - 1806)$

D Online Appendix: Lists of Legal Texts

Below we display the list of books used, as well as information on the number of times a municipality is mentioned in legal texts.

#	Title	Refer. Period	Tot. Pages
1	*Annali civili del regno delle Due Sicilie*	1834	536
2	*Annali civili del regno delle Due Sicilie*	1835	550
3	*Annali civili del regno delle Due Sicilie*	1836	548
4	*Annali civili del regno delle Due Sicilie*	1838	480
5	*Annali civili del regno delle Due Sicilie*	1839	490
6	*Annali civili del regno delle Due Sicilie*	1840	570
7	*Annali civili del regno delle Due Sicilie*	1841	456
8	*Annali civili del regno delle Due Sicilie*	1845	552
9	*Annali civili del regno delle Due Sicilie*	1846	552
10	*Collezione delle leggi e de' decreti reali del Regno delle Due Sicilie - Indice generale*	1806-1840	957
11	*Collezione delle leggi e de' decreti reali del Regno delle Due Sicilie - Supplemento*	1837-1840	150
12	*Codice per lo Regno Delle Due Sicilie*	1829	500
13	*Codice per lo Regno delle Due Sicilie - Leggi civili*	1830	498
14	*Codice per lo Regno delle Due Sicilie - Leggi di eccezione per gli affari di commercio*	1838	194
15	*Indice General delle Leggi e dei Decreti dall'anno 1806 a tutto il 1836*	1806-1836	800
16	*Collezione delle leggi e de' decreti reali del Regno delle Due Sicilie*	1855	826
17	*Bollettino delle Leggi del Regno di Napoli*	1810	1060
18	*Le Leggi Amministrative del Regno delle Due Sicilie*	1845	684
19	*Raccolta di tutti i Sovrani Decreti ed Atti Governativi che trovansi attualmente in vigore Emanati per la Rettifica dei Catasti in Sicilia*	1846	486
20	*Repertorio sull'Amministrazione Civile del Regno delle due Sicilie*	1836	865
21	*Repertorio Amministrativo del Regno delle due Sicilie*	1851	745