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Abstract

Religious persecution is common in many countries around the globe. There is little evidence on its long-term effects. We collect new data from all across Spain, using information from over 67,000 trials held by the Spanish Inquisition between 1480 and 1820. This comprehensive new database allows us to demonstrate that municipalities of Spain with a history of stronger inquisitorial presence show lower economic performance, educational attainment, and trust today. The effects persist after controlling for historical indicators of religiosity and wealth, ruling out potential selection bias.

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Title: The Long Run Effects of Religious Persecution: Evidence from the Spanish Inquisition*

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Abstract: Religious persecution is common in many countries around the globe. There is little evidence on its long-term effects. We collect new data from all across Spain, using information from over 67,000 trials held by the Spanish Inquisition between 1480 and 1820. This comprehensive new database allows us to demonstrate that municipalities of Spain with a history of stronger inquisitorial presence show lower economic performance, educational attainment, and trust today. The effects persist after controlling for historical indicators of religiosity and wealth, ruling out potential selection bias.

Significance statement: From Imperial Rome to North Korea, religious persecution entwined with various degrees of totalitarian control has caused conflict and bloodshed for millennia. In this paper, we ask -- can it have repercussions long after the persecution has ceased? Using new data on the Spanish Inquisition, we show that municipalities where the Spanish Inquisition persecuted more citizens incomes are lower, trust is lower, and education is markedly lower than in comparable other towns and cities. Nobody expects the Spanish Inquisition to still matter today -- but it does.

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Main text

Religious freedom is a basic human right, but it is under threat in many parts of the world. Some countries like Saudi Arabia expressly forbid all religions except one; others, like North Korea, do not permit any religion at all. The 2018 annual report of the United States Commission on International Religious Freedom (USCIRF) lists 28 countries – home to 57% percent of the world population – as actively persecuting citizens for their religious views (*1*). Religious intolerance is not new. From the Roman Emperor Nero's outlawing of Christians to the Armenian genocide in Turkey after WWI, and attacks on the Rohingya in modern-day Myanmar, religious factors have played an important role in the persecution of minorities, social upheavals, civil war, and inter-state conflict (*2–4*).

Beginning with Max Weber's work on Protestantism and modern growth, a rich literature has examined the relationship between religion and economic performance (*5–7*). On the one hand, monotheistic religions may contribute to the evolution of pro-social norms, fostering the idea of omniscient, all-powerful "Big Gods" (*5*) while breaking down growth-impeding social structures (*7*). At the same time, many religions discourage education and science (*8*), and view economic success with skepticism. In the cross-section of countries, church attendance is associated with lower growth, while beliefs in heaven and hell correlate positively with economic performance (*9*). What has received less attention are the long-run consequences of religious persecution and state-imposed religious homogeneity – and in particular, how religion, in the hands of a powerful state, can become a tool for totalitarian rule, affecting every aspect of people's lives (*10*). Many state religions persecute non-believers and those who deviate from doctrinal orthodoxy. Religion is often opposed to scientific inquiry, and can be associated with low educational attainment (*11*); where persecuted minorities are more educated than the population in general, the associated loss of human capital may be particularly severe (*4*, *12*). Religious uniformity as a means of supporting the legitimacy of the ruler may also be an obstacle to the development of state capacity, resulting in slower development (*13*). Persecution often relies on denunciations from local neighbors, colleagues, and friends, undermining trust. Instrumentalized religion can therefore become part and parcel of totalitarian control of people's lives, with severe repercussions for how society functions, destroying trust and social cooperation (*14*). For example, regions with high trust have happier populations, more financial intermediation, higher life expectancy, and lower infant mortality (*15–18*). Education, trust and state capacity facilitate economic exchange and are positively correlated with per capita income around the globe (*19–22*).

In this paper, we investigate the long-run impact of religious persecution on economic performance, education, and trust. The Spanish Inquisition is among the most iconic examples of a state-sponsored apparatus enforcing religious homogeneity. The Inquisition was "one of the most effective means of thought control that Europe has ever known" (*10*). Recent analyses have highlighted its focus on social control (*23–25*), its role as a repressive tool of the state (*26*, *27*), and innovations in judicial procedure (*28*). Histories of Spain's decline and fall as an economic power frequently emphasize the role of the Inquisition (*29*), and sociological studies have argued for a "persistence of the inquisitorial mind" in modern-day Spanish thought (*30*). At the same time, there are questions about its contemporary and modern-day consequences: some in-depth historical accounts of the Inquisition argue that it had a limited impact on social interactions, economic development, and intellectual life (*31*, *32*). The notion that religious persecution leads to poor economic, social, and educational outcomes is not new, but it has largely remained beyond the reach of formal measurement and

documentation of concrete mechanisms.[1] By shedding light on the mechanism responsible for the Inquisition's long-term impact, we also contribute to the literature on historical persistence (*33*).

Materials and methods. We examine the records of more than 67,000 trials conducted by the Spanish Inquisition over the period 1478 to 1834, and combine this information with modern-day survey data on trust and socioeconomic status, as well as information on income proxies and education. Where the Inquisition made its presence felt more often or conducted more trials, economic activity is markedly lower today. Levels of trust and educational attainment are lower as well, while religiosity is higher. Controlling for historical indicators of religiosity and wealth suggests that the relationship between persecution and income is plausibly causal; a coarse exact matching estimation procedure leads to a similar conclusion for the remaining modern-day outcomes.

Historical background. The Spanish Inquisition was established in 1478 and was only dissolved in 1834. Its charge was to combat heresy, defined as deviation from Catholic doctrine. It persecuted tens of thousands of individuals over the course of its 356 year history, for crimes ranging from crypto-Judaism and Lutheranism to blasphemy and witchcraft. Its reach extended into almost every corner of Spain's global empire and affected all strata of society, from simple peasants to kings themselves. Up to ten percent of those tried were clergy; one quarter were women.

The Inquisition was organized in territorial tribunals, of which there were sixteen in the territory of modern-day Spain and five in overseas possessions. Tribunals were headed by three inquisitors each, and relied on a network of ecclesiastical officials (*comisarios*) and unpaid lay collaborators (*familiares*). Tribunal boundaries, mostly designed to cover equally sized portions of the territory, were settled by 1526, and remained virtually unchanged for the next three centuries (*34*).

Trials originated with secret denunciations. These went through a double round of review, by the prosecutor and the tribunal. If there was a sufficiently strong case against the accused, he or she was arrested, held in special jails, and tried according to a tightly regimented procedure. Trials typically lasted several years. For those convicted, penalties ranged from mild admonishments to burning at the stake. Sentences both mild and strong were typically handed down in large public ceremonies –the infamous *autos de fe*– ensuring wide publicity of the Inquisition's activities. Executions were carried out by the secular authorities.[2]

While confessions under torture were not rare, they could only be used in certain types of trials (those for major heresies), and –at least in theory– could be considered evidence only if the accused did not recant afterwards. Community involvement was key for the Inquisition. Its local presence consisted largely of the network of *familiares,* for whom the prestige associated with their position was often the only reward. The central pieces of evidence in a case almost always took the form of testimony from the accused's relatives, acquaintances, and extended social network.

While judicial procedures remained largely unaltered while the Inquisition was in operation, the intensity of persecution, the types of charges, and the severity of sentences all varied to reflect evolving social, political, and religious paradigms. During its heyday in the mid-sixteenth century, the Inquisition policed even the most minute aspects of social interactions,

[1] One important exception is recent work by Squicciarini (*11*).
[2] Our description of the trial of faith is based on Dedieu's detailed account (*28*).

with drunken words overheard in a tavern often resulting in charges. Towards the end of the 18th century, when liberal ideas had gained a strong foothold in Spanish politics and society, tribunals conducted many fewer trials, often ending in acquittals. Nonetheless, for much of its history, the Inquisition cast a shadow over all social interactions, undermining the strength of 'social capital' – the ability of citizens to solve collective problems informally through regular, free interactions (*35*).

Data. We compile the largest database on inquisitorial trials to date, containing a total of 67,521 individual records. Of these, 43,526 were collected directly from primary sources, as part of the Modern Inquisition Database (EMID) collaborative project (*36*). This effort updates and digitizes the early cataloguing by Gustav Henningsen and Jaime Contreras, vastly expanding the information collected on each case (*37*, *38*). The EMID project focuses mostly on the period 1540-1700, during which Inquisition tribunals produced annual reports with summaries of every case (*relaciones de causas*). This period also coincided with the peak of Inquisitorial activity. To cover the years before and after, we collect additional information on individual trials from a wide range of secondary sources (*39–45*).

The coverage of our data varies widely across the 16 inquisitorial tribunals. We have nearly complete records from the Toledo and Cuenca courts, and high coverage for Murcia, Barcelona, and Madrid. Conversely, the surviving documentation from the Valladolid tribunal is particularly scarce, and Seville, Córdoba, Granada, and the Canary Islands also suffer from poor coverage.[3] Figure A.1 in the appendix provides a heatmap of data density by tribunal and year. Our database contains a non-zero number of trials for 2,244 tribunal-year pairs (44% of the total) with a peak coverage of over 70% between 1560 and 1650. Accordingly, accounting for missing data matters for our analysis.

Our data allow us to estimate the total number of trials conducted by the Inquisition. We estimate the equation

$$N_{k,t} = \alpha\eta_k + \beta\theta_t + \epsilon_{k,t}$$

where $N_{k,t}$ is the number of trials conducted by tribunal *k* in year *t*, η_k is the tribunal fixed effect, and θ_t is the year fixed effect. We then use the estimates $\hat{\alpha}$ and $\hat{\beta}$ to calculate predicted values for the number of trials in years with missing data. This simple methodology yields an overall estimate of 135,967 trials throughout the life of the Inquisition. This is consistent with the recent historiography, which has offered tentative guesses of between 115,000 and 135,000 trials (*46*). Figure A.2 shows a 10-year moving average of our trial estimates, as well as 95% confidence intervals.

For each entry in our database, we use the available information to establish the location where the effect of the trial would have been felt the most. This is taken to be either the place of residence of the accused, their place of birth, or the place where the alleged offense took place, in that order of preference. A total of 57,924 observations can thus be geo-referenced to the modern-day municipality. The data from EMID also contain information on name, gender, and age of the accused, type of offense, verdict, and, if found guilty, type of punishment. Relative to other "counting" efforts, our database provides a broader spatial and temporal coverage, as well as substantively richer detail for a large subset of the data (*46*).

[3] Because of the combination of poor data coverage and remote location, we exclude the Canary Islands from the analysis.

In addition to the historical data, we also collect the responses to the opinion barometer surveys conducted by the Spanish Center for Sociological Research (CIS). We obtained the individual response data, geocoded to the municipality, for 70 surveys, with 2,000 respondents each, conducted between 2000 and 2015, under a confidentiality agreement. From them, we compiled municipal estimates of a variety of individual socioeconomic indicators, as well as a measure of trust. Despite the large number of individual responses, coverage is not universal. Religiosity information is available for 2,766 out of 8,122 municipalities, socioeconomic standing for 2,824, and trust data for 1,150.[4]

Variation in inquisitorial intensity. Our geographical unit of analysis is the modern-day municipality. We focus on 'inquisitorial intensity' – the number of years when the Inquisition persecuted at least one member of a particular community as a proportion of the number of years with surviving data. Like most repressive institutions, the Inquisition exerted its influence more through fear instilled by a few, visible examples rather than through actual, widespread surveillance and regular violence (*32*).[5] Our choice of inquisitorial intensity as our preferred treatment variable reflects this observation. Throughout the analysis, we also conduct robustness checks using 'trial-based intensity', the total number of trials in a municipality divided by the number of years for which data exist. In computing both variables, we use only surviving data. No imputation is performed.

Figure 1 shows how the intensity of persecution varied across the territory of modern-day Spain; internal divisions are tribunal boundaries. Southern tribunals saw a relatively higher intensity of persecution. Parts of the kingdom of Aragon, to the northeast of the map, also stand out as hot spots. The Inquisition's arm even reached the most remote areas, including secluded valleys in the Pyrenees and most municipalities of the Balearic Islands.

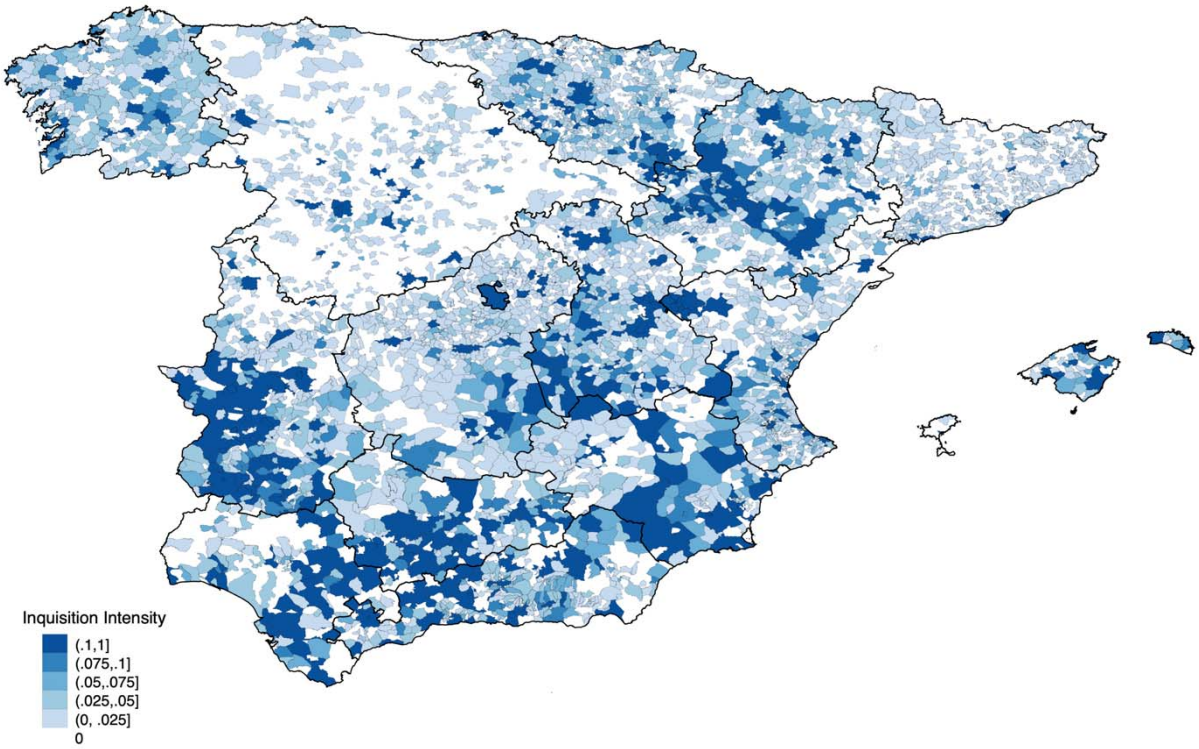
About half of all municipalities have no recorded trials against their residents. The nature of our data do not make it possible to distinguish precisely between missing data and true absence of activity. For tribunals with largely complete records, white areas are likely to have been untouched by the Inquisition; in other courts, missing data does not allow a clear determination (such as in the Valladolid tribunal, the sparsely colored patch in the northwest). In the analysis that follows, we refer to municipalities with population-based persecution of zero – slightly over 53% of the total– as "low impact", to reflect the possibility that trials took place there in years for which the documentary evidence has been lost.[6]

[4] According to CIS, the municipalities included in each wave are selected to be nationally representative.

[5] With about 135,000 trials conducted over its life, the inquisition averaged some 380 trials per year for all of Spain, or about 16 trials per municipality during three and a half centuries. The unconditional probability of any individual being actually prosecuted was therefore quite small. As the Spanish theologian Francisco Pena commented in this guide for inquisitors: "... the main purpose of the trial and execution is... to achieve the public good and put fear into others" (*32*).

[6] Survivorship bias, normally a concern in analysis with subtstantial missing data, can be largely ruled out in our case. While many tribunal archives did not survive the end of the Inquisition, the majority of our data comes from the *relaciones de causas*. These annual reports were compiled by each tribunal and immediately sent to Madrid, where they were kept in the central archive of the Holy Office. They were not at risk of destruction in the local archives, and do not reflect the quality of local record-keeping. While many of them have not survived, this is due to the vagaries of archival preservation in one central location, and is uncorrelated with events in regional tribunals.

Figure 1: Inquisitorial intensity in Spain



Note: The map gives values for inquisitorial intensity by municipality, for the period 1478-1834. Intensity is defined as the number of years a municipality experienced at least one inquisition trial divided by the number of years for which municipality-level data is available.

Economic consequences. What are the economic effects of 350 years of religious persecution, denunciations, interrogations, and intrusive thought control? In Spain, estimating GDP at the municipal level from administrative data is fraught with data availability and compliance problems.[7] Nightlight is highly correlated with per capita income (*48*, *49*), and widely used as a proxy for economic performance in the development literature (*22*, *50*, *51*). We use measured nightlight variation to obtain estimates of GDP per capita at the municipal level. We first compute the residuals of a regression of median nightlight in a municipality on population.[8] We then rescale this variable using the coefficients from a regression of these residuals on available municipal GDP data to arrive at an estimate of municipal GDP per capita denominated in euros for every Spanish municipality. Appendix B describes this procedure in detail.

[7] GDP proper is only compiled at the provincial level. Municipal GDP estimates by the National Institute of Statistics are based on income tax returns. These estimates cover only 36% of Spanish municipalities, excluding those with less than 1,000 inhabitants. They are also based on a tax that features a 40%-55% level of evasion for non-salaried activities (*47*).

[8] We calculate average municipal nightlight using NOAA 2013 raster data. Population is from the 2011 census.

Figure 2: Inquisitorial intensity and economic performance

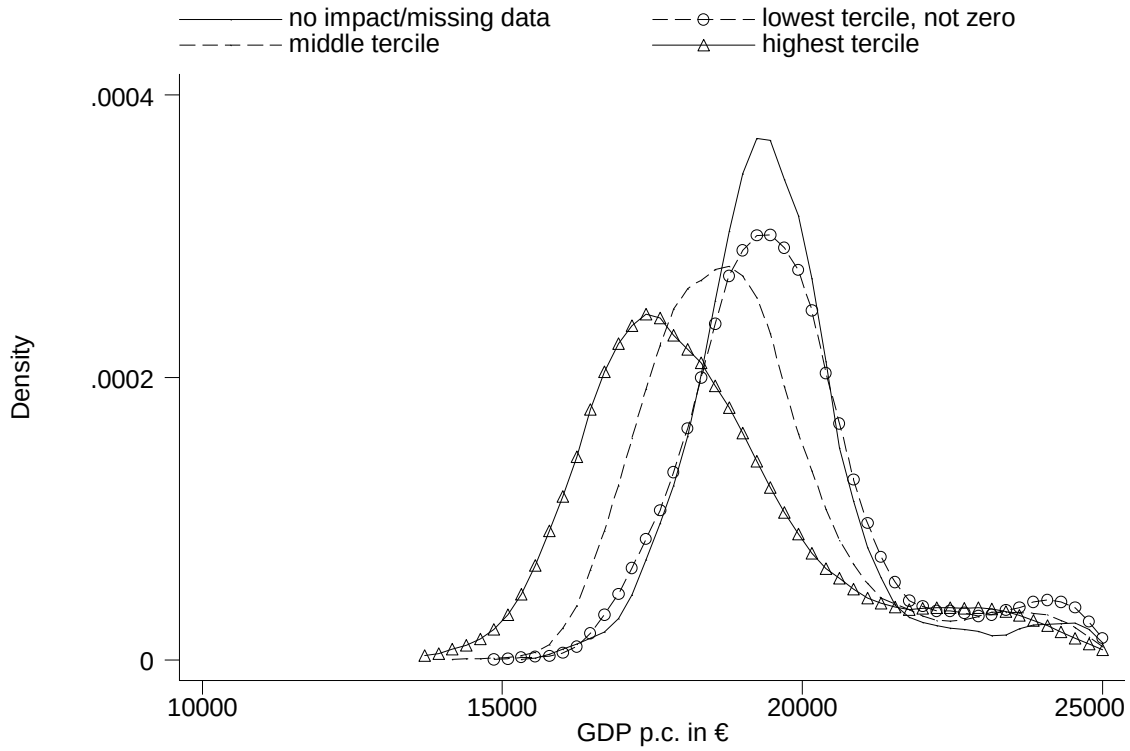


Figure 2 shows four distributions. The solid line gives the distribution of economic activity for municipalities with no recorded Inquisition presence (N=4,345). We split the rest into three equally sized groups (except for ties). Municipalities with no recorded inquisitorial activity, as well those in the lowest tercile of persecution, have the highest GDP per capita today. Those affected, but in the middle tercile, already have markedly lower income. Where the Inquisition struck with highest intensity (top tercile), the level of economic activity in Spain today is sharply lower. Magnitudes are large: In places with no persecution, median GDP per capita was 19,450€; where the Inquisition was active in more than 3 years out of 4, it is below 18,000€. For a municipality with average GDP per capita, a one standard deviation increase in inquisitorial intensity (0.058) is associated with a 330€ decline in average annual income per capita, while going from the 75% to the 99% percentile reduces income by 1,428€. Our estimates imply that, had Spain not suffered from the Inquisition, its annual national production today would be 4% higher – or 811€ for every man, woman, and child.

Table 1, col. 1 shows the association between inquisitorial intensity and income when controlling for population, socioeconomic and geographic characteristics, tribunal and regional fixed effects,[9] and excluding the cities that hosted the tribunals, which naturally exhibited abnormally high levels of inquisitorial activity. Table A.1 in Appendix A shows that the association is robust to using different subsets of these controls, while Table A.2 demonstrates that the use of trial-based intensity yields similar results. Table A.3 explores the robustness of the specification to alternative measures of income. The results survive using an unscaled version of nightlight, as well as levels instead of logs. We also report results obtained using municipal GDP estimates constructed by the *Instituto Nacional de Estadísticas* on the basis of income tax returns, which yields less precisely estimated results, though still of

[9] Ideally, one would estimate with inquisitor fixed effects, but granular information on their identity and activities has not survived with sufficient frequency.

the expected sign. This measure, as discussed above, is only available for 36% of Spanish municipalities, and is prone to strong biases from the high levels of tax evasion (between 40 and 55% for non-salaried activities) (*47*). The Inquisition was also the driving force behind the expulsion of Spain's Muslim convert population ('moriscos') in 1609. The main area affected was Valencia (*52*). We re-examine the effects of the Inquisition on the income per capita of Valencian municipalities in Appendix C; adding a control for pre-expulsion morisco population has little impact on the results.

How large is the implied effect of the Inquisition on the level of production in Spain today? A total of 36 million Spaniards live in areas affected historically by the Inquisition; 8.1 million live in areas that have no recorded impact. For Spain as a whole, the population-weighted GDP per capita is 18,677€ and the population-weighted impact measure is 0.26247. Using the coefficient from Table 1, this implies a reduction in per capita GDP thanks to the Inquisition of 2,000 € p.c. – a clear lower bound since this calculation assumes that that there are no aggregate spillovers that might drag down GDP for the country as a whole.

Table 1: Inquisitorial intensity and modern-day outcomes

	(1) log GDP p.c.	(2) religiosity	(3) education	(4) trust
inquisitorial intensity	-0.396***	0.445***	-0.0535**	-0.400***
	(-9.58)	(4.83)	(-2.33)	(-2.80)
log population	0.000828	-0.0556***	0.0301***	0.00389
	(0.43)	(-6.78)	(14.55)	(0.29)
latitude	-0.00213	0.0173	0.0199***	0.0346
	(-0.53)	(0.92)	(4.89)	(0.95)
longitude	-0.000681	0.0230*	-0.00137	0.0326
	(-0.26)	(1.91)	(-0.51)	(1.57)
ruggedness	-0.00160***	-0.000807	0.0000890	0.000955
	(-11.95)	(-1.32)	(0.59)	(0.90)
distance to tribunal	-0.000480***	-0.0000592	-0.000179***	-0.000654
	(-9.30)	(-0.28)	(-3.49)	(-1.49)
distance to river	0.000302***	-0.000494**	0.000180***	-0.000609
	(5.92)	(-2.34)	(3.21)	(-1.64)
distance to road	-0.000453***	-0.000437	-0.000392***	-0.000253
	(-3.95)	(-0.88)	(-3.44)	(-0.28)
distance to sea	-0.000187***	0.000139	0.0000356	-0.000464
	(-4.96)	(0.73)	(0.91)	(-1.32)
share married	-0.0165	0.214***	0.000107	0.246*
	(-1.18)	(2.73)	(0.01)	(1.96)
share upper class	0.148***	-0.277**	0.267***	0.200
	(6.77)	(-2.51)	(12.28)	(1.30)
average age	-0.00205***	0.0240***	-0.00320***	-0.00716
	(-3.30)	(6.98)	(-4.84)	(-1.20)
constant	10.07***	0.247	-0.412**	-0.863
	(64.08)	(0.34)	(-2.57)	(-0.63)
regional FE	Y	Y	Y	Y
N	2214	2191	2215	976
R^2	0.491	0.429	0.572	0.050

t statistics in parentheses
* $p < .1$, ** $p < .05$, *** $p < .01$

Note: Coefficients of OLS regressions on inquisitorial intensity with a full set of controls. Dependent variables are the nightlight-based estimate of municipal GDP per capita; the average number of times survey respondents from a given municipality attended religious services in the previous week; the share of the municipal population with a high school degree or higher as of the 2011 census; and average standardized trust in the municipality, calculated from the CIS barometer surveys. Population is the log of the population of the municipality as of the 2011 census. Socioeconomic controls are the average age of the municipal population in the 2011 census, the share of respondents to the CIS barometer surveys that identify as upper-middle class or upper class; and the share of respondents that are married. Geographic controls are longitude and latitude (not reported); ruggedness, calculated using the Nunn and Puga (*53*) measure averaged over the territory of the municipality; the distance from the centroid of the municipality to the tribunal city in whose jurisdiction it belonged; distance in kilometers to the closest navigable river; distance in kilometers to the closest Roman road; and distance in kilometers to the coastline. Fixed effects are coded for *comunidad autónoma* (NUTS-2) regions.
t statistics in parentheses. * $p < .1$, ** $p < .05$, *** $p < .01$

Correlates and Mechanisms. To understand the mechanisms behind the startling negative impact of the Inquisition on per capita incomes, we compile detailed, municipal-level data on religiosity, education, and trust. Results show that higher inquisitorial activity in the past correlates with higher levels of religious observance, lower education, and lower general trust.

The Inquisition's ostensible goal was to enforce doctrinal orthodoxy and ensure homogeneity of religious beliefs. Is a greater presence of the Inquisition in the past associated with greater religiosity today? We measure religiosity through the frequency of church attendance, obtained from survey data. In Table 1 col. 2 we regress this variable on inquisitorial impact, with the same set of fixed effects and controls as in the economic performance regression. A one standard deviation increase in inquisition intensity is associated with an increase of between 1.3% and 3.7% in religious service attendance. Table A.4 shows that results are robust to using different subsets of the control variables, while Table A.5 does the same substituting trial frequency as the treatment variable.

Since the Inquisition was particularly suspicious of the educated, literate, and prosperous middle class, its impact on Spain's cultural, scientific and intellectual climate was severe.[10] It banned the printing of forbidden books, and systematically targeted the richer and more educated parts of society (*54*, *55*). This reduced incentives to become educated, to work hard and become rich, and to think for oneself. Reactions to religious pressure may well have become ingrained in local culture.

This matters because education is a key determinant of economic performance (*22*); it can be a more reliable predictor than geography or institutions for income levels, both across countries and within them. Its positive effects are well-documented historically: For example, Protestant regions of Prussia in the 19th century were richer because literacy rates there were higher (*56*); areas of South America where the Jesuits –a pro-education order– established missions continue to have higher literacy and output today (*57*); and the political persecution of intellectuals arguably reduced human capital formation in China (*58*).

In Table 1, col. 3, we regress the share of population with secondary and tertiary education in Spanish municipalities today on inquisitorial intensity. We find a consistently negative relationship between persecution and educational attainment. Once we control for our standard set of covariates and fixed effects, going from no exposure to the Inquisition to half of all years being affected by persecutions would reduce the share of the population receiving higher education today by 2.7 percentage points, relative to a mean of 47.5 percentage points

[10] Similar effects of government surveillance have been investigated in the context of the Stasi's legacy in East Germany (*14*).

– a 5.6% relative reduction. Tables A.6 and A.7 provide full results for alternative specifications and outcome measures.[11]

The Inquisition arguably did not only modify individuals' incentives to become educated. It also changed the way civil society functioned – the extent to which people could cooperate and resolve problems without recourse to the state. The prospect of secret denunciations by acquaintances in localities with a strong inquisitorial presence must have made it harder for residents to engage in communal life, co-operate, and share information – to solve collective action problems that facilitate municipal administration and economic activity (*59*).

Lower trust as a result of systematic, century-long persecution could be an additional channel for lower incomes. We analyze the relationship between trust and the Inquisition, controlling for a range of potentially confounding variables. The reasons for trust being high or low in some countries or regions but not in others are poorly understood (*60*). Some scholars have emphasized 'amoral familism' driven by family structures, while others have argued that a lack of democratic traditions and weak institutions are important determinants of a lack of trust (*20*, *61*). A more recent research trend emphasizes that trust levels are not pre-determined, and can be modified by shocks and interventions. For example, areas of Africa more exposed to slave-raiding in the past show markedly lower trust (and income) today (*62*, *63*), while individuals exposed to war seem to be more pro-social and also exhibit higher trust levels (*64*).

A standard trust question is asked frequently in the Spanish surveys conducted by the Center for Sociological Research (CIS): "In general, would you say that people on average can be trusted, or would you say that one can never be too careful?" We analyse responses from more than 26,000 Spaniards interviewed over the period 2006 to 2015. We standardize them by adjusting the response scales from different waves to a mean of zero and standard deviation of one, correct for time and wave fixed effects, and aggregate the answers to the municipal level.

Table 1, col. 4, presents our main result. A one standard deviation increase in inquisitorial intensity reduces average municipality-level trust by 0.03 to 0.05 standard deviations. While the effect may seem small, the limited number of municipalities with trust data –less than 15% of the total– means that attenuation bias is likely. The results are robust to using different subsets of controls (Table A.8). If we use the second indicator of the Inquisition's activities, the average number of trials per year in each location, the main effect retains its size and significance in the specification with full controls, but is less tightly estimated in others (Table A.9).

All our results rely on spatial variation. Recent research argues that standard errors in persistence studies can be severely understated. We first estimate Moran's *I* and find that spatial error correlations are below standard levels of significance for almost all distance thresholds (Table A.10). Second, we use a recent implementation of the Conley correction to allow for spatial dependence of errors across observations (*65*).[12] Table A.11 shows the

[11] Table A.7 explores the robustness of the relationship to using trial frequency as an impact measure. The coefficient for trial frequency is insignificant in the specification with full controls, but regains its significance if the percentage of the population with high school diplomas is used as a dependent variable instead. This suggests an interaction with large cities, where most university graduates live. Once the most populous 10% of municipalities are excluded (population > 30,000), the coefficient in the main specification regains its size and significance.

[12] As Colella et al. (*65*) argue, the critique in Kelly (*66*) exaggerates the size of the problem.

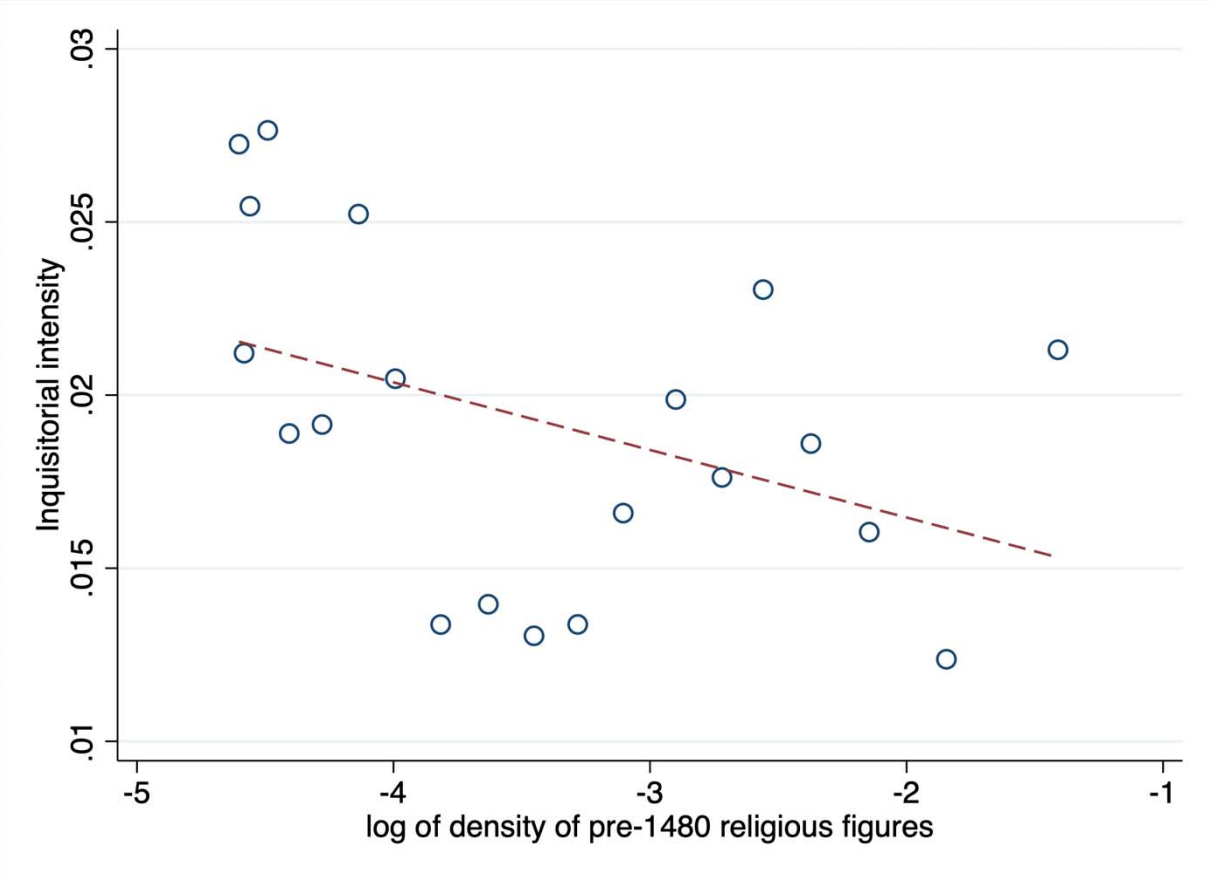
standard errors for our main results for different cut-offs of spatial dependence. Coefficients are significant at the 1% confidence level in all cases except for education, which is significant at the 5% level for the 100 km cutoff, and at the 10% level for the remaining ones.

Identification. Areas strongly affected by the Inquisition's activities between the 16th and 19th century are today poorer, more religious, less educated, and exhibit lower trust. However, the Inquisition may have been more active in towns and cities that were already underperforming by the 16th century – places with low trust, low education, high religiosity, and economic problems may have been more prone to collaborating with the Inquisition, for example. If that were the case, our results would reflect the persistence of these characteristics, rather than causal effects of religious persecution.

Empirically, the selection issue would ideally be addressed by controlling for indicators of our outcome variables measured before the onset of the Inquisition. Municipal level measures of any of them are not available for the late fifteenth century. Nonetheless, we can use two proxies to make progress.

To address the possibility that the Inquisition might have favored locales with high levels of preexisting religiosity, we collect data on pre-Inquisition religious figures from the Spanish Biographical Dictionary (Appendix D). We then estimate the local density of famous people with strong links to the church and use it to examine whether inquisitorial intensity was systematically higher in places that were more religious pre-1480. Our data suggests the opposite –places with greater inquisitorial intensity had a *lower* density of famous religious individuals (Figure 3).

Figure 3: Inquisitorial intensity and density of religious individuals, pre-1480



A second concern is that the Inquisition could have been attracted to poorer areas. Standard histories of the Inquisition suggest this is unlikely. The Inquisition was self-financing. It had to confiscate property and impose fines to pay for its expenses and the salaries of inquisitors. While its mission was to persecute heresy, it had strong incentives to look for it in richer places.[13] Its early focus on persecuting Jews, and later Protestants, led it to target populations with higher levels of education (*55*).

To rule out issues of reverse causation in the relationship between inquisitorial intensity and economic performance we can use indicators of municipal wealth from the Catastro de Ensenada, a comprehensive economic census conducted in the 1750s in the Crown of Castile, conducted at the level of the population nucleus.[14] While the Catastro dates from the mid-18th century, one of its questions targeted a manifestation of wealth that can be reliably tied to the early 16th century: hospitals. The early 1500s saw a large wave of creation and consolidation of all sorts of public assistance institutions into proper hospitals, spurred by a decree issued in the Cortes of Toledo in 1525 (*69–71*). The vast majority of hospitals surveyed in the Catastro date back to this period, when the Inquisition was still in its infancy. Largely geared to care for the poor and for out-of-towners who fell ill and had no other place to stay, hospitals were credited with reducing the number of destitute people living and dying on the streets. They

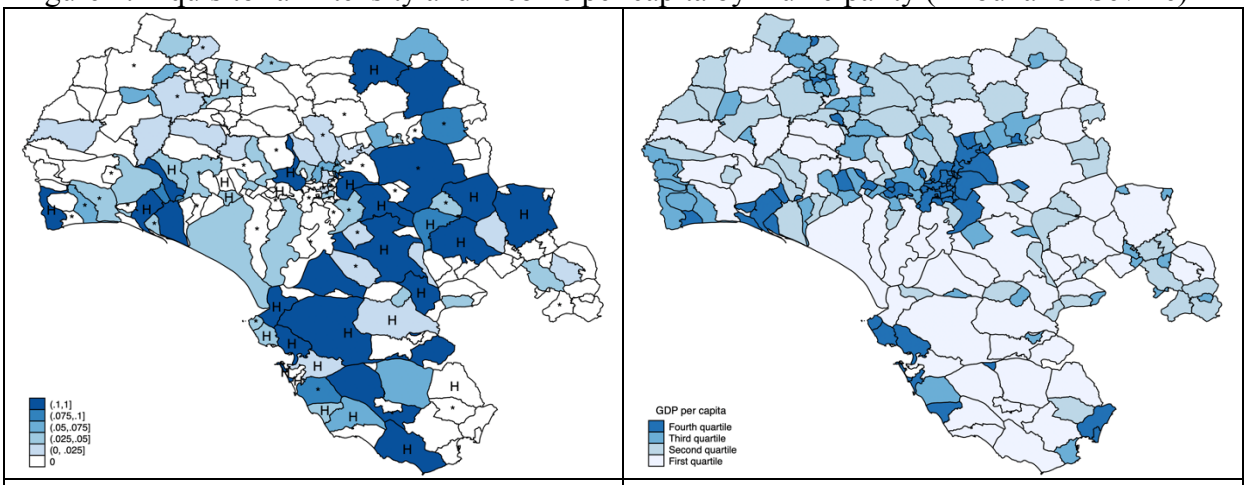
[13] The hypothesis that the motivations of inquisitorial activity were primarily financial was advanced by Llorente, who wrote during the waning days of the Inquisition (*67*). Kamen has argued forcefully against this view (*68*). We do not need to take a stand on the Inquisition's central motive; for our purposes it is enough that, between two localities with similar probability of yielding suspects, the Inquisition directed its attention first to the richer one.

required a substantial upfront investment and continuing maintenance expenditures. While some large hospitals in capital cities were endowed by prelates or ecclesiastical institutions, most of them were relatively small operations funded from municipal sources and civic groups, thus reflecting local wealth, as well as a measure of social capital (*72*).[15]

We code the presence of hospitals for all 710 Castilian municipalities that are also part of the CIS barometer sample.[16] Inquisitorial intensity was five times higher in places with hospitals, and the difference is highly significant (Figure A.4). The result is robust to controlling for the standard set of covariates and fixed effects, as well as for a measure of sixteenth century population (Table A.12). [17]

Next, we repeat our main empirical analysis, adding a control for early modern wealth as proxied by hospitals. Figure 4 illustrates the basic pattern for the case of the tribunal of Seville. The presence of a hospital is strongly correlated with more inquisitorial persecution. Those same municipalities today have much lower incomes than their population would predict.

Figure 4: Inquisitorial intensity and income per capita by municipality (Tribunal of Seville)



Inquisitorial intensity | GDP per capita

Note: Left hand panel shows inquisitorial intensity. H denotes the presence of at least one early modern hospital in a municipality belonging to our sample of the Catastro de Ensenada. Asterisks mark municipalities in our sample with no hospitals. The right-hand panel plots nightlight-based GDP per capita estimates.

Modern economic performance remains negatively associated with inquisitorial impact after controlling for historical measures of wealth, but the coefficient declines in size by one third. This rules out the possibility that our estimated, negative effect of Inquisitorial persecution on

[14] Digital images of the original responses to the main questionnaire of the Catastro de Ensenada are available online at http://pares.mcu.es/Catastro/

[15] The information in the Catastro de Ensenada, like other fiscal surveys, is often suspected of being subject to underreporting. Using hospitals as a measure of wealth circumvents this problem. Hospitals were difficult or impossible to hide, and respondents would likely not have thought that declaring the presence of a hospital in their town would result in higher fiscal pressure.

[16] The various waves of the CIS barometer surveys contain trust data for 1148 municipalities. Of these, 438 belong to the historical kingdom of Aragon, and hence were not covered in the Catastro. For the remainder 710, we collected data from each population nucleus, aggregating the data at the level of the modern-day municipal boundaries.

[17] In some of the specifications in Tables A.12, we control for the number of households reported in the 1528 census of commoners (*censo de los pecheros*) to allow for the possibility that hospitals may simply have reflected a larger population. Because the 1528 census only contains information for the Crown of Castile, only counts commoners, and is known to be fraught with underreporting, we use it cautiously.

incomes reflects the Inquisition targeting poorer areas in the first place. In Panel A, Table 2, we add our control for historical wealth (number of hospitals) to the regressions with income, religiosity, education, and trust as outcome variables. The coefficients on inquisition intensity in the education and trust regressions are broadly comparable to our baseline results in both size and significance. The coefficient in the religiosity regression, however, falls by about half. Including the historical measure of wealth nonetheless shuts down one potential channel of endogeneity, and confirms the robustness of our results.

Table 2: Identification – OLS controlling for historical wealth and CEM estimates

	log GDP per capita	religiosity	share higher education	standardized trust
Panel A: OLS				
inquisitorial intensity	-0.268***	0.247*	-0.0713**	-0.474**
	(-5.10)	(1.79)	(-2.31)	(-2.29)
N	546	545	546	526
R^2	0.437	0.336	0.676	0.075
Panel B: CEM				
inquisitorial intensity	-0.422***	0.316**	-0.121***	-0.721***
	(-7.72)	(2.25)	(-3.52)	(-3.59)
N	1336	1324	1337	526
R^2	0.513	0.422	0.569	0.100

t statistics in parentheses
* $p < .1$, ** $p < .05$, *** $p < .01$

Note: Panel A: OLS estimation. Dependent variables are as in Table 1. Specifications with a full set of controls including population size, hospital presence, geographic and socio-economic controls. Panel B: Coarsened Exact Matching estimates, matching for population today, population in 1528, latitude, longitude, ruggedness, distance to river, and distance to the sea. T-statistics in parentheses; * p < .1, ** p < .05, *** p < .01.

Next, we use coarsened exact matching to strengthen our argument that we identify a causal link between religious persecution and lower incomes, education, and trust today. This also helps to address potential issues of imbalance. CEM estimates can recover the causal impact of treatments (*73*). The CEM estimator picks control observations for each treated unit, ensuring (approximate) covariate balance. Instead of matching observations precisely, CEM estimation involves coarsening covariates to ensure balance of treated and untreated observations. In Panel B, we match municipalities with either above or below median inquisitorial intensity based on their modern-day and historical (1528) population, latitude, longitude, distance to the sea and to a river.[18] Since not all treated municipalities can be matched to an untreated town, the number of observations compared with Table 1 declines. All effects remain large and significant. For religiosity the estimated impact of persecution declines under CEM compared with OLS, but remains significant. For trust, GDP, and education, it grows in size.

One common critique of persistence studies is the "compression of history" – modern-day outcome variables are regressed on indicators of past events, which often occurred centuries earlier (*74*). We can show that in our case, there is evidence of the Inquisition's impact almost

[18] For example, CEM creates 14 different strata for distance to the sea. It will then only match a treated town in one of these strata to another town in the same distance stratum. Overall, the algorithm creates 2,855 combinations of different strata, of which 924 can be matched.

immediately after its abolition. Between 1833 and 1876 Spain suffered from a series of internal conflicts known as the Carlist Wars. The Carlist movement disputed the legitimacy of the ruling branch of the Bourbon dynasty. Carlist supporters were ultra-conservative and highly religious. In Appendix E we use granular data from Catalonia, Valencia, and the Balearic Islands to show that the presence of Carlist community organizations ("cercles") and the share of active Carlist supporters in the population is well-predicted by inquisitorial persecution between 1480 and 1834 (*75*, *76*). This strongly suggests that the Inquisition's effects were visible immediately after its abolition.

Conclusion. There are major differences in income and wealth across the globe today. Many of these correlate with attitudes and beliefs, which appear to have 'deep historical roots', with differences perpetuating themselves (*20*, *33*, *63*, *77*, *78*). This begs the question how attitudes diverge in the first place. Do they reflect cultural, ethnic and linguistic differences since pre-historic times – or are they driven by human agency in the form of shocks, interventions, and decisions?

In this paper, we focus on a highly repressive institution – the Spanish Inquisition. The Inquisition combined religious persecution with an early, state-sponsored form of "totalitarian" control, scrutinizing and controlling every aspect of everyday life, from eating habits to dress code, reading matter, and topics of conversation often with grave consequences over a 350 year period. Relying mostly on accusations and evidence by local informers and members of an individual's social network, the Inquisition was ideally suited to reduce social capital and imbue citizens with a culture of mistrust and low ambition. Areas where the Inquisition persecuted more citizens are markedly poorer today. We also present evidence that the mechanism behind the long-term detrimental impact of the Inquisition operated through lower trust and education.

The negative effect of the Inquisition suggests that adverse shocks at a critical juncture can trap societies in permanently low equilibria, where high local conflict, low education and limited trust lead to low income, with the risk of undermining social capital and trust still further (*79*).[19] While many studies have demonstrated persistence – a link between a modern-day outcome and historical variables, based on geographical variation – few have been able to pin down a mechanism responsible for history's long shadows (*57*, *63*). Our study contributes to this literature by linking the persistent effects of the Inquisition to modern-day economic performance, showing intermediate outcomes for trust and education.

In this way, we also contribute to the broader literature on the causes of underdevelopment in Southern Europe. Lower incomes and lower trust have been attributed by anthropologists to 'amoral familism' (*60*). Our findings imply that differences in trust and economic performance in Spain today can be directly traced back to religious persecution. Our study has only examined the Spanish Inquisition's effect in its heartland. However, the Inquisition also operated in Southern Italy and throughout Spanish America. Inquisitorial practices were also instituted throughout the Portuguese Empire and the Papal States. All of these areas today show relatively low education, lower incomes, and less generalized trust. Similar mechanisms to the ones documented in our study may well be at work in these places, affecting the lives of hundreds of millions to this day.

[19] The opposite is also possible. Valencia Caicedo shows this for the case of an intervention that enhanced human capital exogenously (*57*).

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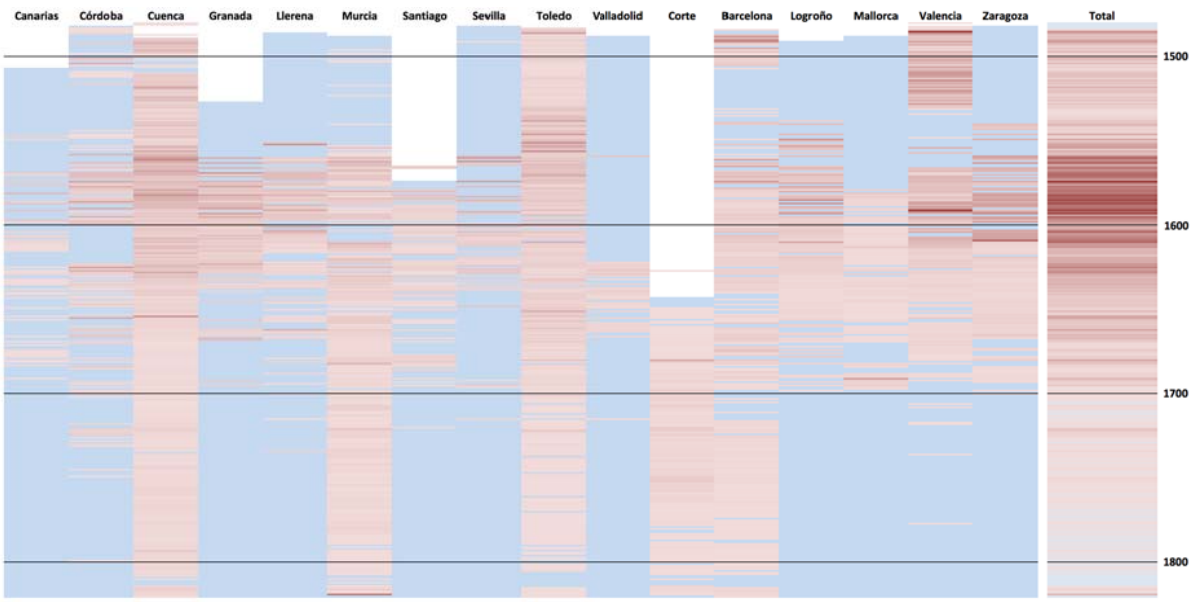
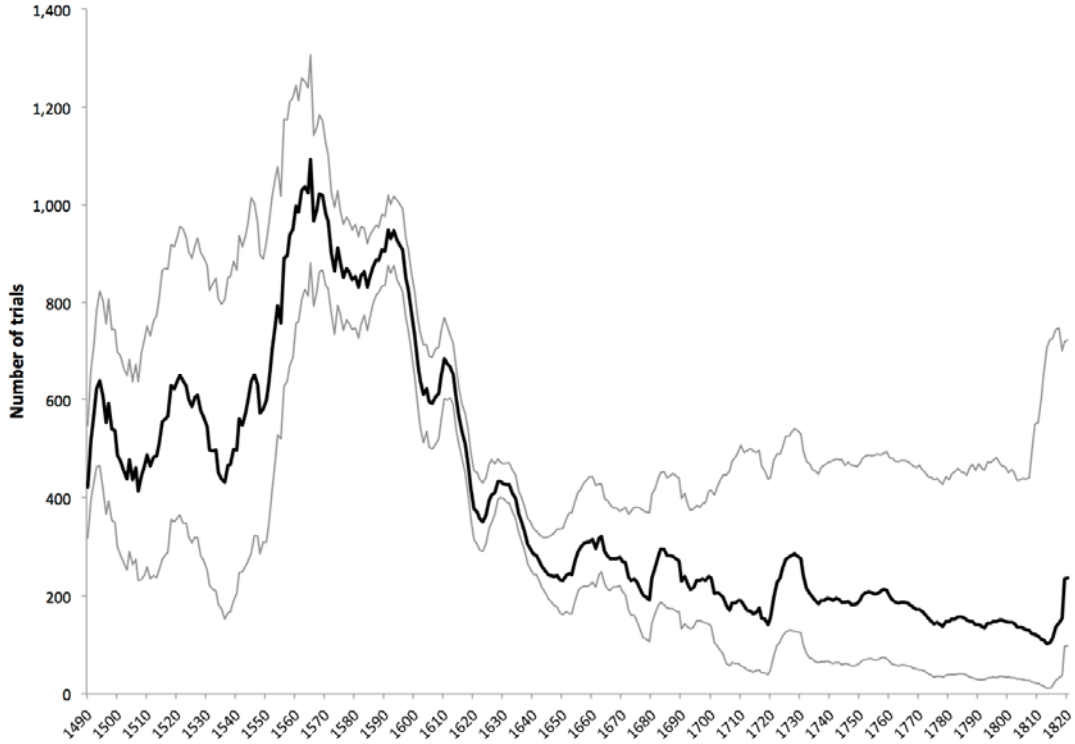
Appendix A: Additional Figures and Tables

Figure A.1: Data density heatmap



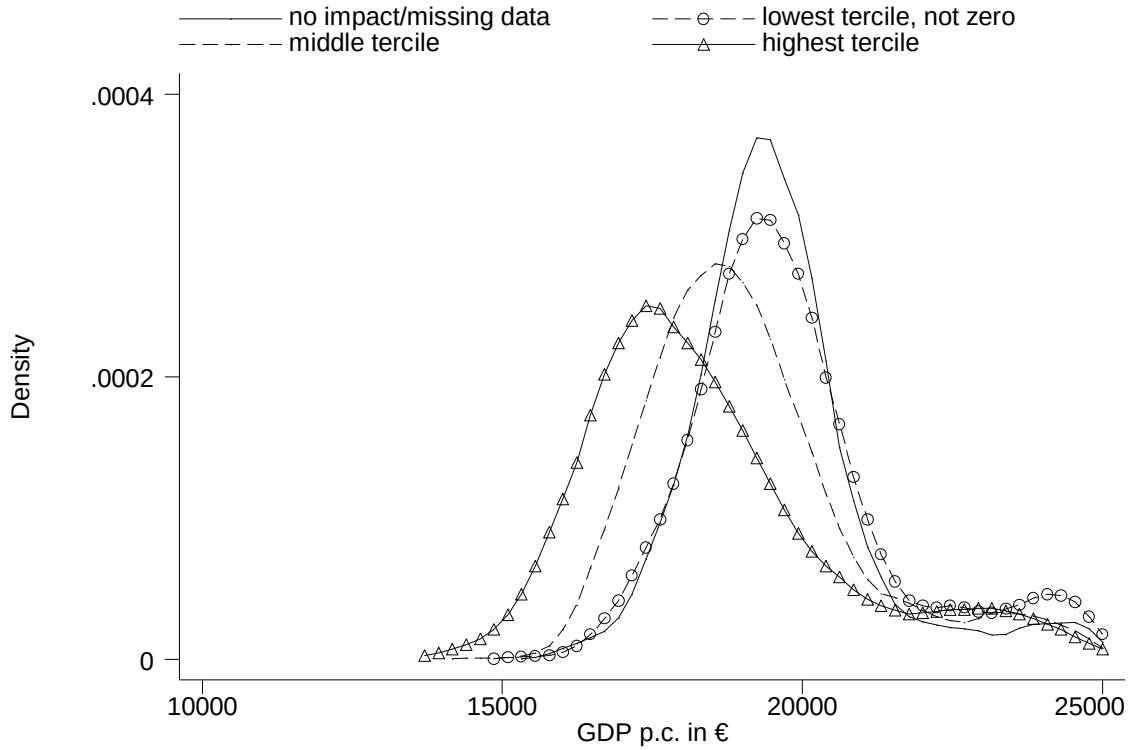
Note: each column represents a territorial Inquisition tribunal. The vertical dimension represents time, with century changes marked as horizontal black lines. White coloring means that the tribunal had not yet been established. Blue coloring represents years with zero cases or no data available (the data does not allow for distinguishing between the two situations). Red coloring represents years with cases available, with darker coloring indicating a higher concentration of cases.

Figure A.2: Estimate of total trials per year (10 year moving average) and 95% confidence intervals



Note: The black line represents the estimate of the number of cases obtained from the regression approach described in the main text. The grey lines represent 95% confidence intervals. The asymmetric disposition of the confidence bands towards the end of the period is the result of the large amount of missing data combined with the fact that the number of cases cannot be lower than the actual observed amount.

Figure A.3: Trial frequency and economic performance



Note: Dependent variable is the nightlight-based estimate of municipal GDP per capita, in 1,000s of € p.a. High impact means an annual number of cases above the median.

Figure A.4: Inquisitorial intensity and hospital presence in 1750

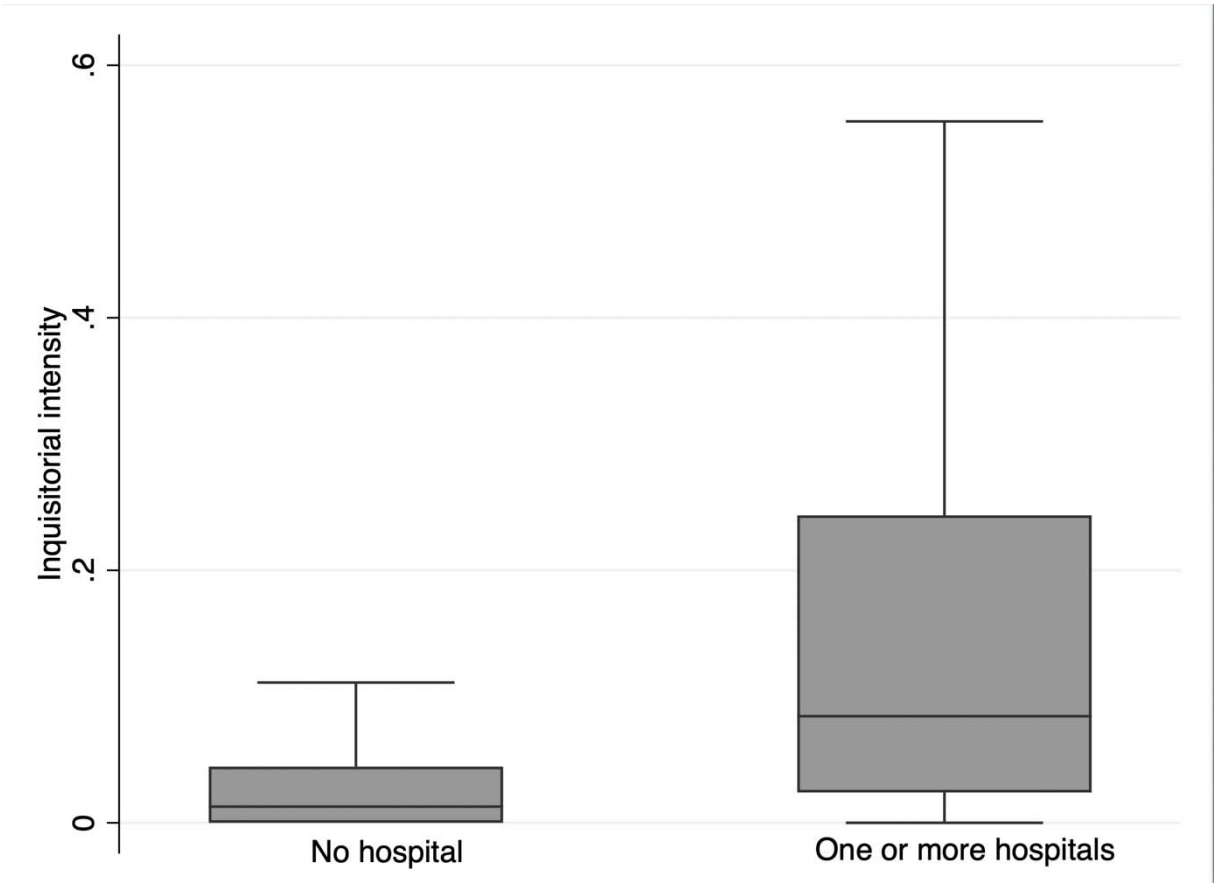


Table A.1: Economic performance and inquisitorial intensity

	(1)	(2)	(3)	(4)	(5)
inquisitorial intensity	-0.336*** (-7.81)	-0.303*** (-7.56)	-0.352*** (-8.11)	-0.266*** (-6.76)	-0.396*** (-9.58)
Population	✓	✓	✓	✓	✓
Geographic		✓	✓	✓	✓
Socioeconomic			✓	✓	✓
Regional FE				✓	✓
No trib. cities					✓
N	8005	7995	2228	2228	2214
R^2	0.039	0.268	0.401	0.477	0.491

Note: Dependent variable is the nightlight-based estimate of municipal GDP per capita. All regressors and controls as in Table 1. t-statistics in parentheses: * p<.1, ** p<.05, *** p<.01

Table A.2: Economic performance and trial frequency

	(1)	(2)	(3)	(4)	(5)
trial frequency	-0.0091 (-1.25)	-0.0823 (-1.28)	-0.0110* (-1.69)	-0.00706 (-1.48)	-0.0714*** (-4.00)
Population	✓	✓	✓	✓	✓
Geographic		✓	✓	✓	✓
Socioeconomic			✓	✓	✓
Regional FE				✓	✓
No trib. cities					✓
N	8005	7995	2228	2228	2214
R^2	0.004	0.240	0.353	0.451	0.469

Note: Dependent variable is the nightlight-based estimate of log GDP per capita. All controls and specifications as in Table A.1. t-statistics in parentheses: * p<.1, ** p<.05, *** p<.01

Table A.3: Alternative measures of economic performance

	(1) Log of mean light level	(2) Mean light level	(3) INE GDP measure	(4) INE GDP measure	(5) INE GDP measure
inquisitorial intensity	-1.950*** (-9.04)	-46.07*** (-10.61)	-0.381*** (-8.11)	-0.137*** (-4.22)	-0.0491 (-1.19)
Population	✓	✓	✓	✓	✓
Geographic	✓	✓		✓	✓
Socioeconomic	✓	✓		✓	✓
Regional FE	✓	✓			✓
No trib. cities	✓	✓			✓
N	2182	2214	2866	1654	1640
R^2	0.685	0.678	0.184	0.645	0.691

Note: Dependent variables are: col (1): log of nighttime luminosity, averaged over the municipal territory. col (2): level of nighttime luminosity, averaged over the municipal territory; cols. (3-5): income-tax-based GDP measure for municipalities with population > 1,000, from the Instituto Nacional de Estadísticas. All controls as in Table A.1. t-statistics in parentheses: * p<.1, ** p<.05, *** p<.01

Table A.4: Religiosity and inquisitorial intensity

	(1)	(2)	(3)	(4)	(5)
inquisitorial intensity	1.032*** (12.06)	0.809*** (10.53)	0.607*** (8.23)	0.359*** (5.42)	0.445*** (4.83)
Population	✓	✓	✓	✓	✓
Geographic		✓	✓	✓	✓
Socioeconomic			✓	✓	✓
Regional FE				✓	✓
No trib. cities					✓
N	2758	2758	2205	2205	2191
R^2	0.184	0.304	0.352	0.429	0.429

Note: Dependent variable is the average number of times survey respondents from a given municipality attended religious services in the previous week. All other controls and specifications as in Table A.1. t statistics in parentheses: * p<.1, ** p<.05, *** p<.01

Table A.5: Religiosity and trial frequency

	(1)	(2)	(3)	(4)	(5)
Trial frequency	0.0642*** (3.26)	0.0537*** (3.54)	0.0341*** (2.96)	0.0227*** (2.99)	0.104*** (4.22)
Population	✓	✓	✓	✓	✓
Geographic		✓	✓	✓	✓
Socioeconomic			✓	✓	✓
Regional FE				✓	✓
No trib. cities					✓
N	2758	2758	2205	2205	2191
R^2	0.167	0.294	0.344	0.427	0.428

Note: Dependent variable is the average number of times survey respondents from a given municipality attended religious services in the previous week. All other controls and specifications as in Table A.1. t-statistics in parentheses: * p<.1, ** p<.05, *** p<.01

Table A.6: Education and inquisitorial intensity

	(1)	(2)	(3)	(4)	(5)
inquisitorial intensity	-0.137*** (-5.94)	-0.0509*** (-2.61)	-0.0483*** (-2.74)	-0.0390* (-1.93)	-0.0535** (-2.33)
Population	✓	✓	✓	✓	✓
Geographic		✓	✓	✓	✓
Socioeconomic			✓	✓	✓
Regional FE				✓	✓
No trib. cities					✓
N	8001	8001	2229	2229	2215
R^2	0.137	0.338	0.499	0.574	0.572

Note: Dependent variable is the share of the municipal population holding a high school or higher degree as of the 2011 census. All other controls and specifications as in Table A.1. t statistics in parentheses: * p<.1, ** p<.05, *** p<.01

Table A.7: Education and trial frequency

	(1) High school+	(2) High school only	(3) High school+ Pop <30,000
inquisitorial intensity	-0.0008 (-0.14)	-0.0116** (-2.16)	-0.0209** (-2.02)
Population	✓	✓	✓
Geographic	✓	✓	✓
Socioeconomic	✓	✓	✓
Regional FE	✓	✓	✓
No trib. cities	✓	✓	✓
N	2191	2191	1978
R^2	0.573	0.493	0.561

Note: Dependent variable in cols. 1 and 3 is the share of the municipal population with a high school degree or higher. Dependent variable in col. 2 is the share of the population with a high school degree only. The regression in col. 3 is restricted to municipalities with a population of less than 30,000. All controls as in Table A.1. t-statistics in parentheses; * p < .1, ** p < .05, *** p < .01

Table A.8: Trust and inquisitorial intensity

	(1)	(2)	(3)	(4)	(5)
Inquisitorial intensity	-0.214**	-0.242***	-0.198**	-0.273***	-0.400***
	(-2.46)	(-2.65)	(-2.08)	(-2.70)	(-2.80)
Population	✓	✓	✓	✓	✓
Geographic		✓	✓	✓	✓
Socioeconomic			✓	✓	✓
Regional FE				✓	✓
No trib. cities					✓
N	1142	1142	990	990	976
R^2	0.003	0.011	0.020	0.049	0.050

Note: Dependent variable is average standardized trust in the municipality, calculated from the CIS barometer surveys. All controls and specifications as in Table A.1.

Table A.9: Trust and trial frequency

	(1)	(2)	(3)	(4)	(5)
Trial frequency	-0.0033	-0.00611	-0.00231	-0.00663	-0.0734***
	(-0.62)	(-1.06)	(-0.40)	(-0.98)	(-2.25)
Population	✓	✓	✓	✓	✓
Geographic		✓	✓	✓	✓
Socioeconomic			✓	✓	✓
Regional FE				✓	✓
No trib. cities					✓
N	1142	1142	990	990	976
R^2	0.000	0.007	0.018	0.045	0.047

Note: Dependent variable is average standardized trust in the municipality, calculated from the CIS barometer surveys. All controls and specifications as in Table A.1. t-statistics in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$

Table A.10: Moran's *I*

Variable	**Statistic**	**distance threshold**			
		100	200	300	400
log GDP per capita	Moran's I	0.057	0.009	-0.006	-0.004
	p-value	0.000	0.000	2.000	2.000
religiosity	Moran's I	0.011	-0.002	-0.000	-0.002
	p-value	0.000	1.726	1.385	1.902
share higher education	Moran's I	0.021	0.004	-0.004	-0.002
	p-value	0.000	0.011	1.999	1.990
standardized trust	Moran's I	-0.009	-0.004	-0.005	-0.002
	p-value	1.817	1.653	1.925	1.329

Note: We calculate Moran's I based on the STATA routine *moransi*, using the residuals of specification (5) in Tables A.1 (GDP), A.4 (religiosity), A.6 (education), and A.8 (trust).

Table A.11: Standard errors corrected for spatial dependence

Variable	**distance threshold**			
	100	200	300	400
log GDP per capita	-0.447***	-0.447***	-0.447***	-0.447***
	(-8.19)	(-6.96)	(-6.51)	(-11.28)
religiosity	0.626***	0.626***	0.626***	0.626***
	(4.28)	(3.43)	(3.36)	(3.98)
share higher education	-0.0821**	-0.0821*	-0.0821*	-0.0821*
	(-2.17)	(-1.68)	(-1.86)	(-1.79)
standardized trust	-0.410***	-0.410***	-0.410***	-0.410***
	(-3.13)	(-5.58)	(-4.02)	(-3.35)

Note: We calculate corrected standard errors using the *acreg* routine in STATA, based on (*65*), using specification (5) in Tables A.1 (GDP), A.4 (religiosity), A.6 (education), and A.8 (trust) (latitude and longitude controls excluded).

Table A.12: Hospitals, historical population, and inquisitorial intensity

	(1)	(2)	(3)	(4)	(5)	(6)
Hospitals	0.069***	0.0422***	0.0447***	0.0366***	0.0256***	
	(7.22)	(3.35)	(3.71)	(4.60)	(3.85)	
1528 Population		0.0474***	0.0423***	0.0459***	0.0377***	0.0193***
		(7.31)	(6.61)	(7.30)	(9.10)	(14.20)
Geographic			✓	✓	✓	✓
Tribunal FE				✓	✓	✓
No trib. cities					✓	✓
N	716	402	402	402	395	2672
R^2	0.333	0.365	0.425	0.544	0.467	0.312

Note: Dependent variable is inquisitorial intensity in the municipality. 1528 population is the log of the number of households reported in the 1528 *Censo de los Pecheros*. t-statistics in parentheses; * p < .1, ** p < .05, *** p < .01

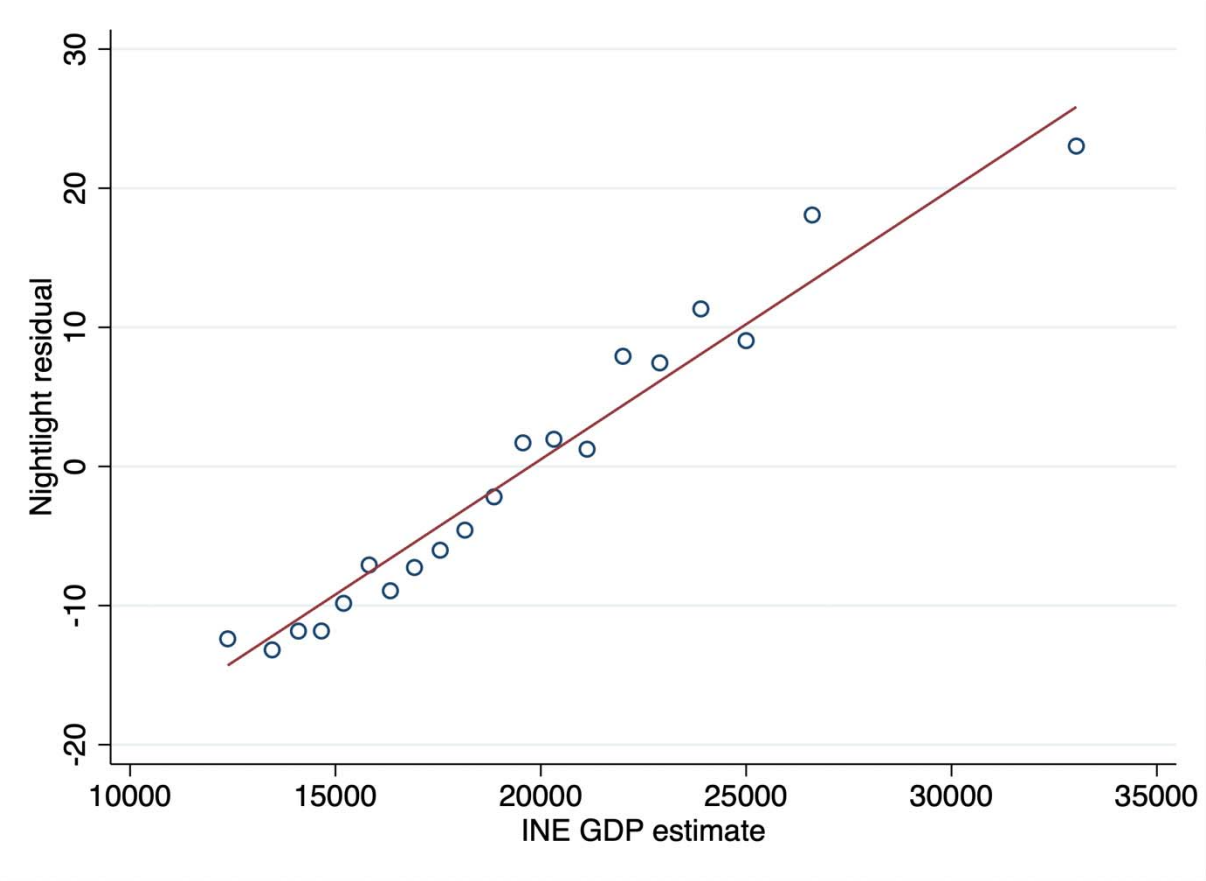
Appendix B: Nightlight as an Indicator of Spanish Local GDP

The Spanish National Instituted for Statistics (INE) publishes an estimate of municipal GDP per capita based on personal income tax (IRPF) receipts, calibrated to actual measures of provincial GDP. As discussed in the text, this data is only available for municipalities above a population threshold of 1,000. This excludes 75% of all Spanish municipalities, and captures none of the small locales where we would expect cultural transmission mechanisms to operate strongly. Local income tax data will also be affected by tax evasion and differences in the geographical location of value-added activity vs personal consumption.

We therefore adopt a nightlight-based procedure to estimate local GDP, using the co-movement of nightlight and the INE GDP data in the aggregate to translate nightlight values into estimates of GDP in euro. Our procedure is as follows:

1. We obtain NOAA 2013 nightlight raster data and overlay it on a shapefile of Spanish municipalities. For each municipality, we calculate the median nightlight value.
2. We regress median nightlight on the log of municipal population. We use the residual of this regression as our indicator of municipal GDP. These residuals – the part of nightlight not explained by greater population – show a strong relationship with the INE estimate, as shown in Figure B.1.

Figure B.1: Nightlight-based GDP indicator and INE estimates



3. To estimate municipal-level GDP, we regress nightlight residuals on the INE GDP measure over their shared domain. We then use the coefficients from this regression to convert the nightlight residuals for each municipality, obtained in step (2), into a euro-denominated GDP estimate.

Appendix C: Expulsion of the Moriscos, inquisitorial intensity, and income per capita

In 1609, Spain forcibly expelled its remaining population of Muslim converts, known as 'moriscos', with prominent involvement of the Inquisition. This exodus caused major suffering, and had important economic consequences. We use the data on the share of the population expelled for the Kingdom of Valencia, as compiled by Chaney and Hornbeck (*52*). This allows us to check whether we are simply picking up the same effects as earlier studies. Table E.1 reproduces our baseline and full-control specifications for income per capita for the region of Valencia in columns (1) and (3). It then adds the proportion of moriscos in the pre-expulsion population as a control in columns (2) and (4). Controlling for morisco population makes the coefficients on inquisitorial intensity slightly larger, though the full specification is only marginally significant as a result of the small sample size. The positive coefficients on the proportion of moriscos are consistent with Chaney and Hornbeck's finding that a higher proportion of moriscos in the population is associated with higher GDP per capita today.

Table C.1: Inquisition intensity, GDP per capita, and Morisco presence in Valencia

	(1) Basic	(2) Basic	(3) All controls	(4) All controls
Inquisitorial intensity	-0.283***	-0.319***	-0.147	-0.180*
	(-2.34)	(-2.26)	(-1.50)	(-1.75)
Proportion of moriscos in the population		0.0743***		0.0378***
		(6.93)		(2.83)
N	652	652	238	238
R^2	0.093	0.169	0.683	0.693

t statistics in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$

Appendix D: Pre-Inquisition Religiosity

We construct measures of pre-Inquisition religiosity based on the Spanish Biographical Dictionary (*Diccionario Biográfico Español)* maintained by the Royal Academy for History, a collection of over 50,000 biographies of notable individuals who lived in territories under Spanish control between the seventh century B.C. and modern times.[20] We proceed in four steps:

1. We first identify 4,711 individuals who died prior to 1480, the year of the establishment of the Inquisition, and scrape their biographies from the online DBE database.

2. We identify a total of 142 different religious occupations, and retain the records associated with them. This yields 906 biographies.

3. We geo-code the location where the influence of religious individuals was likely to have been greater. This is typically the place of death. If not reported, we use place of birth. In

[20] http://dbe.rah.es/

the absence of either, we parse the text of the biography for relevant geographical indicators. We end up with 565 biographies georeferenced to a modern-day municipality.

4. We use the resulting data to calculate a density function ("heatmap") of religious individuals. The density function is the standard quartic kernel used by GIS applications, with an optimal bandwidth of approximately 80km. Results are robust to any bandwidth between 50 and 400 km.

Appendix E: Inquisitorial intensity and Carlism

To study the relationship between Inquisitorial intensity and the Carlist movement, we digitize municipal-level data on the number of prominent Carlist supporters and activists in Catalonia between 1868 and 1876 reported by Toledano González (*75*). We also code a dummy variable indicating the presence of a Carlist community organization ("cercle") in a municipality, using data from the Catalan Encyclopaedia (*76*). Cercles acted as recruiting and training offices for Carlist supporters, as well as providing a venue for socializing and recreation. Data on cercles is available for Catalonia, Valencia, and the Balearic Islands.

Table E.1 shows regressions of the share of Carlist supporters and of the presence of cercles on inquisitorial intensity. Columns (1) and (3) show the two-way relationship controlling only for population. Columns (2) and (4) add geographic controls and exclude tribunal heads. Column (4) also adds regional fixed effects. We do not add socioeconomic controls, as none are available at the municipal level for 1860.

The effects implied by the results in Table E.1 are large. Using the full specifications, a one standard deviation increase in our measure of inquisitorial intensity is associated with a 43% increase in the share of prominent Carlists in the population, and with a 12% increase in the probability of observing a Carlist community organization in the municipality.

Table E.1: Inquisitorial intensity and Carlism

	(1) Share of Carlists	(2) Share of Carlists	(3) Cercles	(4) Cercles
Inquisitorial intensity	0.0398	0.110***	1.271***	2.005***
	(1.50)	(2.84)	(5.38)	(7.03)
Geographic		✓		✓
Regional FE				✓
No trib. cities		✓		✓
N	944	942	1553	1548
R^2	0.005	0.037	0.151	0.080

t statistics in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$