In the Name of God!

Religiosity and the Emergence of Modern Science and Growth

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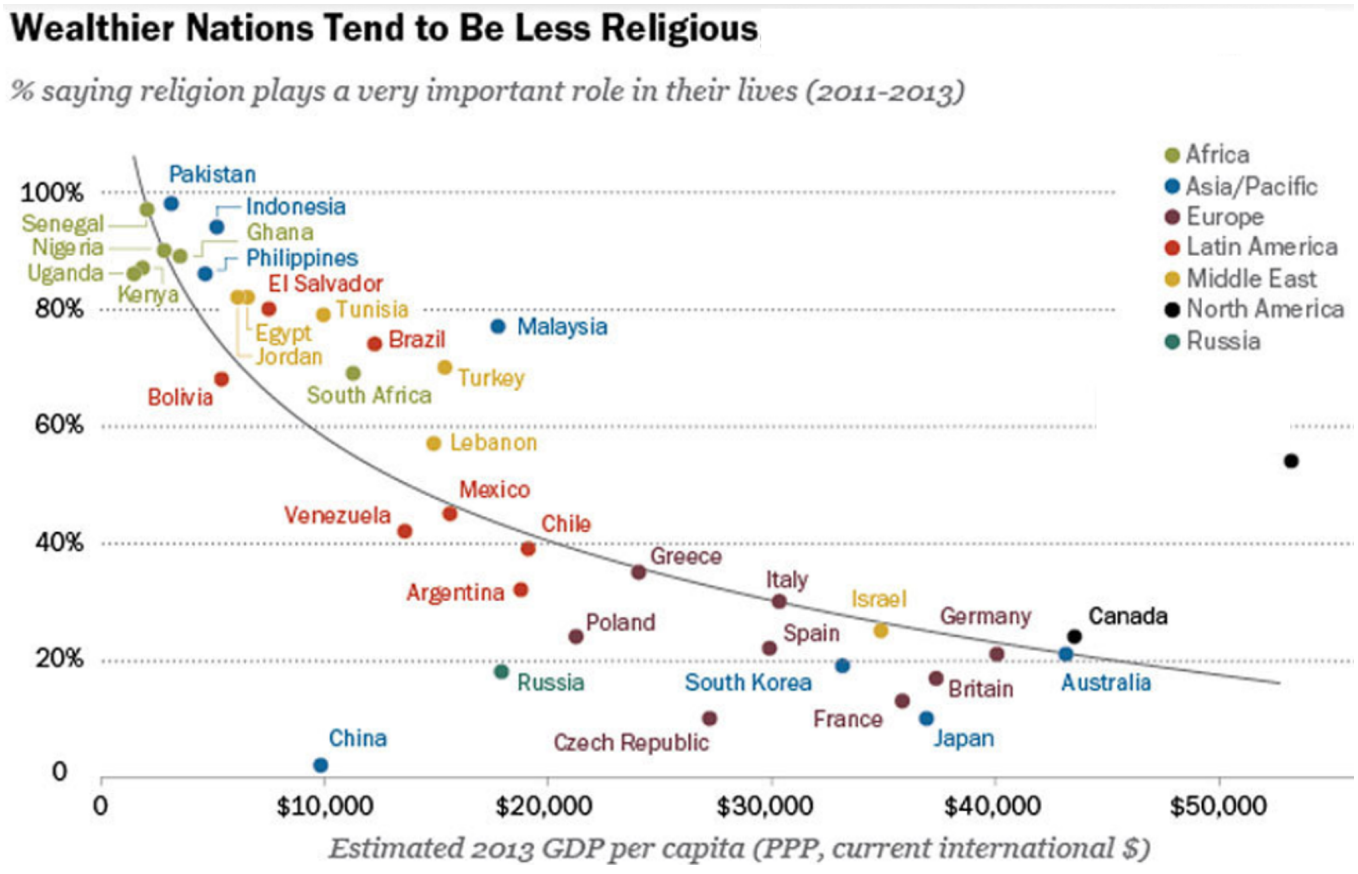
Motivation


Wealthier Nations Tend to Be Less Religious
% saying religion plays a very important role in their lives (2011-2013)
Africa
Asia/Pacific
Europe
Latin America
Middle East
North America
Russia
100%
80%
60%
40%
20%
0
Pakistan
Indonesia
Senegal
Ghana
Nigeria
Philippines
Uganda
Kenya
El Salvador
Tunisia
Egypt
Jordan
Brazil
Malaysia
Bolivia
South Africa
Turkey
Lebanon
Mexico
Venezuela
Chile
Greece
Argentina
Italy
Israel
Germany
Canada
Poland
Spain
Russia
South Korea
Britain
Australia
France
China
Czech Republic
Japan
0
$10,000
$20,000
$30,000
$40,000
$50,000
Estimated 2013 GDP per capita (PPP, current international $)

Potential benefits of religion for science

Potential drawbacks of religion for science

Trial of Galilei 1633

- **Question**: Did religion impact the development of science and eventually modern economic growth?

- **Testing ground**: Europe 1300-1940, the place and time for the emergence of modern science and economic growth.

Related literature I: RELIGIOSITY AND SCIENCE

- **Positive impact**:
  - Early monks (Baumol (1990, JPE), Andersen *et al.* (2017, EJ))
  - Max Weber and the Protestant ethic (Becker & Woessmann (2009, QJE), Becker *et al.* (2016, EEH))
  - The emergence of WEIRD people (Henrich et al. 2010)
- **Negative impact**:
  - "If the culture is heavily infused with respect and worship of ancient wisdom so that any intellectual innovation is considered deviant and blasphemous, technological creativity will be similarly constrained" (Mokyr, 2016, 17).
  - Religiosity $\Rightarrow$ less innovation and less technical skills (Bénabou *et al.* (2022, ReStud), Squicciarini (2020, AER))
  - Religious institutions hampered the development of science (Chaney (2016); Cantoni & Yuchtman (2013))
  - Religious activity crowds out time for other activities (Campante & Yanagizawa-Drott (2015, QJE))

Related literature I:

RELIGIOSITY AND SCIENCE

- Two additional novel working papers:
  - Science and religion as complements to comprehend / cope with adversity (from the Spanish flu) (Berkes *et al.*, 2023)
  - The counter-reformation oppressed science in Catholic areas (Cabello, 2023). Protestants were not as ”successful” in intellectual control due to poor logistics.

Related literature II

RELIGIOSITY AND ECONOMIC OUTCOMES

- Country-level growth (Barro & McCleary, 2003)
- Individual-level economic values (Guiso et al 2003)
- Country-level innovation (Bénabou *et al.*, 2022)
- Ramadan fasting, growth, and happiness (Campante & Yanagizawa-Drott, 2015)
- Types of religion (Weber, 1905; Becker & Woessmann, 2009; Kuran, 2018; Botticini & Eckstein, 2007)

Related literature III

EUROPEAN GROWTH IN THE MIDDLE AGES AND BEYOND

- Key drivers of the transition to modern growth: Innovation, science, and technological progress (Mokyr, 2010; Squicciarini & Voigtländer, 2015)
- Commercial Revolution: Universities, law studies, and legal institutions (Cantoni and Yuchtman, 2014; Van Zanden, 2009)
- The Enlightenment and upper-tail human capital (Mokyr, 2010; Squicciarini & Voigtländer, 2015).
- Scientific Revolution (De la Croix *et al.*, 2020).
- The Protestant Reformation (review by Becker *et al.* (2016))
- Technological Revolution (Mokyr, 2010) and Schumpeterian growth (Murphy et al 1991)

Related literature IV

OTHER DRIVERS OF THE TRANSITION TO MODERN GROWTH

- Human capital accumulation (Glaeser et al, 2004; Galor (2011))
- Property rights institutions (Acemoglu *et al.*, 2001; North, 1991).
- Transatlantic trade (Acemoglu *et al.*, 2005).
- Culture (Clark (2008); Mokyr (2010); Landes, 1997; Spolaore & Wacziarg (2013))
- Genetics (Galor and Moav, 2002; Ashraf and Galor, 2013)
- Colonization (Acemoglu *et al.*, 2001; Michalopoulos & Papaioannou, 2016)
- Health, demographic change, disease (Alsan, 2015; Cervelatti and Sunde, 2017; Weil, 2014)
- Geography (Diamond, 1997; Hibbs and Olsson, 2004; Allen, 1997).

Structure of talk

1. **Conceptual framework**
2. **Novel measure of religiosity**
   - Concept
   - Data
   - Concerns
   - Validity checks
3. **Outcomes**
   - Individual-level: Science and religious occupations
   - Exploiting exogenous variation in religiosity
   - City-level: Growth and innovators

Conceptual framework

- Becker, Rubin, and Woessmann (2023) extended to include religiosity.

- Religion may influence economic growth (Y_t) through K_t, H_t, L_t, and A_t:

$$Y_t = F(K_t, H_t, L_t, A_t)$$

Framework: Impact of religion and religiosity on the causes of growth

Proximate component	Impact of religiosity on growth	Testable implication
Physical capital, K_t		

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Monasteries primary inventors in the Middle Ages	> 0	Positive early effects
Religion may provide authority to rulers, thus hampering economic activity	< 0	Institutions should matter
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Measure of religiosity

Existing measures:

- Contemporary: Surveys, internet behavior, etc.
- Historical:
  - Church density - captures economic prosperity as much as religiosity (Buringh *et al.*, 2020).
  - Refractory clergy in France in 1798 (Squicciarini, 2020).
  - Saint cults (Khalil and Panza, 2023).

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Our measure:

- Proxy for individuals' religiosity, in principle throughout time and space.
- Here: Christian religiosity across Europe, 1300-1940.

Measure of parental religiosity

Novel names-based measures:

- Sociology, psychology, anthropology: On average, first names reflect the identity of parents.

$$Name_{ij} = F(tradition_j, ethnicity_j, aesthetics_j, individualism_j, nationalism_j, culture_j, socialstatus_j, religion_j) + \varepsilon_{ij}$$

- Hypothesis: Religion played a larger role in the lives of parents who gave their child a name imbued with religious significance.

Others have used names to reflect parent identity

- First names reflect parental...
  - individualism (Knudsen, 2019; Bazzi *et al.*, 2020),
  - ethnicity (Andersen, 2021; Fryer & Levitt, 2004),
  - and nationalism (Assouad, 2020; Jurajda & Kovač, 2021)

- Names have also been used to investigate assimilation of immigrants (Abramitzky *et al.*, 2020; Fouka, 2020; Saavedra, 2021)

- Yet others have assumed that names shared with Biblical figures reflect Protestant religiosity (Hacker, 1999; Knudsen, 2019).

Two distinct definitions of a religious name

1. Shared by ”significant religious figures.”
2. Names that are frequent among individuals with religious occupations.

Measure 1: Significant religious figures

Catholics: Saints.

- We define a saint as significant if a major European church built before 1500 was dedicated to him/her
- Data by Buringh *et al.* (2020):
  - 1,695 urban large churches (1000 m^2+).
  - Italy, France, Switzerland, Germany, Belgium, the Netherlands, and UK.
  - 24% of the largest churches in Europe today.

Protestants: Relatives and apostles of Jesus.

Measure 1: Dummy = 1 if name is shared by a significant saint, relatives / apostles of Jesus or God.

- We remove Muslim countries.

Concerns I

- Saints are named differently in different languages.
  - Reduce names to their common etymological branch using etymology database.
  - 23,938 names reduced to 7,606 name branches.

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$$RNI_i = \frac{Pr(name_i|Church)}{Pr(name_i|Church) + Pr(name_i|Person)} \quad (1)$$

  - Likewise for the Bible.
  - Measures the ”over-representation” of a name among churches compared to people.

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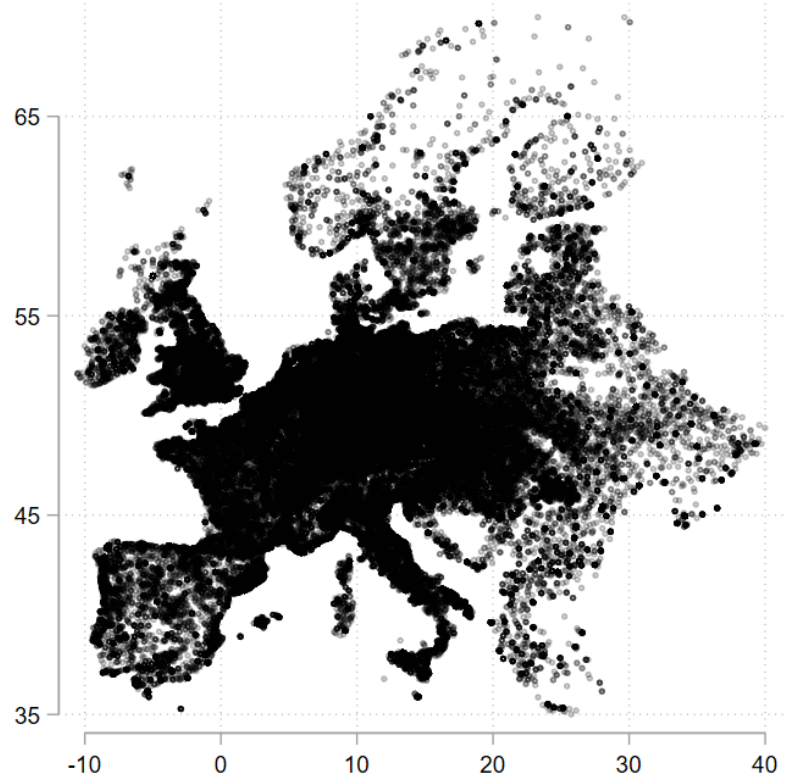
  - Fix 3: Non-religious names are equally normal: Names of kings.
  - Fix 4: **Measure 3**: Define instead a name as religious if it was more common among people with religious occupations, compared to others.

Main data

- 468,000 authors (persons who wrote a text that ended up in a library) born 1300-1940 in Europe.



- Information on year of birth, geocodes for birthplace, deathplace, name, and their profession (360,000 authors).
- **Alternative dataset**: 47,000 university students born between 1300 and 1588 in the Holy Roman Empire.

Concern

- **Representativeness / Selection**
  - Name-religiosity correlates with regional-level religiosity from surveys and historic sources. evs clergy
  - Selection of very particular type, based on the name but not the occupation and opposite for names-occupations. collider
  - Make selection worse (number publications or citations) $\rightarrow$ Results unaffected. selection
  - Exploit shocks to religiosity.

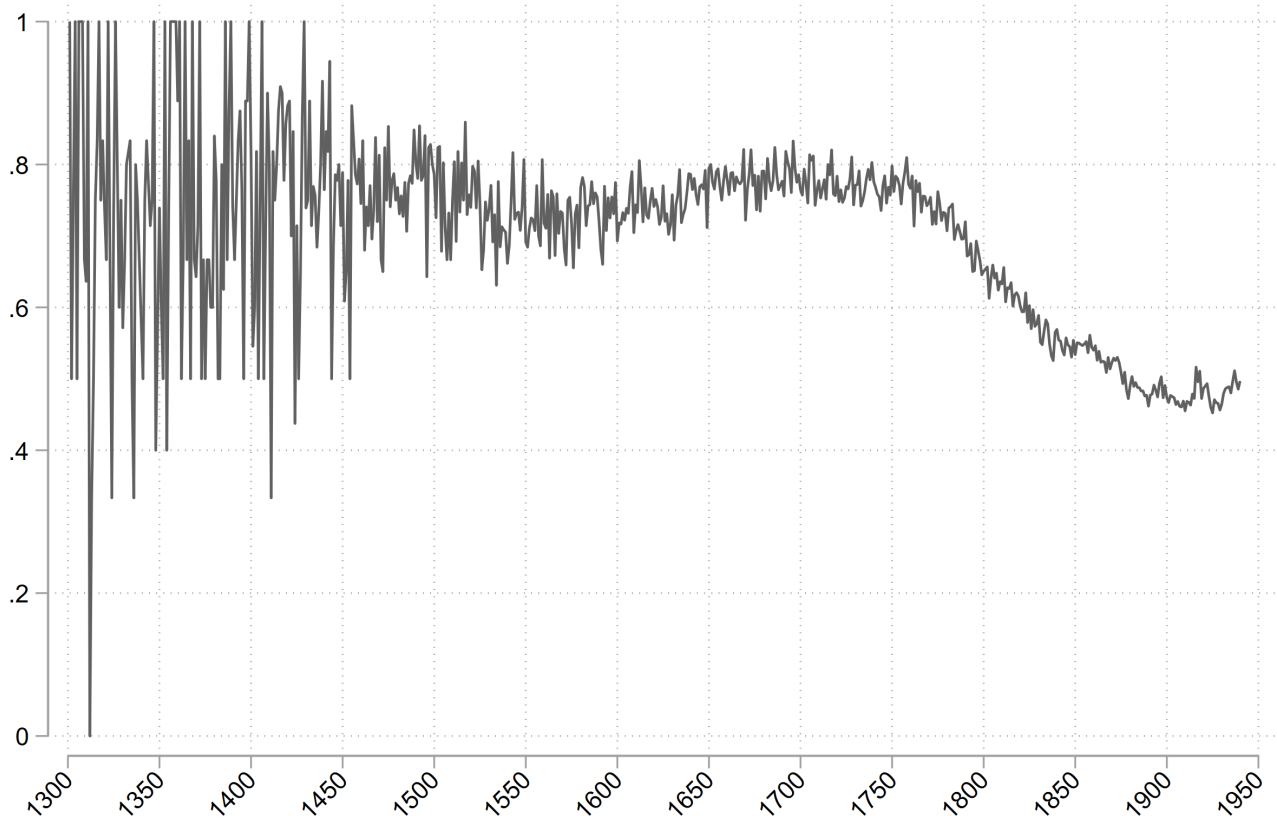
Top-10 religious and non-religious name branches

Religious		Non-religious	
Name	Share	Name	Share
John	0.11	Henry	0.03
Charles	0.05	Frederick	0.03
Joseph	0.03	William	0.02
Francis	0.03	Ernest	0.01
George	0.03	Rudolf	0.01
Ludwig	0.02	Herman	0.01
Peter	0.02	Otto	0.01
Paul	0.02	Walter	0.01
Anthony	0.02	Conrad	0.01
Christos	0.01	Gerard	0.01
The rest	0.68	The rest	0.85

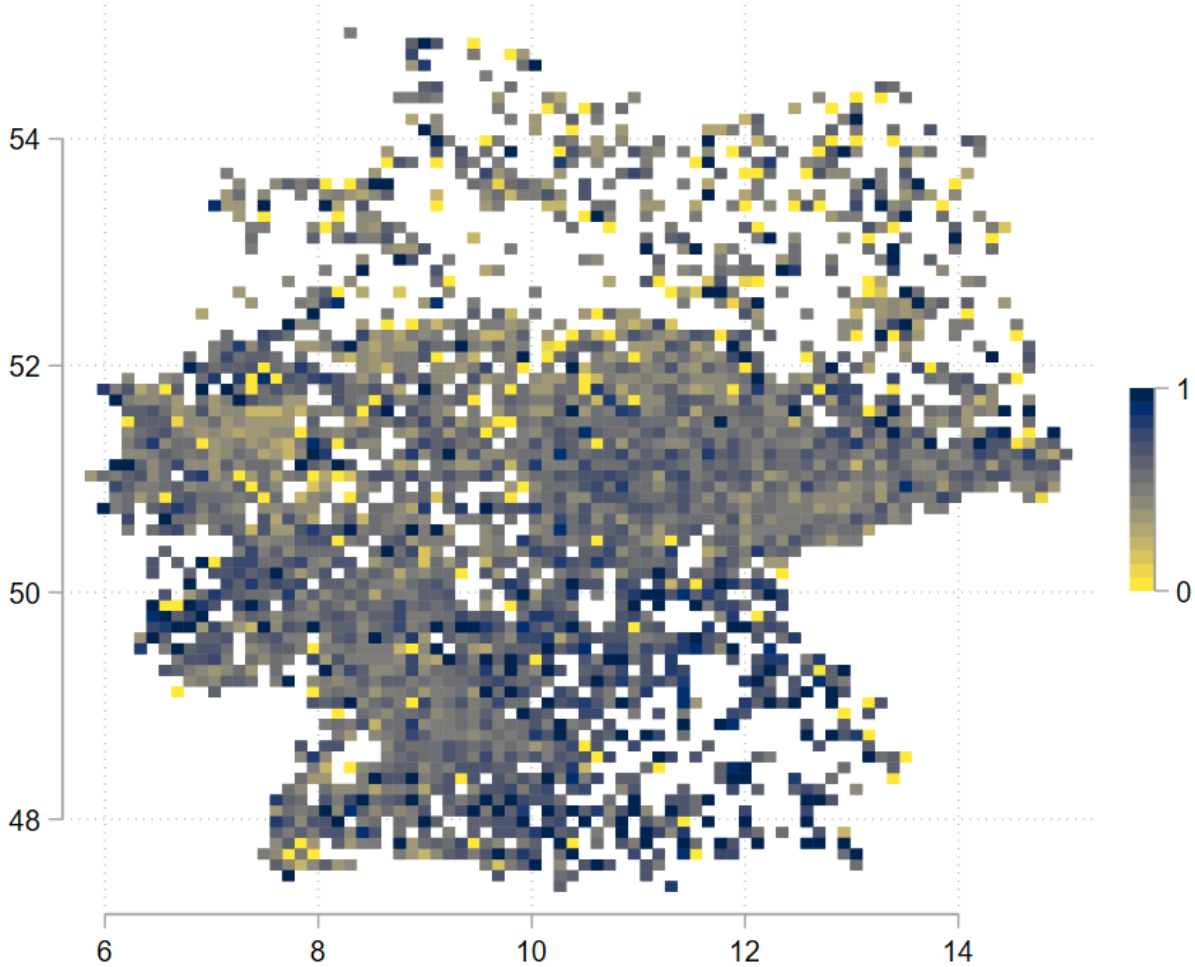
Top-10 most common names shared by patron saints or biblical figures in columns (1) and (2) and top-10 most common names among those who do not share name with these religious figures in columns (3) and (4).
Result: Dominant religious names are prominent saints. Dominant non-religious names are primarily the names of kings.

- Robustness: Exclude top-10 names.

Share of authors with a religious name over time



Spatial detail - example: Germany



0: Name not shared with religious figure, 1: Name shared with religious figure.
Grids of at least 10 authors.

Validity checks

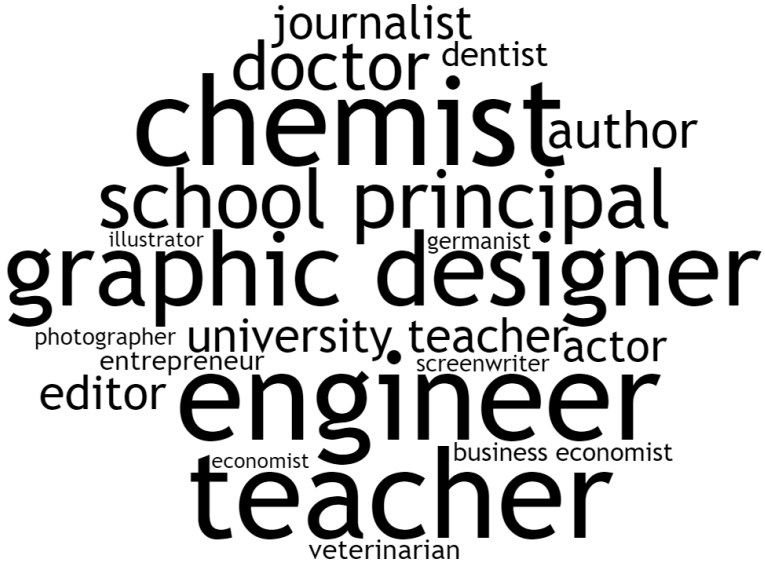
1. Religious occupations
2. Religious coping: Earthquake shocks
3. Region-level religiosity measures
4. Alternative dataset of individual study choices

Validity check I: Occupations

- Information on the occupation of 360,000 of the authors.
- 1-24 occupations per person (99% $<$ 6 occupations)

Simple illustration

(a) Religious names



(b) Non-religious names

Top-20 relative excess frequencies of words describing occupations. The size of the words reflects the relative excess frequencies of words describing occupations of authors with a religious name, relative to those without in panel (a) and across authors without religious names, relative to those with religious names in panel (b).
Result: Authors with religious names are more likely to have an occupation associated with religion. Those without religious names are more likely to have occupations that are not directly associated with religion.

We estimate:

$$occupation_{igt} = \alpha + \beta relname_{igt} + \gamma_g + \gamma_t + \kappa t_g + \gamma_{gt} + \omega X_{igt} + \varepsilon_{igt}$$

- for individual i born in 1x1 grid cell g in year t.
- $relname_{igt}$ = dummy equal to one if person i shares name with a major patron saint or central biblical figure.
- Additional controls
  - Name commonness, Gender, Socioeconomic status proxies (Urban names, Noble names, University names, High education names, Last name FE), Ethnicity, Migration distance, Urban dummy, Protestant area, Additional grid cell FE down to 1x1 km.
- Define an occupation as religious if it is mentioned as a "Christian religious occupation" in Wikipedia.
  - Main religious occupations: Pastor (18%), Theologist (17%), Catholic (4%), Protestant (4%), Priest (3%).

Author names and occupations related to religion

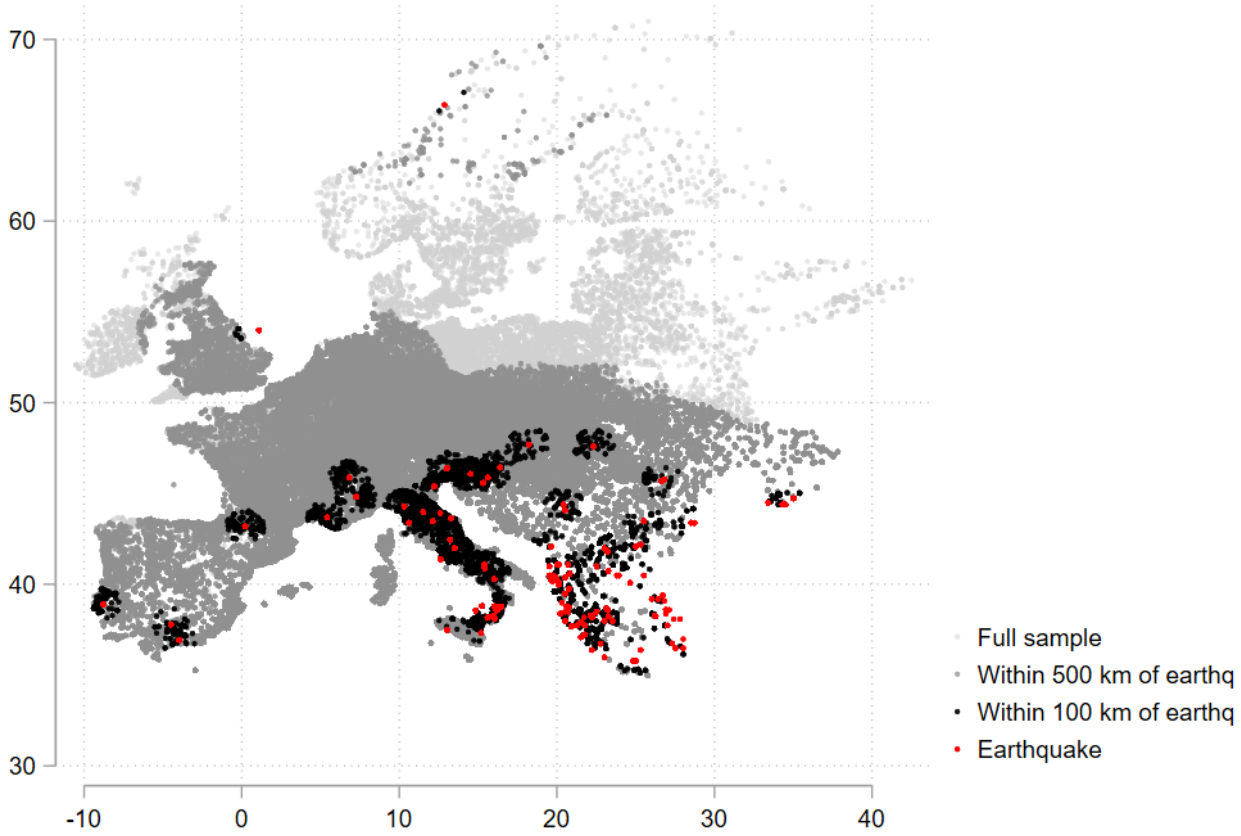
Dep var: Religiously associated occupation	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Full sample								
Religious name	0.055***	0.055***	0.055***	0.050***	0.047***	0.020***	0.017***	0.014***
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.002)	(0.001)	(0.001)
Number professions		0.018***	0.016***	0.016***	0.016***	0.012***	0.014***	0.012***
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Female			-0.083***	-0.071***	-0.056***	-0.035***	-0.038***	-0.037***
			(0.005)	(0.004)	(0.004)	(0.003)	(0.002)	(0.002)
Common name				0.032***	0.033***	-0.0074***	-0.0085***	-0.0057***
				(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
Birth year						-0.00093***		
						(0.000)		
R-squared	0.0076	0.011	0.018	0.020	0.049	0.12	0.14	0.29
Observations	362666	362666	362666	362666	362609	362609	362592	325462
Mean dep var	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10
Number grids	917	917	917	917	860	860	860	652
Panel B: Excluding scientific occupations								
Religious name	0.060***	0.060***	0.060***	0.054***	0.051***	0.022***	0.019***	0.015***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.002)	(0.002)	(0.002)
R-squared	0.0077	0.0097	0.019	0.021	0.058	0.13	0.15	0.31
Observations	297143	297143	297143	297143	297077	297077	297060	261582
Mean dep var	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.12
Number grids	907	907	907	907	841	841	841	639
Year FE	N	N	N	N	N	N	Y	Y
1x1 grid FE	N	N	N	N	Y	Y	Y	Y
Grids x year FE	N	N	N	N	N	N	N	Y

OLS across authors. The dependent variable is a dummy equal to one if the occupation of the author relates to religion. The measure of religiosity is a dummy equal to one if the name is shared by a major saint or biblical figure. Controls include the dummy for top-10 most common names, gender, number of occupations, birth year fixed effects, 1x1 degree grid cell fixed effects, and 1x1 degree grid cell by birth year fixed effects. Panel A includes the full sample of authors, while panel B excludes authors with at least one scientific occupation. Robust standard errors clustered at the 1x1 grid cell level in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level.

- Size: 14 % of the mean (col 8). plot other measures prot cath time countries ethnicity ex popular soc status and fixed effects

Validity check II: Coping

- Religious coping (Pargament, 2001): Religiosity rises after earthquakes (Bentzen, 2019).
- 125 earthquakes of magnitude 5 or larger hit Western Europe between 1700 and 1940.
- 8,991 authors were born within 100 km of one of these.



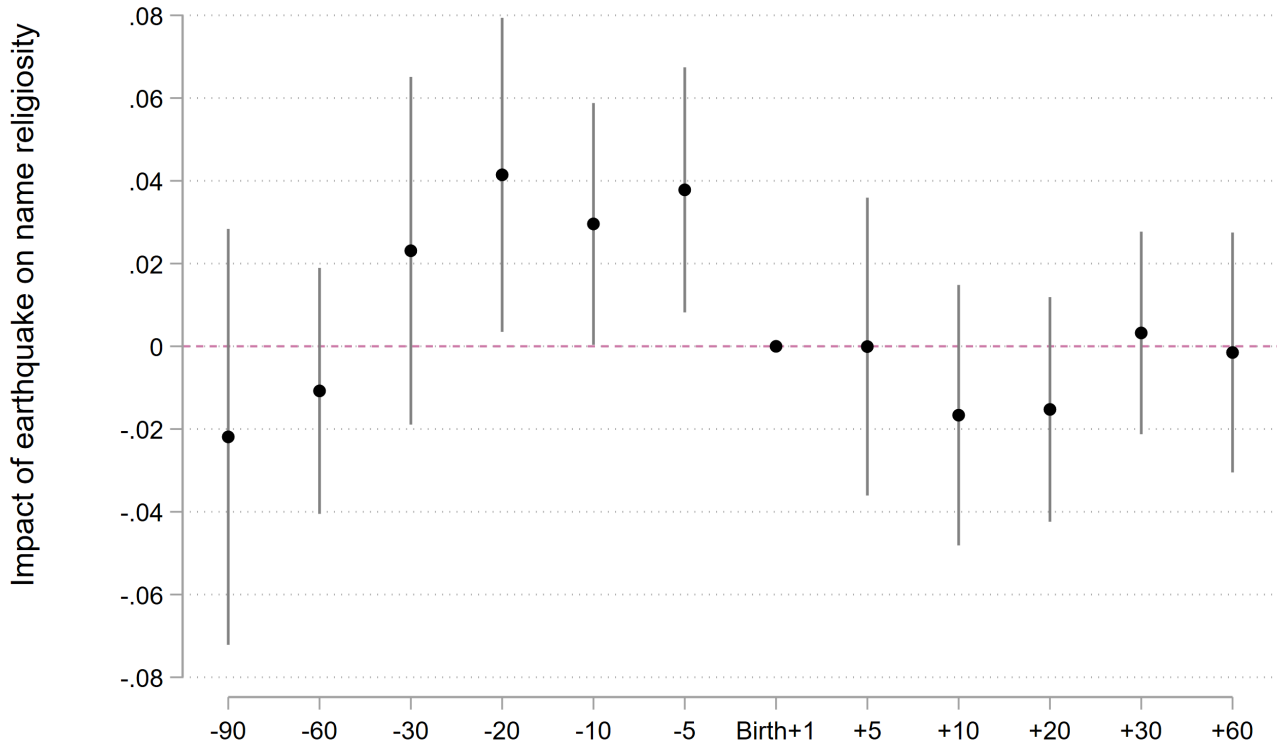
We estimate:

$$relname_{igt} = \alpha + \sum_{x=5}^{90} \beta_x earthquake_{gt-x} + \sum_{x=5}^{60} \delta_x earthquake_{gt+x}$$

$$+\gamma_G + \gamma_t + \kappa t_g + \omega X_{irt} + \varepsilon_{igt}$$

- for individual i born in 2x2 grid cell g in year t.
- γ_G are 5x5 grid-cell fixed effects.
- Sample:
  - Exclude authors born within 20 km of the earthquake
  - Exclude authors who lived more than 500 km from an earthquake.
  - Exclude authors born before 1750.

The impact of earthquakes on naming patterns



Estimates across 265,646 authors. Each dot reflects the impact of earthquakes in the particular time-period on the likelihood that the person was given a religious name. The vertical lines reflect the 95% confidence intervals, clustered at the 2x2 grid cell level. Control variables include the top-10 most common names dummy, gender, 5x5 degree birthplace fixed effects, birth year fixed effects, and 2x2 degree birthplace specific time-trends. The sample includes authors born within 20-500 km of an earthquake.

- Size: 7% of the mean.

Additional validity checks

- Modern EVS surveys. evs
- Alternative historic regional-level religiosity measure for France. clergy
- Alternative dataset: 47,000 university students in the Holy Roman Empire 1300-1550 data
  - Students with religious names are 15% more likely to study theology plot

Impact of religiosity on outcomes

- Individual-level:
  - Occupation choice
  - Study choice
- Aggregated to cities:
  - City growth

Science occupations

- Science occupation = 1 if one of the person's occupations is included in the "List of scientific occupations" in Wikipedia or relating to engineering.

Science occupations

Top-10 occupations of science and non-science authors

Science			Non-science		
Profession	Number	Share	Profession	Number	Share
Doctor	24,239	0.21	Writer	34,047	0.06
Chemist	5,167	0.04	Painter	24,651	0.04
Engineer	4,906	0.04	Lawyer	24,478	0.04
University teacher	4,663	0.04	Pastor	16,955	0.03
Mathematician	4,028	0.04	Politician	16,118	0.03
Physicist	3,639	0.03	Theologian	15,910	0.03
Botanist	2,965	0.03	Artist	15,228	0.03
Archaeologist	2,747	0.02	Composer	14,703	0.02
Geologist	2,211	0.02	Historian	11,772	0.02
Veterinarian	2,140	0.02	Actor	10,861	0.02
Total	114,923	1.00	Total	595,406	1.00

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- $relname_{igt}$ = dummy equal to one if person i shares names with a major patron saint or central biblical figure.
- $occupation_{igt}$ **= dummy equal to one if person i has one or more science occupations.**
- Additional controls:
  - Name commonness, Gender, Socioeconomic status proxies (Urban names, Noble names, University names, Last name FE), Ethnicity, Migration distance, Urban dummy, Protestant area, Additional grid cell FE down to 1x1 km.

Religiosity and science occupations

Dependent variable: Science occupation

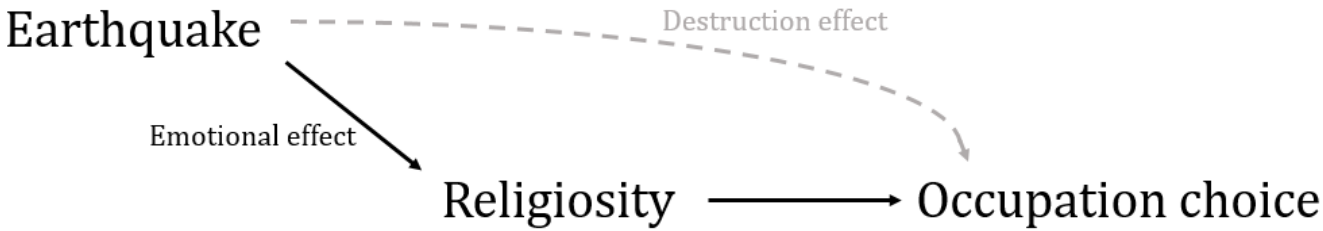
Panel A: Full sample	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Religious name	-0.034***	-0.034***	-0.034***	-0.033***	-0.026***	-0.015***	-0.013***	-0.0099***
	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.001)	(0.001)	(0.001)
Number professions		-0.026***	-0.028***	-0.028***	-0.028***	-0.027***	-0.027***	-0.032***
		(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Female			-0.097***	-0.100***	-0.095***	-0.10***	-0.10***	-0.11***
			(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)
Common name				-0.0066***	-0.0019	0.014***	0.015***	0.011***
				(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Birth year						0.00036***		
						(0.000)		
R-squared	0.0020	0.0076	0.013	0.013	0.028	0.035	0.039	0.16
Observations	362666	362666	362666	362666	362609	362609	362592	325462
Mean dep var	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Grids x year FE	917	917	917	917	860	860	860	652
Panel B: Excluding religious occupations								
Religious name	-0.028***	-0.028***	-0.027***	-0.027***	-0.018***	-0.012***	-0.011***	-0.0084***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
R-squared	0.0012	0.0079	0.016	0.016	0.035	0.038	0.041	0.17
Observations	322489	322489	322489	322489	322429	322429	322404	288138
Mean dep var	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Number grids	913	913	913	913	853	853	853	647
Year FE	N	N	N	N	N	N	Y	Y
1x1 grid FE	N	N	N	N	Y	Y	Y	Y
Grids x year FE	N	N	N	N	N	N	N	Y

OLS regressions across authors. The dependent variable is a dummy equal to one if the occupation is associated with science. The measure of religiosity is a dummy equal to one if the name is shared by a significant saint or biblical figure. Robust standard errors clustered at the 1x1 grid cell level in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level.
Result: Authors with religious names are less likely to end up in a scientific occupation.

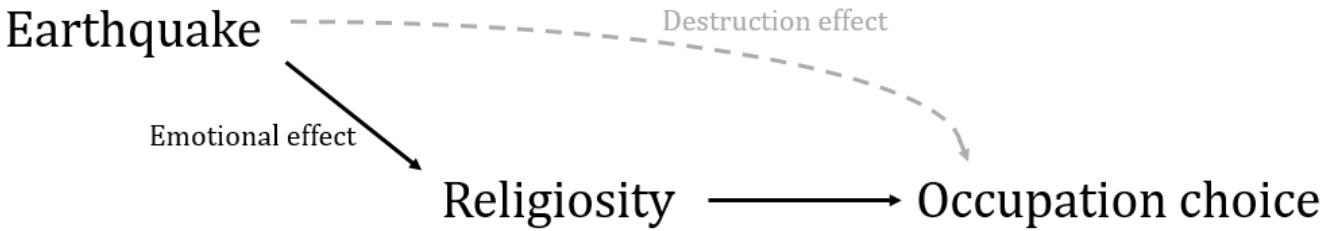
- 6% of the mean.

plot | time country | socio and FE | science types | uni students

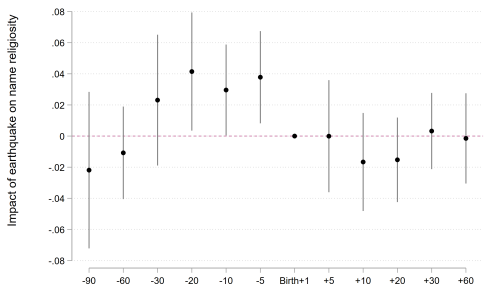
Exploit earthquakes for identification



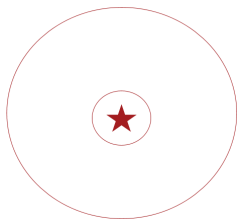
Exploit earthquakes for identification



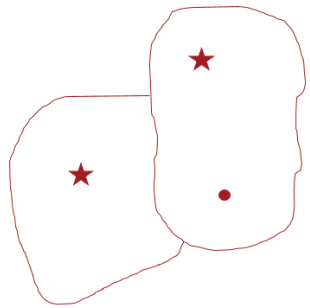
Method 1



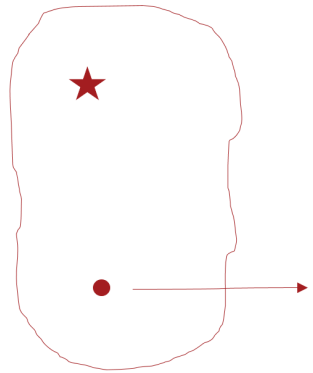
Method 2



Method 3



Method 4



Exploit earthquakes for identification

Dependent variable:	Religious name					Religious occupation				Scientific occupation		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Earthquake before birth	0.031**	-0.032	-0.12**	-0.14**	0.0027	-0.016**	-0.022	-0.037	-0.027***	0.019	0.068	0.11**
	(0.013)	(0.022)	(0.055)	(0.068)	(0.007)	(0.008)	(0.028)	(0.038)	(0.010)	(0.027)	(0.043)	(0.049)
Earthquake after birth	-0.022	-0.021	0.050	-0.018	0.0036	-0.014*	-0.0077	0.010	-0.016**	0.016	-0.030	-0.026
	(0.014)	(0.030)	(0.068)	(0.070)	(0.005)	(0.008)	(0.028)	(0.037)	(0.008)	(0.014)	(0.037)	(0.044)
Earthquake before birth same country		0.077***	0.076***	0.061**		0.024**	0.024**	0.028**		-0.057**	-0.056**	-0.054**
		(0.027)	(0.025)	(0.026)		(0.010)	(0.010)	(0.011)		(0.027)	(0.027)	(0.024)
Earthquake after birth same country		0.00018	0.0039	-0.022		0.022**	0.022**	0.013		-0.040***	-0.043***	-0.032**
		(0.034)	(0.033)	(0.045)		(0.011)	(0.011)	(0.013)		(0.015)	(0.015)	(0.016)
Avg earthquake distance before birth			-0.49*	-0.57*			-0.030	-0.092			0.27	0.41
			(0.258)	(0.330)			(0.155)	(0.203)			(0.182)	(0.250)
Avg earthquake distance after birth			0.39	-0.075			0.034	0.080			-0.26	-0.18
			(0.349)	(0.326)			(0.153)	(0.190)			(0.189)	(0.226)
R squared	0.072	0.072	0.072	0.072	0.052	0.052	0.052	0.053	0.042	0.042	0.042	0.021
Observations	196000	196000	196000	88383	196000	196000	196000	88383	196000	196000	196000	88383
Mean dep var	0.54	0.54	0.54	0.57	0.076	0.076	0.076	0.092	0.18	0.18	0.18	0.15
5x5 grid and Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2x2 grid trends	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Sample	Full	Full	Full	Migrant	Full	Full	Full	Migrant	Full	Full	Full	Migrant

OLS regressions across authors. The dependent variable is a dummy equal to one if the author shares name with a significant religious figure in columns (1)-(3), has a religious occupation in columns (4)-(6), or has a scientific occupation in columns (7)-(9). We define an author's birthplace as hit by an earthquake if the earthquake hit within 100 km. We define an earthquake as hitting before birth if the earthquake hit within 20 years before birth, while an earthquake hitting after birth is an earthquake that hit within 20 years after birth. Baseline controls included throughout: Top-10 most common names, gender, number occupations, 5x5 grid cell fixed effects, year of birth fixed effects, and 2x2 grid cell trends. The baseline sample is used throughou (authors born within 500 km of an earthquake that hit within 60 years before or after their birth and excluding authors within 20 km of an earthquake that hit within 20 years before or afte their birth). Robust standard errors clustered at the 2x2 grid cell level in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level.

Result: Earthquakes raise the likelihood of having a religious name or religious occupation and lower the likelihood of having a scientific occupation. These effects are particularly pronounced for earthquakes that hit in the author's country of birth. For naming, the only earthquakes that matter are those that hit before birth, while occupation choice is influenced by earthquakes before and after birth.

selection | name changing | tradition | exclusion restrictions

Alternative mechanisms

- Tradition?
  - Robust to controlling for commonality of names (which have opposite effects).
  - Robust to using different measure of religiosity, punishing the commonality of names.
  - Another type of tradition: royal
  - Individuals with common names are *less* likely to take-up religious occupations.
- Name-changing?
  - name changing
- Protestantism?
  - prot
- Socio-economic differences?
  - A third: socio
- Birth-order effects?
  - Exclude religious vs science occupations.
- Selection?
  - selection
- Early positive effects?
  - time
- Institutions?

Predictions for growth

1. Negative correlation between religiosity and science production

2. Increasingly so after the Technological Revolution
   - Science became increasingly important at this time (late 19th century) (Mokyr & Voth, 2009)
   - Existing evidence across French districts (Squicciarini, 2020).

3. Earlier, religion may have been good for growth: hard work (Weber, 1905), pro-sociality (Henrich *et al.*, 2010), lower crime (Guiso *et al.*, 2003), stress-relief (Pargament, 2001).

Impact on the transition to modern growth

Measure of historical economic growth:

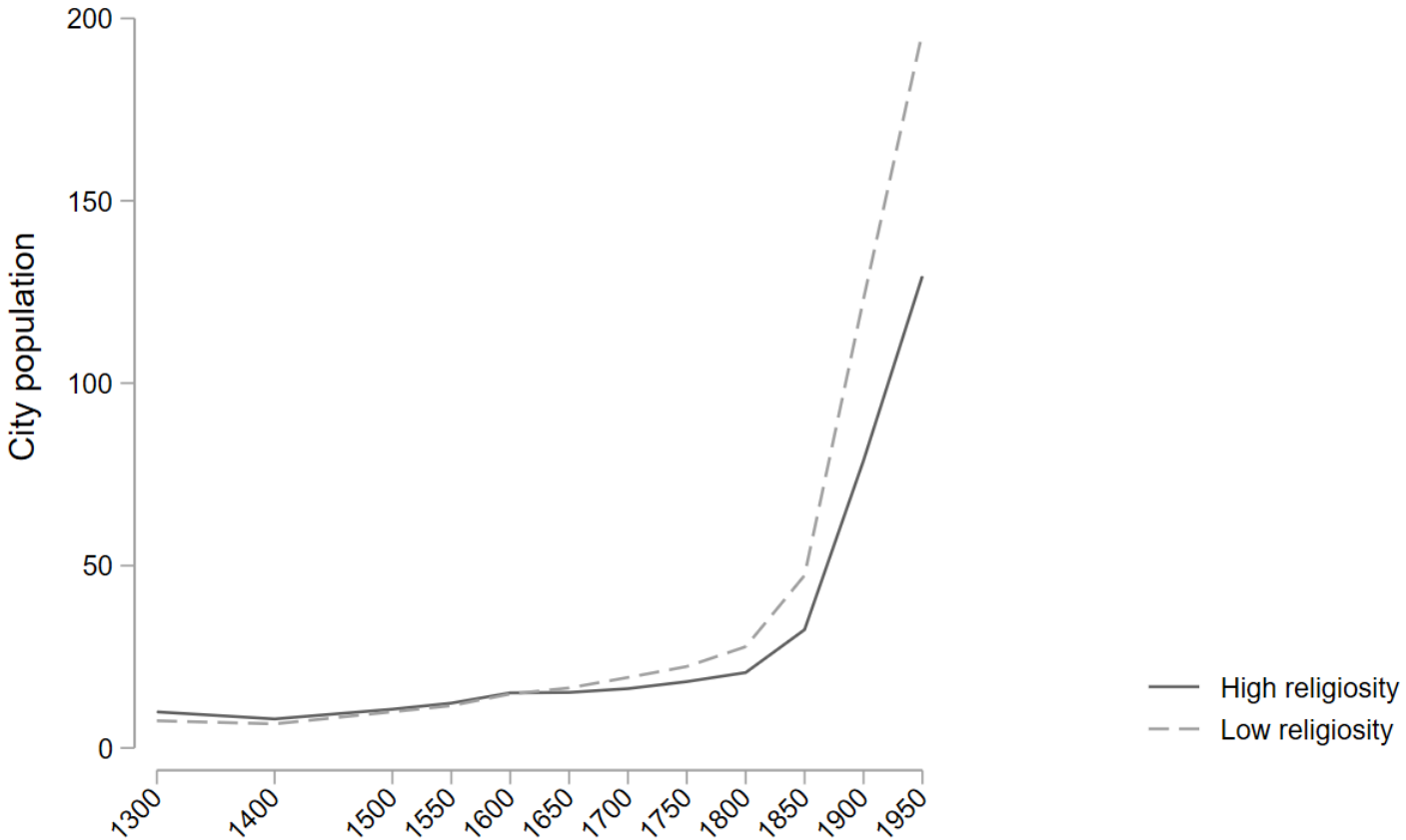
- The population size of cities (Acemoglu *et al.*, 2005; Bosker *et al.*, 2013; Dittmar, 2011; Nunn & Qian, 2011).
- Most used database of city size: Bairoch *et al.* (1988).
- We use the latest update by Buringh (2021).
- 2,265 cities measured every century between 700 and 1500 and every half-century between 1500 and 2000.

Measure of city-level religiosity:

- The share of authors with religious names born within a 100 km radius during the previous century or half-century.

Simple illustration: Impact on economic growth

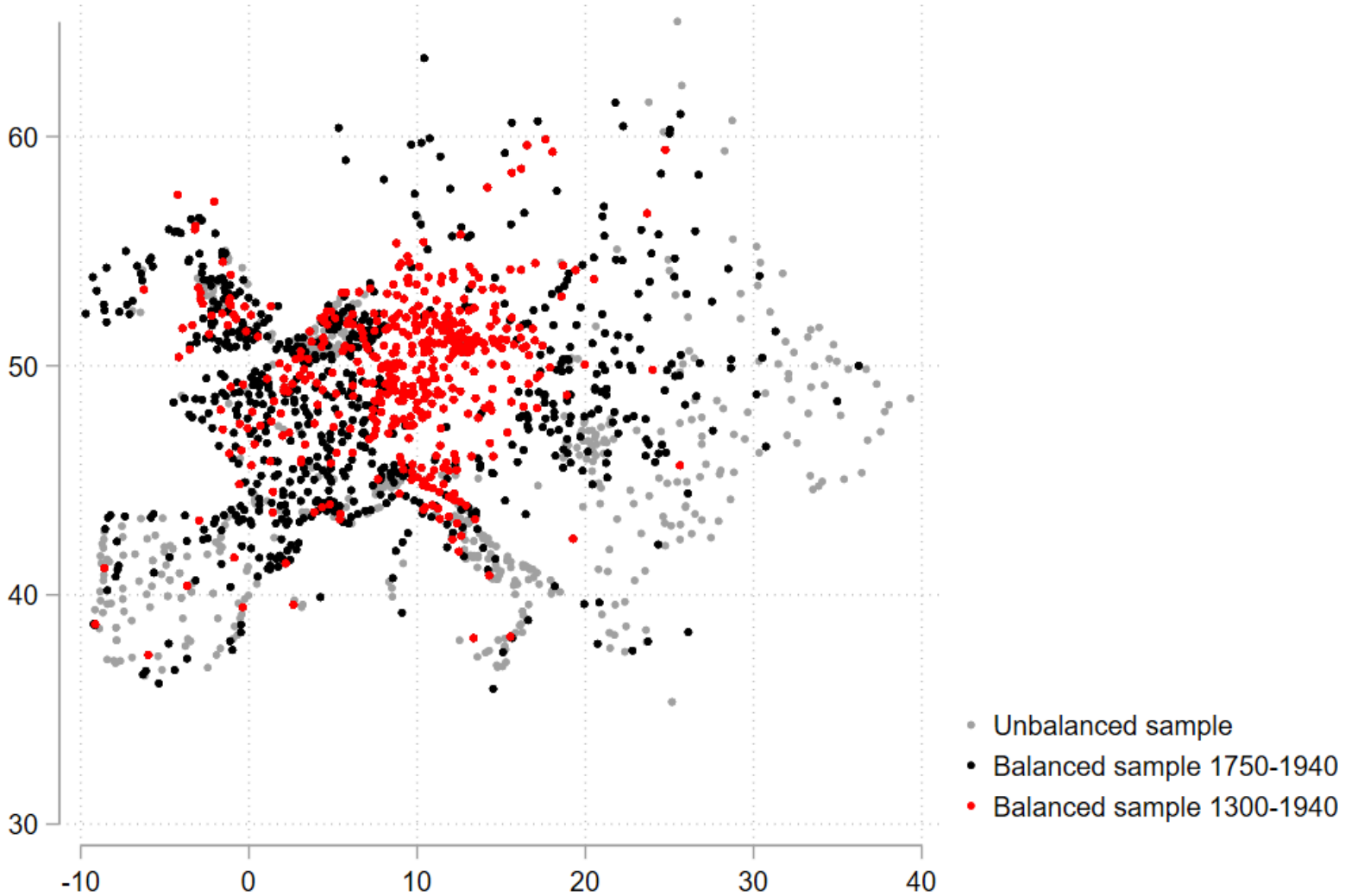
- We split by the median level of religiosity in 1300-1600.



417 cities are split based on median religiosity in the period 1300-1600.

Balancing checks: tab

Cities for analysis



We estimate:

$$popgrowth_{ct} = \alpha_0 + \alpha_1 inipop_{ct-1} + \sum_{t=1650}^{1950} \beta_t relname_{ct} + \gamma_c + \gamma_t + \lambda t_c + \omega X_{ct} + \varepsilon_c$$

- $popgrowth_{ct}$ = (log 1+) the population size of city c at time t minus (log 1+) the population size of city c at time $t-1$.
- for city c located in 1x1 grid cell g in year t.
- $inipop_{ct-1}$ = (log 1+) city population size at time $t-1$.
- $relname_{ct}$ = share of authors with a religious name born within 100 km of city c in the period leading up to time t.
- Allow β to vary over time.
- Nickell bias: Robust to using population levels as dependent variable.

Religiosity and economic growth

(log) City population size									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(log) Initial population size	0.0058	0.055***	0.074**	-0.39***	-1.16***	-1.19***	-1.19***	-0.44***	-0.88***
	(0.013)	(0.012)	(0.034)	(0.036)	(0.076)	(0.075)	(0.075)	(0.038)	(0.046)
Religious name share	-2.07***	-2.12***	-2.51***	-0.65***	-0.32**				
	(0.077)	(0.095)	(0.117)	(0.127)	(0.151)				
Religious name 1300-1649 x 1650						0.14	0.17	-0.092	
						(0.345)	(0.354)	(0.202)	
Religious name 1650-1749 x 1750						0.21	0.26	0.14	
						(0.158)	(0.168)	(0.179)	
Religious name 1750-1849 x 1850						-0.87***	-0.84***	-1.31***	-0.42**
						(0.251)	(0.254)	(0.197)	(0.205)
Religious name 1850-1940 x 1950						-1.77***	-1.59***	-1.98***	-2.04***
						(0.388)	(0.412)	(0.308)	(0.218)
Common name share							-0.18	0.046	-0.35***
							(0.133)	(0.110)	(0.135)
Female share							0.16	0.24	1.09***
							(0.341)	(0.286)	(0.372)
R-squared	0.19	0.30	0.34	0.54	0.75	0.76	0.76	0.56	0.47
Observations	3809	1740	1740	1740	1740	1740	1740	1740	2208
Mean dep var	0.69	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.86
Balanced sample	N	Y	Y	Y	Y	Y	Y	Y	Y
City FE	N	N	Y	Y	Y	Y	Y	Y	Y
Year FE	N	N	N	Y	Y	Y	Y	Y	Y
City-trends	N	N	N	N	Y	Y	Y	N	N
Number cities	1603	435	435	435	435	435	435	435	1104

Alternative mechanisms

- Cities grew faster if
  - Larger shares of natural science occupations, fewer religious.
- Religiosity is not merely a proxy for disaster tab
- Atlantic trade does not explain results tab
- Neither do differences in ethnicity tab
- Results are not driven by
  - specific groups (fig),
  - countries or denominations (tab).

Interpretation: Religiosity, science, and innovation

- Negative correlation between religiosity and science production
  - Theoretically (Bénabou *et al.*, 2022).
    - Some innovations erode religious beliefs.
  - Across French districts (Squicciarini, 2020)
  - In the Islamic world (Chaney, 2016)
  - Based on historical examples (Mokyr, 2010).
  - "To keep ourselves right in all things, we ought to hold fast to this principle: What I see as white I will believe to be black if the hierarchical church thus determines it." (Ignatius de Loyola, founder of the Jesuit order – Spiritual Exercises (1522–1524), 13th Rule, cited by Bénabou *et al.* (2022)).
- Crowding out?
- Or conflict between religion and science?
- Perhaps positive correlation early on? Monks inventing, early universities.

One mechanism: Innovation

- PatentCity: Data on innovators and patents registered since 1799 by Bergeaud & Cyril (2022).
- Restrict to innovators who registered a patent in Europe before 1950.
- 2,527,012 innovators registered a patent between 1850 and 1950.
- Calculate innovators within 100 km of city center.

One mechanism: Innovation

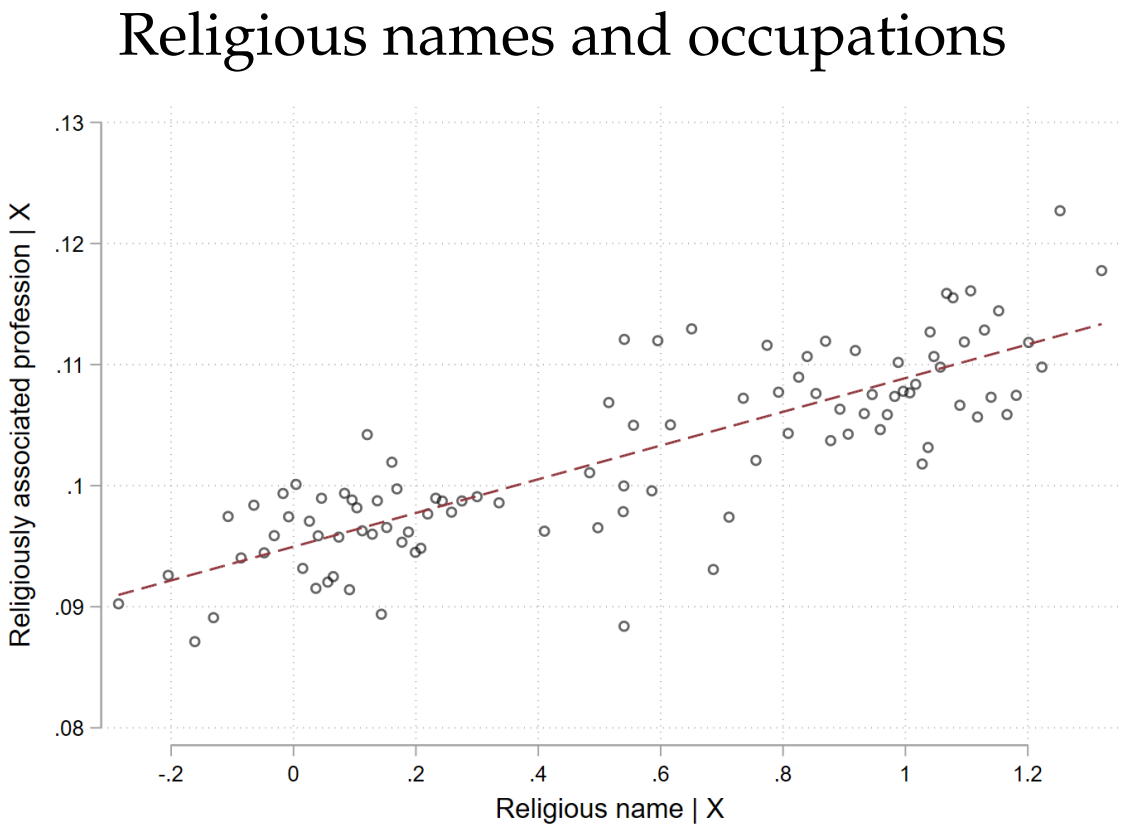
Innovation and religiosity

Dependent variable:	(log) Number inventors						City pop growth
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Religious name share	-3.95***	-1.19***	-1.19***	-1.01***	-0.88***		
	(0.406)	(0.288)	(0.289)	(0.315)	(0.319)		
(log) Population size	0.73***	0.74***	0.75***	0.79***	0.79***	0.80***	
	(0.051)	(0.030)	(0.030)	(0.030)	(0.030)	(0.031)	
Female share		2.85***	2.92***	2.58***	2.61***	2.87***	1.16***
		(0.574)	(0.576)	(0.614)	(0.608)	(0.608)	(0.347)
Common name share		-0.72***	-0.70***	-0.26	-0.35	-0.51*	-0.36**
		(0.226)	(0.226)	(0.282)	(0.287)	(0.285)	(0.150)
Coastline			-0.14**	-0.27***	-0.31***	-0.29***	0.018
			(0.071)	(0.074)	(0.075)	(0.074)	(0.045)
Atlantic coast			-0.060	-0.029	-0.040	-0.13	0.32*
			(0.258)	(0.264)	(0.271)	(0.300)	(0.178)
Protestant city				0.62***	0.53***	0.52***	-0.25***
				(0.097)	(0.098)	(0.099)	(0.062)
Latitude					0.10***	0.100***	-0.024*
					(0.025)	(0.024)	(0.014)
Longitude					-0.0083	-0.0075	0.031***
					(0.022)	(0.022)	(0.012)
Scientist share						1.21***	
						(0.385)	
(log) Number inventors							0.26***
							(0.018)
(log) Initial population size							-0.21***
							(0.035)
R-squared	0.22	0.79	0.79	0.78	0.78	0.78	0.38
Observations	1528	1523	1523	1304	1304	1304	1304
Mean dep var	3.89	3.89	3.89	4.25	4.25	4.25	1.00
5x5 grid FE	N	Y	Y	Y	Y	Y	Y

Conclusion

- Religion probably played a larger role in the lives of parents who named their children after a religious figure (or who chose a name common among those with religious occupations).
- In support, we show that these children...
  - are more likely to become priests, study theology, to live in more religious districts according to surveys and in districts more loyal towards the church.
  - And religious names are more frequent after earthquakes.
- Individuals with a more religious upbringing are on average less likely to become scientists, engineers or to proceed with advanced studies.
- Perhaps as a result, cities with higher religiosity experienced slower economic growth, increasingly so as science became more important in production.

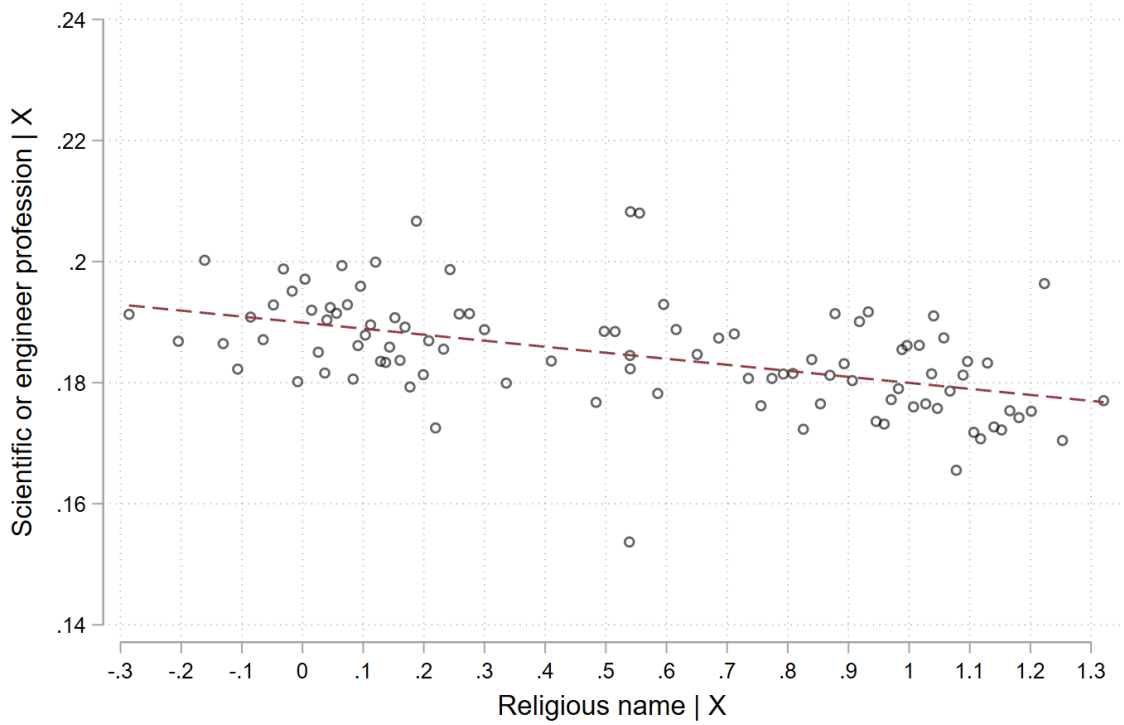
Homogenous across groups of observations



325,000 observations are binned into 100 equally sized bins. The line represents the OLS estimate corresponding to the last column in the table on previous slide, including baseline controls for the frequency of the name, number of occupations, year of birth dummies, 1x1 degree grid cell fixed effects, and grid cell by year fixed effects.

Result: No group of observations drives the results. back

Religious names and scientific occupations



Observations are binned into 100 equally sized bins. The line represents the OLS estimate corresponding to the last column in the table on previous slide, including baseline controls for the frequency of the name, number of occupations, gender, year of birth dummies, 1x1 degree grid cell fixed effects, and grid cell by year fixed effects.

Result: No group of observations drive the results. back

Religious names and occupations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dep var:	doctor	teacher	engineer	scientist	chemist	priest	theologian	composer	engraver	catholic
Religious name	-0.0034***	-0.0016	-0.0057***	-0.0025***	-0.0034***	0.0037***	0.0039***	0.0015**	-0.000031	0.0045***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
R-squared	0.17	0.20	0.10	0.14	0.097	0.19	0.21	0.19	0.26	0.19
Observations	314892	314892	314892	314892	314892	314892	314892	314892	314892	314892
Mean dep var	0.084	0.11	0.022	0.028	0.016	0.0083	0.042	0.039	0.0062	0.010

OLS regs. The dependent variables are dummies equal to one if the occupation of the author includes the particular word. The measure of religiosity is a dummy equal to one if the name is shared by a major saint or biblical figure in Panel A a saint in Panel B, or a biblical figure in Panel C. **Controls**: Frequency of the name, birthplace latitude and longitude, number occupations, year fixed effects, 1x1 degree grid cell fixed effects, 1x1 degree grid cell specific trends. The "Difference p-value" statistic is the p-value of the test that the estimates are the same as those in Panel A. Robust standard errors clustered at the 1x1 grid cell level in parentheses. *, **, and *** indicate significance at the 10, 5, and 1% level.

back to profs back to outcome

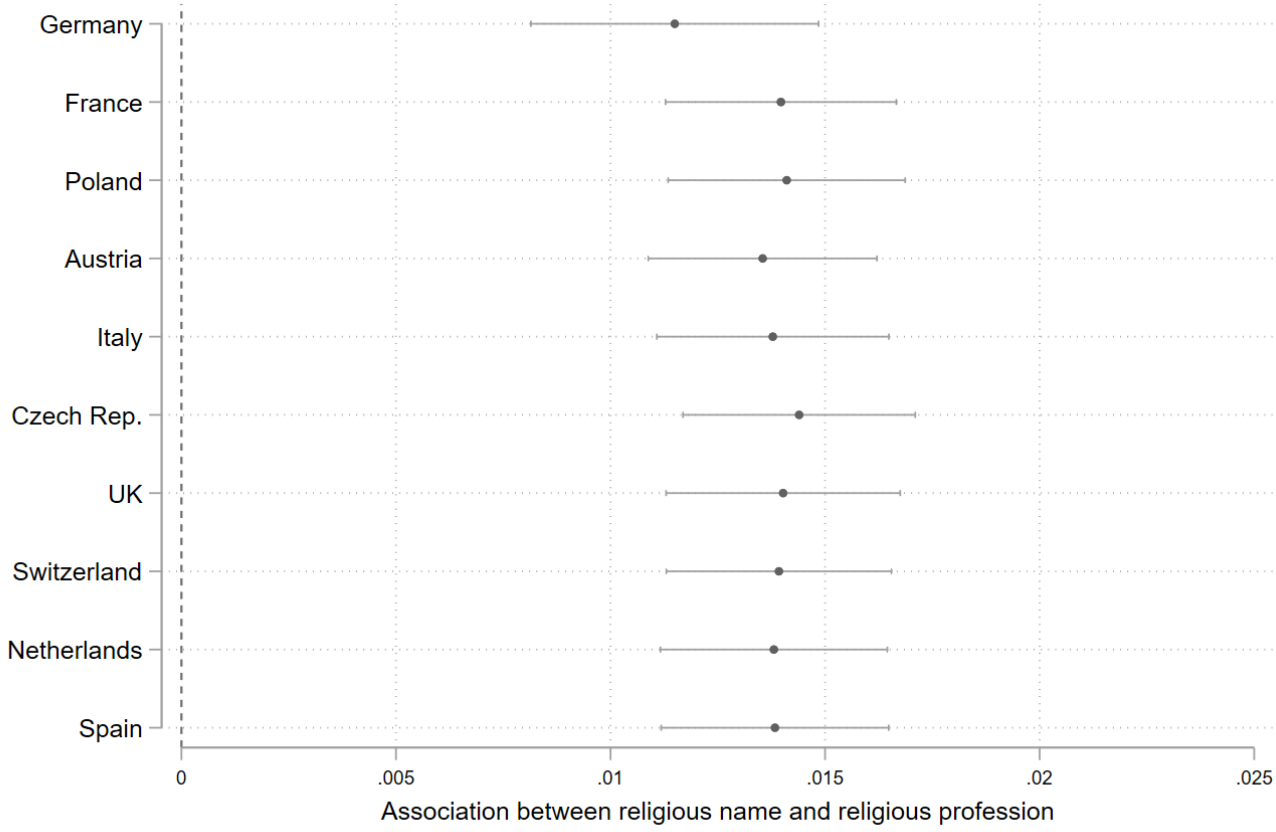
Occupations and different types of religious names

Dep var: Religiously associated occupation	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Religious name	0.014***							
	(0.001)							
Saint name		0.011***						
		(0.001)						
Biblical name			0.019***					
			(0.002)					
Saints RNI				0.029***				
				(0.003)				
New Testament RNI					0.023***			
					(0.004)			
Old Testament RNI						0.018***		
						(0.004)		
Average RNI							0.038***	
							(0.004)	
Maximum RNI								0.030***
								(0.003)
R-squared	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Observations	325462	325462	325462	325462	325462	325462	325462	325462
Mean dep var	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10

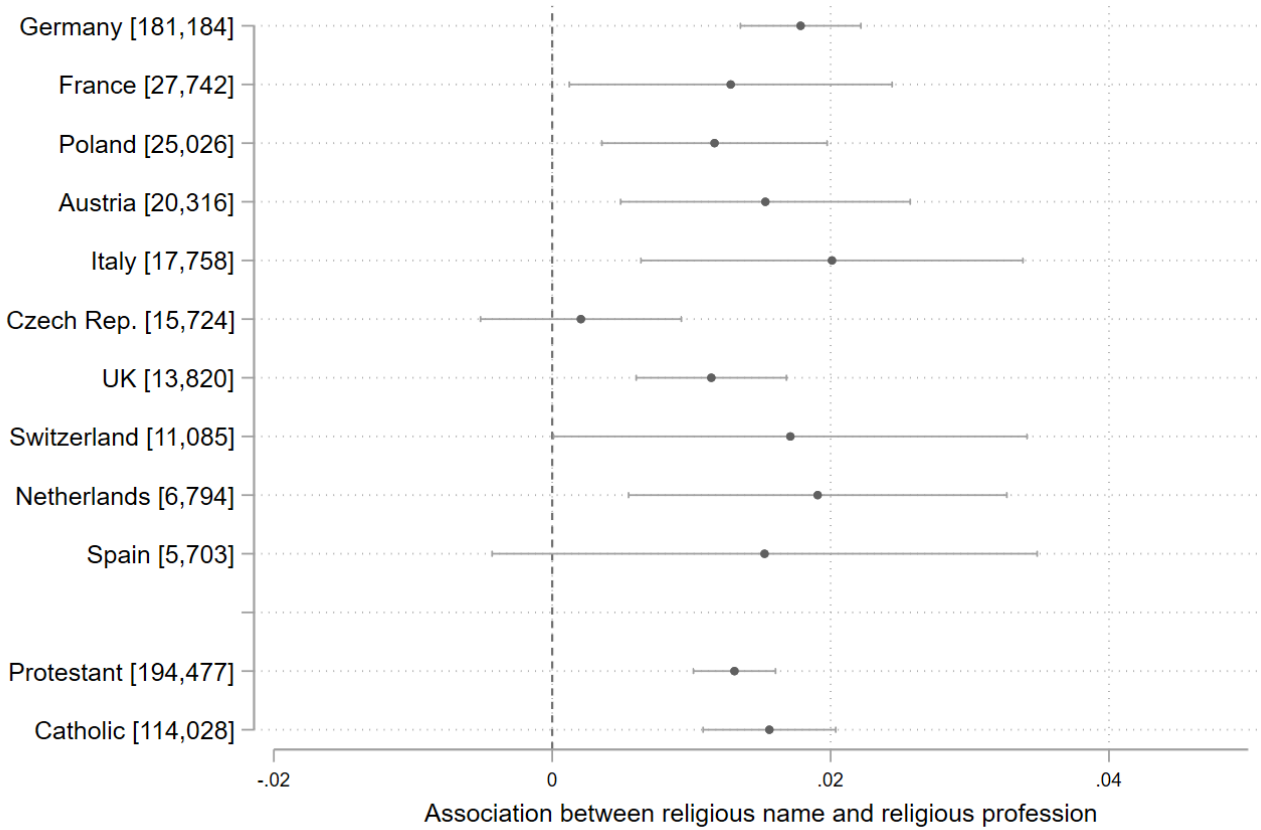
OLS regressions across authors. The dependent variable is a dummy equal to one if the occupation is associated with religion. The measure of religiosity is a dummy equal to one if the name is shared by a significant saint or biblical figure in column (1), a saint in column (2), or a biblical figure in column (3). In column (4) the religiosity measure is instead the RNI based on the frequency of the name among churches. All regressions include controls for the frequency of the name as a share of all names, number of occupations and 1x1 degree grid cell by birth-year fixed effects. Robust standard errors clustered at the 1x1 grid cell level in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level. **Result**: Authors with a more religious name are more likely to hold a religious occupation, independent of the definition of the religiosity of the name.

back

Religious occupations and names excluding largest countries



Religious occupations and names within countries / denominations



Religious professions and names over time

back

Religious professions and names accounting for ethnicity

Dependent variable: Religious profession

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Ethnicity:		Germanic	Celtic	Italic	Slavic	Baltic	Basque	Uralic	Greek	Turkic	Semitic
Religious name	0.014***	0.014***	0.014***	0.013***	0.013***	0.013***	0.013***	0.012***	0.011***	0.012***	0.0089***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Ethnicity		0.0013	0.0015	0.00076	0.0074**	0.0072***	0.0029	0.0070**	0.0088***	0.0089***	0.021***
		(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)
R-squared	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Observations	298430	298430	298430	298430	298430	298430	298430	298430	298430	298430	298430

Replication of estimates in Table 29, accounting for 10 different ethnicities. All baseline controls included throughout: Name frequency, number professions, 1x1 degree fixed effects, year fixed effects, grid-cell by year fixed effects. Robust standard errors clustered at the 1x1 grid cell level in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level.
Result: The association between religious names and profession is not driven by ethnicity.

- Merge birth place of authors with shapefiles of languages spoken before 1600 and calculate ENI:

$$ENI_{i,ethnicity} = \frac{Pr(i|Ethnicity)}{Pr(i|Ethnicity) + Pr(i|other)},$$

back

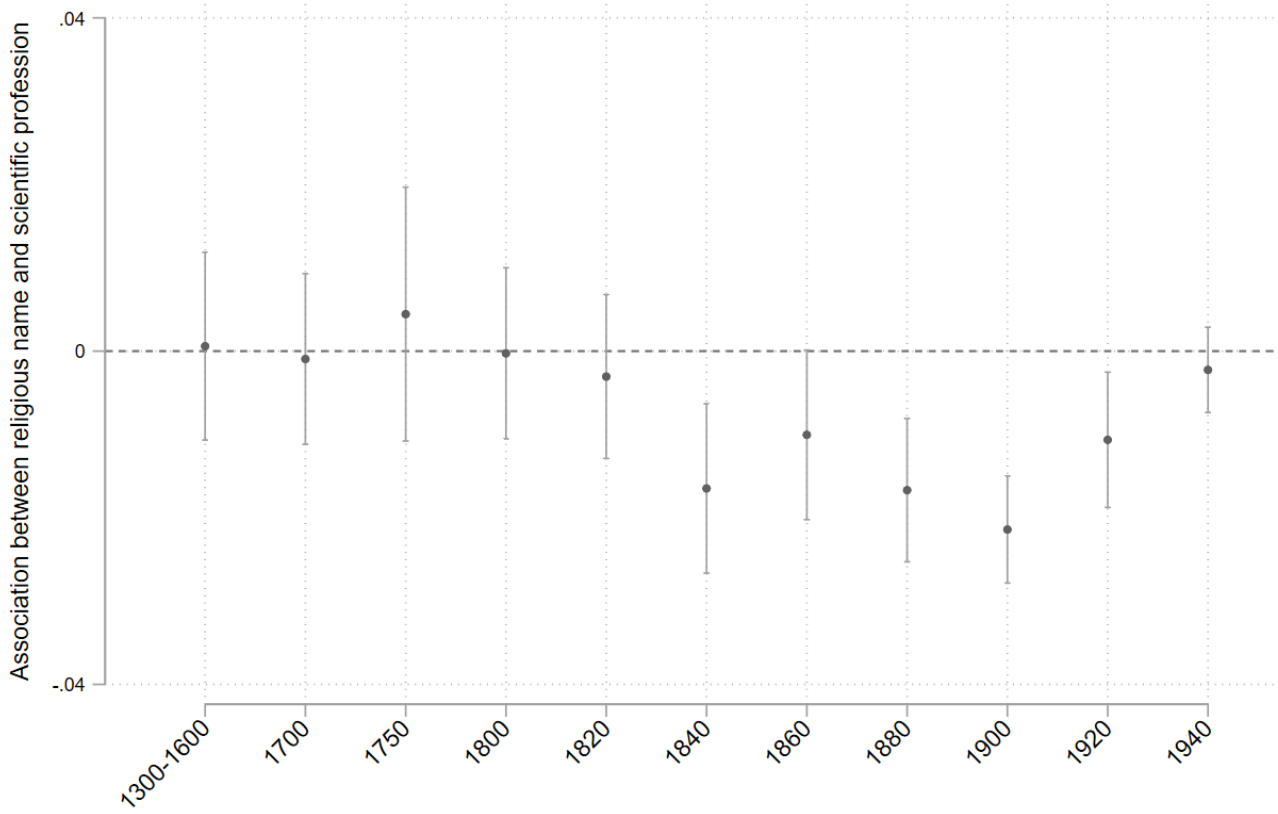
Religious professions and names, excluding top-10 names

Dep var: Religious profession	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A: Removing top-10 religious names												
Sample excludes:	None	John	Charles	Joseph	Francis	George	Ludwig	Peter	Paul	Anthony	Christos	Top-10
Religious name	0.014***	0.012***	0.016***	0.013***	0.014***	0.015***	0.014***	0.014***	0.014***	0.014***	0.014***	0.011***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
R-squared	0.29	0.28	0.30	0.30	0.30	0.29	0.30	0.29	0.29	0.29	0.29	0.29
Observations	325462	286223	307354	316652	316617	316249	318403	318953	319562	320922	320080	212703
Mean dep var	0.10	0.090	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.100	0.081
Panel B: Removing top-10 non-religious names												
Sample excludes:	None	Henry	Frederick	William	Ernest	Rudolf	Herman	Otto	Walter	Conrad	Gerard	Top-10
Religious name	0.014***	0.014***	0.013***	0.014***	0.014***	0.014***	0.014***	0.014***	0.014***	0.014***	0.014***	0.014***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
R-squared	0.29	0.30	0.30	0.30	0.30	0.29	0.30	0.29	0.29	0.29	0.29	0.32
Observations	325462	314332	314802	316436	320259	320843	320707	321223	321466	321732	322498	265108
Mean dep var	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.11

OLS regressions across authors. The dependent variable is a dummy equal to one if one of the author's professions is associated with religion. The measure of religiosity is a dummy equal to one if the name is shared by a significant saint or biblical figure. The sample is the full sample in columns (1). Panel A excludes the top-10 most frequent religious names one-by one in columns (2)-(11) and excludes them all in column (12). Panel B excludes the top-10 most frequent non-religious names one-by one in columns (2)-(11) and excludes them all in column (12). All regressions include the baseline controls for gender, top-10 most common names, number of professions, and 1x1 degree grid cell by birth year fixed effects. Robust standard errors clustered at the 1x1 grid cell level in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level.
Result: Authors with a religious name are more likely to hold a religious profession, even after excluding the most common religious and non-religious names.

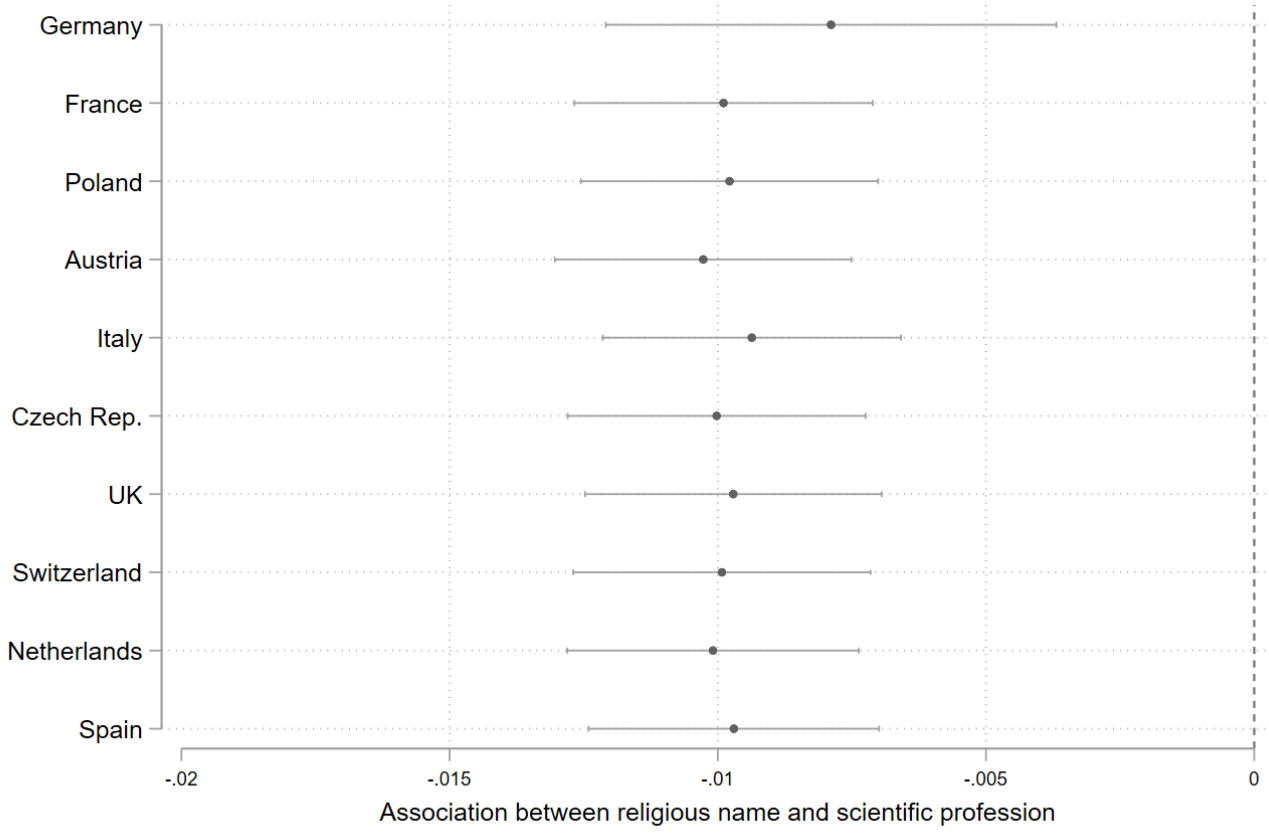
back

Religious names and scientific jobs over time



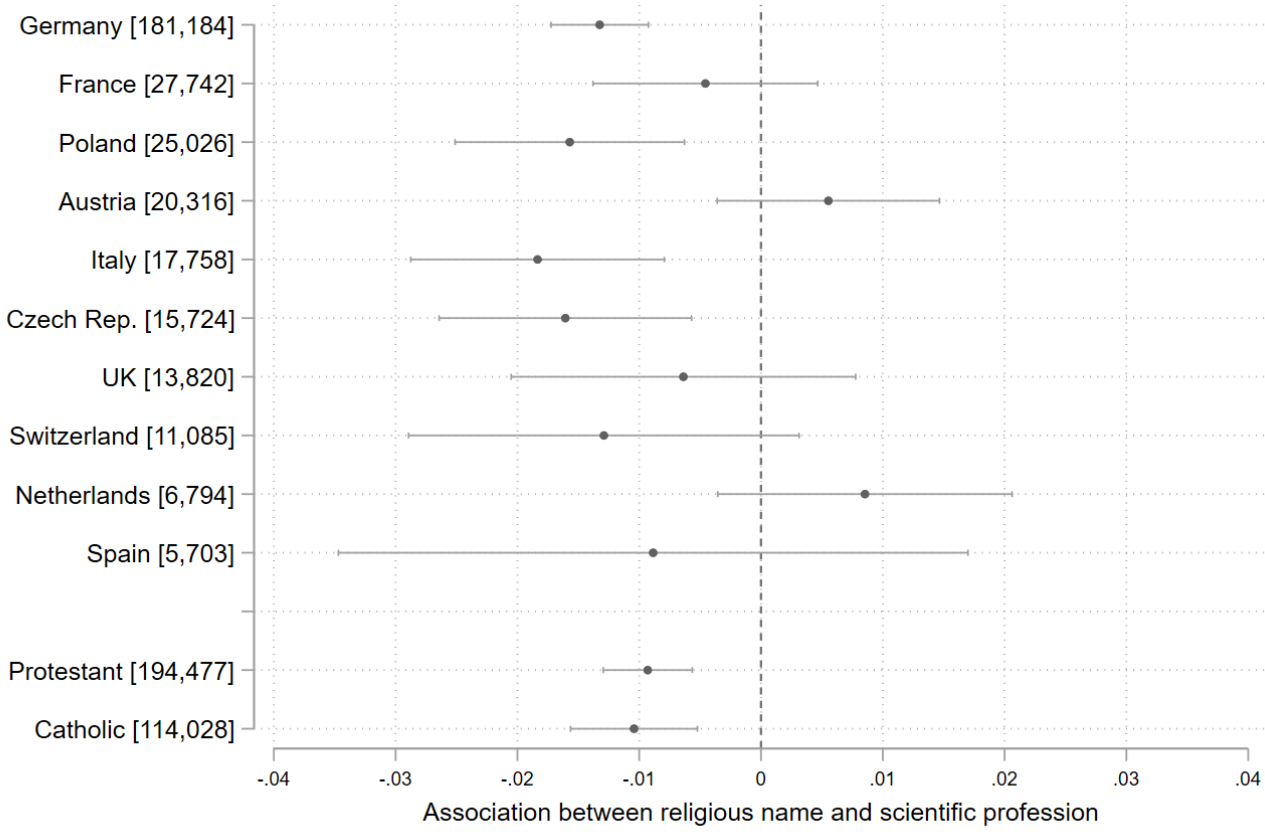
back

Religious names and scientific jobs excluding individual countries



back

Religious names and scientific jobs including individual countries



back

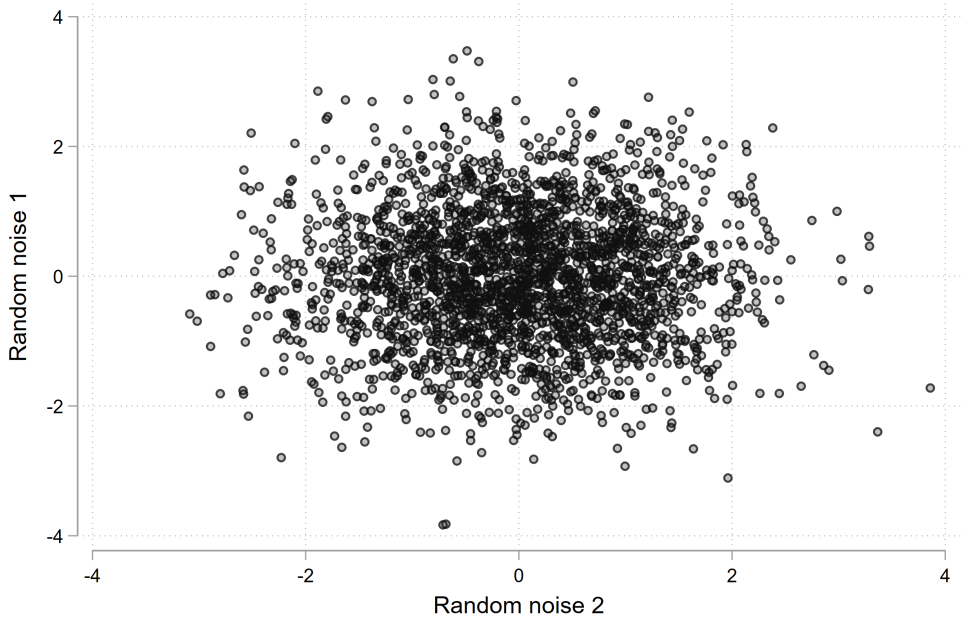
Religious names and professions

Dependent variable:	Science and engineer	Natural science	Engineer	Social science
	(1)	(2)	(3)	(4)
Religious name	-0.0100***	-0.0057***	-0.0044***	-0.00016
	(0.001)	(0.001)	(0.001)	(0.001)
R-squared	0.16	0.16	0.11	0.15
Observations	325462	325462	325462	325462
Mean dep var	0.18	0.16	0.025	0.070

Column (1) replicates column (8) of Table 29 with an indicator of all scientific jobs as dependent variable. All baseline controls included in columns (1)-(4): Name frequency, number professions, 1x1 degree fixed effects, year fixed effects, grid-cell by year fixed effects. The same controls are included in column (5), except the number of professions. Robust standard errors clustered at the 1x1 grid cell level in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level.
Result: Authors with religious names have a lower likelihood of taking a job within natural sciences or engineering and have fewer professions in general. The likelihood of jobs within social science is unaffected.

back

Selection / collider bias



The graph shows the correlation between two random noise variables.

- What if Random noise 1 = Religious occupation and Random noise 2 = Religious name?
  - Goes against results.
  - Or selection would have to be opposite for the two.
- What if Random noise 1 = Scientific occupation and Random noise 2 = Religious name?
  - Rule out by excluding religious occupation.

back to selection | back to rel | back to sci

Selection / collider bias

Religiosity and professions - unselected samples

Dependent variable:	Religious profession				Scientific profession			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Religious name share	0.29***	0.29***	0.30***	0.42***	-0.13***	-0.14***	-0.13+	-0.18**
	(0.043)	(0.062)	(0.104)	(0.090)	(0.030)	(0.051)	(0.085)	(0.075)
R-squared	0.82	0.86	0.91	0.90	0.58	0.69	0.79	0.70
Observations	1164	528	248	333	1164	528	248	333
Mean dep var	0.24	0.27	0.29	0.22	0.15	0.16	0.16	0.18
Sample	All	1x1	2x2	All	All	1x1	2x2	All
Time period	1650-1950	1650-1950	1650-1950	1750-1950	1650-1950	1650-1950	1650-1950	1750-1950

OLS regressions across city-centuries. The dependent variable is the share of authors in a city with religious professions in columns (1)-(4) and the share of authors with professions relating to science or engineering in columns (5)-(8). The measure of religiosity is the share of authors in a city who share name with a major saint or biblical figure. Controls include the share of authors whose name is among the top-10 most common names, the share of women, and city and century fixed effects. The sample is the full sample of cities with at least 10 authors born within 100 km of the city center in the particular century in columns (1) and (4), but is restricted to cities with at least 10 authors in all cities within 100x100 km grids in columns (2) and (5) and cities with at least 10 authors in all cities within 200x200 km grids in columns (3) and (6). The centuries included are 1650-1950 in columns (1)-(3) and (5)-(7) and centuries 1750-1950 in columns (4) and (8). Robust standard errors clustered at the 1x1 grid cell level in parentheses. +, *, **, and *** indicate significance at the 15%, 10%, 5%, and 1% level.

Result: In the much less selected sample of cities, we replicate the correlations between religious names and professions as in the previous analysis.

back

General tradition I

Top-10 religious and non-religious name branches

Religious		Non-religious	
Name	Share	Name	Share
John	0.11	Henry	0.03
Charles	0.05	Frederick	0.03
Joseph	0.03	William	0.02
Francis	0.03	Ernest	0.01
George	0.03	Rudolf	0.01
Ludwig	0.02	Herman	0.01
Peter	0.02	Otto	0.01
Paul	0.02	Walter	0.01
Anthony	0.02	Conrad	0.01
Christos	0.01	Gerard	0.01
The rest	0.68	The rest	0.85

- Non-religious names are kings' names, which are equally traditional. back

General tradition II

Religiosity and professions - checking for general tradition

Dependent variable:	Religious profession			Scientific profession		
	(1)	(2)	(3)	(4)	(5)	(6)
Royal name	0.00099	-0.00029		-0.012***	-0.011***	
	(0.002)	(0.002)		(0.003)	(0.003)	
Religious name		0.014***	0.014***		-0.0098***	-0.010***
		(0.001)	(0.001)		(0.001)	(0.001)
R-squared	0.29	0.29	0.29	0.16	0.16	0.16
Observations	302596	302596	302596	302596	302596	302596

OLS regressions across authors. The dependent variable is a dummy equal to one if one of the professions of the author relates to religion in columns (1)-(3) and a dummy equal to one if one of the professions of the author relates to science or engineering in columns (4)-(6). The measure of religiosity is a dummy equal to one if the author shares name with a major saint or biblical figure. Controls include the dummy for top-10 most common names, gender, number of professions, and 1x1 degree grid cell by birth year fixed effects. Robust standard errors clustered at the 1x1 grid cell level in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level.
Result: A dominant group of traditional names –royal names– do not influence religious profession choice and do not explain the impact of religious names on profession choice.

- People with royal names are not more likely to have religious occupations. back

General tradition III

Additional results...

- Main non-scientific occupations are not religious. Results are robust to excluding occupations.
- Those with common names are *less* likely to hold religious occupations and *more* likely to hold scientific occupations.
- Results are robust to accounting for normal names, excluding normal names, and adjusting the religiosity measure for name normality. back

Name-changing

Religious names and professions - name-changes

Dependent variable: Scientific profession										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Replaced name share:	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Religious name	-0.0068***	-0.0054***	-0.0048***	-0.0049***	-0.0052***	-0.0036**	-0.0027*	-0.0028	-0.0023	-0.0026
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
R-squared	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Observations	288138	288138	288138	288138	288138	288138	288138	288138	288138	288138
Mean dep var	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20

The dependent variable is a dummy equal to one if one of the author's professions is associated with science or engineering. The measure of religiosity is a dummy equal to one if the name is shared by a significant saint or biblical figure, except that we re-code the variable across columns in the following way: In column (1), for a random 5% of the sample, we re-code the name as being religious, despite its true status, in column (2), 10% and so on. The sample excludes authors with at least one religious profession. All baseline controls are included throughout: Top-10 most common names, gender, number professions, and grid cell by year fixed effects. Robust standard errors clustered at the 1x1 grid cell level in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level.
Result: 40% of the sample would have to have changed their name away from a religious name in order for name-changing to explain results.

- Even in a sample without religious occupations, we can replace 50% of the non-religious names with religious names and retain the sign of the estimate.
- Significance remains until we replace 40% with religious names to remove significance. back

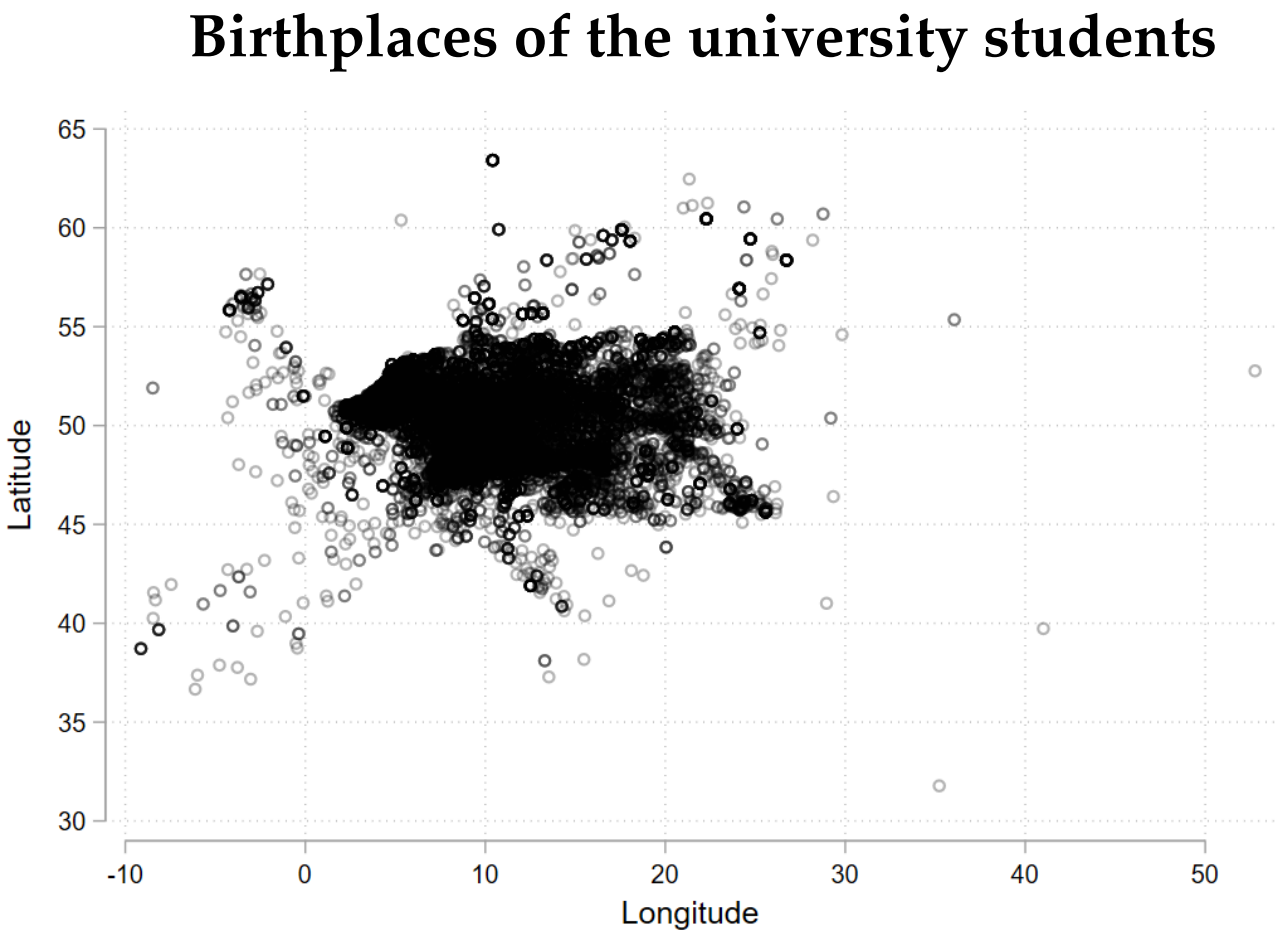
Name-changing III

Additional results...

- Spike in religious naming after earthquakes. back

Medieval university students

- Repertorium Academicum Germanicum (RAG) project: 61,573 students at universities in the Holy Roman Empire, 1130-1588. 54,089 have known birthplace and -year.



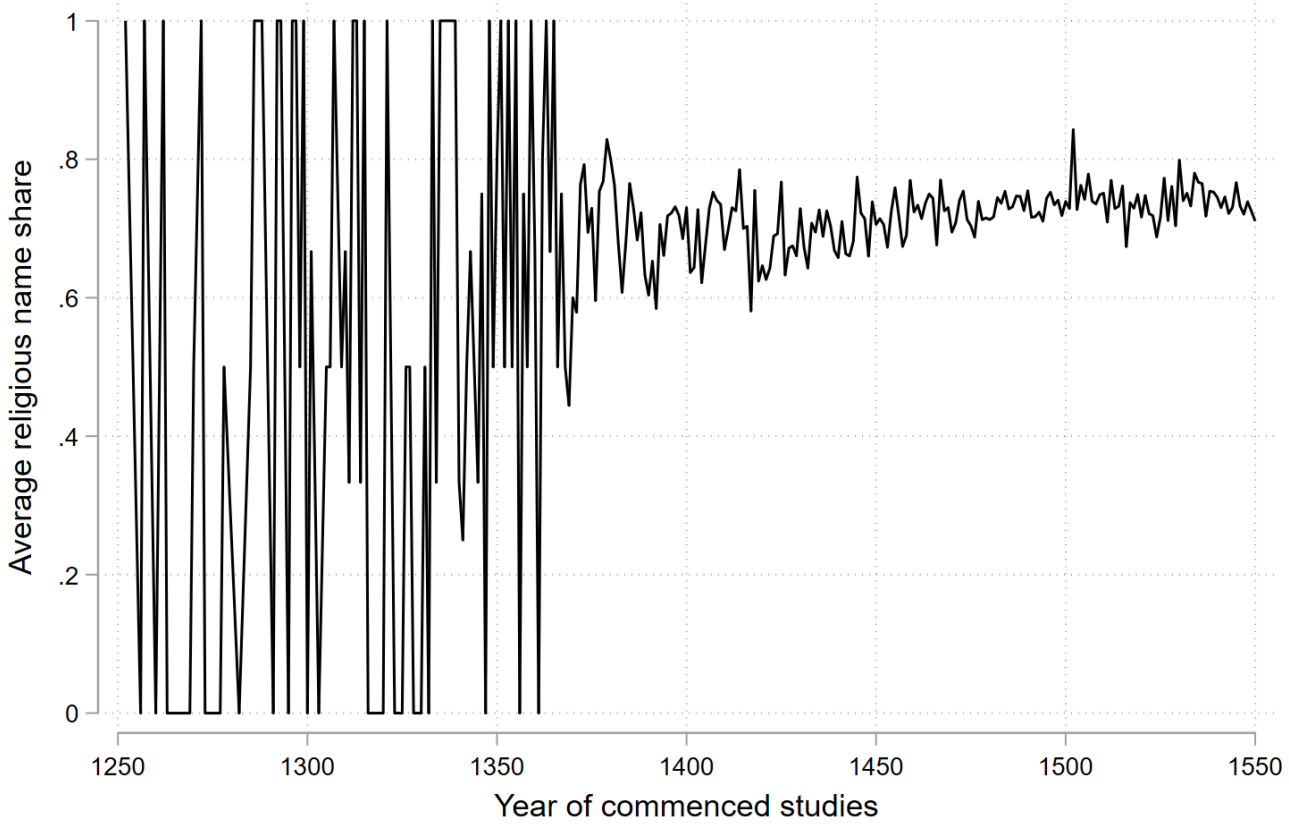
Top-10 religious and non-religious names

Religious names		Non-religious names	
Name	Share	Name	Share
John	0.24	Henry	0.05
Peter	0.04	William	0.02
Nicholas	0.04	Conrad	0.02
Jacob	0.04	Herman	0.01
George	0.03	Gerard	0.01
Yahweh	0.03	Arnold	0.01
Christos	0.02	Jasper	0.01
Andrew	0.02	Frederick	0.01
Matthew	0.02	Jerome	0.01
Martin	0.01	Hadrian	0.01
Remaining names	0.51	Remaining names	0.83

back

Medieval religiosity

Share of university students who share name with a prominent religious figure over time

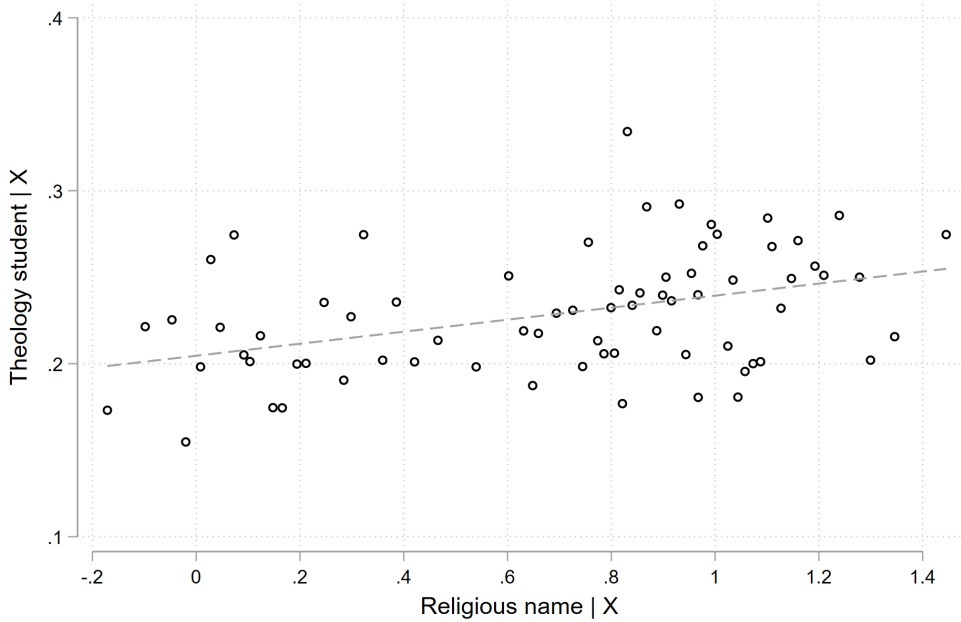


back

Impact on being a theology student

- Students with religious names are more likely to study theology rather than medicine or law.
- Size: 15% of the mean.

Religious names and studying theology



14,590 students in 100 bins. Controls: frequency of the name, nobility dummy, latitude and longitude of birth town, 211 1x1 degree location fixed effects, year FE, 1x1 degree year trends. back

Impact on being a theology student

- **Check**: Do students with religious names engage in more religious behavior?
- For student i, born in year t, in geo-location r:

$$theology_{itr} = \alpha + \beta relname_{itr} + \gamma_r + \gamma_t + \kappa t_r + \omega X_{itr} + \varepsilon_{itr} \quad (2)$$

- Here: Restrict sample to those who went on to advanced studies (14,590 students).

back

Religious names and studying theology

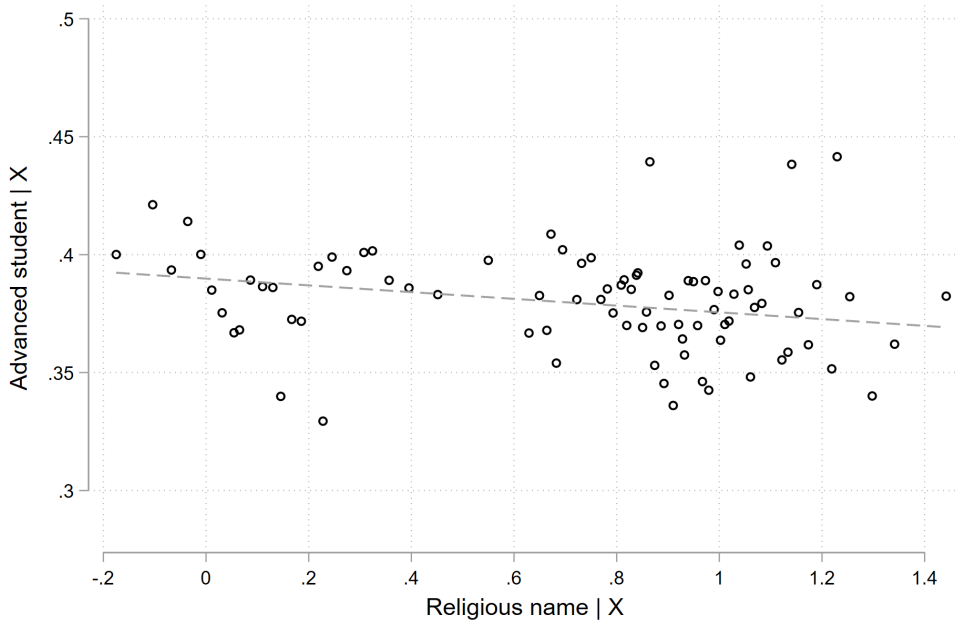
Dependent variable: Theology student dummy								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Religious name	0.051***	0.052***	0.049***	0.026***	0.033***	0.034***	0.035***	0.046***
	(0.009)	(0.009)	(0.009)	(0.008)	(0.008)	(0.007)	(0.009)	(0.008)
Female		-0.028	-0.024	-0.033	-0.022	-0.016	-0.022	-0.018
		(0.034)	(0.034)	(0.034)	(0.034)	(0.036)	(0.047)	(0.038)
Common name			0.015*	0.012*	-0.0058	-0.0057	0.0080	-0.0053
			(0.008)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Year					-0.0012***			
					(0.000)			
R-squared	0.0029	0.0029	0.0030	0.038	0.051	0.056	0.11	0.043
Observations	14276	14276	14276	14267	14267	14255	10474	14008
Mean dep var	0.25	0.25	0.25	0.25	0.25	0.25	0.23	0.25
Year FE	N	N	N	N	N	Y	Y	Y
1x1 grid FE	N	N	N	Y	Y	Y	Y	Y
1x1 grid x year FE	N	N	N	N	N	N	Y	N
2x2 grid x year FE	N	N	N	N	N	N	N	Y
Number 1x1 grids	190	190	190	181	181	181	129	183
Number 2x2 grids	11	11	11	11	11	11	9	9

back

Impact on study advancement

- Students who shared name with a major religious figure were less likely to proceed with advanced studies.
- 10% of the mean.

Religiosity and taking an advanced degree



40,895 students in 100 bins. Controls: frequency of the name, nobility dummy, latitude and longitude of birth town, 211 1x1 degree location fixed effects, year FE, 1x1 degree year trends. back

Religious names and proceeding with advanced studies

Dependent variable: Advanced degree dummy								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Religious name	-0.045***	-0.043***	-0.041***	-0.020***	-0.015***	-0.016***	-0.014**	-0.032***
	(0.009)	(0.009)	(0.010)	(0.007)	(0.005)	(0.006)	(0.006)	(0.007)
Female		-0.11***	-0.11***	-0.091***	-0.085***	-0.078***	-0.074***	-0.088***
		(0.023)	(0.022)	(0.022)	(0.020)	(0.019)	(0.020)	(0.018)
Common name			-0.011	0.0020	-0.0075	-0.0073	-0.010*	-0.017***
			(0.009)	(0.008)	(0.005)	(0.005)	(0.006)	(0.005)
Year					-0.00058*			
					(0.000)			
R-squared	0.0017	0.0024	0.0025	0.049	0.052	0.077	0.17	0.066
Observations	38317	38317	38317	38316	38316	38296	32590	38012
Mean dep var	0.37	0.37	0.37	0.37	0.37	0.37	0.38	0.37
Year FE	N	N	N	N	N	Y	Y	Y
1x1 grid FE	N	N	N	Y	Y	Y	Y	Y
1x1 grid x year FE	N	N	N	N	N	N	Y	N
2x2 grid x year FE	N	N	N	N	N	N	N	Y
Number 1x1 grids	195	195	195	194	194	194	175	195
Number 2x2 grids	11	11	11	11	11	11	11	11

back

Pre-1300 balancing tests

Controls:	(1) none	(2) basic	(3) +ini	(4) +year fe	(5) +5x5 grid fe
Dependent variable:					
(log) City population size	0.13***	0.11	0.0028	0.0059	0.013
	(0.034)	(0.070)	(0.011)	(0.012)	(0.012)
City population growth	0.0062	0.0056	0.0028	0.0059	0.013
	(0.011)	(0.011)	(0.011)	(0.012)	(0.012)
Share female 1300-1600	0.0019	0.0052	0.0053	0.0054	0.0032
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Share common names 1300-1600	0.034	0.036	0.030	0.028	0.015
	(0.023)	(0.022)	(0.022)	(0.021)	(0.016)
Coast	-0.074*	-0.088**	-0.090**	-0.091**	-0.031
	(0.043)	(0.042)	(0.042)	(0.042)	(0.042)
Atlantic	-0.010	-0.012	-0.014	-0.015	-0.00073
	(0.010)	(0.010)	(0.010)	(0.010)	(0.007)
Protestant	-0.16***	-0.14***	-0.11***	-0.11***	-0.014
	(0.049)	(0.046)	(0.041)	(0.041)	(0.038)
Latitude	-1.83***	-1.64***	-1.43***	-1.35***	0.12
	(0.387)	(0.372)	(0.321)	(0.315)	(0.130)
Longitude	0.76	1.03*	1.19**	1.24**	0.020
	(0.593)	(0.571)	(0.551)	(0.550)	(0.139)

OLS estimates across city-centuries. The sample is restricted to the seven centuries between 700 and 1300 for the 417 cities where at least 10 authors were born between 1300 and 1600. The main explanatory variable is a dummy variable equal to one if the city had above median share authors with religious names in 1300-1600. The dependent variable is (log) city population size in row 1, city population growth (row 2), share women in the period 1300-1600 (row 3), share individuals with common names (row 4), an indicator of whether the city is located within 50 km of the coast (row 5), an indicator of whether the city is located within 50 km of the Atlantic coast (row 6), an indicator of whether the city had a Protestant majority (row 7), the latitude of the city center (row 7), and the longitude of the city center (row 9). The main explanatory variable is a dummy equal to one for the cities with above median religiosity in the period 1300-1600, zero otherwise. Each estimate represents one regression and thus reflects the difference in the dependent variable between cities with religiosity levels above and below what the median level was in years 1300-1600. The estimates in column (1) reveal the simple difference without controls. Controls included additively after that are the share of women and individuals with common names in column (2) (except that only common name share is included in row 3 and only the share of women in row 4), the initial (log) population size (column 3), century fixed effects (column 4), and 5x5 degree grid cell fixed effects (column 5). Robust standard errors clustered at the city level in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level.
Result: Cities that were more religious in 1300-1600 were larger prior to 1300. They were also further from the coast, less likely to be Protestant, and located further to the South. Adding initial level population size removes the size differences. Adding 5x5 grid cell fixed effects removes the geographic differences.

back

Religiosity and economic growth accounting for earthquakes

Dependent variable: (log) City population size		
	(1)	(2)
(log) Initial population size	-1.18***	-1.18***
	(0.076)	(0.076)
Religious name 1300-1649 x 1650	0.15	0.15
	(0.357)	(0.358)
Religious name 1650-1749 x 1750	0.28*	0.27
	(0.169)	(0.169)
Religious name 1750-1849 x 1850	-0.74***	-0.83***
	(0.259)	(0.255)
Religious name 1850-1940 x 1950	-1.61***	-1.60***
	(0.410)	(0.409)
Earthquakes 20 years before birth 1300-1649	0.44	
	(0.715)	
Earthquakes 20 years before birth 1650-1749	0.11	
	(0.178)	

Religiosity and economic growth accounting for Atlantic trade

Dependent variable: (log) City population size			
	(1)	(2)	(3)
(log) Initial city size	-0.43***	-1.18***	-0.42*
	(0.037)	(0.076)	(0.038
Religious name 1300-1649 x 1650	-0.0079	0.18	-0.09
	(0.200)	(0.359)	(0.195
Religious name 1650-1749 x 1750	0.067	0.24	0.18
	(0.190)	(0.170)	(0.175
Religious name 1750-1849 x 1850	-1.32***	-0.84***	-1.21*
	(0.194)	(0.256)	(0.183
Religious name 1850-1940 x 1950	-1.95***	-1.59***	-1.84*
	(0.317)	(0.428)	(0.313
Coast x 1750	-0.12***		0.11
	(0.039)		(0.098

Religiosity and economic growth accounting for ethnicity

Dependent variable: (log) City population size

Ethnicity:	Germanic (1)	Celtic (2)	Italic (3)	Slavic (4)	Baltic (5)	Basque (6)	Uralic (7)	Greek (8)	Turkic (9)	Semitic (10)
Panel A: 1650-1950										
(log) Initial population size	-1.18***	-1.19***	-1.19***	-1.19***	-1.19***	-1.19***	-1.19***	-1.19***	-1.18***	-1.19***
	(0.076)	(0.075)	(0.076)	(0.076)	(0.075)	(0.075)	(0.076)	(0.075)	(0.075)	(0.076)
Religious name 1300-1649 x 1650	0.17	0.16	0.17	0.19	0.18	0.11	0.20	0.15	0.16	0.25
	(0.355)	(0.354)	(0.357)	(0.357)	(0.357)	(0.361)	(0.360)	(0.361)	(0.353)	(0.360)
Religious name 1650-1749 x 1750	0.28	0.25	0.26	0.27	0.27	0.16	0.30	0.23	0.23	0.41**
	(0.169)	(0.174)	(0.172)	(0.169)	(0.171)	(0.182)	(0.200)	(0.193)	(0.171)	(0.191)
Religious name 1750-1849 x 1850	-0.83***	-0.84***	-0.84***	-0.82***	-0.83***	-0.92***	-0.79***	-0.88***	-0.87***	-0.66**
	(0.253)	(0.257)	(0.254)	(0.265)	(0.262)	(0.259)	(0.293)	(0.286)	(0.264)	(0.277)
Religious name 1850-1940 x 1950	-1.54***	-1.59***	-1.58***	-1.56***	-1.58***	-1.69***	-1.55***	-1.62***	-1.61***	-1.49***
	(0.424)	(0.412)	(0.425)	(0.424)	(0.420)	(0.414)	(0.426)	(0.413)	(0.412)	(0.417)
Ethnicity	0.17	0.043	-0.023	-0.16	-0.059	0.29	-0.14	0.085	0.10	-0.48*
	(0.272)	(0.289)	(0.252)	(0.316)	(0.242)	(0.217)	(0.301)	(0.251)	(0.189)	(0.258)
R-squared	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Observations	1740	1740	1740	1740	1740	1740	1740	1740	1740	1740
Panel B: 1850-1950										
(log) Initial population size	-0.87***	-0.88***	-0.88***	-0.88***	-0.88***	-0.88***	-0.88***	-0.89***	-0.89***	-0.88***
	(0.046)	(0.045)	(0.046)	(0.046)	(0.046)	(0.046)	(0.045)	(0.046)	(0.045)	(0.046)
Religious name 1750-1849 x 1850	-0.37*	-0.41**	-0.35*	-0.43**	-0.42**	-0.47**	-0.55**	-0.36	-0.49**	-0.23
	(0.207)	(0.204)	(0.208)	(0.210)	(0.205)	(0.215)	(0.222)	(0.233)	(0.224)	(0.229)
Religious name 1850-1940 x 1950	-1.94***	-2.04***	-1.92***	-2.08***	-2.03***	-2.10***	-2.20***	-1.99***	-2.11***	-1.89***
	(0.227)	(0.215)	(0.230)	(0.243)	(0.235)	(0.231)	(0.235)	(0.239)	(0.229)	(0.232)
Ethnicity	0.63*	0.68**	-0.64**	0.14	-0.044	0.25	0.45	-0.19	0.35	-0.62**
	(0.330)	(0.280)	(0.318)	(0.363)	(0.301)	(0.284)	(0.281)	(0.279)	(0.354)	(0.288)
R-squared	0.47	0.48	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Observations	2208	2208	2208	2208	2208	2208	2208	2208	2208	2208

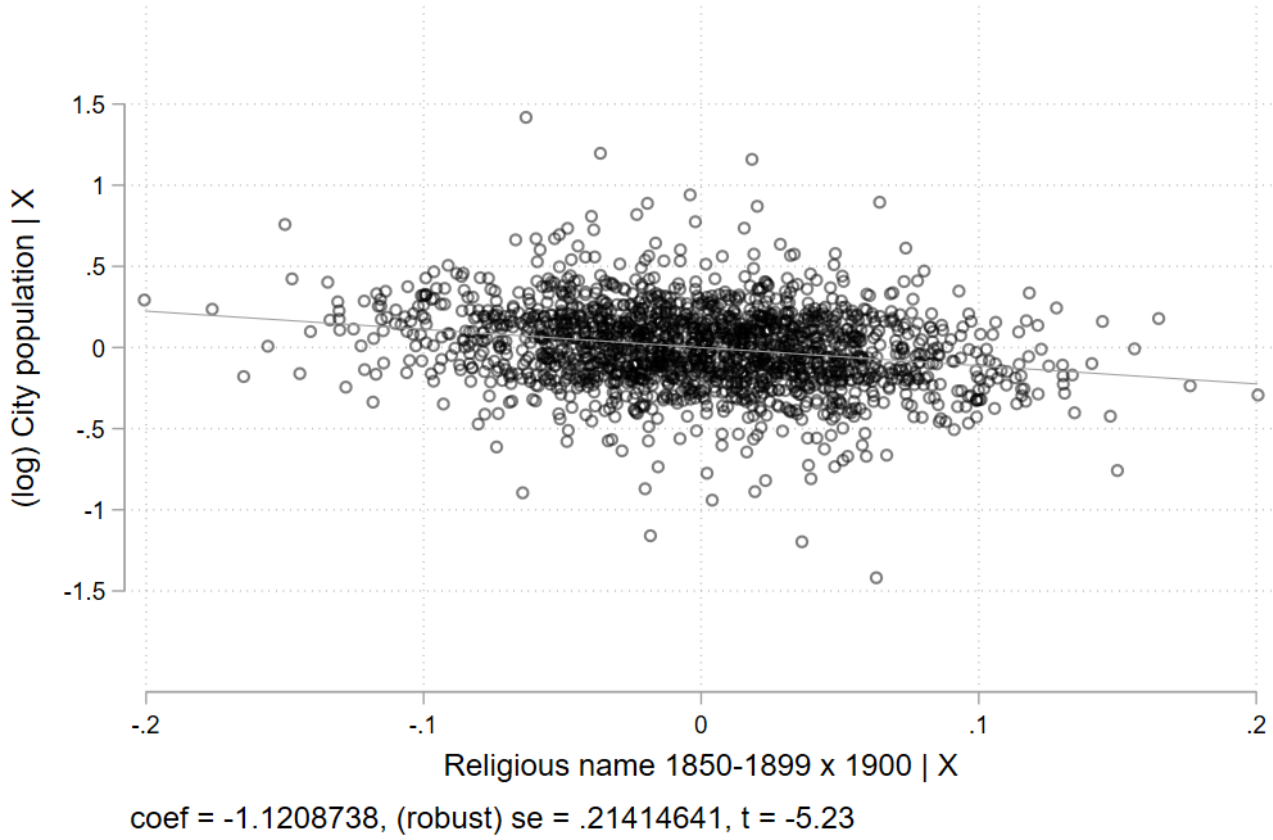
Replication of column (7) of Table **??** in Panel A and column (6) of Table **??** in Panel B accounting for ethnicity. Included controls: name frequency, city fixed effects, time fixed effects, and city-specific trends. The latter is only included in Panel A. Robust standard errors clustered at the city level in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level.

Result: The negative impact of religiosity on city growth is not caused by ethnicity.

Religiosity and economic growth prior to 1500

Dependent variable: City population								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(log) Initial population	-0.072***	-0.079***	-0.066***	-0.98***	-0.99***	-0.99***	-0.98***	-0.99***
	(0.018)	(0.019)	(0.019)	(0.053)	(0.053)	(0.053)	(0.053)	(0.052)
Religious name share	-0.050	-0.028	-0.016	-0.22*	-0.28**			
	(0.084)	(0.094)	(0.093)	(0.126)	(0.130)			
Religious name 1400-99 x 1500						-0.31**	-0.29**	-0.26*
						(0.143)	(0.143)	(0.145)
Religious name 1500-50 x 1600						-0.21	-0.22+	-0.26*
						(0.154)	(0.153)	(0.151)
Common name share					0.22*	0.21*	0.24*	
					(0.128)	(0.128)	(0.130)	
Female name share					-0.50	-0.51	-0.50	
					(0.576)	(0.575)	(0.572)	
Noble							0.16	
							(0.122)	
Common name share 1400-99 x 1500								0.068
								(0.138)
Common name share 1500-50 x 1600								0.32**
								(0.136)
Female name share 1400-99 x 1500								-0.45
								(1.015)
Female name share 1500-50 x 1600								-0.75
								(0.613)
Noble share 1400-99 x 1500								0.19
								(0.148)
Noble share 1500-50 x 1600								0.11
								(0.120)
R-squared	0.022	0.026	0.041	0.59	0.59	0.59	0.59	0.59
Observations	806	708	708	708	708	708	708	708
Mean dep var	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Balanced sample	N	Y	Y	Y	Y	Y	Y	Y
City FE	N	N	N	Y	Y	Y	Y	Y
Year FE	N	N	Y	Y	Y	Y	Y	Y

Religiosity and economic growth 912 cities 1850-1899



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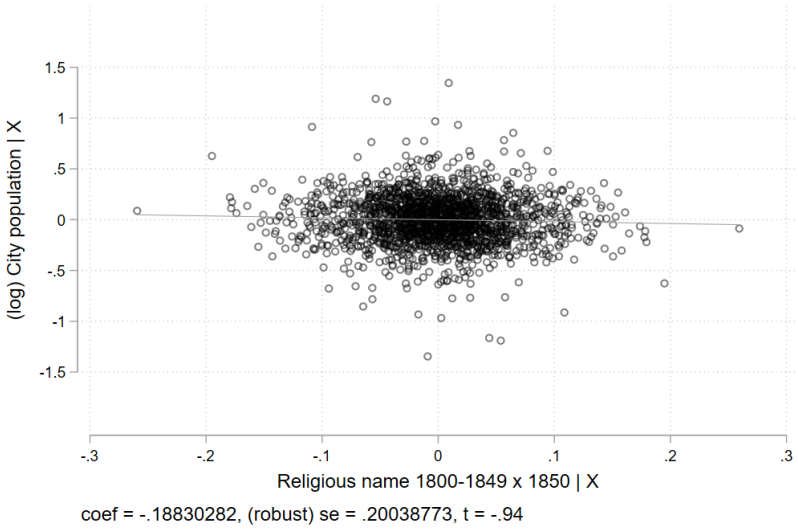
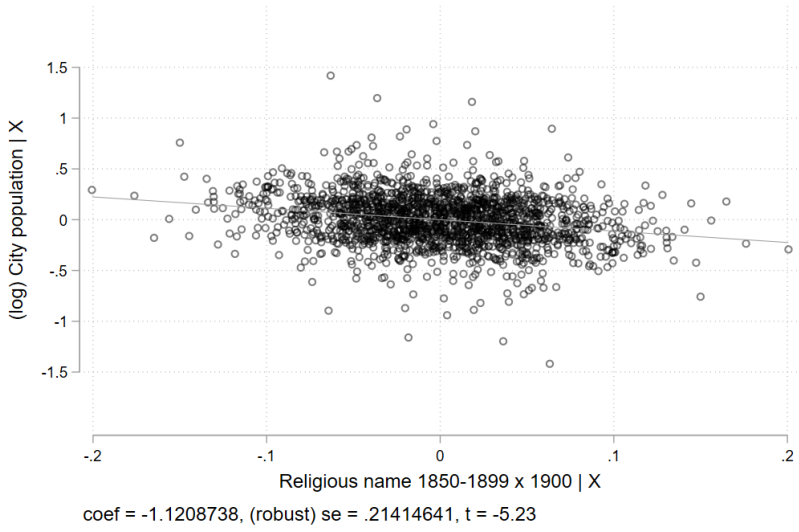
Religiosity and Economic growth 912 cities



(k) 1800-1849



(l) 1850-1899

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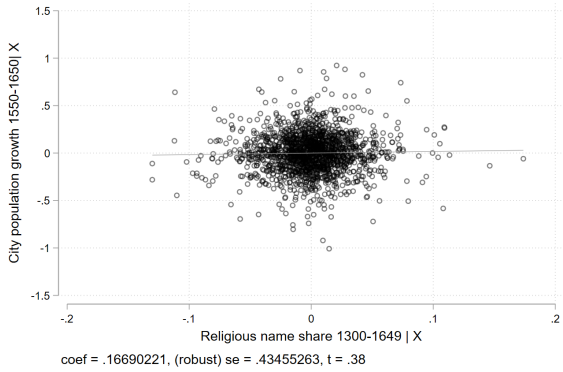
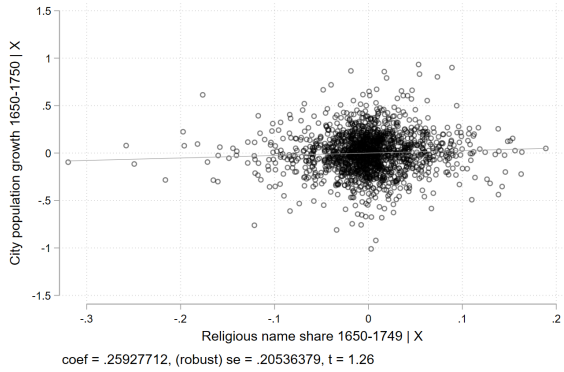
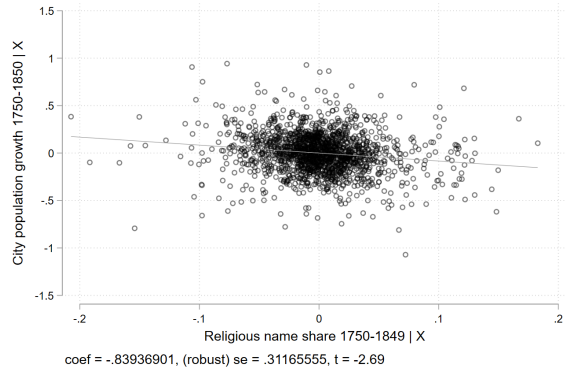
Religiosity and Economic growth 251 cities



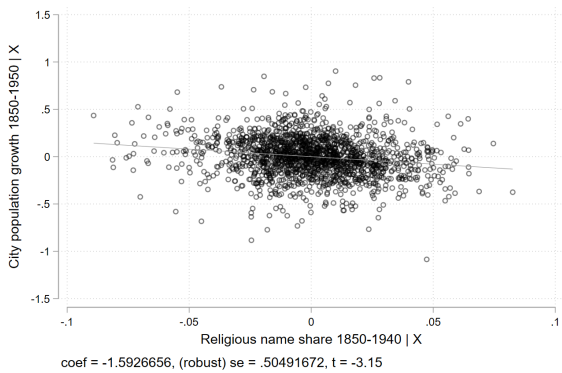
(m) 1500-1599



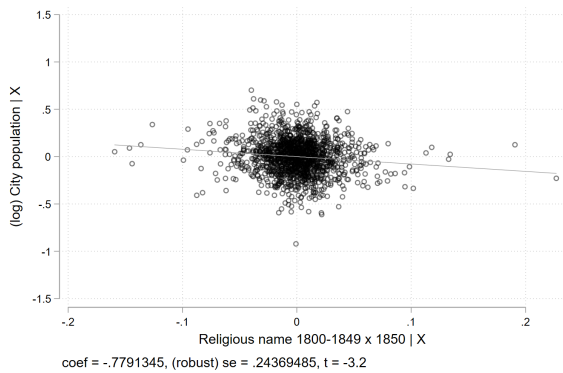
(n) 1600-1699



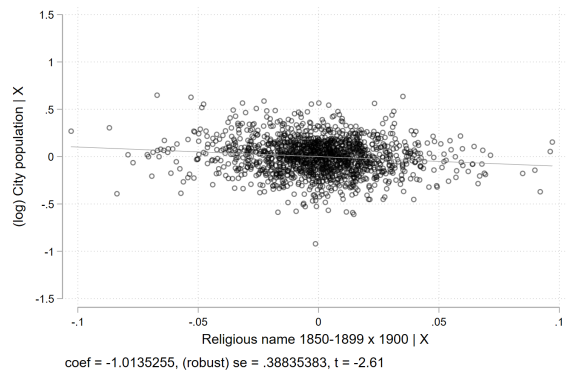
(o) 1700-1749



(p) 1750-1799



(q) 1800-1849



(r) 1850-1899

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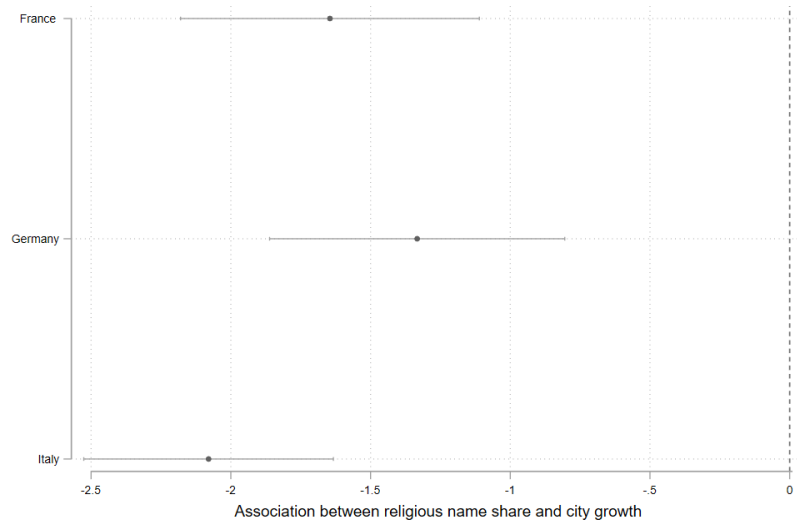
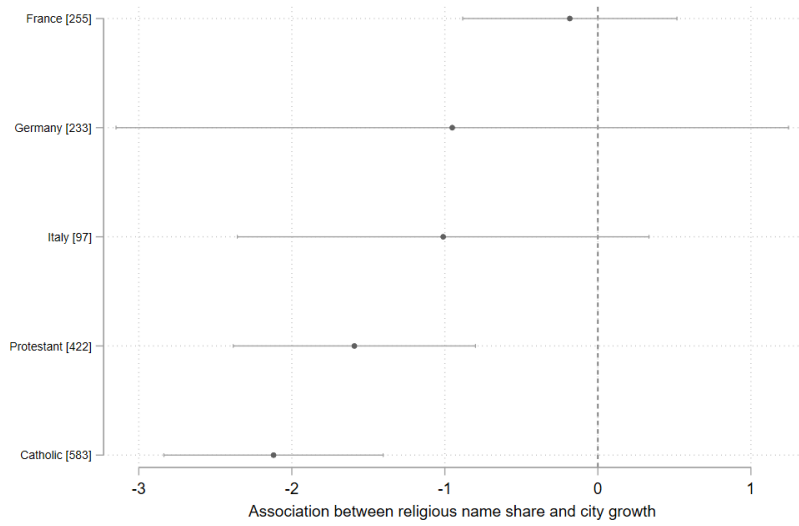
Figure: Religious names and city growth - heterogeneity across countries and denominations



(a) Excluding countries



(b) Restricting to countries or denominations

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Religiosity and economic growth among Catholics vs Protestants

Dependent variable: (log) City population size								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Religious name based on:	Saints+Bible	Saints	Bible	RNI	Saints+Bible	Saints	Bible	RNI
Religious name 1500-99 x 1600	-0.40	-0.38	-0.075	-0.43				
	(0.301)	(0.292)	(0.235)	(0.403)				
Religious name 1600-99 x 1700	-0.39*	-0.37*	-0.36**	-0.41				
	(0.217)	(0.213)	(0.165)	(0.319)				
Religious name 1700-49 x 1750	-0.15	-0.11	-0.13	0.17				
	(0.142)	(0.147)	(0.122)	(0.233)				
Religious name 1750-99 x 1800	-0.20	-0.16	-0.22*	-0.052				
	(0.160)	(0.166)	(0.123)	(0.253)				
Religious name 1800-49 x 1850	-0.87***	-0.87***	-0.60***	-1.10***	-0.19	-0.079	0.042	0.28
	(0.203)	(0.207)	(0.151)	(0.325)	(0.142)	(0.143)	(0.112)	(0.214)
Religious name 1850-99 x 1900	-1.08***	-1.13***	-1.24***	-2.09***	-1.12***	-1.06***	-0.91***	-1.40***
	(0.324)	(0.339)	(0.323)	(0.570)	(0.151)	(0.154)	(0.124)	(0.224)
R-squared	0.97	0.97	0.97	0.97	0.89	0.89	0.89	0.89
Observations	1506	1506	1506	1506	1824	1824	1824	1824
Mean dep var		2.77	2.77	2.77	3.11	3.11	3.11	3.11

A name is defined as religious if it is shared by either a major patron saint or biblical figure (columns 1 and 3), if it is shared by a major patron saint alone (columns 2 and 4), or if it shared by a major biblical figure alone (columns 3 and 6). Controls included throughout: name frequency interacted with time, city fixed effects, time fixed effects, and columns (1)-(3) also accounts for city-specific trends. Robust standard errors clustered at the city level in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level. **Result**: The negative impact of religiosity on city growth persists when restricting to either Catholic or Protestant names.

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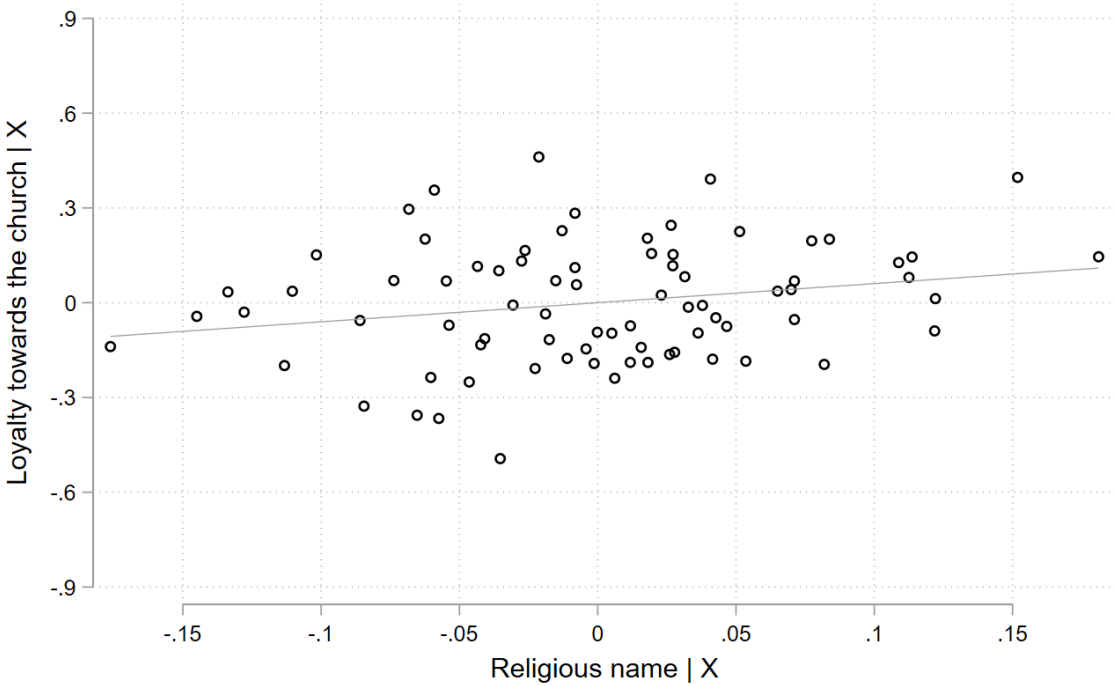
Validity check: Clergy

Religiosity and loyalty towards the church in France



78 districts in France. Authors born within 30 years of 1791. **Controls**: population, temperature, precipitation, wheat suitability, pre-Industrial activities, distance from Paris, power of the king, number Encyclopedie subscribers, and elementary school enrollment rates (from Squicciarini (2020) back1 back2

Religious names and survey measures of religiosity

back1 back2

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
EVS measure of religiosity	Importance of religion	Importance of God	Believe in God	Believe in Afterlife	Comfort from religion	Pray outside service	Belong to rel denom	Church attendance	Attendance child	Religious person	Faith child
Panel A: Across authors											
Dep var: Religious name											
Average EVS religiosity	0.008**	0.003**	0.018**	0.012	0.028***	0.003**	0.021***	0.004**	0.004**	0.015**	0.010
	(2.28)	(2.18)	(2.29)	(1.18)	(3.58)	(1.98)	(3.17)	(2.17)	(2.17)	(2.44)	(0.69)
R squared	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Observations	155078	154623	155078	153217	125447	155078	155078	155078	155078	155078	155078
Country and Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Number regions	157	156	157	150	122	157	157	157	157	157	157
Panel B: Across EVS respondents											
Dep var: EVS religiosity measure											
Religious names share	0.086***	0.066*	0.103***	0.072**	0.106***	0.067*	0.145***	0.092***	0.064+	0.080**	0.040
	(2.65)	(1.83)	(2.73)	(2.47)	(2.71)	(1.69)	(4.18)	(2.73)	(1.53)	(2.22)	(0.95)
R squared	0.20	0.19	0.13	0.15	0.16	0.23	0.16	0.18	0.27	0.12	0.15
Observations	8472	8344	8077	7245	5285	8375	8530	8522	8319	8310	8331
Country and Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Number regions	241	241	241	239	154	241	241	241	241	241	241
Panel C: Across EVS respondents including income and education controls											
Dep var: EVS religiosity measure											
Religious names share	0.082**	0.075**	0.088**	0.083***	0.122***	0.068+	0.140***	0.100***	0.062	0.065*	0.013
	(2.46)	(2.04)	(2.29)	(2.84)	(2.88)	(1.64)	(3.80)	(2.72)	(1.39)	(1.91)	(0.29)
Income	-0.019	-0.022	-0.020	-0.016	-0.010	-0.031**	-0.007	-0.012	-0.013	-0.050***	-0.035**
	(-1.24)	(-1.40)	(-1.41)	(-1.00)	(-0.50)	(-2.00)	(-0.48)	(-0.77)	(-0.81)	(-3.12)	(-2.40)
Education	-0.067***	-0.098***	-0.110***	-0.045**	-0.090***	-0.086***	-0.093***	-0.029*	-0.019	-0.122***	-0.073***
	(-3.91)	(-5.43)	(-7.10)	(-2.15)	(-4.28)	(-4.87)	(-5.59)	(-1.87)	(-1.23)	(-7.95)	(-4.53)
R squared	0.20	0.20	0.14	0.15	0.17	0.23	0.17	0.17	0.27	0.14	0.15
Observations	6835	6752	6522	5882	4248	6784	6882	6891	6743	6711	6710
Country and Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Number regions	239	239	239	236	153	239	239	239	239	239	239
Panel D: Across EVS respondents including control for father's education											
Dep var: EVS religiosity measure											
Religious names share	0.080**	0.063*	0.097**	0.094***	0.099**	0.063+	0.138***	0.098***	0.067	0.080**	0.039
	(2.59)	(1.72)	(2.50)	(3.12)	(2.34)	(1.63)	(3.73)	(2.71)	(1.41)	(2.47)	(1.00)
Father's education	-0.048***	-0.073***	-0.075***	-0.012	-0.060***	-0.081***	-0.061***	-0.024+	-0.021	-0.088***	-0.061***
	(-3.34)	(-4.50)	(-4.56)	(-0.70)	(-2.94)	(-5.69)	(-3.70)	(-1.57)	(-1.34)	(-5.48)	(-4.56)
R squared	0.19	0.19	0.14	0.15	0.16	0.23	0.16	0.18	0.26	0.12	0.14
Observations	6898	6802	6587	5931	4114	6832	6950	6945	6790	6773	6784
Country and Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Number regions	237	237	237	233	154	237	237	237	237	237	237

Placebo: Increasing potential bias from name changing

Dependent variable:	Religious profession			Scientific profession		
	(1)	(2)	(3)	(4)	(5)	(6)
Religious name	0.012***	0.013***	0.013***	-0.015***	-0.012***	-0.012***
	(0.003)	(0.001)	(0.001)	(0.005)	(0.002)	(0.002)
Religious name x Number first names	0.00074			0.0038		
	(0.003)			(0.005)		
Religious name x $>$ one first name dummy		0.0014			0.0047	
		(0.003)			(0.005)	
R-squared	0.29	0.29	0.29	0.16	0.16	0.17
Observations	325462	325462	254841	325462	325462	254841
Sample	Full	Full	One name	Full	Full	One name

The dependent variable is a dummy equal to one if one of the author's professions is associated with religion in columns (1)-(2) and a dummy equal to one if one of the author's professions is associated with science in columns (3)-(4). The measure of religiosity is a dummy equal to one if the name is shared by a significant saint or biblical figure. All baseline controls included throughout: Top-10 most common names, gender, number professions, and grid cell by year fixed effects. In addition, columns (1) and (3) include a control for the number of first names held by the person and columns (2) and (4) include a dummy equal to one if the person has more than one first name. Robust standard errors clustered at the 1x1 grid cell level in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level.

Result: The association between religious names and occupations does not strengthen for those with many names. We interpret this as indicating that results are not inflated due to name changing.

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- Worldcat.org: World's largest library catalog.

Placebo: Increasing potential bias from selection

Dependent variable:	Religious occupation				Scientific occupation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Religious name	0.014***	0.013***	0.014***	0.013***	-0.0099***	-0.0086***	-0.011***	-0.0095***
	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)	(0.003)	(0.003)	(0.003)
Religious name x Number publications			-0.0057				0.062***	
			(0.007)				(0.018)	
Religious name x Number citations				-0.0039				0.34***
				(0.056)				(0.130)
R-squared	0.29	0.34	0.34	0.34	0.16	0.24	0.25	0.25
Observations	325462	107861	107861	107279	325462	107861	107861	107279
Sample	Full	Wcat	Wcat	Wcat	Full	Wcat	Wcat	Wcat

The dependent variable is a dummy equal to one if one or more of the author's occupations is associated with religion in columns (1)-(4) and a dummy equal to one if one or more of the author's occupations is associated with science in columns (5)-(8). Religious name is a dummy equal to one if the name is shared by a significant saint or biblical figure. All baseline controls included throughout: Top-10 most common names, gender, number occupations, and grid cell by year fixed effects. In addition, columns (3) and (7) include a control for the person's number of publications, recorded by Worldcat and columns (4) and (8) include the number of citations recorded by Worldcat. The sample is the full sample in columns (1) and (5) and the sample restricted to the Worldcat sample in remaining columns. Robust standard errors clustered at the 1x1 grid cell level in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level.

Result: The association between religious names and occupations is not stronger for more successful authors (authors with information in Worldcat or authors with more publications or citations). We interpret this as an indication that results do not strengthen when increasing potential selection bias. On the contrary, the relation between names and scientific occupations is weaker among the more successful authors.

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Professions and religiosity of authors - socioeconomic confounders

Dependent variable: Religious occupation							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Socioeconomic confounders							
Religious name	0.014***	0.010***	0.014***	0.013***	0.013***	0.0098***	0.0085***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Urban name index		-0.11***				-0.11***	-0.20***
		(0.017)				(0.018)	(0.021)
Noble name index			-0.012***			-0.015***	-0.019***
			(0.003)			(0.003)	(0.004)
Advanced degree name index				-0.0069		-0.016***	-0.017*
				(0.006)		(0.006)	(0.010)
High education name index					-0.040***	-0.0070	0.021
					(0.011)	(0.012)	(0.015)
R-squared	0.30	0.30	0.30	0.30	0.30	0.30	0.48
Observations	273721	273721	273721	273721	273721	273721	169544
Grid x year FE	Y	Y	Y	Y	Y	Y	Y
Baseline controls	Y	Y	Y	Y	Y	Y	Y
Last name x Country FE	N	N	N	N	N	N	Y

Panel B: Within-neighborhood comparisons							
Fixed effect:	None	Country	2x2 grid	1x1 grid	0.5x0.5 grid	0.1x0.1 grid	0.01x0.01 grid
Religious name	0.013***	0.016***	0.015***	0.016***	0.015***	0.013***	0.012***
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
R-squared	0.13	0.13	0.14	0.14	0.15	0.19	0.23
Observations	339666	339666	339666	339666	339666	339666	339666
Number spatial FE	0	43	256	792	2225	10981	18522
Number year FE	603	603	603	603	603	603	603

Panel C: Within neighborhood and socioeconomic status comparisons							
Religious name	0.0097***	0.0097***	0.0099***	0.010***	0.010***	0.0093***	0.0091***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
R-squared	0.35	0.35	0.35	0.36	0.36	0.40	0.43
Observations	182576	182576	182576	182576	182576	182576	182576

OLS across authors. Dependent variable is a dummy equal to one if one of the author's occupations is associated with religion. Religious name is a dummy equal to one if the name is shared by a significant saint or biblical figure. Urban Name Index measures the frequency of the name in urban areas compared to the rest of the population. Noble Name Index measures the frequency of the name among nobles compared to the rest of the population. Advanced Uni Name Index measures the frequency of the name among students with advanced degrees compared to the rest of the population. All regressions include controls for gender, top-10 most common names, number of occupations, and birth year fixed effects. In addition, panel A includes 1x1 degree grid cell by year fixed effects. In addition, we add 38,159 last name fixed effects in column (6) of panel A and 38,134 last name x country fixed effects in column (7) of Panel A. In addition to the baseline controls, panel B includes spatial fixed effects at the country level in column (2), at the 2x2 degree grid cell level in column (3), 1x1 degree grid cell level in column (4), 0.5x0.5 degree grid cell level in column (5), 0.1x0.1 degree grid cell level in column (6), and at the 0.01x0.01 degree grid cell level in column (7). Panel C replicates panel B, but adds the Urban, Noble, and Advanced Uni Name Indeces and last name by country fixed effects throughout. The sample in panel A is restricted to the sample with information on Noble Name Index. Panel B and C are restricted to the sample in column (7). Robust standard errors clustered at the 1x1 grid cell level in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level.

back

Religious names and scientific occupations - socioeconomic confounders

Dependent variable: Scientific or engineering occupation	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Socioeconomic confounders							
Religious name	-0.011***	-0.0077***	-0.011***	-0.011***	-0.0096***	-0.0073***	-0.0088***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Urban name index		0.12***				0.10***	0.10***
		(0.015)				(0.017)	(0.031)
Noble name index			0.0022			0.0043	-0.0010
			(0.003)			(0.004)	(0.005)
Advanced degree name index				0.0043		0.0043	0.0051
				(0.007)		(0.007)	(0.011)
High education name index					0.070***	0.040***	0.039*
					(0.010)	(0.011)	(0.021)
R-squared	0.17	0.17	0.17	0.17	0.17	0.17	0.36
Observations	273721	273721	273721	273721	273721	273721	169544
Grid x year FE	Y	Y	Y	Y	Y	Y	Y
Baseline controls	Y	Y	Y	Y	Y	Y	Y
Last name x Country FE	N	N	N	N	N	N	Y
Panel B: Within-neighborhood comparisons							
Fixed effect:	None	Country	2x2 grid	1x1 grid	0.5x0.5 grid	0.1x0.1 grid	0.01x0.01 grid
Religious name	-0.020***	-0.015***	-0.013***	-0.013***	-0.013***	-0.011***	-0.010***
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
R-squared	0.025	0.033	0.037	0.040	0.046	0.073	0.095
Observations	339666	339666	339666	339666	339666	339666	339666
Number spatial FE	0	43	256	792	2225	10981	18522
Panel C: Within neighborhood and socioeconomic status comparisons							
Religious name	-0.010***	-0.010***	-0.0099***	-0.0095***	-0.0094***	-0.0083***	-0.0074***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
R-squared	0.25	0.25	0.26	0.26	0.26	0.29	0.31
Observations	182576	182576	182576	182576	182576	182576	182576

back

Placebo: Violation of exclusion restrictions

Dependent variable: City population growth						
(log) Initial population size	-0.58*	-0.68***	-0.71***	-0.70***	-0.68	-0.69
	(0.329)	(0.124)	(0.111)	(0.117)	(0.474)	(0.459)
Religious name share	-10.6	-6.05*	-4.73	-4.99	-11.1	-10.8
	(13.135)	(3.650)	(3.492)	(3.690)	(20.100)	(19.348)
Earthquake before birth, author			0.069	0.043		
			(0.091)	(0.099)		
Earthquake before, city				0.19		0.83
				(0.136)		(0.755)
Observations	1148	1148	1148	1148	546	546
Mean dep var	0.78	0.78	0.78	0.78	0.98	0.98
Kleibergen-Paap first stage F	0.64	2.70	2.13	2.09	0.32	0.33
Cragg-Donald first stage F	1.81	6.60	4.86	4.79	0.56	0.57
A-Rubin Chi-square p-value	0.022	0.0098	0.083	0.071	0.25	0.25

back

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