Political Rupture and the Origins of Secularization: Evidence from the French Revolution

Rabah Arezki and Van Dao Le*

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Abstract

Can a political rupture permanently alter a society's religious trajectory? We exploit variation in the intensity of French Revolutionary conflict across departments between 1787 and 1793 linking it to Catholic attachment over the following century—including La Croix readership and church attendance in 1940–1950 that is before postwar migration reshuffled France's population. More exposed departments became durably less religious: a one-standard-deviation increase in unrest lowers Catholic newspaper readership by 0.3–0.4 points on a four-point scale. A global panel of revolutions since 1900 corroborates this: violent revolutions predict secularization, not a backlash-driven religious revival.

Keywords: revolution; religiosity; secularization; persistence; French Revolution; political economy of religion.

JEL codes: N33; N43; Z12; D74; P00.

* Arezki is Director of Research at the French National Center for Scientific Research & Faculty Affiliate at Harvard Kennedy School of Government. Le-Van is affiliated with the International School at Vietnam National University. We thank Olivier Blanchard Patrick Guillaumont, Jean-Pierre Landau, Partha Sen, Lemma Senbet, Rick Van der Ploeg, and Tarik Youssef for excellent suggestions and comments. We acknowledge the support received from the Agence Nationale de la Recherche of the French government through the program “Investissements d’avenir” (ANR-10-LABX-14-01). The authors used Claude for language editing assistance in preparing this manuscript; all analysis, interpretation, and conclusions are our own.

I. Introduction

Do major political ruptures reshape religious life, and do their effects endure long after the events themselves have passed? Revolutions are among the sharpest discontinuities a society can experience. They displace ruling elites, recast the relationship between state and church, and unsettle the institutions through which moral and cultural norms are transmitted. Whether such disruptions leave a durable mark on religiosity, and in which direction, is not obvious a priori. This paper examines that question using the French Revolution as a primary setting and a global panel of revolutionary episodes as a complementary one.

Two opposing mechanisms are plausible. Under a secularization channel, revolutionary conflict undermines institutions tied to the old regime. In that regime the Church is bound up with that order. Local turmoil can erode trust in religious authority, weaken the intergenerational transmission of religious norms, and push public culture away from organized religion. Under a backlash channel, disorder raises the demand for religion as a source of stability, moral order, and collective identity. Communities exposed to revolutionary violence respond by reaffirming religious attachment. The two channels carry opposite empirical predictions for how exposure to revolutionary turmoil maps into later religiosity, which makes the sign of the relationship an empirical question.

The French Revolution is well suited to this inquiry. Although 1789 marks a national rupture with the Ancien Régime, revolutionary conflict unfolded unevenly across departments. We exploit this spatial variation to ask whether departments more exposed to revolutionary unrest between 1787 and 1793 displayed weaker subsequent Catholic attachment. Measuring exposure requires data on the location and timing of conflict. Measuring religiosity requires outcomes observed long after the Revolution. We bring together both sources of data. Revolutionary unrest is constructed at the department level from the Historical Social Conflict Database. We restrict attention to non-religious and pre-political categories—food riots, feudal conflicts, tax riots, authority conflicts, labor conflicts, and other social conflicts—to limit mechanical endogeneity with religious outcomes. Religiosity is captured by three later measures drawn from the setting in Squicciarini (2020): La Croix readership in 1893, a proxy for Catholic public culture; Sunday Mass attendance in the 1950s, a more direct measure of religious practice; and Catholic students per school observed across the late nineteenth century.

The empirical strategy proceeds in two steps. We first estimate department-level regressions of later religiosity on revolutionary exposure adding region fixed effects, a control for pre-existing religious cleavages proxied by the share of anti-religious cahiers in 1789, and predetermined demographic, geographic, and agricultural covariates. Because exposure may still correlate with unobserved local characteristics, we supplement this with a matched-pair design that pairs each high-unrest department with its geographically nearest low-unrest department within the same historical region. We compare units that are spatially proximate and are thus more likely to share economic, institutional, and regional conditions.

The findings consistently support the secularization channel. Departments more exposed to revolutionary unrest exhibit weaker subsequent Catholic attachment. In the baseline, a one-standard-deviation increase in revolutionary unrest is associated with a decline of roughly 0.30 to 0.43 points in La Croix readership, measured on a four-point scale. The matched-pair design yields estimates of comparable or larger magnitude. The result holds across the alternative outcomes—Catholic students per school and Sunday Mass attendance in the 1950s—and is not driven by any single conflict type, with food, labor, and other conflicts carrying most of the signal. Finally, a global country-year panel linking revolutionary episodes since 1900 to the V-Dem freedom-of-religion index shows a parallel decline after revolutionary onset, concentrated among violent and war-scale episodes.

This paper relates to work on the long-run persistence of cultural and religious traits and on the economic and political consequences of religion, and most directly to Squicciarini (2020), whose data on French religiosity and education this study builds on. Relative to that literature, the contribution here is to treat localized revolutionary disruption as the source of variation and to trace its association with religiosity over horizons spanning a century or more, using both a within-country matched design and a cross-country panel. The remainder of the paper is organized as follows. Section II reviews the relevant mechanisms through a review of literature. Section III describes the data and empirical strategy. Section IV presents the main results. Section V reports robustness checks. Section VI concludes.

II. Literature Review

This paper connects four bodies of research: the economics of religion and its relation to development; the long-run persistence of culture and religious traits; the political economy and

historical consequences of the French Revolution; and the debate over the determinants of secularization. We discuss each in turn and then state our contribution.

The modern economics of religion, surveyed by Iannaccone (1998), Iyer (2016), and McCleary and Barro (2006), treats religiosity both as an outcome shaped by economic and political conditions and as a determinant of economic behavior and growth. On the second direction, Barro and McCleary (2003) find in cross-country data that religious beliefs are associated with higher growth while, holding beliefs fixed, church attendance is associated with lower growth, distinguishing "believing" from "belonging." Becker and Woessmann (2009) show that Protestantism raised nineteenth-century Prussian prosperity largely through literacy and human capital rather than a distinct work ethic, using distance to Wittenberg as an instrument for the spread of the Reformation. The state's role looms large in this literature: Barro and McCleary (2005) document that state religion is highly persistent, with the status of a country in 1900 strongly predicting its status decades later, and that this persistence is weaker precisely where major regime change intervened. That finding is directly relevant here, because a revolution is exactly such a regime change acting on the institutional relationship between church and state.

The work most directly related to ours is Squicciarini (2020), who studies religiosity, education, and economic progress in nineteenth-century France and constructs the department-level measures of Catholic attachment—La Croix readership, Catholic schooling, and associated controls—that we use. Squicciarini shows that, during the Second Industrial Revolution, more religious French departments adopted the modern technical curriculum more slowly and experienced slower industrial development, treating religiosity as a force acting on the economy. We reverse the direction of inquiry, taking later religiosity as the outcome and asking whether it was shaped by an earlier political shock. Doing so requires variation in such a shock that is plausibly localized; the uneven geography of revolutionary conflict supplies it.

A second strand documents the long-run persistence of culture, values, and religious traits. Surveys by Nunn (2009) and Alesina and Giuliano (2015) describe how historical events leave imprints on beliefs and behavior that endure across generations through intergenerational transmission within families, the durability of local institutions, and self-reinforcing social norms. Nunn and Wantchekon (2011) provide a canonical illustration, tracing present-day differences in trust within Africa to the historical intensity of the slave trade and showing that the effect operates largely

through internalized norms rather than external conditions. Religiosity is a natural object for this kind of analysis, since religious practice is transmitted both through households and through institutions such as parishes and schools, and is therefore vulnerable to durable disruption when those transmission channels are disturbed. The persistence of state religion documented by Barro and McCleary (2005) is the institutional counterpart of this mechanism. Our reading of the evidence is that revolutionary disruption, by weakening these channels, lowers religiosity along a path that does not revert over the horizons we observe.

A third strand studies the political economy and long-run consequences of the French Revolution. Acemoglu, Cantoni, Johnson, and Robinson (2011) show that the institutional reforms the Revolution exported to occupied parts of Germany—the end of guilds and oligarchic privilege, equality before the law—raised subsequent urbanization and growth, evidence that revolutionary institutional change can have durable economic effects. Historians, in turn, have documented that the Revolution mounted a direct assault on the Catholic Church: the nationalization of Church property, the Civil Constitution of the Clergy, the oath that split the clergy into jurors and refractories, and the dechristianization campaigns of 1793–1794, including church closures and revolutionary cults (Van Kley 2003). These accounts establish that the Revolution plausibly disturbed religious institutions, but they are largely narrative and national in scope. We complement them with a quantitative, sub-national design that exploits the uneven local intensity of revolutionary conflict. More broadly, Beissinger (2022) studies revolutionary contention comparatively across the twentieth century, classifying episodes by goals, violence, and outcomes; we draw on this work for the global panel that situates the French case in a wider sample.

Two strands of quantitative work bound our question on either side, and our contribution is to connect them. On one side, a literature links the local intensity of the French Revolution to long-run economic outcomes: Franck and Michalopoulos (2017) trace department-level emigration, instrumented by climatic shocks at a pivotal juncture, to comparative development unfolding over two centuries. Waldinger (2024) shows that the 1788 drought raised peasant revolts and the demand for institutional change recorded in the cahiers de doléances. This work establishes that revolutionary disruption varied across departments in economically consequential and plausibly identifiable ways, but its outcomes are material rather than religious. On the other side, Squicciarini (2020) and Lecce, Ogliari, and Squicciarini (2021) treat nineteenth-century French religiosity as a determinant of the adoption of technical schooling, industrialization, and the

location of scientists—placing Catholic attachment on the explanatory side of the relationship. Our study sits between these strands: we take the locally varying revolutionary disruption that the first emphasizes and ask how it shaped the religiosity that the second takes as given, thereby treating Catholic attachment as an outcome of earlier political rupture rather than as a cause of later development. To our knowledge, the durable effect of sub-national revolutionary unrest on religiosity in France has not been estimated directly in this literature. Though the dechristianization process itself has been studied extensively by historians. We therefore position our contribution as bridging two established quantitative literatures.

Finally, the paper speaks to the long-running debate over the sources of secularization. The classical secularization hypothesis holds that modernization—rising income, education, and urbanization—gradually erodes religious participation and belief, a view that receives empirical support in the cross-country evidence of Barro and McCleary (2003, 2006). A competing, market-based view associated with Iannaccone (1998) emphasizes that religiosity responds to the supply of and demand for religious services. In turn, disorder or threat can raise rather than lower the demand for religion as a source of meaning, insurance, and collective identity. These two views imply opposite signs for the relationship between revolutionary exposure and later religiosity. Our setting offers a sharp test: if secularization dominates, departments more exposed to revolutionary disruption should display weaker later attachment; if a backlash or insurance motive dominates, they should display stronger attachment.

We make three contributions to these literatures. First, where most cross-country work on religion and development treats religiosity and modernization at the national level, we identify the relationship from within-country. Sub-national variation in a single historical shock holds national institutions and culture fixed and comparing geographically proximate departments. Second, we bring quantitative evidence to a question that the historiography of the Revolution has addressed mainly through narrative. We trace the association across outcomes measured a century and more after the shock, speaking to the persistence literature on its own terms. Third, by complementing the French case with a global panel of twentieth-century revolutionary episodes and the V-Dem freedom-of-religion index, we show that the pattern is not idiosyncratic to France. Rather it is concentrated among violent and high-intensity episodes, which helps adjudicate between the secularization and backlash mechanisms. Taken together, the within-country and cross-country evidence points toward secularization rather than backlash as the dominant channel.

III. Data and Empirical Strategy

A. Historical setting

The French Revolution (1789) is treated here as the beginning of a prolonged process of political, social, and institutional transformation. Figure 1 shows the annual number of revolutionary events between 1775 and 1793. Event activity was present before 1789, but it increased sharply at the revolutionary rupture and remained uneven in the following years. Although 1789 marks the national rupture with the Ancien Régime, revolutionary conflict unfolded unevenly across departments. We exploit this spatial variation over 1787–1793 to examine whether local exposure to revolutionary conflict shaped subsequent religious attitudes.

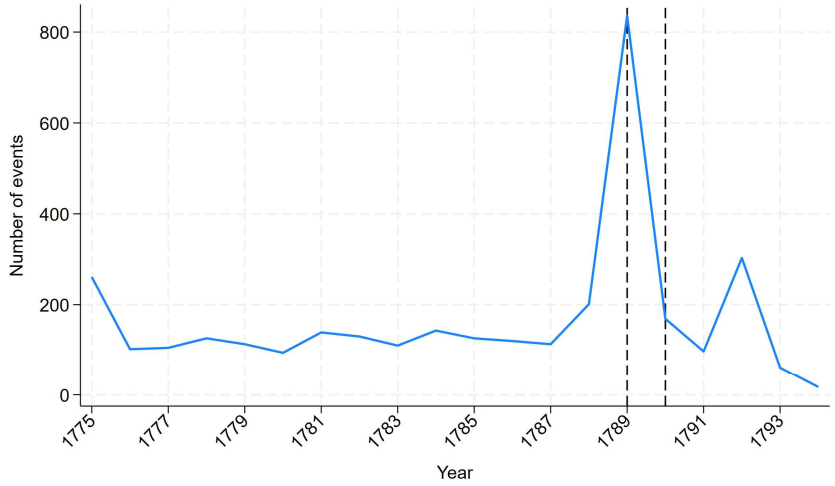


Figure 1. Revolutionary Events around the French Revolution, 1775–1793

Notes: The figure reports the yearly count of revolutionary events in France. The dashed vertical line marks 1789, the onset of the French Revolution. The figure highlights both the national timing of the revolutionary rupture and the uneven local intensity of revolutionary conflict across departments.

Source: Authors' calculation based on The Historical Social Conflict Database (HiSCoD).

B. Data

Table AI presents descriptive statistics for the main variables used in the analysis.

Religious attitudes.

First, our main outcome variable is La Croix readership[1] in 1893, which captures the local diffusion of Catholic public culture through the circulation of a major Catholic newspaper. The measure is available at the department level for 82 French departments and is obtained from Squicciarini (2020).

Second, as a finer spatial validation of local Catholic practice, we also use information from the *Atlas de la pratique religieuse des catholiques en France*.[2] This measure is based on the share of *messalisants*, defined as regular Sunday Mass attenders, reported for rural cantons. The original map, reproduced in Terrenoire (2003), classifies rural cantons into categories of Sunday mass attendance (see figure 2). Because the underlying Catholic Church censuses were conducted mainly between the late 1940s and the early 1970s, with the most usable observations concentrated around 1954–1962, we interpret this measure as a proxy for Sunday mass attendance in the 1950s, consistent with Squicciarini (2020).

Third, we use Catholic students per school as an additional proxy for local Catholic presence, also drawn from Squicciarini (2020).

[1] Godfrin and Godfrin (1965) suggest that *La Croix*'s title and front-page crucifix helped make the newspaper a rallying point for the Catholic community, and that its regular readership consisted largely of individuals with strong and unconditional support for the Church.
[2] The map is reproduced and discussed in Terrenoire (2003); the underlying source is available from Persée

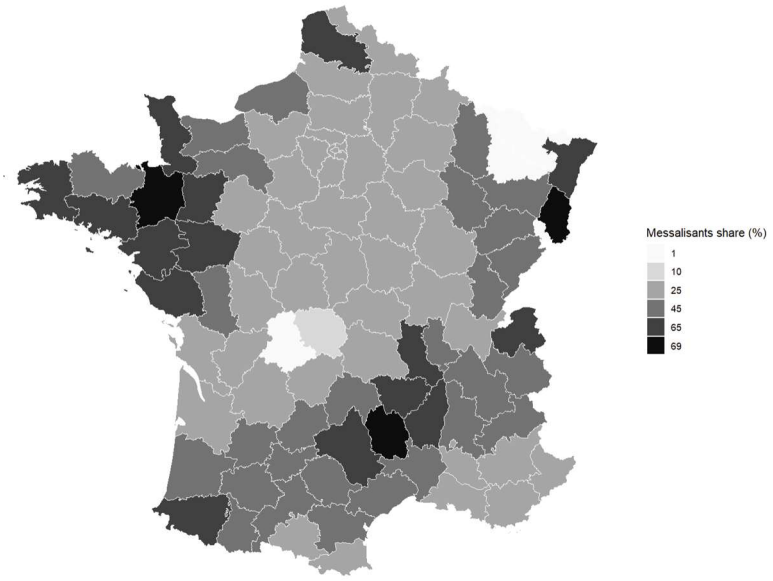


Figure 2. Catholic Religious Practice in France: Sunday mass attendance, 1950s

Notes: The figure maps the approximate share of *messalisants*, defined as regular Sunday Mass attenders. The original source is Figure 2 in Terrenoire (2003), "Proportion de messalisants dans les cantons ruraux." The original map reports categorical values for rural cantons. The measure should therefore be interpreted as an approximate proxy for local Catholic religious practice, rather than an exact department-level attendance rate.

Source: Authors' calculations based on Terrenoire (2003).

Revolutionary exposure across departments. Our second source of data captures variation in revolutionary exposure across French departments. We use a department-level unrest dataset constructed from The Historical Social Conflict Database (HiSCoD).[3] The database records episodes of riots, unrest, and collective conflict in Europe. For France, the data provide event-level information on the timing, location, and type of unrest, including food riots, tax riots, labor conflicts, feudal conflicts, conflicts with local or national authorities, and other social conflicts.

We aggregate French events to the department level and construct measures of revolutionary unrest by conflict type and time window (from 1787 to 1793, see figure 1). We exclude religious conflicts to avoid direct endogeneity with religious outcomes. We also exclude political conflicts, as these occur only after 1789 in our sample. The excluded categories are quantitatively minor: the retained categories—food riots, feudal conflicts, tax riots, authority conflicts, labor conflicts, and

[3] HiSCoD is available at the HiSCoD project repository

other conflicts—account for all recorded conflict events in the peak year of revolutionary unrest, 1789, and for 98 percent of events over 1775–1793.

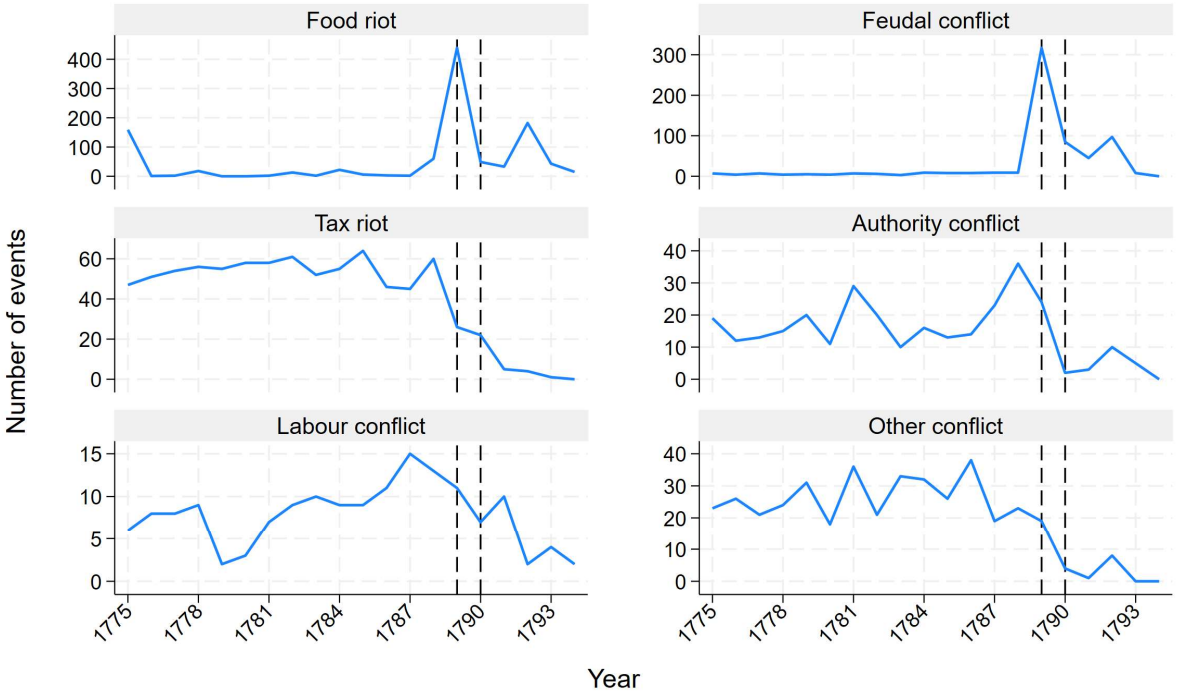


Figure 3. Revolutionary Unrest by Conflict Type, 1775–1794

Notes: The figure reports the annual number of unrest events in France by conflict type. The dashed vertical lines mark the revolutionary rupture around 1789–1790. The categories shown include food riots, feudal conflicts, tax riots, authority conflicts, labor conflicts, and *other conflicts.*

Source: Authors' calculations based on HiSCoD.

Measuring revolutionary exposure. Let d denote departments, t years, and $c \in C$ conflict types, where C includes food riots, feudal conflicts, tax riots, authority conflicts, labour conflicts, and other social conflicts. Let $W = \{1787, \ldots, 1793\}$ denote the main revolutionary window. We define three measures of unrest exposure: any unrest, total unrest intensity, and type-specific unrest intensity:

(a) Any unrest $: D_d^W = \mathbb{1}(\sum_{t \in W} \sum_{c \in C} Event_{dct} > 0)$

(b) Total unrest count $: Count_d^W = \sum_{t \in W} \sum_{c \in C} Even\, t_{dct}$

(c) Type-specific unrest count $: Count_{dc}^W = \sum_{t \in W} Even\, t_{dct}$

The dummy D_d^W equals one if department d experienced at least one unrest event of any included type during 1787–1793. $Count_d^W$ measures total revolutionary unrest, while $Count_{dc}^W$ measures unrest separately by conflict type. For ease of interpretation, we standardize the count measures to have mean zero and standard deviation one, i.e., $Z_d^W = \frac{Count_d^W - \overline{Count^W}}{sd(Count^W)}$. We refer to Z_d^W as the standardized revolutionary unrest index. To construct the matched-pair sample, we define high-unrest departments as those above the median of this index:

(d) $$HighUnrest_d^W = \mathbb{1}(Z_d^W > p_{50}(Z^W))$$

This classification is used below to pair each high-unrest department with the geographically nearest low-unrest department within the same broad region.

Weather-shock data construction. We use historical weather data to capture (plausibly) exogenous variation in subsistence stress at the onset of the Revolution. The motivation is that short-run climatic shocks could affect harvest conditions, bread prices, and food-related unrest, while being unlikely to be directly shaped by later religious outcomes.

Seasonal temperature comes from the Luterbacher/Xoplaki reconstruction, and seasonal precipitation from the Pauling reconstruction.[4] The raw data cover 1500–2002 for temperature and 1500–2000 for precipitation.[5] We use only the pre-revolutionary segment of these data to define department-specific seasonal climate norms and to standardize the 1788 weather realizations. The spatial match is implemented separately for the temperature and precipitation grids. Accordingly, each department d is assigned to the climate grid using an inverse-distance weighted average of the four nearest grid cells. This approach reduces sensitivity to departments located near grid-cell boundaries. As a robustness check, we also assign each department to the nearest grid cell $g(d)$

[4] The dataset could be found: SO&P: Climate reconstructions page

[5] The Luterbacher/Xoplaki seasonal temperature reconstruction covers 1500–2002 on a 130 × 70 European grid, yielding 18.31 million grid-cell–season–year observations across the four seasons. The Pauling seasonal precipitation reconstruction covers 1500–2000 on a 140 × 82 European grid, yielding 23.01 million grid-cell–season–year observations across the four seasons, before excluding missing or non-land grid cells.

using great-circle distance, which provides a simpler nearest-neighbor match and a transparent approach.

The spatial match yields a department–year–season weather panel. Let $T_{d,s,t}$ and $P_{d,s,t}$ denote temperature and precipitation for department d, season s, and year t, where s refers to winter, spring, summer, or autumn. For each department and season, we standardize the 1788 weather realization relative to a 60-year pre-shock baseline window, $B = 1727, \ldots, 1787$:

(e) $$Z^{T}_{d,s,1788} = \frac{T_{d,s,1788} - \bar{T}_{d,s,B}}{\sigma(T_{d,s,B})}, Z^{P}_{d,s,1788} = \frac{P_{d,s,1788} - \bar{P}_{d,s,B}}{\sigma(P_{d,s,B})}$$

The 60-year window is chosen to provide a stable department-specific seasonal climate norm while remaining entirely pre-revolutionary. It thus avoids using either the shock year itself or subsequent revolutionary years to define the baseline. The resulting standardized seasonal deviations are used to construct the temperature-shock instrument. The final weather-shock dataset is merged with the main department-level dataset.

Controls. We also use a set of department-level controls capturing demographic, educational, geographic, and agricultural characteristics obtained from from *Squicciarini (2020)*. These include log population, enrolment rate, wheat suitability, precipitation, and geographic coordinates.

C. Empirical strategy

Baseline specification.— The baseline department-level specification is

(1) $$Y_d = \alpha + \beta\, RU_d + \delta' ReligiousControls_d + X_d'\, \Gamma + \lambda_r + \varepsilon_d$$

where Y_d denotes a later religious outcome in department d, RU_d measures local exposure to revolutionary-period of unrest, and λ_r denotes region fixed effects. The main outcome variable is *La Croix* readership in 1893. As additional outcome variables, we use (a) Sunday mass attendance in the 1950s and (b) Catholic students per school.

The vector $ReligiousControls_d$ captures early religious cleavages, proxied by the share of anti-religious *cahiers* in 1789. This control helps account for pre-existing religious attitudes that may

have shaped both exposure to revolutionary unrest and later Catholic persistence. The vector X_d includes predetermined demographic, geographic, and agricultural controls, such as log population in 1800, wheat suitability, mean log precipitation, and geographic coordinates. The coefficient of interest is β, which measures the association between revolutionary unrest and subsequent religious attitudes.

Matched-pair design. – We supplement the baseline analysis with a geographically matched design. Specifically, each high-unrest department ($HighUnrest_d^W = 1$) is paired with the geographically nearest low-unrest department ($HighUnrest_d^W = 0$) within the same broad historical region. These regions are defined using the map of France for 1750–1789. The design compares departments that are spatially proximate—typically contiguous and/or located within the same historical region—and thus more likely to share similar economic, institutional, and regional conditions, while differing in their exposure to revolutionary unrest.

Figure 4 illustrates the matched design. Panel A maps the treated high-unrest departments and their matched lower-unrest controls, while Panel B plots the nearest-neighbor pairs.

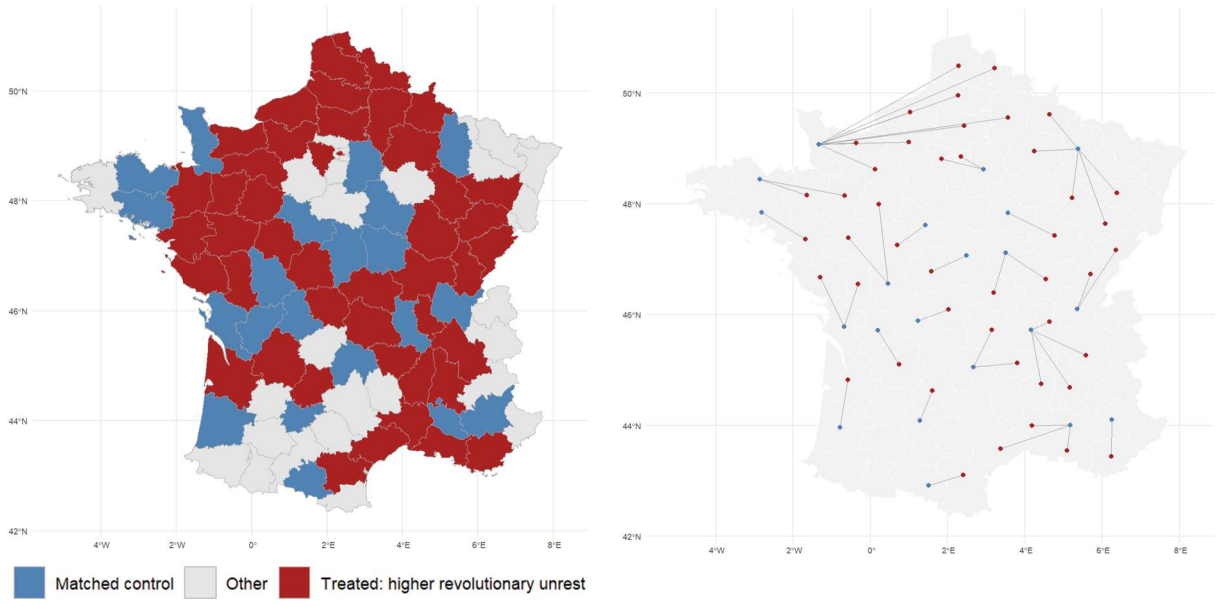


Figure 4. Matched Departments and Nearest-Neighbour Pairs by Revolutionary Unrest

Notes: Panel A maps the matched department sample. Red denotes higher-unrest departments, blue denotes matched lower-unrest controls, and grey denotes departments outside the matched sample. Panel B plots the nearest-neighbour matched pairs. Lines connect each higher-unrest department to its geographically nearest lower-unrest department within the same broad region. Matching is based

on department centroids from the historical department-level geographic data. The figure illustrates that the matched design compares geographically proximate departments rather than distant units with potentially different structural conditions.

Source: Authors' calculations.

After constructing the matched sample, we estimate

$$Y_d = \alpha_p + \beta\, HighUnrest_d + \delta' ReligiousControls_d + X_d'\,\Gamma + \varepsilon_d \quad (2)$$

where α_p denotes matched-pair fixed effects. In the baseline matched specification, $HighUnrest_d$equals one for the higher-unrest department in each pair (equation d). In alternative specifications, we replace this binary indicator with the continuous standardized revolutionary unrest index (equation a – c).

IV. Results

A. Main Results

We first estimate the relationship using a binary measure of revolutionary unrest. Table 1 shows a robust negative association between revolutionary unrest during 1787–1793 and *La Croix* readership in 1893. Departments that experienced at least one revolutionary unrest event display lower subsequent Catholic newspaper readership. The coefficient remains negative and statistically significant after adding region fixed effects, early religious-cleavage controls, and demographic, geographic, and agricultural controls.

Table 2 replaces the dummy measure with the standardized count of revolutionary unrest events. The estimates again point to a negative relationship. A one-standard-deviation increase in revolutionary unrest is associated with a decline of about 0.30 to 0.43 points in *La Croix* readership. Since *La Croix* readership is measured on an ordered four-point scale, these estimates indicate economically meaningful differences in Catholic public culture across departments.

Table AII disaggregates revolutionary unrest by conflict type.

Table 1. Dummy Revolutionary Unrest (1787–1793) and *La Croix* Readership (1893)

Dependent Variables	La Croix readership, 1893					
Columns	(1)	(2)	(3)	(4)	(5)	(6)
Revolutionary unrest (Dummy), 1787-1793[(a)]	-0.645**	-0.720***	-0.771***	-0.771***	-0.814***	-0.817***
	(0.323)	(0.243)	(0.247)	(0.247)	(0.245)	(0.306)
Share of anti-religious cahiers, 1789		-4.262**	-3.604**	-3.904**	-3.941*	-3.940*
		(1.709)	(1.751)	(1.849)	(2.007)	(2.014)
Log population, 1800			-0.003	-0.104	-0.080	-0.079
			(0.388)	(0.371)	(0.347)	(0.351)
Mean log precipitation				0.433	0.266	0.267
				(0.530)	(0.547)	(0.552)
Wheat suitability					-0.143	-0.143
					(0.118)	(0.120)
Enrollment Rate 1891						0.028
						(1.780)
Region FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	82	74	73	73	72	72

Notes: This table reports department-level estimates of the relationship between revolutionary-period unrest and *La Croix* readership in 1893. *La Croix* readership is used as a proxy for Catholic public culture because newspaper circulation captures the diffusion and local reception of Catholic ideas in the public sphere, beyond the formal presence of Catholic institutions. The main explanatory variable is a dummy equal to one if a department experienced at least one recorded unrest event during 1787–1793. [(a)] Food riots are excluded from the dummy measure because all departments experienced at least one food-related event in this window; food unrest is instead examined using count-based measures (see Table 2).

All specifications include region fixed effects and report White heteroskedasticity-robust standard errors in parentheses. Additional controls are introduced sequentially and include the share of anti-religious *cahiers* in 1789, log population in 1800, mean log precipitation, wheat suitability, and

enrolment rate in 1891. Robust standard errors are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Source: Authors' calculations.

Table 2. Number of Revolutionary Unrest (Z-score), 1787-1793, and La Croix Readership, 1893

Dependent Variables	La Croix readership, 1893					
Columns	(1)	(2)	(3)	(4)	(5)	(6)
Revolutionary unrest (Z-score), 1787-1793	-0.305**	-0.369***	-0.429***	-0.415***	-0.391*	-0.397*
	(0.143)	(0.134)	(0.152)	(0.153)	(0.218)	(0.223)
Share of anti-religious cahiers, 1789		-5.110***	-4.581**	-4.753**	-4.722**	-4.723**
		(1.690)	(1.748)	(1.854)	(1.934)	(1.942)
Log population, 1800			0.273	0.198	0.184	0.185
			(0.393)	(0.374)	(0.387)	(0.395)
Mean log precipitation				0.279	0.253	0.247
				(0.541)	(0.580)	(0.587)
Wheat suitability					-0.029	-0.029
					(0.148)	(0.149)
Enrollment Rate 1891						-0.510
						(1.644)
Region Fes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	82	74	73	73	72	72

Notes: This table reports department-level estimates using the standardized count of revolutionary unrest events during 1787–1793. The unrest count is standardized to have mean zero and standard deviation one, so the coefficient can be interpreted as the change in *La Croix* readership associated with a one-standard-deviation increase in revolutionary unrest.

All specifications include region fixed effects and report White heteroskedasticity-robust standard errors in parentheses. Additional controls are introduced sequentially and include the share of anti-religious *cahiers* in 1789, log population in 1800, mean log precipitation, wheat suitability, and enrolment rate in 1891. Robust standard errors are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Source: Authors' calculations.

B. Matched-pair results

Table 3 reports the matched-pair estimates using the high-unrest classification defined in equation (d). Each high-unrest department is compared with its geographically nearest low-unrest counterpart within the same broad historical region, and the estimates remain negative and statistically significant across specifications.

Departments classified as high-unrest areas exhibit *La Croix* readership that is about 0.44 to 0.56 points lower than their matched low-unrest counterparts.

Table 4 further examines the matched-pair design using alternative measures of revolutionary exposure. Panel A uses the revolutionary unrest dummy for 1787–1793, while Panel B uses the standardized count of revolutionary unrest events. In both panels, the estimates are negative and statistically significant.

Magnitude. The dummy estimates range from about (-0.98) to (-1.50), while the standardized-count estimates range from about (-0.51) to (-0.62). These results reinforce the baseline finding that departments more exposed to revolutionary-period unrest experienced lower Catholic public culture, as proxied by *La Croix* readership in 1893.

Table 3. Matched-Pair Estimates: High Revolutionary Unrest (1787-1793) and *La Croix* Readership (1893)

Dependent Variable	La Croix readership, 1893					
Columns	(1)	(2)	(3)	(4)	(5)	(6)
=1 if belongs to high revolutionary unrest area	-0.444***	-0.557***	-0.536***	-0.543***	-0.492**	-0.523***
	(0.161)	(0.165)	(0.174)	(0.170)	(0.180)	(0.173)
Share of anti-religious cahiers, 1789		-6.551***	-6.508***	-6.687***	-6.727***	-7.356***
		(1.183)	(1.199)	(1.249)	(1.326)	(1.602)
Log population, 1800			-0.264	-0.321	-0.091	-0.195
			(0.433)	(0.490)	(0.432)	(0.457)
Mean log precipitation				0.220	-0.133	0.306
				(0.870)	(0.829)	(1.039)
Wheat suitability					-0.239**	-0.179
					(0.099)	(0.109)
Enrollment Rate 1891						3.006
						(2.265)
Pair ID	Yes	Yes	Yes	Yes	Yes	Yes
Observations	90	83	83	83	82	82

Notes: This table reports matched-pair estimates of the association between high revolutionary unrest and *La Croix* readership in 1893. The dependent variable, *La Croix* readership, is measured on an ordered four-point scale and is interpreted as a proxy for Catholic public culture at the department level. The main explanatory variable equals one if a department is classified as a high-unrest department according to the median split of the standardized revolutionary unrest index defined in equation (d). Each high-unrest department is paired with the geographically nearest low-unrest department within the same broad historical region.

All specifications include region fixed effects and report White heteroskedasticity-robust standard errors in parentheses. Additional controls are introduced sequentially and include the share of anti-religious *cahiers* in 1789, log population in 1800, mean log precipitation, wheat suitability, and enrolment rate in 1891. Standard errors are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Source: Authors' calculations.

Table 4. Matched-pair estimates of revolutionary-period unrest and La Croix readership, 1893

Dependent Variable	La Croix readership, 1893					
Columns	(1)	(2)	(3)	(4)	(5)	(6)
PANEL A: REVOLUTIONARY UNREST (DUMMY), 1787-1793						
Revolutionary unrest (Dummy), 1787-1793	-1.500***	-0.982***	-1.028***	-1.050***	-1.086**	-1.399**
	(0.358)	(0.273)	(0.300)	(0.314)	(0.411)	(0.523)
Share of anti-religious cahiers, 1789		-4.941***	-4.878***	-4.665***	-4.832***	-5.186***
		(1.358)	(1.360)	(1.303)	(1.350)	(1.609)
Log population, 1800			-0.632	-0.562	-0.217	-0.338
			(0.542)	(0.613)	(0.499)	(0.551)
Mean log precipitation				-0.255	-0.695	-0.280

				(0.981)	(0.979)	(1.251)
Wheat suitability					-0.328***	-0.270**
					(0.097)	(0.115)
Enrollment Rate 1891						3.274
						(3.051)
PANEL B: REVOLUTIONARY UNREST (Z-SCORE), 1787-1793						
Revolutionary unrest (z-score), 1787-1793	-0.523***	-0.619***	-0.603***	-0.602***	-0.527**	-0.511*
	(0.158)	(0.157)	(0.185)	(0.188)	(0.259)	(0.259)
Share of anti-religious cahiers, 1789		-6.518***	-6.491***	-6.394***	-6.366***	-6.659***
		(1.377)	(1.403)	(1.489)	(1.535)	(1.723)
Log population, 1800			-0.130	-0.096	-0.020	-0.088
			(0.469)	(0.508)	(0.477)	(0.520)
Mean log precipitation				-0.125	-0.298	-0.081
				(0.977)	(0.984)	(1.164)
Wheat suitability					-0.127	-0.103
					(0.169)	(0.176)
Enrollment Rate 1891						1.648
						(2.513)
Pair ID	Yes	Yes	Yes	Yes	Yes	Yes
Observations	90	83	83	83	82	82

Notes: This table reports matched-pair estimates of the association between revolutionary-period unrest during 1787–1793 and *La Croix* readership in 1893.

Panel A uses a dummy equal to one if a department experienced at least one revolutionary unrest event during 1787–1793. Panel B uses the standardized count of revolutionary unrest events, with mean zero and standard deviation one. Each treated department is paired with the geographically nearest lower-unrest department within the same broad historical region.

All specifications include region fixed effects and report White heteroskedasticity-robust standard errors in parentheses. Additional controls are introduced sequentially and include the share of anti-religious *cahiers* in 1789, log population in 1800, mean log precipitation, wheat suitability, and enrolment rate in 1891. Standard errors are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Source: Authors' calculations.

V. Robustness Checks

A. Pseudo-panel Catholic students per school

First, we replace *La Croix* readership in 1893 with Catholic students per school. Unlike *La Croix* readership, this measure is available for multiple years: 1861, 1866, 1871, 1876, 1891, 1896, 1901, and 1906. We thus construct a department-year pseudo-panel by merging time-invariant revolutionary unrest measures at the department level with repeated observations of Catholic students per school.

Table 5 reports the results. The estimates remain negative and statistically significant across specifications. Departments exposed to revolutionary unrest during 1787–1793 had fewer Catholic students per school in later decades. Using the dummy measure, the estimated coefficients range

from about (-0.14) to (-0.28). Using the standardized unrest index, a one-standard-deviation increase in revolutionary unrest is associated with a decline of about (-0.05) in Catholic students per school.

Next, we follow Squicciarini (2020) and control for pre-existing Catholic intensity, measured by the share of refractory clergy, its interaction with the industrial period, and French immigrants per capita. These controls account for the possibility that Catholic schooling was shaped by inherited religiosity, its changing role during the Second Industrial Revolution, and migration-related changes in local composition. Table AIII reports the results. The estimated coefficients on revolutionary unrest remain negative and statistically significant after adding these controls. For the dummy measure, the coefficients range from about (-0.22) to (-0.24). For the standardized unrest index, a one-standard-deviation increase in revolutionary unrest is associated with a decline of about (-0.04) to (-0.05) in Catholic students per school.

Table 5. Revolutionary-Period Unrest and Catholic Students per School

Dependent Variable	Catholic students per school (1861-1906)						
Columns	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Revolutionary unrest (Dummy), 1787-1793	-0.142***	-0.205***	-0.279***	-0.239***	-0.242***	-0.236***	
	(0.045)	(0.069)	(0.062)	(0.062)	(0.062)	(0.064)	
Revolutionary unrest (Z-score), 1787-1793							-0.053***
							(0.017)
Share of anti-religious cahiers, 1789		-0.695***	-0.333**	-0.259*	-0.242	-0.240	-0.362**
		(0.150)	(0.136)	(0.133)	(0.149)	(0.154)	(0.162)
Log Population			0.470***	0.512***	0.508***	0.498***	0.517***
			(0.018)	(0.019)	(0.021)	(0.023)	(0.023)
Mean log precipitation				-0.215***	-0.207***	-0.200***	-0.216***
				(0.047)	(0.049)	(0.051)	(0.049)
Wheat suitability					-0.002	-0.002	0.012
					(0.010)	(0.010)	(0.011)
Enrollment Rate						0.070	0.046
						(0.079)	(0.076)
Region Fes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	820	740	740	740	720	720	720

Notes: This table reports department-year pseudo-panel estimates of the association between revolutionary-period unrest during 1787–1793 and Catholic students per school. The dependent variable is observed for multiple years: 1861, 1866, 1871, 1876, 1891, 1896, 1901, and 1906. The main explanatory variables are measured at the department level and include a revolutionary unrest dummy and the standardized count of revolutionary unrest events.

All specifications include region fixed effects and year fixed effects. Additional controls are introduced sequentially and include the share of anti-religious *cahiers* in 1789, log population (corresponding to each year), mean log precipitation, wheat suitability, and enrolment rate (corresponding to each year). All specifications report White heteroskedasticity-robust standard errors in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Source: Authors' calculations.

B. Catholic religious practice

We next replace *La Croix* readership in 1893 with Sunday Mass attendance in the 1950s, a more direct proxy for Catholic religious practice.

Table 6 replaces *La Croix* readership in 1893 with Sunday mass attendance in the 1950s. The estimates remain negative and statistically significant across most specifications. Departments exposed to revolutionary unrest during 1787–1793 display lower Catholic religious practice in the 1950s. The dummy estimates range from about (-0.21) to (-0.25), while the standardized unrest index implies that a one-standard-deviation increase in revolutionary unrest is associated with a decline of about (-0.09) in Sunday Mass attendance.

Table 7 reports the matched-pair estimates. The results remain negative and statistically significant when high-unrest departments are compared with geographically proximate low-unrest departments within the same historical region. The high-unrest dummy is associated with a decline of about (-0.05) to (-0.12) in Sunday mass attendance, while the standardized unrest index yields a larger estimate of about (-0.20).

Table 6. Revolutionary-Period Unrest and Catholic Religious Practice: Baseline Specification

Dependent variable	Sunday mass attendance, 1950s							
Columns	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Revolutionary unrest (Dummy), 1787-1793	-0.212***	0.000	-0.240***	-0.242***	-0.235***	-0.233***	-0.252***	
	(0.048)	(.)	(0.052)	(0.054)	(0.057)	(0.061)	(0.064)	
Revolutionary unrest (Z-score), 1787-1793								-0.090*
								(0.053)
Share of anti-religious cahiers, 1789		-0.375	–[b]	–	–	–	–	-0.409
		(0.295)	–	–	–	–	–	(0.351)
Log population, 1800			0.072	0.063	0.070	0.071	0.087	0.138
			(0.073)	(0.074)	(0.073)	(0.072)	(0.073)	(0.095)
Mean log precipitation				0.024	0.037	0.039	0.060	0.096
				(0.084)	(0.093)	(0.095)	(0.096)	(0.114)
Wheat suitability					0.016	0.016	0.026	0.049
					(0.026)	(0.026)	(0.027)	(0.031)
Enrollment Rate 1891						0.045	-0.091	-0.239
						(0.280)	(0.310)	(0.402)
Population Growth, 1961-1951[c]								
							-5.150	-8.148*
							(4.536)	(4.159)
Region Fes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	75	67	73	73	72	72	72	65

Notes: This table reports department-level estimates of the relationship between revolutionary-period unrest during 1787–1793 and Sunday mass attendance in the 1950s. The dependent variable is the share of regular Sunday Mass attenders and is interpreted as a proxy for local Catholic religious

practice.

The main explanatory variables are a revolutionary unrest dummy and the standardized count of revolutionary unrest events. All specifications include region fixed effects and report White heteroskedasticity-robust standard errors in parentheses. Additional controls are introduced sequentially and include the share of anti-religious *cahiers* in 1789, log population in 1800, mean log precipitation, wheat suitability, enrolment rate in 1891, and population growth between 1951 and 1961.

[(b)] We do not control for the share of anti-religious *cahiers* in 1789 in columns (3)-(7) because including this variable substantially reduces the number of observations. [(c)] We also control for population growth between 1951 and 1961, since postwar demographic change may affect measured religious practice in the 1950s. Standard errors are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Source: Authors' calculations.

Table 7. Revolutionary-Period Unrest and Catholic Religious Practice: Matched-pair Design

Dependent variable	Sunday mass attendance, 1950s							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
=1 if high revolutionary unrest area	-0.054*	-0.095**	-0.106***	-0.107***	-0.118***	-0.120***	-0.119***	
	(0.031)	(0.035)	(0.035)	(0.036)	(0.033)	(0.034)	(0.034)	
Revolutionary unrest (z-score), 1787-1793								-0.195***
								(0.044)
Share of anti-religious cahiers, 1789		-0.784**	-0.875***	-0.884**	-0.841**	-0.863**	-0.867**	-0.853**
		(0.317)	(0.316)	(0.343)	(0.343)	(0.346)	(0.364)	(0.338)
Log population, 1800			0.192	0.190	0.177	0.170	0.171	0.189*
			(0.132)	(0.130)	(0.118)	(0.125)	(0.118)	(0.097)
Mean log precipitation				0.008	0.083	0.109	0.130	0.053
				(0.122)	(0.115)	(0.123)	(0.139)	(0.115)
Wheat suitability					0.067*	0.071*	0.081*	0.087**
					(0.037)	(0.041)	(0.047)	(0.041)
Enrollment Rate 1891						0.199	0.079	-0.572
						(0.333)	(0.434)	(0.469)
Population Growth, 1961-1951							-3.458	-9.961
							(8.221)	(6.922)
Pair ID	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	83	76	76	76	75	75	75	75

Notes: This table reports matched-pair estimates of the relationship between revolutionary-period unrest during 1787–1793 and Sunday mass attendance in the 1950s. The dependent variable is the share of regular Sunday mass attenders and is interpreted as a proxy for local Catholic religious practice.

The main explanatory variables are an indicator for high revolutionary unrest and the standardized count of revolutionary unrest events. Each high-unrest department is paired with the geographically nearest low-unrest department within the same broad historical region. All specifications include matched-pair fixed effects. Additional controls are introduced sequentially and include the share of anti-religious *cahiers* in 1789, log population in 1800, mean log precipitation, wheat suitability, enrolment rate in 1891, and population growth between 1951 and 1961. All specifications report White heteroskedasticity-robust standard errors in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Source**:** Authors' calculations.

C. An instrumental variable approach

Our estimates are associations, and the central threat to a causal reading is that revolutionary unrest was not randomly assigned across departments. Departments with greater unrest may have differed

systematically in pre-revolutionary economic conditions, agricultural structure, literacy, demographic characteristics, exposure to Enlightenment ideas, or religious preferences. To address this concern, we implement an exploratory instrumental-variables strategy that exploits variation in subsistence stress around the onset of the French Revolution.

The strategy adapts to our setting the approach of Franck and Michalopoulos (2017), who instrument the intensity of revolutionary disturbance across departments with short-run climatic shocks at a pivotal moment of the Revolution. The logic rests on a well-established link between subsistence stress and popular unrest: an adverse harvest raised the price of bread, the dominant staple, and thereby intensified food riots and related disturbances among the poorer strata. This channel is especially well suited to our paper because our exposure measure is built precisely from such disturbances—food riots, tax revolts, and related conflicts—so the variation an agricultural shock induces is the variation we seek to instrument.

The natural shock window for our 1787–1793 exposure measure is the subsistence crisis of 1788–1789. Historical accounts link this crisis to a spring drought in 1788, the hailstorm of 13 July 1788, and the severe winter of 1788–1789, which together depressed grain harvests, raised bread prices, and triggered waves of food-related unrest. We therefore construct department-level weather-shock instruments from historical seasonal temperature and precipitation reconstructions. Weather realizations in 1788 are standardized relative to a pre-revolutionary baseline window, so that the instrument captures abnormal weather at the onset of the revolutionary crisis rather than long-run climatic differences across departments.

Building on standardized seasonal deviations (equation e), our preferred instrument is a seasonal temperature-shock contrast:

(*) $$Shock_d = \left| Z^T_{d,summer,1788} \right| - f\left(\left| Z^T_{d,others,1788} \right| \right)$$

where $f(\cdot)$ summarises the non-summer temperature deviations in 1788. The focus on summer follows the agronomic logic in Giommoni, Loumeau and Tabellini (2026), who emphasise summer weather shocks because heat and drought during this period are especially relevant for wheat and grain yields. By netting out non-summer anomalies, the instrument is intended to capture the distinctive summer component of the 1788 subsistence shock, rather than general annual climatic volatility. A higher value of ($Shock_d$) indicates that department (d) experienced an unusually

strong summer temperature shock relative to its own historical seasonal norm and relative to other seasonal shocks in the same year.

As an additional instrument, we construct a subsistence-stress exposure index by interacting wheat suitability with a hot-dry climate measure, defined as standardized mean temperature minus standardized mean precipitation. The intuition is that hot and dry conditions should have generated stronger subsistence pressure in departments where wheat production was more relevant. Since these variable captures structural vulnerability to harvest stress rather than a short-run weather shock, we use it only as a supplementary instrument.

The first stage relates department-level revolutionary unrest to these excluded instruments, conditional on region fixed effects and predetermined controls. The baseline controls include precipitation variation and baseline temperature variation, which absorb broader climatic differences across departments. We then progressively add controls, as the baseline regression, for the share of anti-religious *cahiers* in 1789, wheat suitability, population in 1800, and school enrolment.

The exclusion restriction requires that the instruments affect later religious outcomes only through the revolutionary unrest they induced. This assumption is more plausible for the short-run temperature-shock contrast, which is tied to the timing of the 1788 subsistence crisis, than for the structural subsistence-stress index, which may also reflect longer-run agricultural vulnerability. We view the design as informative to the extent that the first stage is strong, the estimates remain stable as controls are added, and the results are not driven by long-run climate, agriculture, or demographic differences.

Results. Table 8 first reports the IV results for *La Croix* readership in 1893. The coefficients of IV estimates range from about -0.858 to -0.924, and remain negative at -0.771 when the subsistence-stress instrument is added. These magnitudes are about 1.5 to 1.8 times the matched-pair estimate in Panel B of Table 4 (-0.523), and less than three times the baseline estimate in Table 2 (-0.397). The first-stage estimates support the relevance of the instrument: the weather-shock instrument is positive and statistically significant across specifications, indicating that departments more exposed to the 1788 summer weather shock experienced greater revolutionary unrest. The Cragg-Donald Wald F-statistics are moderate, ranging from about 5.5 to 14.6.

Table 9 reports the corresponding IV results for Sunday mass attendance in the 1950s. The estimates again point in the same direction as the baseline and matched-pair results, but with larger magnitudes. The IV coefficients range from about -0.451 to -0.650 in columns (1)–(5), and remain negative at -0.313 when the subsistence-stress instrument is added in column (6). These estimates are roughly 1.6 to just 3 times the matched-pair estimate reported (-0.195) in column (8) of Table 7. The first-stage results again support the relevance of the weather-shock instrument, especially once the main controls are included: the coefficient on the weather-shock instrument is positive and statistically significant from column (3) onward. The Cragg-Donald Wald F-statistics remain moderate, ranging from 5.23 to 11.61.

As a robustness check, and for transparency, we also assign each department to the nearest climate grid cell $g(d)$ using great-circle distance, which provides a simpler nearest-neighbour spatial match. The results, reported in Tables A.IV and A.V, show broadly similar patterns.

Table 8. Revolutionary unrest and Catholic persistence: IV estimates for *La Croix* readership, 1893

Dependent Variable	La Croix readership, 1893					
Columns	(1)	(2)	(3)	(4)	(5)	(6)
PANEL A: SECOND-STAGE IV ESTIMATES						
Revolutionary unrest (z-score), 1787-1793	-1.313	-1.180*	-0.858**	-0.964**	-0.924**	-0.771*
	(0.799)	(0.660)	(0.411)	(0.475)	(0.459)	(0.403)
Precipitation-variation control	0.217	0.155	0.171	0.098	0.107	0.125
	(0.156)	(0.158)	(0.144)	(0.167)	(0.164)	(0.162)
Baseline temperature-variation control	-0.723	-0.432	-0.456	-0.599	-0.649	-0.587
	(0.965)	(1.555)	(1.559)	(1.496)	(1.476)	(1.429)
Share of anti-religious cahiers, 1789		-6.098***	-4.604**	-4.965**	-4.904**	-4.707**
		(2.120)	(1.809)	(1.952)	(1.938)	(1.886)
Log population, 1800			0.077	0.113	0.097	0.054
			(0.160)	(0.171)	(0.167)	(0.161)
Wheat suitability				0.618	0.579	0.454
				(0.559)	(0.549)	(0.515)
Enrollment Rate 1891					-0.931	-0.839
					(1.381)	(1.381)
Observations	82	74	72	72	72	72
Cragg-Donald Wald F-statistics	5.51	6.04	14.66	13.55	14.63	8.61
Hansen J statistics	—[d]	—	—	—	—	0.356
PANEL B: FIRST-STAGE ESTIMATES	Revolutionary Unrest (Z-Score), 1787-1793					
Columns	(1)	(2)	(3)	(4)	(5)	(6)
IV1: Weather-shock Instrument	0.700**	0.918**	1.336***	1.168***	1.220***	1.127***
	(0.335)	(0.449)	(0.444)	(0.376)	(0.374)	(0.355)
IV2: Subsistence-stress Instrument						0.077
						(0.069)

Precipitation-variation control	-0.203*	-0.286**	-0.417***	-0.451***	-0.462***	-0.429***
	(0.118)	(0.113)	(0.137)	(0.122)	(0.121)	(0.117)
Baseline temperature-variation control	0.360	0.997	1.746	1.357*	1.362*	1.118
	(0.563)	(1.036)	(1.083)	(0.804)	(0.790)	(0.712)
Anti-religious cahiers share		-1.432	-0.114	-0.527	-0.483	-0.729
		(0.972)	(1.090)	(1.013)	(0.993)	(0.985)
Wheat suitability			0.303**	0.308***	0.304***	0.278***
			(0.144)	(0.109)	(0.106)	(0.085)
Log population, 1800				0.732***	0.721***	0.670***
				(0.242)	(0.242)	(0.217)
Enrolment rate, 1891					-1.023	-0.780
					(0.820)	(0.850)

Notes: The unit of observation is the department. Each department is assigned to the climate grid using an inverse-distance weighted average of the four nearest grid cells, which reduces sensitivity to the assignment of departments located near grid-cell boundaries.

Panel A reports second-stage IV estimates of the baseline specification, where the outcome is *La Croix* readership in 1893 and the endogenous variable is revolutionary unrest, measured as the standardized unrest count over 1787–1793. Panel B reports the corresponding first-stage regressions.

Columns (1)–(5) use the weather-shock instrument, which captures the 1788 summer temperature anomaly relative to non-summer anomalies, with seasonal deviations standardized over the 1727–1787 pre-shock baseline (equation ∗).

Column (6) adds the subsistence-stress instrument, defined as wheat suitability interacted with a hot-dry climate index. The precipitation-variation variable and baseline temperature-variation variable are included as climate controls. Region fixed effects are included in all specifications. Cragg-Donald Wald F-statistics are reported for weak identification under homoskedasticity.

[(d)] With one endogenous variable and one excluded instrument, the model is exactly identified, so the overidentification test of all instruments is not available. The Stock-Yogo critical values for the Cragg-Donald statistic are 19.93, 11.59, 8.75, and 7.25 for 10%, 15%, 20%, and 25% maximal IV size, respectively. Robust standard errors are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels.

Source: Authors' calculations.

Table 9. Revolutionary unrest and Catholic Religious Practice: IV estimates for Sunday mass attendance, 1950s

Dependent Variable	Sunday mass attendance, 1950s					
Columns	(1)	(2)	(3)	(4)	(5)	(6)
PANEL A: SECOND-STAGE IV ESTIMATES						
Revolutionary unrest (z-score), 1787-1793	-0.459*	-0.650*	-0.453**	-0.466**	-0.451**	-0.313**
	(0.274)	(0.391)	(0.219)	(0.211)	(0.194)	(0.142)
Precipitation-variation control	-0.014	-0.042	-0.010	-0.034	-0.033	-0.012
	(0.049)	(0.065)	(0.044)	(0.053)	(0.052)	(0.048)
Baseline temperature-variation control	-0.001	-0.231	-0.162	-0.170	-0.167	-0.124
	(0.194)	(0.394)	(0.353)	(0.291)	(0.283)	(0.246)
Share of anti-religious cahiers, 1789		-1.177	-0.600	-0.739	-0.726	-0.561
		(0.884)	(0.620)	(0.607)	(0.566)	(0.437)
Log population, 1800			0.038	0.055	0.054	0.044
			(0.037)	(0.037)	(0.036)	(0.029)
Wheat suitability				0.260*	0.254**	0.201*
				(0.134)	(0.127)	(0.121)
Enrollment Rate 1891					-0.308	-0.195
					(0.467)	(0.440)
Observations	75	67	65	65	65	65
Cragg-Donald Wald F-statistics	5.23	5.35	10.11	10.32	11.61	6.44

Hansen J statistics	–[(d)]	–	–	–	–	0.069
PANEL B: FIRST-STAGE ESTIMATES	Revolutionary Unrest (Z-Score), 1787-1793					
Columns	(1)	(2)	(3)	(4)	(5)	(6)
IV1: Weather-shock Instrument	0.474	0.586	0.880**	0.863**	0.909**	0.933**
	(0.303)	(0.369)	(0.401)	(0.387)	(0.381)	(0.385)
IV2: Subsistence-stress Instrument						-0.055
						(0.034)
Precipitation-variation control	-0.247**	-0.289**	-0.355***	-0.382***	-0.398***	-0.416***
	(0.104)	(0.121)	(0.128)	(0.121)	(0.122)	(0.123)
Baseline temperature-variation control	0.263	0.600	1.009	0.978	1.040*	1.145*
	(0.430)	(0.611)	(0.692)	(0.617)	(0.598)	(0.603)
Anti-religious cahiers share		-1.230	-0.354	-0.545	-0.528	-0.331
		(0.905)	(0.948)	(0.908)	(0.836)	(0.825)
Wheat suitability			0.090*	0.113**	0.115**	0.108**
			(0.051)	(0.050)	(0.047)	(0.047)
Log population, 1800				0.369**	0.366**	0.366**
				(0.162)	(0.163)	(0.153)
Enrolment rate, 1891					-1.079	-1.243*
					(0.699)	(0.641)

Notes: The unit of observation is the department. Each department is assigned to the climate grid using an inverse-distance weighted average of the four nearest grid cells, which reduces sensitivity to the assignment of departments located near grid-cell boundaries.

Panel A reports second-stage IV estimates of the baseline specification, where the outcome is Sunday mass attendance, 1950s and the endogenous variable is revolutionary unrest, measured as the standardized unrest count over 1787–1793. Panel B reports the corresponding first-stage regressions.

Columns (1)–(5) use the weather-shock instrument, which captures the 1788 summer temperature anomaly relative to non-summer anomalies, with seasonal deviations standardized over the 1727–1787 pre-shock baseline (equation *).

Column (6) adds the subsistence-stress instrument, defined as wheat suitability interacted with a hot-dry climate index. The precipitation-variation variable and baseline temperature-variation variable are included as climate controls. Region fixed effects are included in all specifications. Cragg-Donald Wald F-statistics are reported for weak identification under homoskedasticity.

[(d)] With one endogenous variable and one excluded instrument, the model is exactly identified, so the overidentification test of all instruments is not available. The Stock-Yogo critical values for the Cragg-Donald statistic are 19.93, 11.59, 8.75, and 7.25 for 10%, 15%, 20%, and 25% maximal IV size, respectively. Robust standard errors are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels.

Source: Authors' calculations.

D. Cross-country evidence

The French Revolution is a single, if important, case. To assess whether the relationship generalizes, the Supplementary Appendix examines a global country-year panel that links revolutionary episodes since 1900 to the V-Dem freedom-of-religion index. The results, summarized there, show that freedom of religion declines following revolutionary onset, with the decline concentrated among violent and war-scale episodes and largely absent for nonviolent ones. While this cross-country exercise measures institutional religious freedom rather than individual religiosity, its pattern parallels the French evidence and reinforces the interpretation that it is

disruptive, high-intensity revolutionary contention that is most strongly associated with subsequent erosion of religion.

VI. Discussion and Conclusion

This paper has asked whether exposure to revolutionary disruption leaves a lasting imprint on religiosity. Using the French Revolution as a setting, we find that departments more exposed to revolutionary unrest between 1787 and 1793 display weaker Catholic attachment long afterward, across three distinct outcomes: La Croix readership in 1893, Catholic students per school over the late nineteenth century, and Sunday Mass attendance in the 1950s. The pattern is robust to region fixed effects, to controls for pre-existing religious cleavages, and to demographic, geographic, and agricultural covariates, and it survives a matched-pair design that compares neighboring departments within the same historical region. A complementary global panel of revolutionary episodes since 1900 shows a similar decline in religious freedom following revolutionary onset, concentrated among violent and war-scale episodes.

Taken together, the results favor a secularization interpretation over a religious-backlash one. Where revolutionary conflict was more intense, the institutions and networks that sustained organized religion appear to have been more durably weakened, rather than reinforced by a defensive reaffirmation of faith. The contrast in the global panel between violent and nonviolent episodes points in the same direction: it is disruptive, high-intensity revolutionary contention, not revolution as such, that is most strongly associated with subsequent erosion of religious attachment and religious freedom.

The most prominent counter-example to a secularization reading is the counter-revolution in the west of France. The War in the Vendée (1793–1796) and the Chouannerie (1794–1800) were intense, violent episodes of the revolutionary period, yet the western departments in which they unfolded—in Brittany, Anjou, and the Vendée proper—remained among the most Catholic in France well into the twentieth century. Taken at face value, this looks like revolutionary-era conflict associated with persistent, even reinforced, religiosity: the backlash pattern. Three considerations explain why this case does not overturn our finding and is, if anything, consistent with our interpretation. First, our exposure measure is by construction distinct from the western counter-revolution. We measure social unrest over 1787–1793—food riots, tax revolts, feudal and

authority conflicts—and explicitly exclude religious and political conflicts; the Vendée and Chouan risings were religiously motivated, royalist counter-revolutions, fought in defense of the Church and the refractory clergy and concentrated mainly after 1793. They are therefore largely outside what we code as revolutionary unrest. Second, the mechanism we identify is not violence as such but unrest that delegitimized institutions tied to the old order; in the west, revolutionary disruption took the opposite form, mobilizing communities to defend those institutions, so the prediction there is precisely one of reinforced attachment rather than erosion. Third, our matched-pair and region-fixed-effects specifications compare geographically proximate departments within the same broad historical region, so a single high-religiosity bloc such as the west cannot by itself drive the average relationship. The Vendée thus delimits the scope of our claim—backlash can dominate where revolutionary conflict is itself a defense of religion—rather than contradicting the average secularizing association we estimate. The opposite, secularizing pole provides the counterpart to the western case. In much of the Paris Basin and the adjacent center—the department of the Yonne is a frequently cited example—and in parts of the southeast such as Provence, the revolutionary years brought intense anticlerical mobilization and far-reaching dechristianization campaigns, and these regions went on to become, and to remain, among the least practicing in France (Vovelle 1973; Van Kley 2003). These are the cases that drive the average relationship we estimate: places where revolutionary disruption fell on, rather than rallied to, the institutions of the Church, and where religiosity was durably lower thereafter. Read together, the devout west and the de-christianized center and southeast bracket the two regimes our framework distinguishes, and our department-level estimates recover the pattern that prevails on average across them.

More broadly, our outcome measures track the well-known religious geography of France. On the devout side stand the western periphery of Brittany and the Vendée, the southern Massif Central, the Basque country, and the eastern marches of Alsace and Franche-Comté; on the de-christianized side stand the Paris Basin, with the Île-de-France at its center, together with early foci of religious decline such as the Limousin and parts of the center and the Mediterranean and Garonne basins. This gradient is visible both in La Croix readership in 1893 and in the mid-century Mass-attendance map of Boulard reproduced by Terrenoire (2003). We treat this geography as descriptive context rather than as evidence for our claim: because much of it long predates the Revolution, it cannot be read as a revolutionary effect, and indeed the persistence of these patterns

is exactly why we rely on within-region comparisons rather than on raw cross-regional contrasts to identify the association between revolutionary unrest and later religiosity.

Secularization in France also operated through a national institutional channel that our design deliberately holds fixed. The 1905 law on the separation of church and state disestablished the Catholic Church, ended the public funding of clergy established under the 1801 Concordat, and removed the Church from many public functions; it was the culmination of the Republican–clerical conflict (Baubérot 2000) and a clear instance of the state-religion mechanism emphasized by Barro and McCleary (2005). This shock, however, applied to the whole country at once, so it shifted the level of religiosity nationally rather than generating differences across departments. Because it is common to all units, it is absorbed by the national context and cannot account for the cross-department variation we exploit. This is a strength of the within-France approach: our estimates net out the aggregate institutional secularization that disestablishment produced and isolate the marginal, locally varying association between earlier revolutionary exposure and later religiosity. The two channels are complementary—a uniform institutional shift on top of locally heterogeneous histories of revolutionary disruption—and our identification speaks to the second, not the first.

One region furnishes a partial, if imperfect, exception that illustrates this institutional channel. Alsace and the Moselle were annexed by the German Empire in 1871 and so lay outside France when the 1905 law was enacted; as a result, the separation never took effect there, and the territory remains governed by the 1801 Concordat to this day, with the state still recognizing and supporting Catholic, Lutheran, Reformed, and Jewish worship. Alsace-Moselle is also among the most religiously practicing parts of France, which is suggestive of a role for the institutional regime. We caution against reading this as clean evidence, however, because the exemption is bound up with a distinct history: the region's annexation removed it from France during the most anticlerical decades of the Third Republic, and it did not share the interior's experience of revolutionary unrest in 1787–1793. Reflecting this distinct trajectory, the departments of Alsace-Moselle are not included in our estimation sample, so the region plays no part in the comparisons that yield our main estimates. Alsace-Moselle is therefore best read as a corroborating illustration of the institutional channel rather than as part of our identifying variation.

A natural concern with the mid-century measure is that Sunday Mass attendance in the 1950s reflects not the inherited religiosity of long-settled populations but postwar population change, since these decades fall within the Trente Glorieuses (1945–1975), the era of rapid growth, reconstruction, and rising mobility. Two features of the timing limit this concern. First, the underlying Catholic censuses are concentrated around 1954–1962, at the early end of this period, before its largest demographic shifts. Second, and more important for a measure of Catholic practice, the composition of postwar immigration changed sharply after our measurement window. Through the mid-1950s, immigration into France was dominated by Catholic flows from Italy, Spain, and Portugal, which would not mechanically depress a measure of Catholic attendance. The large non-Catholic inflows—principally North African Muslims—arrived overwhelmingly later: the Algerian-origin population in mainland France rose modestly from about 211,000 in 1954 to 350,000 in 1962, then far more rapidly to roughly 470,000 by 1968 and 800,000 by 1982, following Algerian independence and the family-reunification flows of the late 1960s and 1970s. The measurement window therefore largely precedes the immigration that would most plausibly bias Catholic attendance downward, and any such bias would in any case have to be correlated with eighteenth-century revolutionary exposure to confound our estimates. Internal mobility is a related concern, but the rural cantons on which the attendance measure is based were precisely the areas least transformed by the postwar rural exodus toward cities, and our specifications additionally control for department population growth between 1951 and 1961, which absorbs the most direct demographic channel. Reassuringly, the results for 1950s attendance align closely with those for La Croix readership in 1893 and Catholic schooling across the late nineteenth century—outcomes measured long before any postwar migration—so the mid-century findings are unlikely to be artifacts of population change.

Several caveats temper these conclusions. The estimates are associations rather than experimental effects; despite the matched design and the battery of controls, unobserved local characteristics correlated with both revolutionary exposure and inherited religiosity may remain. The religiosity measures are proxies—newspaper circulation, school composition, and mapped Mass attendance—each observed at a particular point and subject to measurement error, and the Mass-attendance map is categorical and approximate. The global panel speaks to institutional religious freedom rather than to individual belief, and the two settings are linked by analogy rather than by a single unified design. These limitations suggest natural extensions, including finer sub-

department variation, additional outcomes such as those in the World Christian Database, and richer identification of the channels—institutional, demographic, and cultural—through which revolutionary disruption is transmitted across generations. With those qualifications, the evidence points to a coherent conclusion: revolutionary disruption can durably weaken religiosity, and the magnitude of that effect rises with the intensity of revolutionary violence.

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Appendix

Appendix A. Descriptive Statistics And Additional Empirical Results

TABLE AI. DESCRIPTIVE STATISTICS

Variables	Unit(s)	Source(s)	Mean	SD	Min	Max
Panel A. France Revolution (Cross Department Level Dataset)						
La Croix readership, 1893	Index / [1, 4]	Base on Squicciarini (2020)	2.744	1.040	1.000	4.000
Sunday mass attendance, 1950s	[0,1]	Based on Terrenoire (2003), Figure 2	0.290	0.162	0.060	0.690
Revolutionary unrest (Dummy), 1787-1793	Dummy variable	Authors' calculation from HiSCoD dataset	0.938	0.242	0.000	1.000
Revolutionary unrest (z-score), 1787-1793	Z-score	Constructed from selected HiSCoD unrest types, 1787-1793	0.000	0.529	-0.493	3.123
Top 50% revolutionary unrest department	Dummy variable	Authors' calculation	0.495	0.503	0.000	1.000
Number of food riot (z-score), 1787-1793	Standardized number of events (z-score)	Authors' calculation from HiSCoD dataset	0.000	1.000	-0.459	7.805
Number of labour conflict (z-score), 1787-1793	Standardized number of events (z-score)	Authors' calculation from HiSCoD dataset	0.000	1.000	-0.312	8.480
Number of feudal conflict (z-score), 1787-1793	Standardized number of events (z-score)	Authors' calculation from HiSCoD dataset	0.000	1.000	-0.614	6.281
Number of authority conflict (z-score), 1787-1793	Standardized number of events (z-score)	Authors' calculation from HiSCoD dataset	0.000	1.000	-0.461	8.220
Number of tax conflict (z-score), 1787-1793	Standardized number of events (z-score)	Authors' calculation from HiSCoD dataset	0.000	1.000	-0.475	5.462
Number of other conflict (z-score), 1787-1793	Standardized number of events (z-score)	Authors' calculation from HiSCoD dataset	0.000	1.000	-0.637	4.375
Share of anti-religious cahiers, 1789	Share	Base on Squicciarini (2020)	0.061	0.051	0.000	0.267
Log population, 1800	Natural log of population	Base on Squicciarini (2020)	12.614	0.374	11.615	13.548
Wheat suitability	Suitability index	Base on Squicciarini (2020)	3.875	1.049	1.976	8.000
Mean log precipitation	Natural log of average precipitation	Base on Squicciarini (2020)	5.123	0.240	4.690	5.855
Enrollment Rate 1891	Enrollment rate	Base on Squicciarini (2020)	0.832	0.082	0.536	1.000
IV1: Weather-shock Instrument	Unitless index	Authors' calculation from SO&P: Climate reconstructions (equation ∗)	-0.207	0.434	-0.925	0.731
IV2: Subsistence-stress Instrument	Unitless index	Authors' calculation (Wheat suitability × hot-dry climate exposure)	-0.077	1.483	-9.276	5.193
Precipitation-variation control	Standardized index	Authors' calculation from SO&P: Climate reconstructions	-0.022	0.985	-1.580	3.052
Temperature-variation control	Temperature-volatility index	Authors' calculation from SO&P: Climate reconstructions	0.313	0.187	-0.285	0.551
Population Growth, 1961-1951	Annualized population growth rate	Base on Squicciarini (2020)	0.001	0.006	-0.013	0.032

Panel B. France Revolution (Department-Year Dataset)						
Log Catholic students per school	Natural log	Base on Squicciarini (2020)	4.131	0.295	3.274	5.378
Enrollment rate	Enrollment rate	Base on Squicciarini (2020)	0.786	0.138	0.336	1.165
Log population	Natural log of population	Base on Squicciarini (2020)	12.859	0.487	11.563	15.240
Share of refractory clergy	Share	Base on Squicciarini (2020)	0.425	0.228	0.040	0.875
Share of refractory clergy × post-1871 period	Interaction term	Base on Squicciarini (2020)	0.309	0.271	0.000	0.875
French immigrants per 10,000 population	Per 10,000 population	Base on Squicciarini (2020)	1.291	0.878	0.050	6.400
Panel C. Global Revolution (Country-year panel Dataset)						
Freedom of religion (V-Dem)	Index	V-Dem	0.399	1.376	-3.864	3.053
Religious Fractionalization Index	[0, 1]	Constructed from RCS Dem 2.0 data	0.705	0.221	0.008	1.000
Any revolutionary episode ongoing	Dummy (0/1)	Constructed from revolution event data	0.071	0.256	0.000	1.000
Violent revolution ongoing: ≥25 deaths/year	Dummy (0/1)	Constructed from revolution event data	0.061	0.240	0.000	1.000
Non-violent revolution ongoing: <25 deaths/year	Dummy (0/1)	Constructed from revolution event data	0.006	0.077	0.000	1.000
War-based revolution ongoing: ≥1000 deaths/year	Dummy (0/1)	Constructed from revolution event data	0.043	0.203	0.000	1.000

Source: Authors' calculations.

TABLE AII. REVOLUTIONARY UNREST BY CONFLICT TYPE AND *LA CROIX* READERSHIP, 1893

Dependent variable	La Croix readership, 1893											
Columns	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Number of food conflict (z-score), 1787-1793	-0.154*	-0.172**										
	(0.088)	(0.085)										
Number of labor conflict (z-score), 1787-1793			-0.143***	-0.157**								
			(0.051)	(0.065)								
Number of feudal conflict (z-score), 1787-1793					-0.003	-0.030						
					(0.102)	(0.112)						
Number of authority conflict (z-score), 1787-1793							-0.018	0.061				
							(0.091)	(0.108)				
Number of tax conflict (z-score), 1787-1793									-0.054	-0.009		
									(0.089)	(0.110)		
Number of other conflict (z-score), 1787-1793											-0.140*	-0.175*
											(0.075)	(0.104)
Share of anti-religious cahiers, 1789		-4.301**		-4.498**		-4.384**		-4.291**		-4.313**		-4.745**
		(2.027)		(2.012)		(2.055)		(2.033)		(2.009)		(1.932)
Log population, 1800		-0.050		-0.101		-0.089		-0.198		-0.097		0.082
		(0.350)		(0.343)		(0.349)		(0.399)		(0.375)		(0.387)
Mean log precipitation		0.158		0.270		0.303		0.276		0.266		0.191
		(0.554)		(0.567)		(0.564)		(0.544)		(0.555)		(0.584)
Wheat suitability		-0.162		-0.109		-0.140		-0.180		-0.135		-0.062
		(0.120)		(0.120)		(0.123)		(0.165)		(0.140)		(0.135)
Enrollment Rate 1891		-0.609		-0.117		-0.187		-0.234		-0.306		-0.798
		(1.787)		(1.745)		(1.784)		(1.776)		(1.770)		(1.680)
Region Fes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	82.000	72.000	82.000	72.000	82.000	72.000	82.000	72.000	82.000	72.000	82.000	72.000
R-squared	0.390	0.415	0.394	0.418	0.374	0.394	0.374	0.396	0.377	0.394	0.393	0.416

Notes: This table reports department-level estimates of the relationship between type-specific revolutionary unrest during 1787–1793 and *La Croix* readership in 1893. Each unrest measure is the standardized count of events by conflict type, with mean zero and standard deviation one.

Odd-numbered columns include region fixed effects only. Even-numbered columns additionally control for the share of anti-religious *cahiers* in 1789, log population in 1800, mean log precipitation, wheat suitability, and enrolment rate in 1891. All specifications report White heteroskedasticity-robust standard errors in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Source: Authors' calculations.

TABLE AIII. REVOLUTIONARY-PERIOD UNREST AND CATHOLIC STUDENTS PER SCHOOL: ADDITIONAL CONTROLS

Dependent Variable	Catholic students per school					
Columns	(1)	(2)	(3)	(4)	(5)	(6)
Revolutionary unrest (Dummy), 1787-1793	-0.236***	-0.235***	-0.221***			
	(0.064)	(0.067)	(0.070)			
Revolutionary unrest (z-score), 1787-1793				-0.053***	-0.053***	-0.042**
				(0.017)	(0.017)	(0.018)
Share of anti-religious cahiers, 1789	-0.231	-0.230	-0.176	-0.383**	-0.381**	-0.322*
	(0.156)	(0.154)	(0.161)	(0.164)	(0.163)	(0.170)
Log Population	0.497***	0.496***	0.540***	0.518***	0.517***	0.549***
	(0.022)	(0.022)	(0.025)	(0.023)	(0.022)	(0.025)
Mean log precipitation	-0.200***	-0.200***	-0.191***	-0.216***	-0.216***	-0.207***
	(0.050)	(0.050)	(0.051)	(0.049)	(0.049)	(0.050)
Wheat suitability	-0.001	-0.002	0.006	0.012	0.011	0.015
	(0.010)	(0.010)	(0.011)	(0.011)	(0.011)	(0.012)
Enrollment Rate	0.070	0.056	0.052	0.047	0.034	0.027
	(0.079)	(0.078)	(0.079)	(0.075)	(0.074)	(0.076)
Share Refractory Clergy	0.008	-0.127**	-0.156***	-0.019	-0.154***	-0.175***
	(0.037)	(0.052)	(0.054)	(0.037)	(0.052)	(0.053)
Share Refractory Clergy × Industrial period		0.202***	0.167***		0.203***	0.173***
		(0.057)	(0.058)		(0.056)	(0.058)
French Immigrants per capita			-0.057***			-0.049***
			(0.013)			(0.013)
Region Fes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	648	648	576	648	648	576

Notes: This table reports department-year pseudo-panel estimates of the association between revolutionary-period unrest during 1787–1793 and Catholic students per school. The dependent variable is observed for multiple years between 1861 and 1906. The main explanatory variables are the revolutionary unrest dummy and the standardized count of revolutionary unrest events. Additional controls include the share of anti-religious *cahiers* in 1789, log population, mean log precipitation, wheat suitability, enrolment rate, the share of refractory clergy, the interaction between the share of refractory clergy and the industrial period, and French immigrants per capita.

All specifications include region fixed effects and year fixed effects. White heteroskedasticity-robust standard errors are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Source: Authors' calculations.

TABLE AIV. REVOLUTIONARY UNREST AND CATHOLIC PERSISTENCE: IV ESTIMATES FOR LA CROIX READERSHIP, 1893 (ROBUSTNESS CHECK)

Dependent Variable	La Croix readership, 1893					
Columns	(1)	(2)	(3)	(4)	(5)	(6)
PANEL A: SECOND-STAGE IV ESTIMATES						
Revolutionary unrest (z-score), 1787-1793	-1.329	-1.120*	-0.823**	-0.937**	-0.896**	-0.759**
	(0.816)	(0.580)	(0.373)	(0.440)	(0.419)	(0.378)
Precipitation-variation control	0.224	0.161	0.181	0.121	0.129	0.146
	(0.147)	(0.146)	(0.135)	(0.156)	(0.153)	(0.152)
Baseline temperature-variation control	-0.849	-0.367	-0.335	-0.485	-0.508	-0.461
	(0.836)	(1.314)	(1.352)	(1.299)	(1.282)	(1.261)
Share of anti-religious cahiers, 1789		-5.912***	-4.480**	-4.818**	-4.751**	-4.575**
		(1.983)	(1.803)	(1.909)	(1.899)	(1.879)
Log population, 1800			0.070	0.107	0.091	0.053
			(0.156)	(0.166)	(0.160)	(0.156)

Wheat suitability				0.588	0.547	0.436
				(0.510)	(0.499)	(0.481)
Enrollment Rate 1891					-0.896	-0.820
					(1.393)	(1.390)
Observations	82	74	72	72	72	72
Cragg-Donald Wald F-statistics	5.96	7.22	15.64	13.81	14.96	8.67
Hansen J statistics	–[(d)]	–	–	–	–	0.357
PANEL B: FIRST-STAGE ESTIMATES	Revolutionary Unrest (Z-Score), 1787-1793					
Columns	(1)	(2)	(3)	(4)	(5)	(6)
IV1: Weather-shock Instrument	0.697**	0.942**	1.306***	1.125***	1.178***	1.097***
	(0.338)	(0.438)	(0.417)	(0.354)	(0.352)	(0.340)
IV2: Subsistence-stress Instrument						0.074
						(0.073)
Precipitation-variation control	-0.199*	-0.284***	-0.380***	-0.400***	-0.410***	-0.384***
	(0.106)	(0.103)	(0.116)	(0.103)	(0.102)	(0.101)
Baseline temperature-variation control	0.145	0.797	1.388*	1.015*	1.037*	0.884*
	(0.465)	(0.771)	(0.797)	(0.573)	(0.562)	(0.507)
Anti-religious cahiers share		-1.647*	-0.402	-0.755	-0.714	-0.924
		(0.954)	(1.010)	(0.974)	(0.955)	(0.955)
Wheat suitability			0.294**	0.297***	0.293***	0.269***
			(0.145)	(0.111)	(0.109)	(0.086)
Log population, 1800				0.710***	0.697***	0.647***
				(0.238)	(0.237)	(0.216)
Enrolment rate, 1891					-1.014	-0.773
					(0.800)	(0.822)

Notes: The unit of observation is the department. Each department d is assigned to the nearest climate grid cell $g(d)$ using great-circle distance, separately for the temperature and precipitation grids. Panel A reports second-stage IV estimates of the baseline specification, where the outcome is *La Croix* readership in 1893 and the endogenous variable is revolutionary unrest, measured as the standardized unrest count over 1787–1793. Panel B reports the corresponding first-stage regressions.

Columns (1)–(5) use the weather-shock instrument, which captures the 1788 summer temperature anomaly relative to non-summer anomalies, with seasonal deviations standardized over the 1727–1787 pre-shock baseline (equation *).

Column (6) adds the subsistence-stress instrument, defined as wheat suitability interacted with a hot-dry climate index. The precipitation-variation variable and baseline temperature-variation variable are included as climate controls. Region fixed effects are included in all specifications. Cragg-Donald Wald F-statistics are reported for weak identification under homoskedasticity.

[(d)] With one endogenous variable and one excluded instrument, the model is exactly identified, so the overidentification test of all instruments is not available. The Stock-Yogo critical values for the Cragg-Donald statistic are 19.93, 11.59, 8.75, and 7.25 for 10%, 15%, 20%, and 25% maximal IV size, respectively. Robust standard errors are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels.

Source: Authors' calculations.

TABLE AV. REVOLUTIONARY UNREST AND CATHOLIC RELIGIOUS PRACTICE: IV ESTIMATES FOR SUNDAY MASS ATTENDANCE, 1950S (ROBUSTNESS CHECK)

Dependent Variable	Sunday mass attendance, 1950s					
Columns	(1)	(2)	(3)	(4)	(5)	(6)
PANEL A: SECOND-STAGE IV ESTIMATES						
Revolutionary unrest (z-score), 1787-1793	-0.457	-0.561	-0.390**	-0.409**	-0.396**	-0.242**
	(0.295)	(0.352)	(0.199)	(0.192)	(0.176)	(0.123)
Precipitation-variation control	-0.009	-0.032	-0.003	-0.023	-0.021	0.002
	(0.049)	(0.057)	(0.040)	(0.048)	(0.047)	(0.045)
Baseline temperature-variation control	0.007	-0.099	-0.024	-0.029	-0.022	0.023
	(0.183)	(0.335)	(0.286)	(0.237)	(0.228)	(0.195)

Share of anti-religious cahiers, 1789		-1.050	-0.536	-0.667	-0.656	-0.471
		(0.781)	(0.557)	(0.548)	(0.513)	(0.382)
Log population, 1800			0.037	0.053	0.052	0.042
			(0.035)	(0.035)	(0.034)	(0.028)
Wheat suitability				0.231*	0.226*	0.168
				(0.126)	(0.120)	(0.115)
Enrollment Rate 1891					-0.254	-0.134
					(0.434)	(0.407)
Observations	75	67	65	65	65	65
Cragg-Donald Wald F-statistics	4.73	5.33	9.87	9.80	10.96	6.28
Hansen J statistics	—(d)	—	—	—	—	0.054
PANEL B: FIRST-STAGE ESTIMATES	Revolutionary Unrest (Z-Score), 1787-1793					
Columns	(1)	(2)	(3)	(4)	(5)	(6)
IV1: Weather-shock Instrument	0.436	0.555	0.825**	0.802**	0.843**	0.870**
	(0.303)	(0.370)	(0.393)	(0.378)	(0.369)	(0.371)
IV2: Subsistence-stress Instrument						-0.060*
						(0.033)
Precipitation-variation control	-0.219**	-0.262**	-0.314***	-0.334***	-0.347***	-0.367***
	(0.094)	(0.110)	(0.111)	(0.105)	(0.105)	(0.107)
Baseline temperature-variation control	0.038	0.348	0.644	0.618	0.678	0.748
	(0.380)	(0.530)	(0.579)	(0.499)	(0.474)	(0.474)
Anti-religious cahiers share		-1.371	-0.563	-0.744	-0.740	-0.536
		(0.896)	(0.923)	(0.897)	(0.826)	(0.814)
Wheat suitability			0.076	0.098**	0.099**	0.089**
			(0.048)	(0.047)	(0.044)	(0.044)
Log population, 1800				0.348**	0.345**	0.345**
				(0.158)	(0.159)	(0.145)
Enrolment rate, 1891					-1.035	-1.219*
					(0.679)	(0.614)

Notes: The unit of observation is the department. Each department d is assigned to the nearest climate grid cell $g(d)$ using great-circle distance, separately for the temperature and precipitation grids. Panel A reports second-stage IV estimates of the baseline specification, where the outcome is Sunday mass attendance, 1950s and the endogenous variable is revolutionary unrest, measured as the standardized unrest count over 1787–1793. Panel B reports the corresponding first-stage regressions.

Columns (1)–(5) use the weather-shock instrument, which captures the 1788 summer temperature anomaly relative to non-summer anomalies, with seasonal deviations standardized over the 1727–1787 pre-shock baseline (equation *).

Column (6) adds the subsistence-stress instrument, defined as wheat suitability interacted with a hot-dry climate index. The precipitation-variation variable and baseline temperature-variation variable are included as climate controls. Region fixed effects are included in all specifications. Cragg-Donald Wald F-statistics are reported for weak identification under homoskedasticity.

(d) With one endogenous variable and one excluded instrument, the model is exactly identified, so the overidentification test of all instruments is not available. The Stock-Yogo critical values for the Cragg-Donald statistic are 19.93, 11.59, 8.75, and 7.25 for 10%, 15%, 20%, and 25% maximal IV size, respectively. Robust standard errors are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels.

Source: Authors' calculations.

Appendix B. Wild Cluster Bootstrap Inference with Few Clusters

The baseline tables use White heteroskedasticity-robust standard errors, which do not allow for residual dependence within broad historical regions or matched pairs. We therefore cluster at the level of the empirical design. Because the department-level specification contains only five regional clusters, conventional cluster-robust inference may understate uncertainty and over-reject the null. Following Cameron, Gelbach, and Miller (2008), we report wild cluster bootstrap-t p-values based on Webb weights, 9,999 replications, and bootstrap samples generated under the null. The coefficients are unchanged; only the inference is adjusted.

The results continue to support the secularization channel. In the department-level estimates, the standardized unrest coefficient is negative throughout and its wild-bootstrap p-value ranges from 0.026 to 0.082 (Table AVI). The matched high-unrest estimates range from -0.444 to -0.565, with p-values between 0.001 and 0.008 (Table AVII). The continuous matched estimates remain negative, with p-values between 0.008 and 0.076 (Table AVIII). For Sunday Mass attendance, the high-unrest coefficient becomes significant once controls are added, while the standardized unrest estimate is -0.195 with a wild-bootstrap p-value below 0.001 (Table AIX).

TABLE AVI. WILD-CLUSTER BOOTSTRAP INFERENCE: DEPARTMENT-LEVEL ESTIMATES

Dependent variable: La Croix readership, 1893						
	(1)	(2)	(3)	(4)	(5)	(6)
Revolutionary unrest proxy (total z-score), 1787-1793	-0.305*	-0.369*	-0.429**	-0.415**	-0.421**	-0.397
	(0.143)	(0.145)	(0.132)	(0.141)	(0.142)	(0.207)
Share of anti-religious cahiers, 1789		-5.110*	-4.581*	-4.753*	-4.739*	-4.723*
		(2.158)	(1.850)	(1.783)	(1.869)	(1.983)
Log population, 1800			0.273	0.198	0.199	0.185
			(0.197)	(0.358)	(0.377)	(0.344)
Mean log precipitation				0.279	0.272	0.247
				(0.710)	(0.731)	(0.876)
Enrolment rate, 1891					-0.506	-0.510
					(0.794)	(0.840)
Wheat suitability						-0.029
						(0.184)
Region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	82	74	73	73	73	72
R-squared	0.397	0.436	0.429	0.431	0.432	0.420
Wild-bootstrap p-value: revolutionary unrest	0.082	0.076	0.047	0.055	0.054	0.026
Wild-bootstrap p-value: anti-religious share	.	0.067	0.069	0.060	0.065	0.106

Notes: This table reports department-level OLS estimates using the standardized revolutionary unrest index. All specifications include region fixed effects, and standard errors are clustered by region. Controls are added sequentially in the following order: the share of anti-religious cahiers in 1789, log population in 1800, mean log precipitation, enrolment rate in 1891, and wheat suitability. Wild cluster bootstrap-t p-values use Webb weights and 9,999 replications. Clustered standard errors are in parentheses. Stars are based on conventional clustered p-values; inference should rely primarily on the reported wild-bootstrap p-values. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Authors' calculations.

TABLE AVII. WILD-CLUSTER BOOTSTRAP INFERENCE: MATCHED HIGH-UNREST TREATMENT

Dependent variable: La Croix readership, 1893						
	(1)	(2)	(3)	(4)	(5)	(6)
=1 if belongs to high revolutionary unrest area	-0.444*	-0.557**	-0.536**	-0.543**	-0.565**	-0.523**
	(0.229)	(0.235)	(0.248)	(0.241)	(0.230)	(0.246)
Share of anti-religious cahiers, 1789		-6.551***	-6.508***	-6.687***	-7.467***	-7.356***
		(1.682)	(1.704)	(1.776)	(2.197)	(2.278)
Log population, 1800			-0.264	-0.321	-0.378	-0.195
			(0.615)	(0.697)	(0.689)	(0.649)
Mean log precipitation				0.220	0.648	0.306
				(1.237)	(1.481)	(1.478)
Enrolment rate, 1891					3.667	3.006
					(2.913)	(3.222)
Wheat suitability						-0.179
						(0.155)
Matched-pair fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	90	83	83	83	83	82
R-squared	0.728	0.807	0.809	0.809	0.827	0.832
Wild-bootstrap p-value: matched treatment	0.008	0.002	0.003	0.002	0.001	0.008
Wild-bootstrap p-value: anti-religious share	.	0.005	0.004	0.001	0.001	0.002

Notes: This table reports nearest-neighbour matched-pair estimates. The main explanatory variable equals one for the higher-unrest department in each pair. All specifications include matched-pair fixed effects, and standard errors are clustered by matched pair. Controls are added sequentially in the following order: the share of anti-religious cahiers in 1789, log population in 1800, mean log precipitation, enrolment rate in 1891, and wheat suitability. Wild cluster bootstrap-t p-values use Webb weights and 9,999 replications. Clustered standard errors are in parentheses. Stars are based on conventional clustered p-values; inference should rely primarily on the reported wild-bootstrap p-values. * p < 0.10, ** p < 0.05, *** p < 0.01.

Source: Authors' calculations.

TABLE AVIII. WILD-CLUSTER BOOTSTRAP INFERENCE: MATCHED REVOLUTIONARY UNREST INTENSITY

Dependent variable: La Croix readership, 1893						
	(1)	(2)	(3)	(4)	(5)	(6)
Revolutionary unrest proxy (total z-score), 1787-1793	-0.523**	-0.619***	-0.603**	-0.602**	-0.568**	-0.511
	(0.225)	(0.224)	(0.263)	(0.268)	(0.281)	(0.368)
Share of anti-religious cahiers, 1789		-6.518***	-6.491***	-6.394***	-6.722***	-6.659***
		(1.958)	(1.995)	(2.117)	(2.396)	(2.451)
Log population, 1800			-0.130	-0.096	-0.157	-0.088
			(0.667)	(0.723)	(0.783)	(0.739)
Mean log precipitation				-0.125	0.085	-0.081
				(1.390)	(1.608)	(1.656)
Enrolment rate, 1891					1.880	1.648
					(3.357)	(3.574)
Wheat suitability						-0.103
						(0.250)
Matched-pair fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	90	83	83	83	83	82
R-squared	0.728	0.806	0.806	0.806	0.811	0.811
Wild-bootstrap p-value: revolutionary unrest	0.028	0.008	0.014	0.016	0.019	0.076
Wild-bootstrap p-value: anti-religious share	.	0.005	0.005	0.004	0.003	0.004

Notes: This table reports nearest-neighbour matched-pair estimates using the standardized revolutionary unrest index. All specifications include matched-pair fixed effects, and standard errors are clustered by matched pair. Controls are added sequentially in the following order: the share of anti-religious cahiers in 1789, log population in 1800, mean log precipitation, enrolment rate in 1891, and wheat suitability. Wild cluster bootstrap-t p-values use Webb weights and 9,999 replications. Clustered standard errors are in parentheses. Stars are based on conventional clustered p-values; inference should rely primarily on the reported wild-bootstrap p-values. * p < 0.10, ** p < 0.05, *** p < 0.01.

Source: Authors' calculations.

TABLE AIX. WILD-CLUSTER BOOTSTRAP INFERENCE: SUNDAY MASS ATTENDANCE

Dependent variable: Sunday Mass attendance, 1950s								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
High revolutionary unrest area	-0.054	-0.095*	-0.106**	-0.107**	-0.107**	-0.120**	-0.119**	
	(0.045)	(0.050)	(0.050)	(0.051)	(0.052)	(0.048)	(0.049)	
Revolutionary unrest proxy (total z-score), 1787-1793								-0.195***
								(0.062)
Share of anti-religious cahiers, 1789		-0.784*	-0.875*	-0.884*	-0.890*	-0.863*	-0.867	-0.853*
		(0.451)	(0.449)	(0.487)	(0.499)	(0.492)	(0.518)	(0.480)
Log population, 1800			0.192	0.190	0.188	0.170	0.171	0.189
			(0.187)	(0.184)	(0.196)	(0.177)	(0.168)	(0.138)
Mean log precipitation				0.008	0.014	0.109	0.130	0.053
				(0.173)	(0.185)	(0.176)	(0.198)	(0.163)
Enrolment rate, 1891					0.054	0.199	0.079	-0.572
					(0.509)	(0.473)	(0.618)	(0.667)
Wheat suitability						0.071	0.081	0.087
						(0.058)	(0.067)	(0.058)
Annual population growth, 1851-1861							-3.458	-9.961
							(11.685)	(9.839)
Matched-pair fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	83	76	76	76	76	75	75	75
R-squared	0.730	0.791	0.821	0.821	0.821	0.840	0.842	0.876
Wild-bootstrap p-value: main variable	0.081	0.008	0.006	0.005	0.005	0.000	0.000	0.000
Wild-bootstrap p-value: anti-religious share	.	0.112	0.114	0.124	0.117	0.112	0.127	0.137

Notes: This table reports nearest-neighbour matched-pair estimates for Sunday Mass attendance in the 1950s. Columns (1)-(7) use the high-unrest indicator; column (8) uses the standardized revolutionary unrest index. All specifications include matched-pair fixed effects, and standard errors are clustered by matched pair. Controls are added sequentially in the following order: the share of anti-religious cahiers in 1789, log population in 1800, mean log precipitation, enrolment rate in 1891, and wheat suitability. Columns (7) and (8) additionally control for annual population growth between 1851 and 1861. Wild cluster bootstrap-t p-values use Webb weights and 9,999 replications. Clustered standard errors are in parentheses. Stars are based on conventional clustered p-values; inference should rely primarily on the reported wild-bootstrap p-values. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Authors' calculations.

Supplementary Appendix: Global Evidence on Revolutionary Episodes and Religious Freedom

A. Data and variable construction

The French Revolution provides a historically important case, but it is only one setting. To examine whether the relationship extends beyond nineteenth-century France, we construct a global country-year panel of revolutionary episodes and religious freedom.

We use the Revolutionary Episodes Dataset developed by Beissinger (2022).[6] This dataset defines a revolutionary episode as a mass siege of an established government by its own population, aimed at displacing the incumbent regime and substantially altering the political or social order. The dataset records revolutionary episodes from 1900 to 2015. It contains 345 revolutionary episodes and provides information on timing, location, goals, deaths, and outcomes (fails or success).

We transform the episode-level data into a country-year panel. For each country i and year t, $Revolution_{it}$ is coded as 1 if year t falls within the duration of at least one revolutionary episode, defined by its start and end years, and 0 otherwise. In country-years with multiple overlapping revolutionary episodes, the indicator is coded as 1, so the variable captures the presence of revolutionary contention rather than the number of simultaneous episodes.

We also classify episodes by violence using death information. A revolutionary episode is coded as violent if it records at least 25 deaths per year on average. Episodes below this threshold are coded as nonviolent. We also define a high-intensity or war-scale revolutionary episode as one recording at least 1,000 deaths per year on average. These classifications allow us to test whether the religious consequences of revolution depend on the intensity of revolutionary violence.

[6] The Revolutionary Episodes Dataset (Beissinger 2022) is available at the author's data page.

The outcome is freedom of religion from V-Dem,7 capturing institutional and political conditions under which religious practice and expression are protected. The global analysis examines whether revolutionary episodes are associated with changes in religious freedom, not whether they directly change religious belief.

B. Empirical strategy

Following Dube, Girardi, Jordà, and Taylor (2025), we estimate the dynamic effects of the introduction of revolution using a premean-differenced local projections difference-in-differences specification. For each horizon h,[8] we estimate

$$\text{(SAI)} \quad Y_{i,t+h} - \frac{1}{k}\sum_{\tau=t-k}^{t-1} Y_{i,\tau} = \beta_h^{PMD\ LP\text{-}DiD}\Delta D_{it} + \delta_t^{(h)} + \varepsilon_{it}^{(h)}, h = -50, \dots, 0, \dots, 50$$

Here, $Y_{i,t+h}$ denotes the outcome for unit i at horizon h, ΔD_{it} indicates the introduction of revolution at time t, $\delta_t^{(h)}$ denotes horizon-specific time effects, and $\varepsilon_{it}^{(h)}$ is the error term.

The coefficient of interest, $\beta_h^{PMD\ LP-DiD}$, traces the dynamic effect of revolutionary introduction at each event-time horizon. The specification uses premean differencing based on all available pre-treatment observations. Hence, $k = t - 1$, so that the baseline is defined as:

$$\frac{1}{k}\sum_{\tau=t-k}^{t-1} Y_{i,\tau} = \frac{1}{t-1}\sum_{\tau=1}^{t-1} Y_{i,\tau} \qquad (*)$$

[7] The freedom-of-religion index is from the V-Dem project, available at v-dem.net

[8] Changes in religious freedom may unfold gradually through regime consolidation, constitutional reform, state–church relations, education policy, and intergenerational changes in social norms. A long event window therefore allows us to capture both short-run disruption and longer-run institutional adjustment after revolutionary episodes.

The estimation sample is further restricted to clean comparisons by using never-treated units as controls. Accordingly, treated observations are compared only with units that are never exposed to treatment during the sample period, which avoids contamination from prior or future treatment dynamics. The estimator is also reweighted, so the reported coefficients are interpreted as reweighted dynamic average treatment effects of the introduction of revolution.

C. Results

Figure SAI reports the dynamic estimates for any revolutionary episode. Freedom of religion declines after revolutionary onset. The average post-onset effect over the 50-year horizon is approximately -0.082. The pre-treatment estimates provide little evidence of systematic divergence before revolutionary onset, which supports the use of the dynamic design as a descriptive event-study framework. The post-onset decline indicates that revolutionary contention is followed by weaker protection of religious freedom.

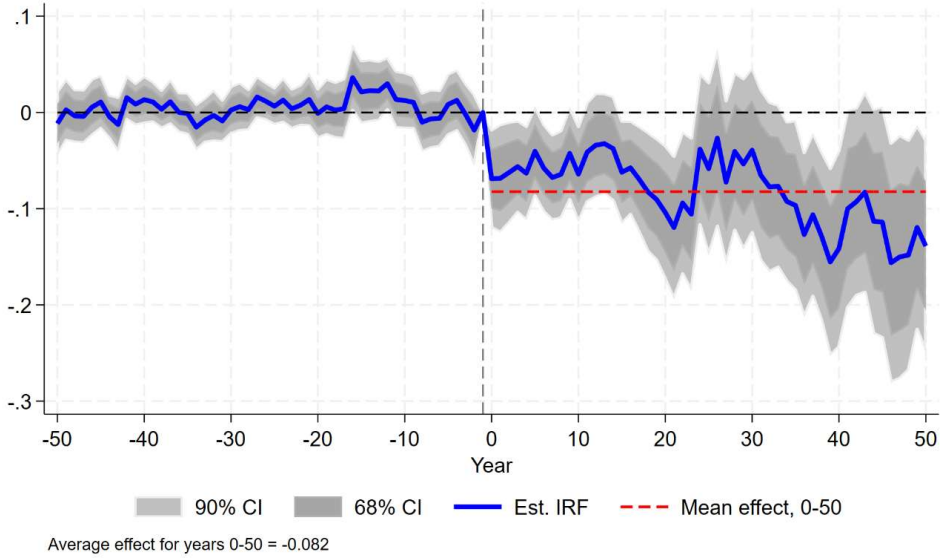


Figure SAI. Dynamic Effects of Revolutionary Onset on Freedom of Religion

Notes: The figure reports premean-differenced local-projection difference-in-differences estimates of the association between revolutionary onset and freedom of religion. The outcome is the V-Dem freedom of religion index. The treatment is the introduction

of any revolutionary episode. Each point reports the estimated coefficient β_h at event-time horizon h, relative to the pre-treatment mean of the outcome. The control group consists of never-treated countries. Estimates are reweighted following the clean-control local-projection difference-in-differences design. The pre-treatment coefficients are used to assess whether treated and never-treated countries exhibit systematic divergence before revolutionary onset.

Source: Authors' calculations.

Figure SAII separates violent and nonviolent episodes. Violent revolutions generate larger and more persistent declines in freedom of religion. Nonviolent episodes display a different pattern: freedom of religion improves slightly in the first 10 to 12 years after onset before returning toward the pre-treatment mean over the longer horizon. This contrast suggests that the religious consequences of revolution depend on the form that revolutionary contention takes. It is not revolution as such, but violent revolutionary disruption, that appears most strongly associated with subsequent restrictions on religious freedom.

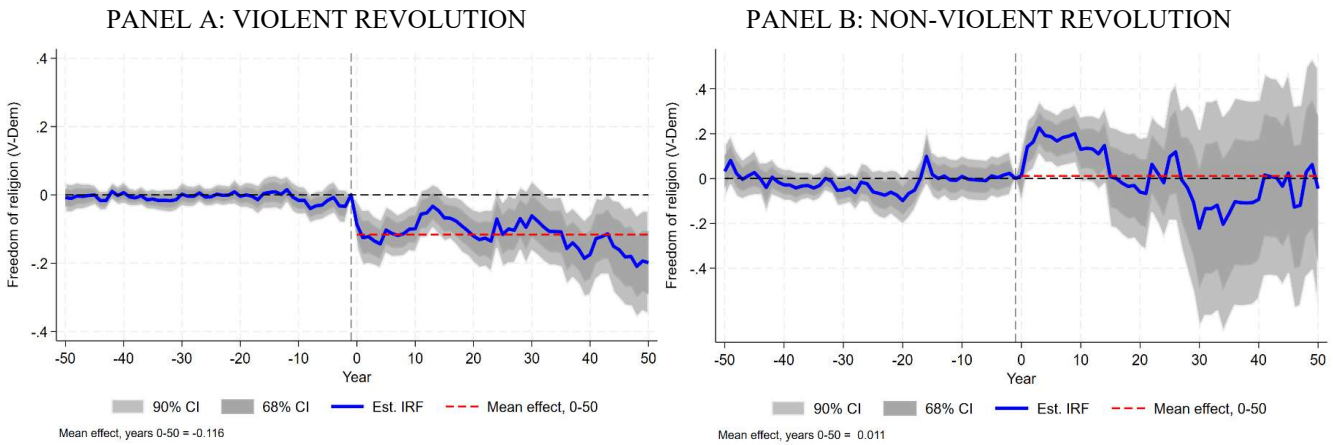


Figure SAII. Dynamic Effects by Revolutionary Violence: Violent versus Nonviolent Revolutionary Onsets

Notes: The figure compares dynamic estimates for violent and nonviolent revolutionary episodes. Panel A reports estimates for violent revolutionary onsets, defined as episodes with at least 25 deaths per year on average. Panel B reports estimates for nonviolent revolutionary onsets, defined as episodes below the 25-deaths-per-year threshold. The outcome is the V-Dem freedom of religion index. Each coefficient is estimated using the same premean-differenced local-projection difference-in-differences framework as in Figure SAI, with never-treated countries as controls and a 50-year event window. The purpose of the figure is to test whether the association between revolution and religious freedom differs by the intensity of revolutionary violence.

Source: Authors' calculations.

Figure SAIII focuses on high-intensity revolutionary episodes, defined as episodes with at least 1,000 deaths per year on average. The estimated decline in freedom of religion is larger than in the broad violent-revolution sample. This pattern is consistent with the view that large-scale revolutionary violence may be especially damaging to institutional protections for religious liberty. The result also helps explain why the average estimate for all revolutions masks important heterogeneity by violence intensity.

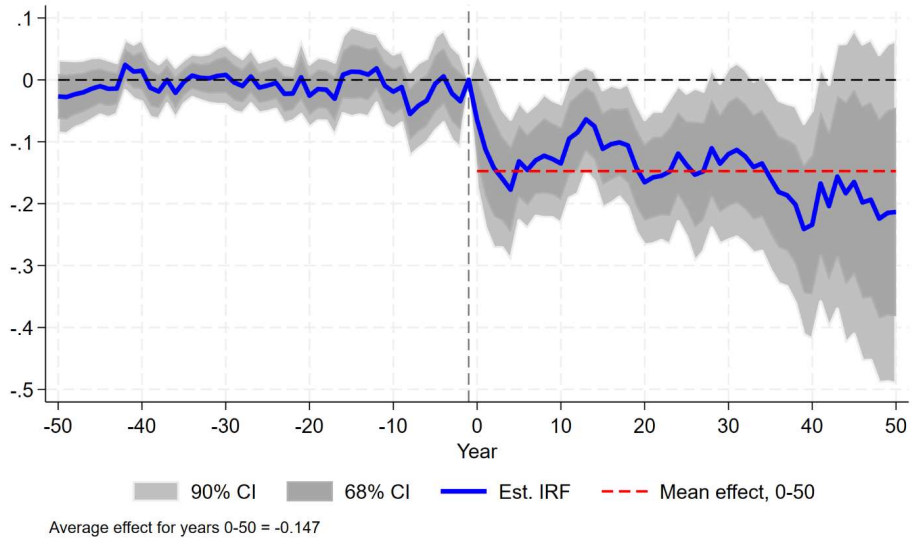


Figure SAIII. Dynamic Effects of High-Intensity Revolutionary Episodes on Freedom of Religion

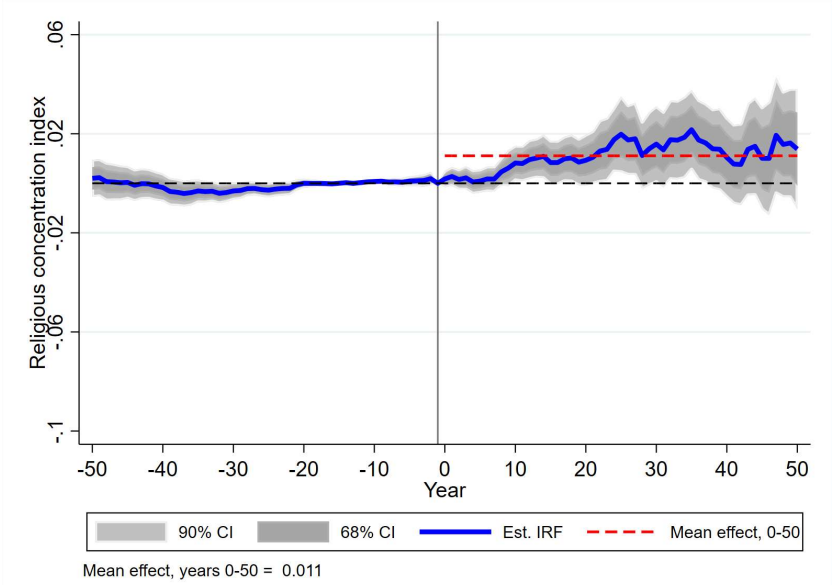
Notes: The figure reports dynamic estimates for high-intensity revolutionary episodes. A revolutionary episode is classified as war-scale if it records at least 1,000 deaths per year on average. The outcome is the V-Dem freedom of religion index. Coefficients are estimated using the pre-mean-differenced local-projection difference-in-differences specification with never-treated countries as controls. The event window covers 50 years before and 50 years after onset. This figure tests whether the decline in religious freedom is stronger when revolutionary contention reaches a level of violence comparable to major armed conflict.

Source: Authors' calculations.

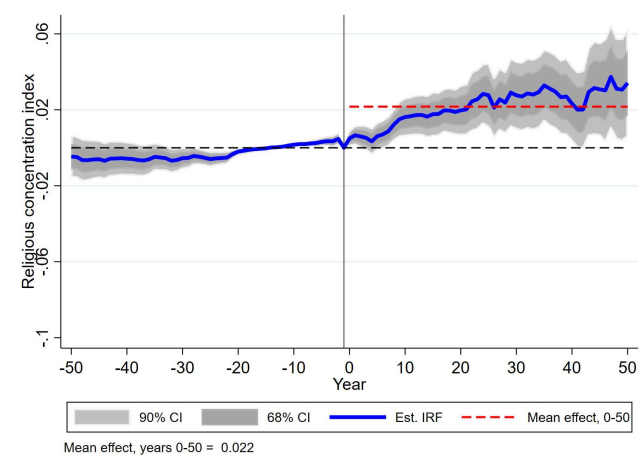
Figure SAIV replaces the V-Dem freedom of religion index with a religious fractionalization index, which we constructed from the Religious Characteristics of States Dataset, Demographics, version 2.0.9 Following Alesina et al. (2003), the index is defined as one minus the sum of squared shares across major belief groups, including Christians, Muslims, Hindus, Buddhists, Jews, East Asian religions, Indigenous religionists, other religionists, and, importantly, the not-religious population (i.e., $= 1 - \sum_g s_{git}^2$, where s_{git} is the population share of belief group g in country i and year t). This last component is central because the index captures not only diversity among organized religions, but also the presence and social acceptance of secular or non-religious identities. Higher values therefore indicate a less religiously concentrated society and a more plural belief structure. The results follow the freedom-of-religion pattern: violent revolutionary onsets are followed by rising religious fractionalization, whereas non-violent onsets show weaker and more negative dynamics.

[9] The RCS-Dem dataset provides state-year measures of religious populations and percentages across a wide set of religious and non-religious categories, including the share of the population classified as not religious. Dataset could be found Data Archive (RCS-Dem 2.0)

PANEL A: REVOLUTION



PANEL B: VIOLENT REVOLUTION



PANEL C: NON-VIOLENT REVOLUTION

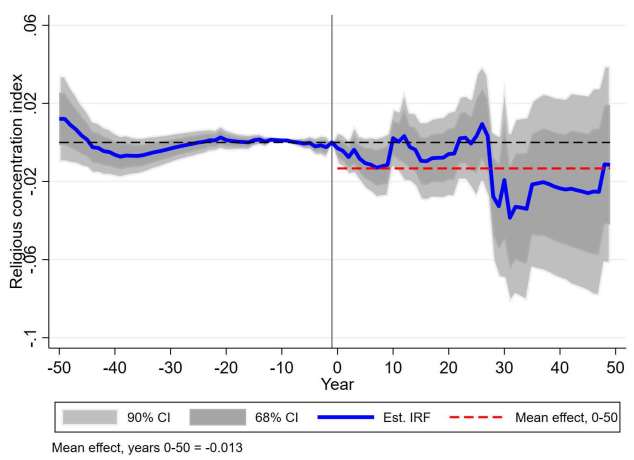


Figure SAIV. Dynamic Effects on Religious Fractionalization: Violent versus Nonviolent Revolutionary Onsets

Notes: The figure reports dynamic estimates for revolutionary onsets. Panel A pools all revolutions, Panel B restricts the sample to violent revolutions, and Panel C restricts it to nonviolent revolutions. The outcome is the religious fractionalization index, constructed from the RCS-Dem 2.0 religious-demographics data. The index is defined as $1-(s_{\text{chr}}^2+s_{\text{mus}}^2+s_{\text{hin}}^2+s_{\text{bud}}^2+s_{\text{jew}}^2+s_{\text{eac}}^2+s_{\text{ind}}^2+s_{\text{ore}}^2+s_{\text{nre}}^2)$, where s denotes the population share of each belief group: Christians, Muslims, Hindus, Buddhists, Jews, East Asian religious complex, Indigenous religionists, other religionists, and the *not religious*. Higher values indicate greater religious and non-religious diversity, and lower concentration around a single dominant religious tradition. Each coefficient is estimated using the same pre-mean-differenced local-projection difference-in-differences framework as in Figure SAI, with never-treated countries as controls and a 50-year event window. The red dashed line reports the mean post-onset effect over years 0–50. The purpose of the figure is to test whether the association between revolution and religious freedom is also reflected in broader changes in the composition and diversity of religious and non-religious beliefs.

Source: Authors' calculations.