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Can public policies lower religiosity? Evidence from school choice in France, 1878–1902†

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This study analyses the effects of public policies on religiosity by focusing on the enrolment of pupils in French Catholic primary schools between 1878 and 1902. During this period, the government increased public spending and made school attendance free and mandatory until the age of 13. The empirical analysis presented here suggests that greater public spending had no substantial effect on the enrolment in Catholic schools. By contrast, mandatory schooling laws had a negative, but quantitatively limited, impact. The overall resilience of Catholic schooling is traced to the political divide created by the 1789 French Revolution.

Can public policies affect beliefs, and specifically, religiosity?[1] The growth of the welfare state during the twentieth century may have reduced the supply of goods and services offered by private religious organizations, but it is less obvious that it also depressed religious observance.[2] In fact, recent research by Franck and Iannaccone and by Hungerman suggests that, to the extent that state spending contributes to secularization, it is only through the development of a state-funded

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[1] This study is related to the literature on the relationship between economic outcomes and beliefs about economics and politics; see, for example, Bénabou, 'Ideology'; Saint-Paul, 'Endogenous indoctrination'. However, unlike beliefs about the welfare state or privatization, accuracy in the face of welfare losses is not an issue for religious beliefs since there is no empirical evidence that can negate the transcendental elements of religions.

[2] Gill and Lundsgaarde, 'State welfare'; Gruber and Hungerman, 'Faith-based charity'. Following Weber, *Protestant ethic*, the 'secularization hypothesis' literature (see notably Chaves, 'Secularization'; Norris and Inglehart, *Sacred and secular*; and Bruce, *Secularization*, for modern expositions) has argued that higher income, technological development, and rising educational levels depressed religious observance. Another strand of research (Iannaccone, 'Religious market structure'; idem, 'Economics of religion'; Stark and Finke, *Acts of faith*; Iannaccone, Finke, and Stark, 'Deregulating religion') has, however, emphasized that religiosity is not only demanded by practitioners, but also supplied by religious producers who face incentives, opportunities, and competition. This literature has often hinted that the decline in religiosity during the twentieth century can be attributed to substitution between the churches' charitable activities and state spending on social services.

educational system.[3] For instance, Hungerman shows that the educational gains caused by the progressive introduction of mandatory schooling laws in Canada led more individuals to identify themselves as non-religious.[4] However, despite greater public involvement in education in the last 30 years of the nineteenth century in many European countries, there was no significant decrease in religiosity comparable to that which occurred after the Second World War.[5]

France in the late nineteenth century exemplifies the persistence of religiosity in a period of increased state intervention.[6] During the Second Empire (1852–70), neither Catholic nor state primary schooling was free. However, between 1875 and 1902, in the early years of the Third Republic (1875–1940), the costs and benefits of choosing a religious rather than a public education changed dramatically as there was a 14-fold increase (in real terms) in public spending on secular education. This article shows that this massive increase in public spending on education did not have any significant effect on Catholic schooling in late nineteenth-century France. Instead, we find that it took two coercive nation-wide laws to make parents withdraw their children from Catholic schools: the 1881–2 laws made schooling free and mandatory while the 1 July 1901 law on associations, in effect, prevented monks and nuns from teaching.

Our empirical analysis relies on data pertaining to the enrolment in Catholic primary schools and public spending between 1878 and 1902.[7] Specifically, we consider spending by the three tiers of government: the central state and the *départemental* and communal governments across the 87 French *départements* (the *départements* are the administrative divisions of the French territory which were designed in 1790, and the communes represent the lower tier of local government within the *départements*).[8] We include in our regressions additional factors that may be correlated with religiosity such as fertility, urbanization, and the shares of the workforce in the industrial and service sectors.

The situation of France during the late nineteenth century is particularly informative of the relationship between education, secularization, and democratization, since the educational policies that were undertaken by the successive French governments did not occur in a political vacuum. Rather, they reflected the political divisions that existed in the early years of the Third Republic

[3] Franck and Iannaccone, 'Religious decline'; Hungerman, 'Effect of education'.

[4] Hungerman, 'Effect of education'.

[5] On secularization in the nineteenth century, see, for example, Becker and Woessmann, 'Not the opium'; Becker, Nagler, and Woessmann, 'Education promoted secularization'.

[6] Aspects of the strength of Catholicism in late nineteenth-century France include the construction of new church buildings, such as the Cathedral of the Sacred Heart in Paris, the development of pilgrimages within France from and to medieval cathedrals (for example, from Paris to Chartres), and the rise in popularity of the Marian cult, as exemplified by the development of the pilgrimage to Lourdes where the Virgin Mary had appeared in 1858.

[7] This 24-year period seems enough to measure changes in religiosity, given the large drop in religiosity that occurred in most western European countries, in the US, and in Canada between 1960 and 1980. See, for example, Franck and Iannaccone, 'Religious decline'.

[8] After the loss of Bas-Rhin, Haut-Rhin, and Moselle in the 1870–1 French-Prussian War, France was left with 87 metropolitan *départements*, including Corsica. Because of fusions and scissions between small communes, their total number varies throughout our sample period: there were 36,056 communes in 1878 (average per *département*: 414.44; std. dev. per *département*: 185.38) and 36,191 communes in 1902 (average per *département*: 415.99; std. dev. per *département*: 185.1). For the sake of comparison, there were 34,937 communes in metropolitan France (including Corsica but excluding Bas-Rhin, Haut-Rhin, and Moselle) in 2012.

(1875–1940) and the ensuing battle between church and state.[9] The Republicans controlled the governmental apparatus but were opposed by the Monarchists who had the support of the Catholics. The latter opposed the Republicans, whom they associated with the 1789 Revolution and the severe religious persecutions that accompanied it. Thus, the objectives of the Republicans were both ideological and political. They were trying to crowd out the extensive school system run privately by the Catholic church because they believed that educated individuals would contribute to the betterment of society, in particular by supporting the Republican regime.[10] Conversely, nineteenth-century church doctrine strongly opposed state schooling, and this opposition was reaffirmed in Pope Leo XIII's 1884 encyclical *On the religious question in France*, published in the wake of 1881–2 laws on free and mandatory schooling and the secularization of state-funded primary schools. Because of this historical context, and as corroborated by an extensive literature, the share of pupils in Catholic schools can be viewed as a good proxy for religiosity.[11]

We also investigate potential mechanisms for explaining the resilience of Catholic school enrolment. We evaluate the contribution of geographic, cultural, economic, and political factors to religiosity by running regressions across the 87 French *départements*. Our results suggest that parochial education was especially resilient in the areas where substantial acts of violence against priests and lay Catholics were committed by the revolutionary authorities during the 1789 French Revolution. This finding suggests that the strong link between politics and religiosity (or lack thereof) can account for the failure of increased public spending to depress Catholic school attendance. In effect, we find that making secular education cheaper by building schools and hiring more teachers was not enough to break the deep historical links between religion and politics in late nineteenth-century France. Rather, it took coercive regulations to weaken Catholic education.

The rest of the article is arranged as follows. Section I provides a historical perspective on Catholic schooling and on state educational policies in late nineteenth-century France. Section II presents the data and section III the empirical methodology. Section IV presents the main results, while section V analyses the potential channels for the resilience of religiosity in France. Section VI concludes.

I

Before the 1789 French Revolution, the Catholic church had a near monopoly on education in France, but its network of schools was small and did not benefit

[9] Brown, *For the soul of France*.

[10] The republicans' educational policies were just one aspect of their attempt to consolidate the Republic and centralize state institutions. In this respect, they were pursuing the development of state capacity initiated during the seventeenth century by King Louis XIV (r. 1643–1715). On the history of state capacity in France, see, for example, Bonney, ed., *Fiscal state*; Johnson, 'Taxes, national identity, and nation building'; Johnson and Koyama, 'Tax farming'; Tilly, *Contention*. For overviews on state capacity, see, for example, Besley and Persson, *Pillars of prosperity*; Dincecco, *Political transformations*.

[11] See Cholvy and Chaline, *L'enseignement catholique*; Lanfray, *Sécularisation*; Ozouf, *L'école*. The conflict over education between Catholics and secular forces in France also occurred in Belgium at the end of the nineteenth century; see, for example, Martin, 'Laïcité'; Ansell and Lindvall, 'Political origins'. More generally, Cohen-Zada, 'Religious identity', is a recent study which also uses enrolment in Catholic schools as a proxy for religiosity.

all children.[12] The church's education system, however, grew quickly during the monarchy of King Louis-Philippe I (1830–48) and the Second Republic (1848–52) as these regimes favoured the church's educational system, even though they were not favourable to the church per se.[13] Thus, during Emperor Napoleon III's Second Empire (1852–70), Catholic education was a prominent institution that enabled large literacy gains.[14] As neither public nor private schools were free during this period, all families, with the exception of the very poor, had to pay a tuition fee known as the *rétribution scolaire* to enrol their children in a public school. Over time, this fee retained importance only in rural areas since, in the cities, tax revenues from the *départements* and communes paid for most schooling expenses. To enrol in a private school, however, parents often had to pay fees that could be quite significant.[15] To put things in perspective, the data of Diebolt and Trabelsi suggest that in 1876, five years before the mandatory schooling laws were passed, 43.80 per cent of children aged 5–15 (boys and girls) were enrolled in secular primary schools while 32.14 per cent were enrolled in Catholic primary schools, respectively. In other words, 24.06 per cent of the children aged five to 15 in 1876 in France did not go to school.[16]

With the establishment of the Third Republic (1875–1940), public educational policies became focused on increasing enrolment in secular state schools. The dominant Republican Party wanted to consolidate the new political regime, and one of the means to achieve this goal was to weaken the church and the Catholic school network.[17] The 16 June 1881 law and the 2 August 1881 decree established secular kindergarten schools, the 20 June 1881 law made state-funded primary schooling 'public, secular and mandatory' until the age of 13 and abolished the *rétribution scolaire*, while the 28 March 1882 and 30 October 1886 laws established the neutrality of the state-funded educational system in matters of religion, philosophy,

[12] On the French education system before 1789, see, for example, Lebrun, Venard, and Quéniart, *Histoire générale*. On the long-run consequences of Catholic schooling see, for example, Cohen-Zada and Elder, 'Religious concentrations', and specifically in western Europe, West and Woessmann, 'Catholic child', who argue that Catholic schooling had a positive impact on literacy rates, except in the countries—like France—where Catholicism was a state religion.

[13] On 28 June 1833 François Guizot, King Louis-Philippe I's prime minister, enacted the law that reshaped the organization of schooling in France and enabled the church to organize its own private education system. But at the same time, the church retained its control on public schooling. Religious instruction remained mandatory and monks and nuns were often employed as teachers in public schools. During the Second Republic, education minister Alfred de Falloux enacted the 15 March 1850 law and the 27 Aug. 1851 regulation that favoured the Church since towns would not have to fund a public school if there was already a private (that is, Catholic) school in their jurisdiction. Moreover, all teachers would have to fulfil all the duties that the church prescribed. Finally, Catholic secondary schools could compete with public secondary schools while still obtaining subsidies from the state and from the local governments.

[14] Diebolt, Jaoul, and San Martino, 'Mythe de Ferry'; Grew and Harrigan, *School.*

[15] For example, to enrol in the private secondary school Collége Saint-Stanislas in Nantes (Loire Inférieure) for one year, the average student paid 521 francs in 1894–5; Launay, 'Enseignement secondaire'). This compares to an average yearly salary for a working man in the same *département* of 1,142 francs in 1896; France, Ministère du travail et de la prévoyance sociale, *Statistique*, p. 25.

[16] Diebolt and Trabelsi, 'Human capital'.

[17] The Republicans followed the strategy suggested by one of their leaders, Léon Gambetta, who declared: 'Le cléricalisme, voilà l'ennemi' ('Clericalism, here is the enemy'). Other examples of legal reforms promoting secularization and undertaken by the Republicans included the suppression of public prayers (16 June 1881 law), the suppression of the religious oath in courts (2 Aug. 1881 decree), the (re-)legalization of divorce (27 July 1882 law), and the suppression of official public prayers at the start of each new parliamentary session (14 Aug. 1884 law).

and politics.[18] Thus, after 1881, it was free for parents to send their children to a public school, but they had to pay a (potentially significant) cost to send them to a private school.

The Republicans also dramatically increased the proportion of education spending coming from the central state at the start of the 1880s.[19] Until then, the central state had barely financed school spending, leaving this task to the local *départemental* and communal governments. The first change in policy was brought about by the 1 June 1878 law that limited the ability of communes to delegate school finance to the local church and made them responsible for education policies in their jurisdiction, from the construction of school buildings to running the school budgets. Additional laws (9 August 1879, 3 July 1880, 2 August 1881, 20 March 1883, 30 January 1884, and 20 June 1885) progressively increased the amount awarded for the construction of secular schools. In parallel, the Republicans passed several laws to increase the number of teachers in primary and secondary schools. In particular, the 9 August 1879 law established Ecoles Normales Supérieures in each *département* to train local male and female primary schoolteachers.[20] These dramatic increases in spending can be seen in figure 1. Total spending on education went from about 50 million French francs spent at the communal level in 1875 to about 225 million French francs in 1902, of which 150 million was provided by the central state.

This increase in public spending had significant effects on secular school infrastructure. This can be seen in figures 2 and 3, which show the increase in public school buildings and in secular teachers, particularly women, in 1878, 1888, 1898, and 1902. The Republicans clearly targeted female primary schooling, as can be seen by the sharp increase in the numbers of female secular teachers from 24,111 in 1878 to 57,226 in 1902.[21]

However, the large increases in public spending on education seem only to have had a limited impact on enrolment in Catholic schools before 1900. This is illustrated in figure 4, which shows the shares of male and female pupils in Catholic schools at the national level between 1878 and 1902. The share of male pupils in Catholic primary schools was equal to 18.97 per cent in 1878, 14.44 per cent in 1886, and 15.22 per cent in 1896, while that of female pupils was equal to 54.76 per cent in 1878, 45.30 per cent in 1886, and 42.01 per cent in 1896. Of course, given the large amount of heterogeneity in Catholic school attendance and education

[18] Mégrine, *Question scolaire*, notes that in spite of the 28 March 1882 law, the teaching of duties towards God would still be maintained in the courses of 'morality' in primary schools, following a logrolling agreement between right-wing parliamentarians and Jules Ferry. Furthermore, the 30 October 1886 law abolished de facto the 1850 and 1851 Falloux laws by preventing communes from funding private Catholic primary schools. It seems, however, that public funds could still represent up to 10% of the budget of Catholic secondary schools; Tanguy, 'L'état et l'école'.

[19] The Republicans were able to finance much of this increase in public spending by taking advantage of the supply shock facing agriculture from the mid-1870s due to decreases in grain prices on the world commodities markets. In the face of this exogenous shock, the Republicans raised the tariffs on grain to protect rural farmers, resulting in a significant, and protectionist, impact on the relative price of French grain; O'Rourke and Williamson, *Globalization and history*.

[20] On the training of teachers until 1914, see Grandière, *Formation des maîtres*.

[21] The 30 Oct. 1886 law authorized communes of fewer than 500 inhabitants to organize classes with both boys and girls. However in the larger communes, boys and girls were taught separately until 1975. It was usually the case that one building was constructed and then divided into a primary school for boys and a primary school for girls.

Figure 1. *Public spending on education, 1875–1902*

Source: Authors' computations, based on *Annuaire statistique de la France* (1878–1914), and France, Ministère des finances, *Bulletin de statistique*.

spending across French regions, these statistics are only suggestive. Nonetheless, they reflect what we will confirm in our formal econometric analysis below—Catholic enrolment in France was largely unaffected by state spending until 1900. Moreover, these statistics show that parents were more likely to send their girls than their boys to Catholic schools. In line with Mayeur's study on female education in nineteenth-century France, we can only speculate as to why parents were more likely to enrol their daughters than their sons in Catholic schools.[22] While the curriculum of female education was different from that of male education, insofar as it did not only include acquiring basic literacy and numeracy skills but also 'female skills' such as knitting, it does not seem that there were systematic differences in female education between secular and Catholic schools that would make Catholic schooling sharply superior to its secular counterpart (it was only in 1924 that the curriculum of secondary schools for boys and girls was unified). Therefore, if parents perceived Catholic schooling to be of higher quality than secular schooling, this would be a signal of religiosity as this indicated they preferred monks and nuns to teach their daughters. We can maybe speculate that most French parents thought that sending their daughters to Catholic primary schools would prevent cases of

[22] Mayeur, *L'éducation des filles*.

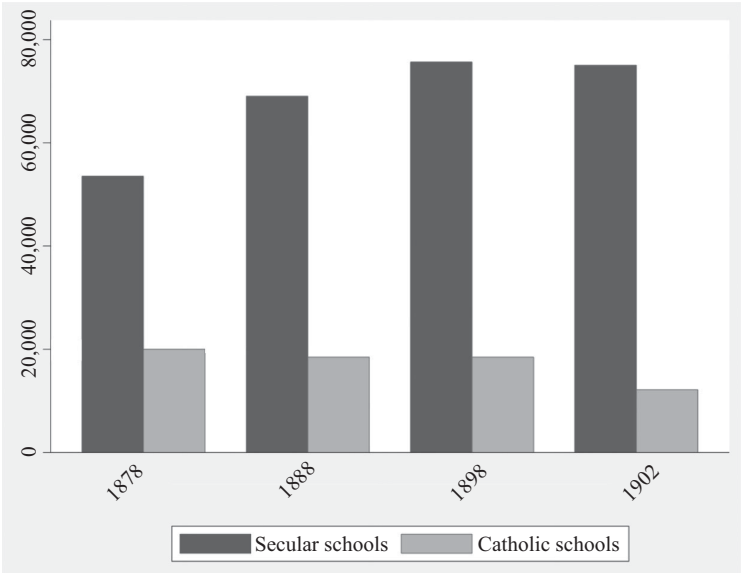

Figure 2. *Secular and Catholic schools, 1878–1902*
Source: Annuaire statistique de la France (1878–1914).

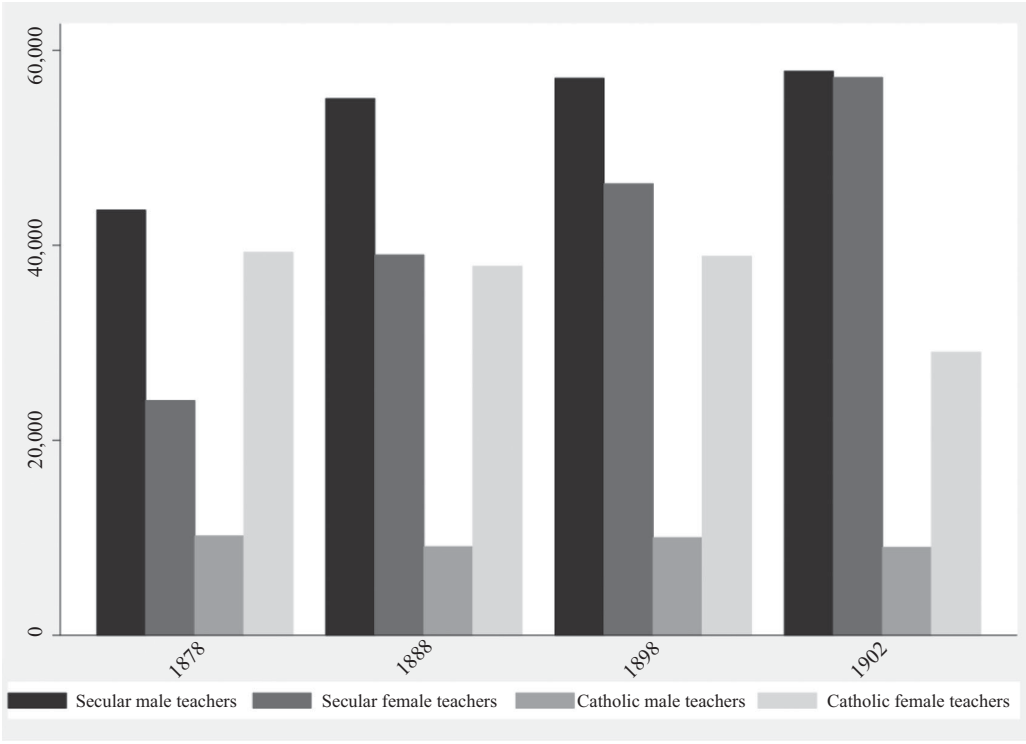

Figure 3. *Secular and Catholic teachers by gender, 1878–1902*
Source: As for fig. 2.

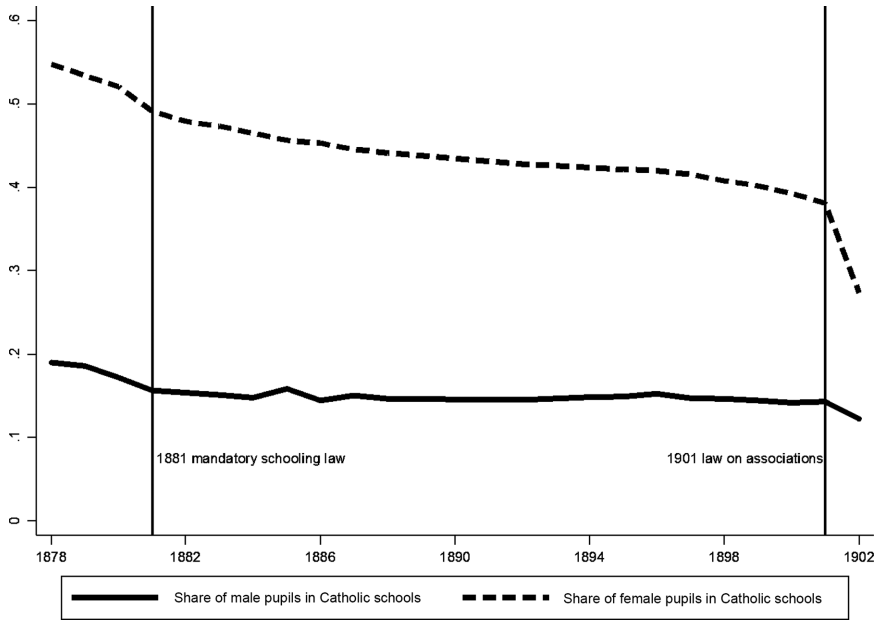

Figure 4. *Shares of male and female pupils in Catholic schools in France and schooling laws, 1878–1902*
Source: As for fig. 2.

teenage pregnancy a few years later. Alternatively, we may hypothesize that Catholic parents thought it was more important to teach Catholicism to girls than to boys.

Catholic schooling could not, however, withstand the legal assault of the Republicans after 1900. Despite the efforts of Pope Leo XIII to mend the relationship between the church and the French Republic in the early 1890s with his policy of *ralliement* ('rallying'), the Republicans renewed their attacks against the church under the premiership of René Waldeck-Rousseau (1899–1902). The 1 July 1901 law on associations jeopardized the very existence of the Catholic orders of monks and nuns, known as *congrégations*, that provided the bulk of the teachers in Catholic schools. Its effects were immediate, as can be seen in figure 4. The national share of boys in Catholic primary schools decreased from 15.22 per cent in 1896 to 12.21 per cent in 1902, while that of girls went down from 42.01 per cent to 27.34 per cent.

Following the 1902 election, the Republicans continued their anti-clerical policies under the premiership of Emile Combes (1902–1905) and eventually passed the 7 July 1904 law which barred members of the Catholic *congrégations* from teaching. Ultimately, the Republicans voted in favour of the separation of church and state under the premiership of Maurice Rouvier (1905–06) in 1905. While the law protected freedom of conscience, the French state stopped recognizing official religions and ended subsidies to religious groups. In theory, Catholic schools had become private institutions outside the scope of the French government's reach. However, in practice, the Republicans still wanted to control the entire curricula of Catholic schools. This would be the main point of contention between Republicans

Table 1. *Descriptive statistics*

	Obs.	*Mean*	*Std. dev.*	*Min.*	*Max.*
Dependent variables					
Share of male pupils in Catholic schools	1,131	0.15	0.10	0.01	0.61
Share of female pupils in Catholic schools	1,131	0.44	0.17	0.06	0.92
Share of Catholic schools	1,043	0.23	0.11	0.03	0.69
Catholic schools (no.)	1,043	210.19	136.81	12	1,316
Explanatory variables					
Spending	1,131	1,771,785	2,609,086	152,091.50	40,000,000
Spending per pupil	1,131	3.24	0.43	1.62	5.79
1881 law	1,131	0.77	0.42	0	1
1901 law	1,131	0.15	0.36	0	1
Fertility rate	1,131	0.27	0.06	0.17	0.58
Share of conscripts who were high-school graduates	1,131	0.86	0.11	0.06	0.99
Share of conscripts who could read and write	1,131	0.01	0.01	0	0.05
Share of the population in urban areas	1,131	0.29	0.16	0.08	1
Share of the workforce in the industrial sector	1,131	0.23	0.11	0.003	0.71
Share of the workforce in the service sector	1,131	0.03	0.01	0.008	0.08

Sources: Annuaire statistique de la France (1878–1914); France, Ministère des finances, *Bulletin de statistique.*

and Catholics until the First World War. Since then, the controversies surrounding private religious and public secular schooling have resurfaced from time to time in France, but they have not reached the intensity of the 1870–1914 period.

II

Our data comprise information on the 87 French metropolitan *départements*, including Corsica and excluding the French overseas territories, over the 1878–1902 period.[23] Table 1 provides descriptive statistics for our variables, which are built from the successive issues of the French Census *Annuaire statistique de la France* (1878–1914), and the *Bulletin de statistique et de législation comparée*.[24]

Male and female pupils in Catholic primary schools

Our dependent variables are the shares of male and female pupils in Catholic primary schools out of the total number of schoolboys and schoolgirls in each *département* between 1878 and 1902. We also use the number and the share of Catholic schools out of the total number of primary schools in France. As can be seen in table 1, over the whole period and all regions, the average male enrolment in parochial schools was only 15 per cent. However, Catholic education was much more important for girls, who had an average enrolment rate of 44 per cent. These averages also mask large cross-sectional differences. As can be seen in

[23] The overseas territories that are excluded from our study are Algérie, Inde Française, Guyane, Guadeloupe, Martinique, La Réunion, Cochinchine, and Sénégal. This is because we do not have reliable data on the characteristics of these territories. Even if we had such data, we would have to distinguish in places such as Inde Française, Cochinchine, and Sénégal between the children of French settlers, who had access to the state-funded schools, and those of the local population, who usually did not at that time.

[24] Because data on school enrolment and data on public spending from the central government and the two layers of local government (*départements* and communes) are not systematically available for every year between 1878 and 1902, our dataset is de facto reduced to the following 13 years: 1878–82, 1886–7, 1896–7, 1899–1902.

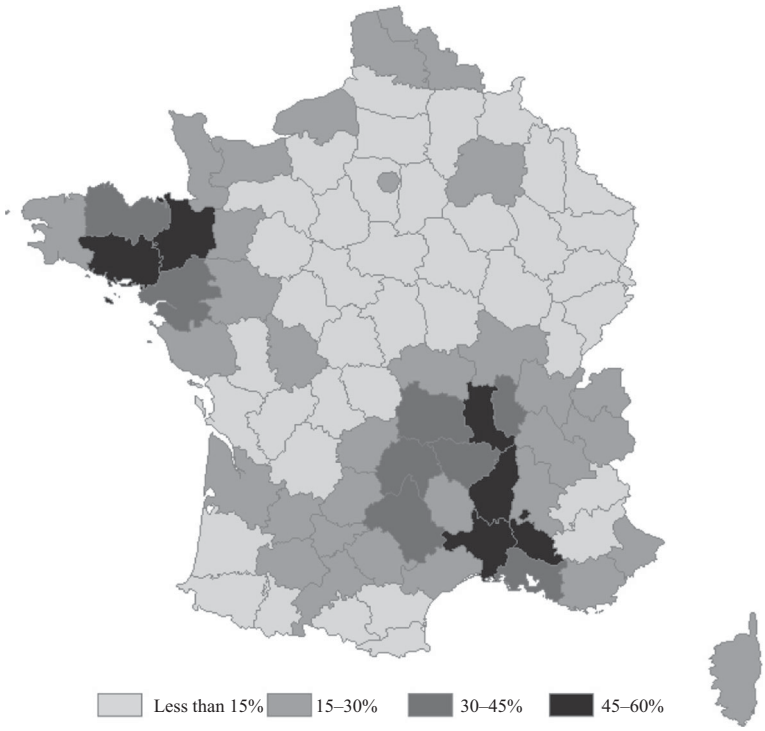

Figure 5. *Share of male pupils in Catholic schools in 1878*
Source: As for fig. 2.

figures 5 to 8, the most Catholic *départements* enrolled close to 60 per cent of boys and 92 per cent of girls in parochial schools in 1878. These regional differences persisted through 1902.

It should also be noted that, until the First World War, most French pupils were not expected to study beyond primary school. It is therefore very unlikely that parents would send their children to Catholic primary schools to help them enter a prestigious post-secondary institution. Few men, and even fewer women, studied in universities and other post-secondary institutions, which were nearly all state-run, including the most prestigious ones such as École Polytechnique or ENS-Ulm.[25]

There may be some concerns that school choice is not a good proxy for religiosity. We provide additional evidence in online appendix S1 showing that the shares of boys and girls enrolled in each Catholic school are correlated with various historical measures of religiosity from the late eighteenth century until the First World War.

[25] Universities and post-secondary institutions did not discriminate against students who had learnt in Catholic schools, in line with Jules Ferry's views who had opposed the wishes of some high-level civil servants such as Edgar Zevort on this matter; Chevallier, *Séparation de l'Eglise*.

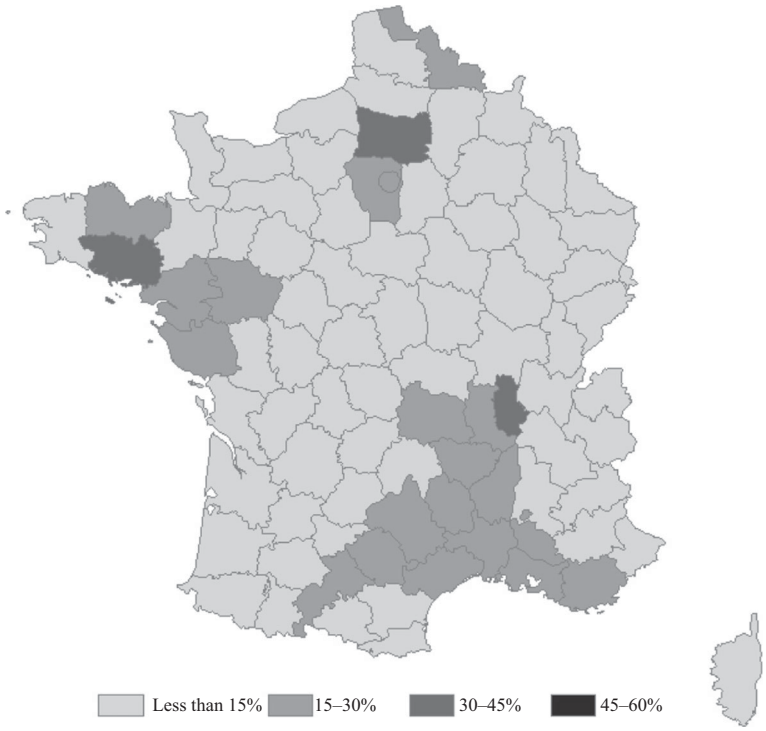

Figure 6. *Share of male pupils in Catholic schools in 1902*
Source: As for fig. 2.

Laws on education and public spending

We focus on three variables to assess the impact of state intervention on Catholic primary schooling. Two of them are qualitative and account for nation-wide policies: *1881 Law* takes the value 1 for all the years from 1881 onwards to assess the effect of the laws on free and mandatory schooling, while *1901 Law* takes the value 1 from 1901 onwards to account for the law that prevented monks and nuns from teaching.

Our third variable, *Spending*, measures spending on education in every *département*. It is equal to the total amount of spending by the three levels of government: the central state, the *départements*, and the communes. Spending on education by the central state rose from 9,706,575 French francs in 1875 to 136,577,968 French francs in 1902—a 14-fold increase. By contrast, spending by the communes only grew from 48,237,955 French francs in 1875 to 79,875,903 French francs in 1902, while that of the *départements* declined from 5,844,527 French francs in 1875 to 34,942 French francs in 1902.[26] Overall, spending per pupil rose from 1,450 French francs in 1878 to 3,298 French francs in 1902.

In this respect, it must be noted that in nineteenth-century France, local public spending reflected local tax receipts, and hence local income. At that time,

[26] All these data are fully comparable since there was no inflationary trend in France between 1815 and 1914; Bernholz, *Monetary regimes*.

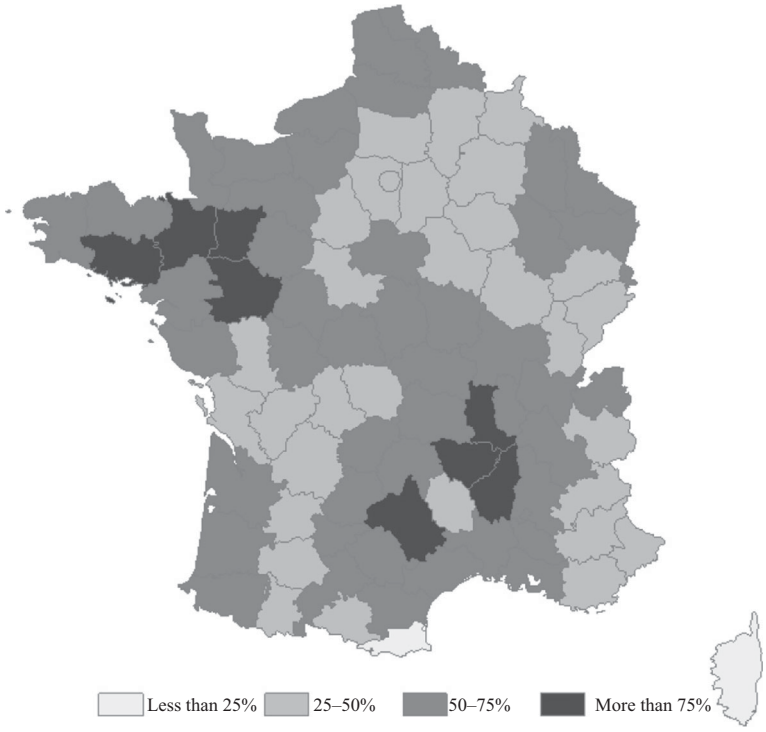

Figure 7. *Share of female pupils in Catholic schools in 1878*
Source: As for fig. 2.

inter-*départemental* or inter-communal loans did not exist and the central government had progressively reined in the local governments' ability freely to set the scope and the rates of local taxes.[27] French national tax receipts stemmed from two sources: indirect taxes and direct taxes.[28] Indirect taxes were excise taxes, mostly levied on alcohol, sugar, coffee, and tobacco. Conversely, direct taxes were levied on people and their real estate. They did not comprise an income tax, which was only instituted in France in 1914, but instead included a land value tax, a property tax, a corporate tax, a tax on the number of doors and windows of each building, as well as additional taxes levied on horses, pool and gaming clubs. The indirect taxes represented the bulk of the tax receipts in France. However, since they were excise taxes, they could substantially vary from one year to the next, depending on the current income of the French taxpayers. Conversely, the direct taxes represented the lesser part of the total tax receipts but were less likely to fluctuate because of income shocks.

[27] In practice, yardstick competition on tax rates between local governments was not a major issue in late nineteenth-century French politics and is unlikely to drive our results (on yardstick competition, see, for example, Besley and Case, 'Incumbent behavior', and on local government tax reforms in France at the turn of the twentieth century, see, for example, Franck, Johnson, and Nye, 'Internal taxes').

[28] On the French tax system in the nineteenth century, see Say, *Dictionnaire des finances*; Stourm, *Système généraux*; Leroy-Beaulieu, *Science des finances*.

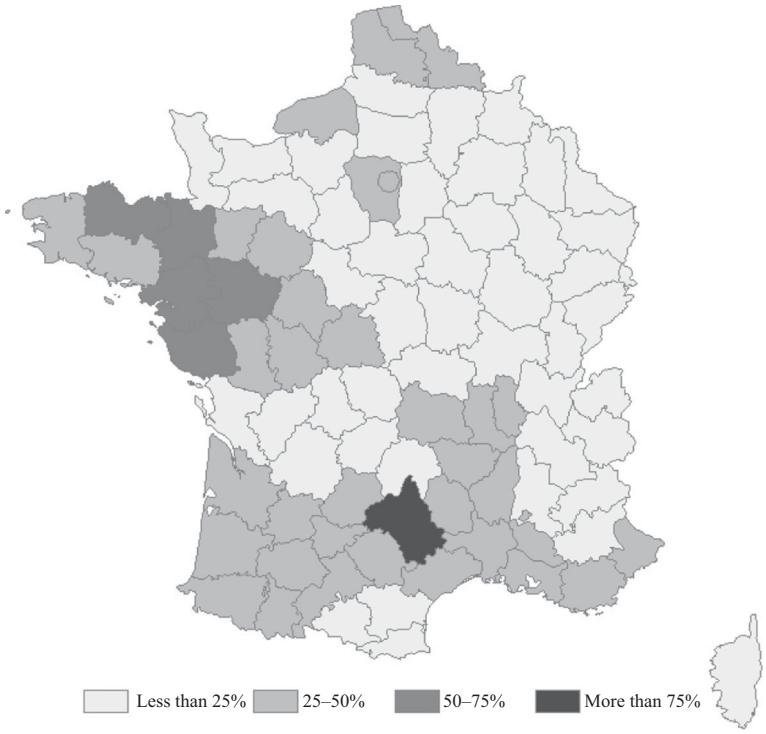

Figure 8. *Share of female pupils in Catholic schools in 1902*
Source: As for fig. 2.

Human capital, urbanization, and the workforce

In our empirical analysis, we control for measures of human capital and economic development. It may have been the case, for example, that areas with lower fertility rates were more secular, and therefore had lower rates of Catholic primary school enrolment. We control for this possibility by using data on the Fertility Coale Index computed by Bonneuil for each *département.*[29]

To control for literacy, we rely on the educational statistics of the French army's conscripts, that is, 20 year-old men who reported for military service in the *département* where their father lived.[30] We distinguish between the shares of conscripts who were high-school graduates and those who were only literate, that is, those who could read and write but who did not complete high school, while the omitted category is composed of the illiterate conscripts. The descriptive statistics in table 1 show that on average during the 1878–1902 period, 86.5 per cent of the

[29] Bonneuil, *Transformation*. For recent discussions on the demographic transition, see Brown and Guinnane, 'Regions and time'; Guinnane, 'Fertility transition'. Specifically on the early fertility decline in France, see Cummins, 'Marital fertility'; González-Bailón and Murphy, 'Social interactions'.

[30] Because we rely on data on the literacy of conscripts, we are not really concerned by a selection bias which usually affects studies using volunteer soldiers, particularly those that deal with the soldiers' height (see, for example, Mokyr and Ó Gráda, 'Height and health'; and Weir, 'Economic welfare', for a discussion). Specifically, it is unclear why the literacy of conscripts would be systematically under- or over-reported in one or several departments throughout the years in our dataset.

French conscripts were literate but only 1.5 per cent were high-school graduates. These figures are somewhat unsurprising, given that literacy rates progressively increased in France throughout the nineteenth century but most children were only expected to complete primary school. Indeed the completion of secondary and post-secondary studies was only available to a tiny group of pupils whose parents were rich enough to fund the 'long' studies of their children.

Finally, we include for each *département* data on the share of the workforce in the industrial and service sectors, where individuals working in the agricultural sector make up our control group, as well as data on the share of the urban population. As can be seen in table 1, France remained a predominantly rural country between 1878 and 1902, in spite of the rural exodus which had begun in the second half of the nineteenth century.[31] In our sample period, less than a third of the French population lived in urban areas and only a quarter worked in the industrial and service sectors.

III

Our econometric analysis is based on the following regression:

$$Y_{dt} = \alpha + \beta Spending_{dt} + \zeta_1 1881 Law_t + \zeta_2 1901 Law_t + X'_{\mathbf{dt}}\omega + \theta_d + \varphi_t + \varepsilon_{dt} \quad (1)$$

where Y_{dt} represents either the share of male or female pupils in Catholic schools in *département d* in year *t*. $Spending_{dt}$ is the total public spending on education by the central state, the *départements*, and the communes. *1881 Law*$_t$ is a dummy variable equal to one after the mandatory schooling legislation passed in 1881 while *1901 Law*$_t$ is a dummy variable equal to one after the passing of the 1901 law on associations which prevented monks and nuns from teaching. $\mathbf{X'_{dt}}$ is a vector of variables controlling for the fertility, the share of the urban population, as well as the share of the workforce in the industrial and service sectors in each *département*. We also include *département* fixed effects (θ_d) and year fixed effects (φ_t) to account for unobserved heterogeneity that may potentially bias our estimates. ε_{dt} is an independent and identically distributed (i.i.d.) error term.

It is a priori unclear whether year fixed effects should be used in equation 1. This is because they could be correlated with the *1881 Law*$_t$ and *1901 Law*$_t$ dummy variables. This concern leads us to also report regression results with a polynomial time trend instead of year fixed effects.

IV

Table 2 shows that the 1881 and 1901 laws on education had a significant and negative impact on the enrolment of male and female pupils in Catholic schools. The impact of the 1881–2 mandatory schooling law, however, is found to be quantitatively limited in the OLS regressions, as the share of boys and girls in Catholic schools only decreased by, at most, 3.18 per cent and 5.99 per cent respectively. The effect of the 1901 law, by contrast, is more substantial: it depressed

[31] Sauvy, *Histoire économique*, documents the fact that migrations from the rural to the urban areas continued after the First World War.

Table 2. *Public spending and the resilience of religiosity*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Share of male pupils in Catholic schools				*Share of female pupils in Catholic schools*		
Spending	−0.0110*	−0.0112*	−0.0147	−0.0114	−0.0195	−0.0185	−0.0120	−0.0125
	(0.00625)	(0.00605)	(0.00909)	(0.00818)	(0.0129)	(0.0125)	(0.0155)	(0.0149)
1881 law	−0.0252***	−0.0161***	−0.0318***	−0.0212***	−0.0420***	−0.0393***	−0.0550***	−0.0599***
	(0.00317)	(0.00326)	(0.00350)	(0.00556)	(0.00441)	(0.00587)	(0.00337)	(0.00780)
1901 law	−0.00987**	−0.00736*	−0.00208	−0.0650***	−0.0554***	−0.0553***	−0.101***	−0.186***
	(0.00444)	(0.00442)	(0.00897)	(0.0195)	(0.00545)	(0.00541)	(0.0131)	(0.0345)
Fertility rate		0.0367		0.0375		−0.0520		−0.0689
		(0.0495)		(0.0502)		(0.0551)		(0.0525)
Share of conscripts who were high-school graduates		−0.00485		−0.00502		0.00578		0.00531
		(0.00425)		(0.00423)		(0.00366)		(0.00374)
Share of conscripts who could read and write		−0.0142*		−0.0148*		0.00265		−0.00151
		(0.00834)		(0.00867)		(0.0125)		(0.0132)
Share of the population in urban areas		0.0791*		0.0837*		−0.122		−0.112
		(0.0415)		(0.0423)		(0.0778)		(0.0759)
Share of the workforce in the service sector		−0.0543***		−0.0468***		−0.00705		0.0217
		(0.0134)		(0.0145)		(0.0275)		(0.0287)
Share of the workforce in the industrial sector		−0.00578		−0.00523		−0.0302***		−0.0255**
		(0.00514)		(0.00517)		(0.0109)		(0.0105)
Constant	−47.02	−340.9*	0.389***	0.313**	−294.0	−195.5	0.712***	0.531**
	(145.4)	(203.2)	(0.125)	(0.147)	(263.0)	(292.7)	(0.213)	(0.265)
Within R^2	0.167	0.226	0.189	0.238	0.602	0.619	0.657	0.673
Adjusted R^2	0.163	0.218	0.179	0.225	0.600	0.615	0.653	0.668
Polynomial time trend	Yes	Yes	No	No	Yes	Yes	No	No
Year fixed effects	No	No	Yes	Yes	No	No	Yes	Yes
Département fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of *départements*	87	87	87	87	87	87	87	87
Observations	1,131	1,131	1,131	1,131	1,131	1,131	1,131	1,131

Note: All specifications include *département* fixed effects and year fixed effects. Robust standard errors clustered on *département* are reported in brackets. *** indicates significance at the 1% level. ** indicates significance at the 5% level. * indicates significance at the 10% level.

the share of male pupils in Catholic schools by 6.5 per cent and that of female pupils by 18.6 per cent. Ultimately, the 1901 law de facto prevented monks and nuns from teaching and was the first step in the demise of Catholic schooling in France.

We note that the coefficient of the *Spending* variable is negative in the OLS regressions, which is consistent with a crowding-out effect by higher public spending of the share of male pupils and female pupils in Catholic schools. However, the effect is only significant for the enrolment of boys in the regressions with a polynomial time trend. Moreover, greater public spending does not have any significant impact on Catholic schooling for girls.

The lack of a significant effect of higher public spending is confirmed in the regressions reported in online appendix tables S4 to S5. In online appendix table S1, we regress lagged values of public spending on our measures of school choice and find that none of these lagged variables has a significant effect on enrolment in Catholic schools. In online appendix tables S5 and S6, we show that the number and share of Catholic schools out of the total number of primary schools in France was not affected by higher public spending, but by the 1901 law which prohibited monks and nuns from teaching. In this respect, a potential explanation for the resilience of Catholic schooling was that monks and nuns who taught in Catholic schools were paid less than their secular counterparts (even though Catholic schooling required tuition fees after 1881 while public schooling was 'free').[32]

Moreover, we note that in all of the regressions (in table 2 as well as in online appendix tables S4 to S6), none of the control variables has a systematic significant impact on our measures of school choice. This observation suggests that the economic trend which characterized France between 1878 and 1902, such as the continued decline in fertility and the rural exodus, did not have a major impact on enrolment in Catholic schools.

Overall, our results indicate that increased public spending did not have any substantial effect on the preferences of parents who sent their children to Catholic schools. The 1881–2 mandatory schooling law had a negative effect, but it was quantitatively limited and can be attributed to those parents who did not send their children to school before the passing of the law or only sent them for a few years: once these parents were compelled to have their children enrolled until the age of 13, they sent them to secular state-run schools. It was only with the passing of the 1901 law that Catholic parents began to send their children to secular schools, since all the teaching staff (monks and nuns) in Catholic schools were no longer allowed to teach. As such, our results suggest that Catholic parents were not 'won over' by free and mandatory schooling but were coerced into enrolling their children in secular schools. In other words, if we were to abstract ourselves from the religious context for the sake of the argument, we could view our results as showing that the state does not always succeed in crowding out the private sector. When the state competed on prices, and arguably on the quality of the good which was cheaper and of a higher quality since there were more state-funded schools and teachers, it did

[32] Carry, 'L'éducation en France', estimates that in 1864, the average wage for a priest amounted to 226 French francs. To put things in perspective, the minimal wage of primary schoolteachers in the 1853 law was set to 700 French francs, while Delefortrie and Morice, *Revenus departementaux*, estimate that the average revenue per inhabitant in France in 1864 amounted to 477 French francs.

not attract 'customers'. Only brute-force restrictions in 'labour laws' enabled the state to succeed. However, such an analysis fails to provide an explanation as to why parents would keep on sending their children, and in particular their daughters, to Catholic primary schools. In the next section, we examine potential channels for this steadfast Catholic opposition to secular schooling in late nineteenth-century France.

V

Theoretical hypotheses

In this section, we examine three sets of hypotheses that may explain the persistence of Catholic schooling in late nineteenth-century France. First, state capacity may have historically been weaker in some areas, thereby limiting the subsequent influence of the central government on educational policy. Second, an historical legacy of economic backwardness and, in particular, low levels of human capital, may help explain late nineteenth-century religiosity. Finally, the patterns of religiosity may have depended upon past cultural and political events. We report descriptive statistics for our variables in table 3.

Religiosity may persist because of long-standing constraints on state capacity. We capture these constraints in several ways. We use the straight-line distance between Paris, the French capital, and the *chef-lieu* of each *département* as a proxy for central government influence.[33] We also investigate whether ruggedness of terrain may have made it more difficult for the central government to influence individual behaviour. Moreover, we also investigate regional data on tax revenues in 1789 on the eve of the Revolution. Tax receipts may be viewed as a proxy for state capacity and the ability of the French administration to impose its will on educational policy. Another way to assess limited state capacity before the 1789 French Revolution is to use the monarchy's administrative distinction between the areas of *pays d'état* (country of state), which were more autonomous from the French king, and those of the *pays d'élection* (country of election), which were more integrated into royal administration, notably in fiscal matters.[34] We thus compute the share of each *département*'s territory in a former *pays d'état*.

A second set of explanations for the persistence of religiosity in late nineteenth-century France pertains to past levels of economic development before and after the industrial revolution. Our measure of wealth in a pre-industrial society is urban density, which we assess using the average population of cities with more than 5,000 inhabitants in each *département* in 1700 from Bosker et al.[35] Moreover, in order to evaluate the impact of industrialization and economic development on religiosity during the nineteenth century, we use the data of Combes et al. on the shares of the workforce in the agricultural, industrial, and service sectors in 1860

[33] In additional regressions, we find that the geographical closeness to Rome is not a predictor of Catholic religiosity, in line with the historical evidence; Gough, *Paris and Rome*. This is probably because regional traditions shaped religiosity, but also because the French Catholic church was always keen on maintaining its independence from the pope, at least until the 1789 French Revolution. It was only during the course of the nineteenth century that the popes succeeded in asserting their control over the French church.

[34] Mousnier, *Society and the state*; idem, *Organs of state and society*.

[35] Bosker, Buringh, and van Zanden, 'From Baghdad to London'.

Table 3. *Descriptive statistics for the long-run determinants of resilient religiosity*

	Obs.	*Mean*	*Std. dev.*	*Min.*	*Max.*
Education and literacy					
Share of children not speaking French as first language in 1864	85	0.112	0.166	0	0.600
Primary school attendance in 1837	83	0.436	0.218	0.126	1.025
Primary school attendance in 1866	86	0.696	0.173	0.307	1.058
Share of conscripts who could read and write (class of 1874, year of birth 1854)	87	0.821	0.107	0.542	0.986
The church and the French Revolution					
Share of clergymen against the 1791 oath to the civil constitution of the clergy	73	42.945	23.265	6	89
No. of *emigrés*	84	1,214.381	989.611	43	5,331
No. of clergymen *emigrés*	67	325.597	214.130	4	1,033
Terror—no. of death sentences	86	191.593	568.862	0	3,548
Geographical characteristics					
Distance from Paris to the *département's chef-lieu*	87	444.238	244.506	1	1,182
Terrain ruggedness	85	65.106	4.823	52.574	74.686
State capacity and economic conditions					
Share of the *département*'s territory in a former pays d'état	85	0.543	0.393	0	1
Urban density in 1700 based on average population of cities with more than 5,000 inhabitants	85	16.352	55.021	0	500
Taxes per capita in 1758	85	18.424	8.827	3.860	51.720
Share of the population in the agricultural sector in 1860	85	0.301	0.103	0.005	0.656
Share of the population in the industrial sector in 1860	85	0.097	0.045	0.036	0.260
Share of the population in the service sector in 1860	85	0.070	0.031	0.034	0.231
Religious communities in 1856					
No. of religious communities per *département* in 1856	82	30.890	32.998	0	221
No. of religious communities devoted to educational purposes per *département*, 1856	82	18.573	22.317	0	163
No. of religious communities devoted to charitable purposes, 1856	82	8.439	13.549	0	109
No. of religious communities solely devoted to religious purposes, 1856	82	3.878	5.177	0	32

Sources: Annuaire statistique de la France (1878–1914); Combes, Lafourcade, Thisse, and Toutain, 'Spatial inequalities'; France, 'Résultats du dénombrement de 1856'; Greer, 'Incidence of the Terror'; idem, 'Incidence of the emigration'; Johnson, 'Taxes'; Johnson and Koyama, 'Tax farming'; Tackett, 'Religion'; Weber, 'Peasants into Frenchmen'.

in each *département.*[36] We also use data on education before the establishment of the Third Republic. These are the historical levels of primary school enrolment in 1837 and 1866, computed as the ratio of pupils in primary schools to the total population of children between the ages of five and 15 and the share of 20-year old conscripts who could read and write in 1874, one year before the Third Republic was officially established.[37]

Finally, religiosity might have persisted in nineteenth-century France because of cultural differences between the various French regions.[38] We try to assess these potential channels in two different ways. First, religiosity could be linked to the persistence of regional culture, which we assess by the existence of regional languages as opposed to French. This is because, historically, French was the language of centralized state power: it may thus be hypothesized that areas where French was not widely spoken were more likely to reject the national legitimacy of the Republican government and to side with the church that they viewed as a legitimate source of local authority. To test this hypothesis, we use the results from the inquiry launched in 1864 by Victor Duruy, who was then Napoleon III's minister of education, on the share of children whose mother tongue was not French. We also use data from the *Statistique de la France* on the location of religious communities in 1856.

As a second measure of culture, we trace the persistence of Catholic schooling to the local population's participation in the 1789 Revolution, which was an assault on both the institutions of the French monarchy and the privileges of the church. We use Tackett's data on the share of clergymen in each *département* who refused to take the oath in support of the Constitution Civile du Clergé in 1791, and who were known as 'refractory' priests.[39] This piece of legislation put forward by the revolutionary legislators was hostile to the Catholic church insofar as it compelled French clergymen to swear allegiance to the French government.[40] However, since it was adopted before the revolutionaries undertook major violent persecutions against Catholics, it is probably the case that the share of priests supporting the 1791 oath did not reflect the consequences of the French Revolution but the actual level of religious observance in each *département.*[41] We use additional variables to assess the long-term impact of memories of revolutionary violence of the local population. These include data on the individuals who were sentenced to death

[36] Combes et al., 'Spatial inequalities'.
[37] Diebolt and Trabelsi, 'Human capital'.
[38] Weber, *Peasants into Frenchmen*.
[39] Tackett, *Religion*.
[40] Other pieces of legislation against the Catholic church passed by the French revolutionaries are discussed by Godechot, *Institutions de la France*.
[41] Tackett, 'French Revolution and religion', p. 546, reports that in most areas, priests were pressured by the lay people to accept or reject the oath to the civil constitution of the clergy, thereby providing a referendum on the religiosity of the population at the start of the French Revolution. Of course the personal preferences of priests might have played a role when they agreed or refused to take the oath: some individuals, such as Fouché, Sieyès, and Talleyrand, could have joined the clergy because of family pressure or out of self-interest rather than out of personal conviction. However, it seems that overall, the *départements* where the 1791 oath was largely opposed, such as Morbihan and Vendée, remained staunchly Catholic after the Revolutionary and Napoleonic wars ended; Cholvy, *Religion en France*.

during the 1793–4 Terror, and on the *émigrés*—those individuals who fled France just before or during the Terror, as much out of fear as out of personal conviction.[42]

To evaluate the relative contributions of each of the variables above to Catholic affiliation at the end of the nineteenth century, we run a series of regressions of the form:

$$Y_{dt} = \alpha + \beta_1 Spending_{dt} + \beta_2\ Spending_{dt} \times Channel_{\mathrm{d}} + \zeta_1 1881 Law_{\mathrm{t}} + \zeta_2 1901 Law_t + \mathbf{X'_{dt}}\ \omega + \theta_{\mathrm{d}} + \varphi_t + \varepsilon_{\mathrm{dt}} \quad (2)$$

where Y_{dt} represents either the share of male or female pupils in Catholic schools in *département d* in year *t*. $Spending_{dt}$ is the total public spending on education by the central state, the *départements*, and the communes, and $Channel_d$ is one of the channels for the persistence of religiosity which we described in this section. *1881* Law_t is a dummy variable equal to one after the mandatory schooling legislation passed in 1881, while *1901* Law_t is a dummy variable equal to one after the passing of the 1901 law on associations which prevented monks and nuns from teaching. $\mathbf{X'_{dt}}$ is a vector of variables controlling for fertility, the share of the urban population, as well as the share of the workforce in the industrial and service sectors in each *département*. Moreover we include *département* fixed effects (θ_d) and year fixed effects(φ_t), while ε_{dt} is an i.i.d. error term.

Empirical results

Table 4 evaluates the impact of historical state capacity on religiosity. Table 5 assesses the role of economic conditions, while table 6 focuses on past measures of education. Finally, table 7 examines the historical role of the church and of the 1789 French Revolution, while table 8 looks at the location of religious communities in 1856. Each table displays the regressions for the shares of Catholic male and female pupils in each *département* over the 1878 to 1902 period. For the sake of brevity, we only report in each table the coefficient and standard error of the *Spending* and *Channel* variables.

The results in table 4 show that there is a relationship between historical state capacity and Catholic school choice, particularly for girls. This is the case for terrain ruggedness, which has a positive and significant relationship for the interaction between public spending and the share of girls in Catholic primary schools but has no effect on male school choice. By contrast, the regression using tax receipts in 1788 from de Forbonnais suggests that spending by the state was more effective at the margin in inducing enrolment in secular schools for girls, but not for boys.[43]

[42] See Greer, *Incidence of the Terror*; idem, *Incidence of the emigration*. As discussed by Gueniffey, *Politique de la terreur*, and idem, 'Grande terreur', revolutionary violence took three forms. There was the violence of the crowds, which was mostly located in urban areas, violence carried out by the central state in the west of France where the Revolution was strongly opposed, and finally judicial violence in the form of the 1793–4 Terror when the French revolutionaries abused the judicial branch of government to execute all those who opposed (rightly or wrongly) the Revolution. While these three forms of violence are distinct, our analysis of the data in Greer, *Incidence of the Terror*, suggests that the judicial Terror is a good proxy for the other forms of violence: it mainly took place in the three most urbanized *départements*, that is, in Seine, Rhône, and Bouches-du-Rhône, which host the three largest French cities (Paris, Lyons, and Marseille) and in the *départements* of Loire-Inférieure, Maine-et-Loire, and Vendée where mass killings of the local population occurred.

[43] de Forbonnais, *Recherches*.

Table 4. *State capacity and the resilience of religiosity*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Share of							
	Male	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*
	pupils in Catholic schools							
Spending	−0.174*	−0.387***	0.0332	0.0688***	0.00177	−0.0101	−0.0256*	−0.0427**
	(0.103)	(0.0846)	(0.0280)	(0.0192)	(0.00963)	(0.0218)	(0.0136)	(0.0187)
Spending × terrain ruggedness	0.00242	0.00559***						
	(0.00149)	(0.00121)						
Spending × distance from Paris to the *département's chef-lieu*			−0.00823*	−0.0150***				
			(0.00476)	(0.00358)				
Spending × share of the *département's* territory in a former *pays d'état*					−0.0252*	−0.00266		
					(0.0129)	(0.0205)		
Spending × taxes per capita in 1788							0.000659	0.00153**
							(0.000424)	(0.000645)
Within R^2	0.251	0.693	0.246	0.680	0.255	0.673	0.250	0.678
Adjusted R^2	0.237	0.688	0.232	0.674	0.241	0.667	0.237	0.672
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Département fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of *départements*	86	86	87	87	85	85	85	85
Observations	1,118	1,118	1,131	1,131	1,105	1,105	1,105	1,105

Notes: The table shows the coefficient and the standard error for public spending and for the interaction between public spending and each channel variable introduced one at a time. Additional variables in col. 2 of tab. 2 are included but not reported. Robust standard errors are reported in brackets. *** indicates significance at the 1% level. ** indicates significance at the 5% level. * indicates significance at the 10% level.

Table 5. *Economic conditions and the resilience of religiosity*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Share of							
	Male	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*
	pupils in Catholic schools							
Spending	−0.0126	−0.0229	0.00363	0.00944	−0.0159	−0.00981	−0.00559	−0.0323
	(0.00876)	(0.0151)	(0.0204)	(0.0346)	(0.0108)	(0.0176)	(0.0116)	(0.0230)
Spending × urban density in 1700 based on Average population of cities with more than 5,000 inhabitants	6.55e−06	0.000165***						
	(2.04e−05)	(2.87e−05)						
Spending × share of the population in the agricultural sector in 1860			−0.0509	−0.0677				
			(0.0477)	(0.0910)				
Spending × share of the population in the industrial sector in 1860					0.0342	−0.0159		
					(0.0898)	(0.209)		
Spending × share of the population in the service sector in 1860							−0.0733	0.232
							(0.145)	(0.243)
Within R^2	0.247	0.678	0.250	0.674	0.247	0.673	0.248	0.675
Adjusted R^2	0.233	0.672	0.236	0.668	0.233	0.667	0.234	0.669
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Département fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of *départements*	85	85	85	85	85	85	85	85
Observations	1,105	1,105	1,105	1,105	1,105	1,105	1,105	1,105

Notes: As for tab. 4.

Table 6. *Education, literacy, and the resilience of religiosity*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Share of							
	Male	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*
	pupils in Catholic schools							
Spending	−0.00887	−0.00500	−0.0364***	−0.0102	−0.0580***	−0.0106	−0.0939***	−0.0846
	(0.0124)	(0.0199)	(0.0109)	(0.0170)	(0.0181)	(0.0283)	(0.0354)	(0.0686)
Spending × share of children not speaking French as first language in 1864	−0.0154	−0.0307						
	(0.0337)	(0.0560)						
Spending × primary school attendance, 1837			0.0912***	−0.00985				
			(0.0235)	(0.0314)				
Spending × primary school attendance, 1866					0.0834***	−0.00299		
					(0.0234)	(0.0378)		
Spending × share of conscripts who could read and write (class of 1874, year of birth 1854)							0.109**	0.0953
							(0.0443)	(0.0866)
Within R^2	0.247	0.674	0.280	0.666	0.261	0.669	0.248	0.675
Adjusted R^2	0.233	0.668	0.266	0.660	0.248	0.663	0.235	0.669
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Département fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of *départements*	85	85	83	83	86	86	87	87
Observations	1,105	1,105	1,079	1,079	1,118	1,118	1,131	1,131

Notes: As for tab. 4.

Table 7. *The church, the 1789 French Revolution, and the resilience of religiosity*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Share of									
	Male	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*
	pupils in Catholic schools									
Spending	−0.00667	−0.0429	−0.00602	−0.0290	−0.00674	−0.0317	−0.0109	−0.0226	−0.009	−0.0219
	(0.0246)	(0.0399)	(0.0121)	(0.0208)	(0.0124)	(0.0274)	(0.00845)	(0.0145)	(0.0088)	(0.0149)
Spending × Share of clergymen against the 1791 oath to the civil constitution of the clergy	−0.0176	0.0344								
	(0.0256)	(0.0386)								
No. of *emigrés*			−3.32e−06	1.13e−05						
			(7.03e−06)	(1.16e−05)						
Spending × no. of clergymen *emigrés*					−9.34e−06	5.03e−05				
					(1.93e−05)	(3.75e−05)				
Spending × Terror—no. of death sentences							−1.75e−06	2.49e−05***		
							(4.99e−06)	(6.84e−06)		
Spending × Terror social incidence—clergy									−4.39e−05	0.000260**
									(8.41e−05)	(0.000113)
Within R^2	0.247	0.661	0.247	0.668	0.196	0.669	0.234	0.677	0.235	0.675
Adjusted R^2	0.231	0.653	0.233	0.661	0.177	0.661	0.220	0.671	0.221	0.669
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Département fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of *départements*	73	73	84	84	67	67	86	86	86	86
Observations	949	949	1,092	1,092	871	871	1,118	1,118	1,118	1,118

Notes: As for tab. 4.

Table 8. *Religious communities in 1856 and Catholic school enrolment*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Share of							
	Male	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*
	pupils in Catholic schools							
Spending	0.01000	−0.00216	0.0109	−0.00413	−0.00317	−0.0126	−1.43e−05	0.000544
	(0.0235)	(0.0260)	(0.0189)	(0.0234)	(0.0102)	(0.0166)	(0.00979)	(0.0153)
Spending × religious communities, 1856	−0.00680	−0.00334						
	(0.00745)	(0.00852)						
Spending × religious communities for education, 1856			−0.00798	−0.00308				
			(0.00669)	(0.00845)				
Spending × religious communities for charity, 1856					−0.00553	−0.000191		
					(0.00621)	(0.00871)		
Spending × religious communities for religious purposes, 1856							−0.00955	−0.0108
							(0.00714)	(0.0110)
Within R^2	0.302	0.662	0.303	0.662	0.300	0.662	0.304	0.663
Adjusted R^2	0.288	0.655	0.289	0.655	0.287	0.655	0.291	0.657
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Département fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of *départements*	82	82	82	82	82	82	82	82
Observations	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066

Notes: As for tab. 4.

Moreover, the share of the *département*'s territory in a former *pays d'état* has a negative and significant coefficient on the interaction between public spending and male pupils in Catholic schools. *Départements* that are further away from Paris also experienced a decrease in public spending effectiveness on enrolling male and female pupils in secular schools. This suggests that areas were more resistant to state spending on secular education if they were relatively more independent from the state institutions before the French Revolution.

Table 5 shows that there was little connection between school choice and economic development before and after the industrial revolution. Urban density in 1700 has a positive and significant impact on the share of girls in Catholic schools. However, this effect is found to be economically small. Moreover, the shares of the workforce in the agricultural, industrial, and service sectors in 1860 are not significantly correlated with school choice.

Furthermore, table 6 shows that some past measures of education and literacy are correlated with the patterns of Catholic school enrolment. Greater primary school enrolment in 1837 and 1866 as well as the literacy of the conscripts in 1874 are positively and significantly correlated with the ineffectiveness of state spending on Catholic school choice for boys. The effect is, however, not significant for girls. These observations can be given two interpretations, which do not necessarily contradict each other. On the one hand, they suggest that educated individuals preferred sending their boys to Catholic public schools in the 1830s and 1860s but shifted their preference afterwards in the 1870s. On the other hand, they suggest that the church served as the main provider of education in the areas where the central state and the local governments failed adequately to provide basic educational services. The school attendance rate of boys in 1837 and 1866 is only found to be significant because parents were more likely to send their boys than their girls to school, at a time where only the poorest did not pay tuition fees.[44]

Finally, table 7 suggests that the resilience of Catholicism can be robustly linked to the consequences of the 1789 French Revolution, and specifically to the onslaught of the revolutionaries against the Church. We find that Catholic schooling was vibrant in the late nineteenth century in the *départements* where revolutionary violence led to numerous executions during the Terror and, in particular, where many clergymen were executed. While the study by Greer indicates that only 921 individuals out of 16,589 sentenced to death were clergymen, this measure is a better indicator of religiosity a century later than the total number of *émigrés*, the share of the 'refractory' clergymen who rejected the 1791 Constitution Civile du Clergé, or the location of religious communities within France in 1856 (see table 8).[45]

Overall, these correlations suggest that in late nineteenth-century France, Catholic schooling was still strong in the areas that suffered the most from revolutionary violence during the 1793–4 Terror. These were also the *départements* where the church presumably filled the void left by the absence of state-run schools, maybe as a result of the 1789 Revolution, but also because these were areas that were more independent from the French monarchs before 1789. Thus,

[44] In additional regressions, available upon request, we find that the share of children for whom French was not the main language in 1864 is uncorrelated with enrolment in Catholic schools.

[45] Greer, *Incidence of the Terror*.

the memories of revolutionary violence and a relative greater degree of political autonomy before 1789 explain the refusal of the local population to acknowledge the legitimacy of the Republic and to forsake their support for the church, as shown in their preference for Catholic schooling.

VI

This study has examined the relationship between education and religiosity by analysing the effects of public policies on Catholic primary school enrolment in late nineteenth-century France. Our results suggest that increased state spending had a negative but not significantly robust effect on the share of pupils enrolled in Catholic schools, while mandatory schooling laws had a negative and significant impact, albeit quantitatively limited. Hence our findings indicate that very few parents who were sending their children to Catholic schools modified their preferences as a result of greater public spending and state intervention. Only the 1901 law which, de facto, limited the supply of Catholic schools by preventing monks and nuns from teaching coerced parents with a preference for Catholic schooling into enrolling their sons and daughters in secular primary schools.

We have traced the overall resilience of Catholic schooling to the political divide stemming from the violence of the 1789 French Revolution. In the areas where the population sided with local priests who opposed the French revolutionaries, Catholic schooling was still strong a century later. The legacy of the French Revolution may thus help explain why Catholicism was so resilient in late nineteenth-century France. Overall, the results in this article call into question theories that systematically associate the decline in religiosity with greater state spending on education. Our results suggest that during the first years of the Third Republic, religiosity in France was unaffected by education spending, but rather was resilient because it was strongly associated with political issues that had deep historical roots.

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Footnote references

Ansell, B. and Lindvall, J., 'The political origins of primary education systems: ideology, institutions, and interdenominational conflict in an era of nation-building', *American Political Science Review*, 107 (2013), pp. 505–22.
Becker, S. O., Nagler, M., and Woessmann, L., 'Education promoted secularization', Competitive Advantage in the Global Economy online working paper ser. (2014).
Becker, S. O. and Woessmann, L., 'Not the opium of the people: income and secularization in a panel of Prussian counties', *American Economic Review*, 103 (2013), pp. 539–44.
Bénabou, R., 'Ideology', *Journal of the European Economic Association*, 6 (2008), pp. 321–52.
Bernholz, P., *Monetary regimes and inflation: history, economic and political relationships* (Cheltenham, 2003).
Besley, T. and Case, A., 'Incumbent behavior: vote-seeking, tax-setting, and yardstick competition', *American Economic Review*, 85 (1995), pp. 25–45.
Besley, T. and Persson, T., *Pillars of prosperity: the political economics of development clusters* (Princeton, NJ, 2011).
Bonneuil, N., *Transformation of the French demographic landscape, 1806–1906* (Oxford, 2007).
Bonney, R., ed., *The rise of the fiscal state in Europe c. 1200–1815* (Oxford, 1995).

Bosker, M., Buringh, E., and van Zanden, J. L., 'From Baghdad to London: unravelling urban development in Europe, the Middle East, and North Africa 800–1800', *Review of Economics and Statistics*, 95 (2013), pp. 1418–37.
Brown, F., *For the soul of France: culture wars in the age of Dreyfus* (New York, 2010).
Brown, J. C. and Guinnane, T. W., 'Regions and time in the European fertility transition: problems in the Princeton Project's statistical methodology', *Economic History Review*, 60 (2007), pp. 574–95.
Bruce, S., *Secularization: in defence of an unfashionable theory* (Oxford, 2011).
Carry, A., 'Le compte satellite rétrospectif de l'éducation en France 1820–1996', *Economies et Sociétés*, 2–3 (1999), pp. 1–281.
Chaves, M., 'Secularization as declining religious authority', *Social Forces*, 72 (1994), pp. 749–74.
Chevallier, P., *La séparation de l'Eglise et de l'école: Jules Ferry et Léon XIII* (Paris, 1981).
Cholvy, G., *La religion en France de la fin du XVIIIe siècle à nos jours* (Paris, 1998).
Cholvy, G. and Chaline, N.-J., *L'enseignement catholique en France aux XIXè et XXè siècles* (Paris, 1995).
Cohen-Zada, D., 'Preserving religious identity through education: economic analysis and evidence from the US', *Journal of Urban Economics*, 60 (2006), pp. 372–98.
Cohen-Zada, D. and Elder, T., 'Historical religious concentrations and the effects of Catholic schooling', *Journal of Urban Economics*, 66 (2009), pp. 65–74.
Combes, P.-P., Lafourcade, M., Thisse, J.-F., and Toutain, J.-C., 'The rise and fall of spatial inequalities in France: a long-run perspective', *Explorations in Economic History*, 48 (2011), pp. 243–71.
Cummins, N., 'Marital fertility and wealth during the fertility transition: rural France, 1750–1850', *Economic History Review*, 66 (2013), pp. 449–76.
Delefortrie, N. and Morice, J., *Les revenus départementaux en 1864 et en 1954* (Paris, 1959).
Diebolt, C., Jaoul, M., and San Martino, G., 'Le mythe de Ferry: une analyse cliométrique', *Revue d'Économie Politique*, 115 (2005), pp. 471–97.
Diebolt, C. and Trabelsi, J., 'Human capital and French macroeconomic growth in the long run', *Economies et Sociétés (Serie 'Histoire Economique Quantitative')*, 40 (2009), pp. 901–17.
Dincecco, M., *Political transformations and public finances: Europe, 1650–1913* (Cambridge, 2011).
de Forbonnais, F. V. D., *Recherches et considérations sur les finances de France* (Basel, 1758).
Franck, R. and Iannaccone, L. R., 'Religious decline in the 20th century west: testing alternative explanations', *Public Choice*, 159 (2014), pp. 385–414.
Franck, R., Johnson, N. D., and Nye, J. V. C., 'From internal taxes to national regulation: evidence from a French wine tax reform at the turn of the twentieth century', *Explorations in Economic History*, 51 (2014), pp. 77–93.
Gill, A. and Lundsgaarde, E., 'State welfare spending and religiosity: a cross-national analysis', *Rationality and Society*, 16 (2004), pp. 399–436.
Godechot, J., *Les institutions de la France sous la Révolution et l'Empire* (Paris, 1951).
González-Bailón, S. and Murphy, T. E., 'The effects of social interactions on fertility decline in nineteenth-century France: an agent-based simulation experiment', *Population Studies*, 67 (2013), pp. 135–55.
Gough, A., *Paris and Rome: the Gallican church and the ultramontane campaign, 1848–1953* (Oxford, 1986).
Grandière, M., *La formation des maîtres en France 1792–1914* (Lyon, 2006).
Greer, D., *The incidence of the Terror during the French Revolution: a statistical interpretation* (Gloucester, Mass., 1935).
Greer, D., *The incidence of the emigration during the French Revolution* (Gloucester, Mass., 1951).
Grew, R. and Harrigan, P. J., *School, state, and society: the growth of elementary schooling in nineteenth-century France—a quantitative analysis* (Michigan, 1991).
Gruber, J. and Hungerman, D. M., 'Faith-based charity and crowd-out during the great depression', *Journal of Public Economics*, 91 (2007), pp. 1043–69.
Gueniffey, P., *La politique de la terreur: essai sur la violence révolutionnaire (1789–1794)* (Paris, 2000).
Gueniffey, P., 'La grande terreur: naissance et mort d'une idéologie', in P. Gueniffey, ed., *Histoires de la révolution et de l'empire* (Paris, 2011), pp. 237–302.
Guinnane, T. W., 'The historical fertility transition: a guide for economists', *Journal of Economic Literature*, 49 (2011), pp. 589–614.
Hungerman, D. M., 'The effect of education on religion: evidence from compulsory schooling laws', *Journal of Economic Behavior and Organization*, 104 (2014), pp. 52–63.
Iannaccone, L. R., 'The consequences of religious market structure: Adam Smith and the economics of religion', *Rationality and Society*, 3 (1991), pp. 156–77.
Iannaccone, L. R., 'Introduction to the economics of religion', *Journal of Economic Literature*, XXXVI (1998), pp. 1465–95.
Iannaccone, L. R., Finke, R., and Stark, R., 'Deregulating religion: the economics of church and state', *Economic Inquiry*, 35 (1997), pp. 350–64.
Johnson, N. D., 'Taxes, national identity, and nation building: evidence from France', George Mason Univ. working paper, 15–33 (2014).
Johnson, N. D. and Koyama, M., 'Tax farming and the origins of state capacity in England and France', *Explorations in Economic History*, 51 (2014), pp. 1–20.

Lanfray, A., *Sécularisation, séparation et guerre scolaire: les catholiques français et l'école, 1901–1914* (Paris, 2003).
Launay, M., 'Un siècle d'enseignement secondaire diocésain: le collège Saint-Stanislas à Nantes (1829–1929)', *Annales de Bretagne et des Pays de l'Ouest*, 90 (1983), pp. 581–92.
Lebrun, F., Venard, M., and Quéniart, J., *Histoire générale de l'enseignement et de l'éducation en France*, 2: *de Gutemberg aux Lumiéres*, 1480–1789 (Paris, 2003).
Leroy-Beaulieu, P., *Traité de la science des finances* (Paris, 1906).
Martin, J.-P., 'Laïcité belge, laïcité française: regards croisés', in A. Dierken, ed., *Pluralisme religieux et laïcités dans l'Union Européenne, Problèmes d'histoire des religions*, vol. 5 (Brussels, 1994), pp. 71–86.
Mayeur, F., *L'éducation des filles en France au xixe siécle* (Paris, 1979).
Mégrine, B., *La question scolaire en France* (Paris, 1963).
Mokyr, J. and Ó Gráda, C., 'Height and health in the United Kingdom 1815–1860: evidence from the East India Company army', *Explorations in Economic History*, 33 (1996), pp. 141–68.
Mousnier, R. E., *The institutions of France under the absolute monarchy, 1598–1789*, I: *Society and the state* (Chicago, Ill., 1979).
Mousnier, R., *The institutions of France under the absolute monarchy, 1598–1789*, II: *The organs of state and society* (Chicago, Ill., 1984).
Norris, P. and Inglehart, R., *Sacred and secular: religion and politics worldwide* (Cambridge, 2004).
O'Rourke, K. H. and Williamson, J. G., *Globalization and history: the evolution of a nineteenth-century Atlantic economy* (Cambridge, Mass., 1999).
Ozouf, M., *L'école, l'église et la République (1871–1914)* (Paris, 2007).
Saint-Paul, G., 'Endogenous indoctrination: occupational choices, the evolution of beliefs and the political economy of reforms', *Economic Journal*, 120 (2010), pp. 325–53.
Sauvy, A., *Histoire économique de la France entre les deux guerres* (Paris, 1965).
Say, L., *Dictionnaire des finances* (Paris, 1889).
Stark, R. and Finke, R., *Acts of faith: explaining the human side of religion* (Berkeley, Calif., 2000).
Stourm, R., *Systéme généraux d'impôts* (Paris, 1893).
Tackett, T., *Religion, revolution, and regional culture in eighteenth-century France: the ecclesiastical oath of 1791* (Princeton, NJ, 1986).
Tackett, T., 'The French Revolution and religion to 1794', in S. J. Brown and T. Tackett, eds., *The Cambridge history of Christianity, 7: Enlightenment, reawakening and revolution 1660–1815* (Cambridge, 2006), pp. 536–55.
Tanguy, L., 'L'état et l'école. L'école privée en France', *Revue Française de Sociologie*, 13 (1972), pp. 325–75.
Tilly, C., *Contention and democracy in Europe, 1650–2000* (Cambridge, 2004).
Weber, E., *Peasants into Frenchmen: the modernization of rural France, 1870–1914* (Stanford, Calif., 1976).
Weber, M., *The Protestant ethic and the spirit of capitalism* (New York, 1958).
Weir, D. R., 'Economic welfare and physical well-being in France, 1750–1990', in R. H. Steckel and R. Floud, eds., *Health and welfare during industrialization* (Chicago, Ill., 1997), pp. 161–200.
West, M. R. and Woessmann, L., 'Every Catholic child in a Catholic school: historical resistance to state schooling, contemporary private competition and student achievement across countries', *Economic Journal*, 120, 546 (2010), pp. F229–55.

Official publications

Annuaire statistique de la France, vols. 1–34 (Paris, 1878–1914).
France, Ministère du travail et de la prévoyance sociale, *Statistique générale. Salaires et coût de l'existence : à diverses époques, jusqu'en 1910* (Paris, 1911).
France, Ministère des finances, *Bulletin de statistique et de législation compare* (Paris, 1877–1940).
Statistique de la France, tome IX, 2e série, Résultats du dénombrement de 1856 (Paris, 1859).

Supporting information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

Appendix S1. Catholic schooling and religiosity in France from the late eighteenth century until the First World War
Figure S1. General cahiers cities and department borders
Table S1. Descriptive statistics for cahiers variables and for turn of the twentieth century religiosity correlates
Table S2. Correlations between support for Catholicism in cahiers and school choice

Table S3. Correlations between measures of religiosity in France at the turn of the twentieth century and school choice
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Table S5. Public spending and Catholic schools
Table S6. Public spending per pupil and Catholic schools

