

# Knowledge Elites and Modernization: Evidence from Revolutionary France

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# Motivation

## Drivers of economic development

- (Formal) institutions vs. modernization hypotheses
  - Evidence in favor of both (largely country-level studies)
- Democratization: allowed by ruling elites at the central level
  - Commitment to redistribution under threat of Revolution (Acemoglu and Robinson, 2000)
  - Incentive for public goods provision benefiting elite: public health (Lizzeri and Persico, 2004) mass education (Galor and Moav, 2006)
- Common features of previous work:
  - Typically focus on aggregate level
  - Assume (latent) demand for democratization/education
  - Elites: usually considered conservative and against modernization

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# This Paper

## Focus on Revolutionary France (1789) – "critical juncture of history"

- 1 Emphasize regional differences *within* a country
- 2 Demand for modernization (in autocratic regime) – pre-Revolution:
  - *Cahiers de Doléance* (1788-89)
  - For each of the three estates (clergy, nobility, 3rd estate)
- 3 Role of "knowledge elites" (as opposed to land-holding elites)
  - Proxy for "knowledge elites": subscriber density to the *Encyclopédie*
    - Unrelated to literacy pre-1800 [▶ Map](#)
  - Pre-Revolution: knowledge elites and demand for modernization
  - Post-Revolution (1833-1850): knowledge elites and expansion of mass education and modernization

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# Main Findings

## Pre-Revolution:

- Relatively low demand for education / democratization among 3rd estate
  - 24% of counties demand national education, 42% state support in education, 38% "same law all classes"
  - Likely upper bound, since 3rd estate includes bourgeoisie
  - Even lower demand among first and second estate
- But: strong **relationship** with local knowledge elites ► Table

## Post-Revolution:

- Local knowledge elites associated with
  - Increase in primary education ► Fig.
  - Modernization (assoc. membership, Republican votes, French-speaking) ► Fig.

⇒ Interaction between *nation-wide* institutional change and *local* knowledge elites (culture of Enlightenment)

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# Contribution to the Literature

- Drivers of economic development
  - Institutions vs. human capital: Acemoglu and Robinson (2012), Barro (1999), Glaeser et al. (2004)
  - ***This paper:*** *modernization with a 'twist'*
- Elites, education, and political participation
  - Bourguignon and Verdier (2000); Glaeser et al. (2007)
  - ***This paper:*** *measuring demand for change*
- Role of elites for expansion of education and democratization
  - Sokoloff and Engerman (2000), Galor et al. (2009), Cinnirella and Hornung (2016)
  - ***This paper:*** *Importance of distinguishing between enlightened elites and land-holding elites.*

# Structure of the Talk

- Historical background
  - Cahiers de Doléance
  - Primary education in France
- Data
- Empirical results
  - Pre-Revolution: *local* demand for education and modernization
  - Post-Revolution changes in education
  - Post-Revolution modernization
- Conclusions

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# Cahiers de Doléances, 1788

- Tension French society  $\Rightarrow$  Louis XVI calls the Estates-General
- In every electoral district (*bailliage*), each estate (clergy, nobility, third estate) organized an assembly and endorsed a *cahier*
  - Record of grievances, complaints, suggestions, and demands
  - "*The cahiers embodied the will of the community that endorsed it*" (Shapiro and Markoff 1998, p.105)
- Elected representatives carried the *cahiers* to Versailles
- Overall, **cahiers representative**, thus comparable across districts.

*The election of 1789 allowed a very wide suffrage, unprecedented for France if not for Europe and far more inclusive than the British parliamentary model of the time* (Shapiro and Markoff 1998: 108)

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# The French Revolution

## *Critical juncture of history*

- Drastic institutional change in France (consequences in Europe as well)
  - Abolition of feudal system, simplification of legal system, etc...
- Objective: free population from tyranny
- Enlightened elites were at the forefront
  - They represented a progressive group in society, identifying themselves more with the Nation than with the king, and even promoting the renunciation of some of their most substantial real privileges (Chaussinand-Nogaret, 1985)

# Popular Education in France

- **Before the Revolution in 1789:** mostly religious
- **Revolutionary Government:** failed attempt to reform primary schooling
- **Napoleon and Restoration (until 1830):** attempt to repair chaos after revolution, return to reliance on Church for primary education
- **July Monarchy (1830-1848):** Crucial period. Successful and comprehensive schooling reform; knowledge elites affect local implementation
- **Second Republic and Second Empire (1848-1870):** completion of universal primary education system; central role for Catholic schools



# Elites and Popular Education

- Important role of elites in the school reform of 1833
  - The 1833 law *"relied on the voluntary effort of local notables to organize and develop education, both in the communes and through committees set up to supervise schools over a wider area."* (Anderson, 1975: 31)
- Without local support, communes averse to centrally-imposed education:
  - School inspector greeted by mayor of a commune: *"You would have done a great deal better, Sir, if you had brought us money to mend our roads; as for schools, we don't want them"*
- Elites attempted to instil Enlightenment values into the masses:
  - *"children of all classes were...to develop in them republican manners, patriotism, and the love of labour...to elevate the soul and to render men worthy of liberty and equality."* (Arnold 1861, p.25)

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# Data: Cahiers de Doléance

- Source: Hyslop (1934)
  - contents grouped in 49 categories
  - dummy on whether the *cahier* of each of the three estates in a given *bailliage* discussed the respective category.
- Identify those demanding national education and democratization.
- Principal component for education and democratization

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## *Cahier topics on Education*

- E1. Proposing some measure of national education
- E2. Etatisme in education

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## *Cahier topics on Democratization*

- D1. Approving vote by head
  - D2. Demanding the same law for all classes
  - D3. Most strongly democratic
  - D4. Asking for publicity of governmental action
  - D5. Asking for freedom of the press
- 
-

# Data

## Proxy for knowledge elites

- List of more than 7,000 subscriptions to the *Great Encyclopédie* in 193 French cities in mid-18C France
- Subscriber density (*Subs.Density*): proxy for local scientific elites

## Outcomes

- Education: School rate, literacy, number of school per capita
- Modernization: mutual aid societies, share of people/children speaking French, votes for progressive parties.

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# Knowledge Elites and Demand for Education in 1789

$$D_c = \beta \cdot S_c + \gamma \mathbf{X}_c + \varepsilon_c , \quad (1)$$

- $D_c$ : demands in *cahiers* in city  $c$
- $S_c$ : density of knowledge elites
- $\mathbf{X}_c$ : control variables (density of the nobility, land inequality, literacy, urban population, ports, presence of universities, printing presses, a dummy for Paris)



# Knowledge Elites and Demand for Education in 1789

Dep. Var.: Demand for national education system in the *Cahiers the Doléance*

Estates included:	Nobles and 3rd Estate		Nobles	3rd Estate	Clergy	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>InSubDens</i>	0.606** (0.274)	0.685*** (0.244)	0.350* (0.185)	0.562*** (0.201)	0.133 (0.150)	0.199 (0.214)
Land Inequality		-0.697 (1.432)	-1.773 (1.267)	0.072 (1.169)		1.413 (1.308)
<i>InNoblesDens</i>		2.073 (1.939)	0.803 (1.566)	1.906* (1.092)		1.128 (1.183)
Literacy 1786		-0.420 (0.781)	0.344 (0.695)	-1.195* (0.623)		2.197** (0.979)
Additional Controls		✓	✓	✓		✓
R <sup>2</sup>	0.13	0.31	0.30	0.26	0.13	0.30
Observations	149	135	142	148	154	142
Magnitude: subscriber density						
beta coeff. <i>InSubDensity</i>	0.350	0.395	0.235	0.392	0.092	0.136
beta coeff. Literacy 1786		-0.057	0.055	-0.199		0.360

*Notes:* Standard errors (clustered at the department level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . All regressions are run at the city level and are weighted by population in 1750. Columns 1 and 2 use *cahiers* "proposing some measure of national education" and *cahiers* on "etatisme (government involvement) in education" for the nobility and the third estate. Column 3 uses the same *cahiers*, but only for the nobility, and column 4 only for the third estate. Columns 5 and 6 perform a placebo exercise and use the same *cahiers* for the clergy. The dependent variable is the principal component of the indicated categories, based on dummies for whether the *cahiers* of the *bailliage* (county) corresponding to a city raised the issue in question, as coded by Hyslop (1968).

‡ Controls include department level urban population in 1750, dummies for cities with ports on the Atlantic Ocean or located on a navigable river, a dummy for cities that hosted a University before 1750, a dummy for cities where a printing press was established before 1500, the (log) number of noble families per capita in each French department, and a dummy for Paris.

# Knowledge Elites and Demand for Democracy in 1789

Dep. var.: Demand for democratic institutions in the Cahiers the Doléance

Dependent var.	Nobles and 3rd Estate		Nobles	3rd Estate	Clergy	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>InSubDens</i>	0.392* (0.226)	0.384** (0.185)	0.460** (0.191)	0.145 (0.177)	0.054 (0.129)	-0.062 (0.141)
Land Inequality		-0.092 (1.426)	0.688 (1.261)	-1.016 (1.150)		-0.996 (0.716)
<i>InNoblesDens</i>		1.817 (1.839)	1.265 (1.520)	1.840 (1.118)		1.455 (0.976)
Literacy 1786		1.372 (0.866)	0.198 (0.792)	0.859 (0.548)		0.256 (1.211)
Additional Controls		✓	✓	✓		✓
R <sup>2</sup>	0.26	0.36	0.26	0.45	0.15	0.23
Observations	149	135	142	148	154	142
Magnitude: subscriber density						
beta coeff. <i>InSubDensity</i>	0.189	0.212	0.303	0.083	0.021	-0.041

Notes: Standard errors (clustered at the department level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . All regressions are run at the city level and are weighted by population in 1750. Columns 1 and 2 use *cahiers* "approving vote by head", *cahiers* "that were most strongly democratic", *cahiers* "demanding the same law for all classes", *cahiers* "asking for publicity of governmental action", and *cahiers* "asking for freedom of the press". Column 3 uses the same *cahiers*, but only for the nobility, and column 4 only for the third estate. Columns 5 and 6 use the same *cahiers* for the clergy. The dependent variable is the principal component of the indicated categories, based on dummies for whether the *cahiers* of the *bailliage* (county) corresponding to a city raised the issue in question, as coded by Hyslop (1968).

† Controls include department level urban population in 1750, dummies for cities with ports on the Atlantic Ocean or located on a navigable river, a dummy for cities that hosted a University before 1750, a dummy for cities where a printing press was established before 1500, the (log) number of noble families per capita in each French department, and a dummy for Paris.

# Knowledge Elites and Economic Demands

Dependent var.	Demand for Liberalism		Demand for Mercantilism	
	(1)	(2)	(3)	(4)
<i>InSubDens</i>	0.074 (0.246)	0.076 (0.143)	0.039 (0.178)	0.144 (0.124)
Land Inequality		-1.913 (1.298)		0.992 (0.672)
<i>InNoblesDens</i>		0.355 (0.700)		-0.707 (0.575)
Literacy 1786		-1.250* (0.703)		1.934 (1.241)
Additional Controls		✓		✓
R <sup>2</sup>	0.28	0.46	0.07	0.37
Observations	149	135	149	135
Magnitude: subscriber density				
beta coeff. <i>InSubDensity</i>	0.041	0.087	0.036	0.064

*Notes:* Standard errors (clustered at the department level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . All regressions are run at the city level and are weighted by population in 1750. Column 1 and 2 use *cahiers* proposing "the suppression of the guilds" and *cahiers* "showing only liberal economic demand" for the nobility and the third estate. Columns 3 and 4 use *cahiers* proposing "the maintenance of the guilds" and *cahiers* "showing only mercantilist demand" for the nobility and the third estate. The dependent variable is the principal component of the indicated categories, based on dummies for whether the *cahiers* of the *bailliage* (county) corresponding to a city raised the issue in question, as coded by Hyslop (1968).

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# Knowledge Elites and Schooling after 1789

$$y_c = \beta \cdot S_c + \gamma \mathbf{X}_c + \varepsilon_c , \quad (2)$$

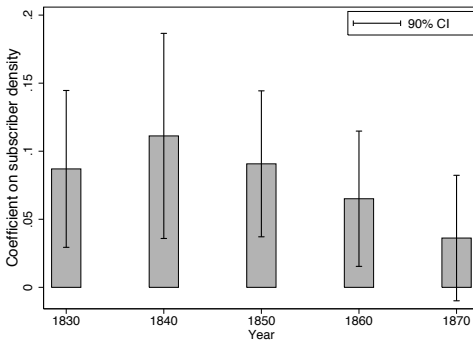
- $y_c$ : several outcomes for schooling expansion
- $S_c$ : density of knowledge elites
- $\mathbf{X}_i$ : control variables (density of the nobility, land inequality, literacy, urban population, ports, presence of universities, printing presses, a dummy for Paris)

# Schooling after the French Revolution

Dependent var.	School Rate		Literacy	Schools per 10,000 inhabitants			Schools Growth	
	1837	1876	1876	1829	1850	1876	1829-50	1850-76
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>InSubDens</i>	0.039** (0.018)	0.045*** (0.014)	0.032** (0.015)	0.091 (0.063)	0.084** (0.032)	0.078*** (0.025)	0.057** (0.025)	0.017 (0.018)
Land Inequality	0.043 (0.142)	0.036 (0.077)	-0.097 (0.119)	0.316 (0.658)	-0.141 (0.257)	-0.050 (0.167)	-0.184 (0.209)	-0.027 (0.150)
<i>InNoblesDens</i>	0.671 (0.624)	0.205 (0.396)	1.026** (0.463)	4.486** (2.237)	0.433 (1.179)	-0.291 (1.038)	-1.124 (0.868)	-0.660 (0.776)
Literacy 1786	0.885*** (0.111)	0.348*** (0.059)	0.577*** (0.059)	2.316*** (0.344)	1.085*** (0.148)	0.762*** (0.127)	0.329** (0.139)	0.071 (0.095)
Additional Controls	✓	✓	✓	✓	✓	✓	✓	✓
R <sup>2</sup>	0.65	0.49	0.62	0.53	0.64	0.81	0.82	0.58
Observations	74	74	74	74	74	74	74	74
Magnitude of subscriber density and initial literacy								
beta coeff. <i>InSubDensity</i>	0.143	0.295	0.151	0.114	0.156	0.135	0.087	0.072
beta coeff. Literacy 1786	0.808	0.580	0.725	0.694	0.550	0.355	0.168	0.086

*Notes:* All regressions are run at the department level and are weighted by population in 1831. Controls include department level population in 1831, the density of the nobility in 1790, and a dummy for Paris. Robust standard errors in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

# Knowledge Elites and Primary School Expenditure, 1830s – 1870s



*Notes:* The y-axis shows the coefficient on Encyclopédie subscriber density in a regression where the dependent variable is departement-level expenditure for primary schools. Control variables are literacy in 1786-90, the density of noble families in 1790, log population in the respective decade, and a dummy for Paris.

► Schooling expenditures by entity

# Is expansion of schooling driven by skill demand?

Unlikely: presence of knowledge elites is associated with *lower* skill premium

Dependent variable: log wages (by sector and arrondissement) in 1837-40						
	(1)	(2)	(3)	(4)	(5) modern	(6) old
<i>InSubDens</i>	0.057*** (0.011)	0.092*** (0.025)	0.085*** (0.026)	0.051** (0.025)	0.147*** (0.035)	0.048 (0.029)
School Rate 1837	0.213*** (0.062)	0.241*** (0.066)	0.267*** (0.068)		0.320*** (0.085)	0.278*** (0.082)
InSubDens x School Rate		-0.075 (0.056)	-0.083 (0.053)	-0.043 (0.058)	-0.159** (0.067)	-0.051 (0.060)
Establishment size	0.021*** (0.006)	0.020*** (0.006)	0.020*** (0.007)	0.022*** (0.008)	-0.019* (0.010)	0.051*** (0.009)
Urbanization Rate	0.673*** (0.077)	0.671*** (0.078)	0.753*** (0.077)	0.000 (.)	0.791*** (0.098)	0.777*** (0.073)
Controls			✓	✓	✓	✓
Department FE				✓		
R <sup>2</sup>	0.18	0.18	0.23	0.36	0.26	0.27
Observations	1429	1429	968	968	429	539

*Notes:* All regressions are run at the arrondissement level. Controls include department level population in 1831, dummies for arrondissements with ports on the Atlantic Ocean or located on a navigable river, a dummy for arrondissements that hosted a University before 1750, a dummy for cities where a printing press was established before 1500, and a dummy for Paris. Standard errors (clustered at the department level) in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .



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# 'Civic-mindedness'

- Social capital crucial pillar of democracy (Putnam)
- Associations in France suppressed prior to 1848
- Then some relaxation, but repression until 1901 for most of them
- Among the few allowed: mutual aid societies
  - Locally-rooted; emerged from confraternities (cheritable religious associations) and trade guilds
  - Tolerated and encouraged by the state after 1848 "as promoters of social order, as potentially effective intermediaries between the individual and the State." (Baker 2004)
  - Main purpose: protect members against consequences of not being able to work

# Other measures of modernization

- Proxy for state building

- Share of French speaking population 1863
- Share of French speaking children 1863

- Share of votes to the Republican parties

- the *Modérés et Libéraux*, the *Radicaux socialistes*, the *Radicaux*, the *Socialistes*, and the *Ralliés* – opposed to the reactionary coalition (*Monarchistes* and *Revisionistes*).
- extent to which the spirit of modernization was anchored in the population.

# Knowledge elites and modernization post-1789

Dependent var.	Mutual aid societies 1878				French speaking 1863		Share rep. votes 1876
	Members per disp. income		Nr. of societies per disp. income		Share population	Share children	
	(1)	(2)	(3)	(4)			
<i>InSubDens</i>	0.226** (0.093)	0.215** (0.082)	0.263** (0.115)	0.258** (0.112)	0.078* (0.040)	0.032** (0.016)	0.051** (0.021)
Literacy 1786	-0.409 (0.380)	-0.678 (0.440)	-0.998** (0.454)	-1.348** (0.556)	0.694*** (0.135)	0.339*** (0.059)	0.148 (0.126)
Non-French Dept					-0.322** (0.143)	-0.235*** (0.057)	
Additional Controls	✓	✓	✓	✓	✓	✓	✓
5th order polyn. in income pc and urb. rate		✓		✓			
R <sup>2</sup>	0.25	0.43	0.19	0.37	0.33	0.45	0.27
Observations	73	73	73	73	74	74	74
Magnitude of subscriber density and initial literacy							
beta coeff. <i>InSubDensity</i>	0.265	0.253	0.254	0.248	0.182	0.171	0.254
beta coeff. Literacy 1786	-0.123	-0.204	-0.247	-0.332	0.415	0.461	0.191

Notes: Robust standard errors in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . All regressions are run at the department level and are weighted by population in 1871. Additional controls include literacy in 1786-90, the density of noble families in 1790, land inequality, log population in the respective decade, and a dummy for Paris. Col. 7 controls also for election turnout in 1876.

# 'Modernization' Index

Index: First Principal Component of Mutual aid societies (per income), share French-speaking, and share of Republican votes

Dependent var.: Modernization index			
	(1)	(2)	(3)
<i>InSubDens</i>	0.356*** (0.133)	0.285** (0.119)	0.147 (0.139)
Land Inequality	0.161 (1.071)	0.412 (1.063)	1.199 (1.086)
<i>InNoblesDens</i>	-0.619 (5.090)	-0.076 (4.407)	-3.266 (5.178)
Literacy 1786	1.202* (0.635)	1.175* (0.601)	
School Rate 1876			2.774** (1.190)
Additional Controls	✓	✓	✓
Income pc and urb. rate	✓	✓	✓
5th order polyn. in income pc and urb. rate		✓	✓
R <sup>2</sup>	0.43	0.57	0.55
Observations	74	74	77

Notes: Robust standard errors in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . All regressions are run at the department level and are weighted by population in 1876. Control variables are literacy in 1786-90, the density of noble families in 1790, log population in the respective decade, and a dummy for Paris.

# Outline

- 1 Historical Background
  - Cahiers de Doléance
  - Primary education in France

- 2 Data

- 3 Empirical results
  - Pre-Revolution: *local* demand for education and modernization
  - Post-Revolution changes in education
  - Post-Revolution modernization

- 4 Conclusions

# Conclusions

- This paper
  - Measure demand for change (associated with knowledge elites)
  - Role of knowledge elites for expansion of education / modernization
- Key interaction between local "culture" and nation-wide institutions
  - Change in central institutions opens a window of opportunity for local elites to push modernization (in the spirit of critical junctures)
- Modernization with a 'twist'
  - Upper-tail enlightenment precedes mass education
  - Purely economic motives unlikely for expansion of schooling. More likely: enlightenment culture of elites

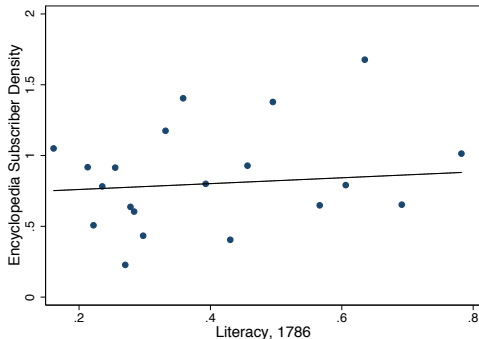
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# BACKUP

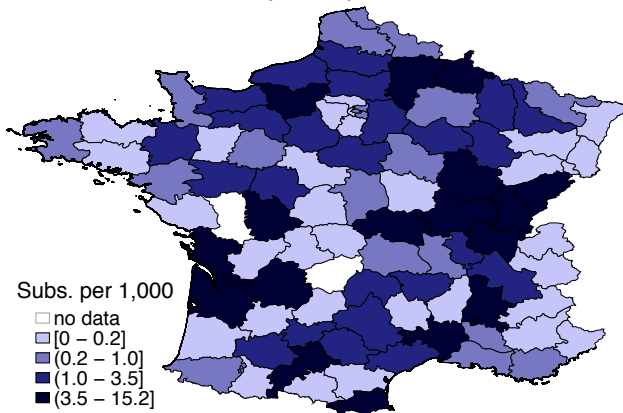
# No Relationship between Encyclopedia Subscriptions and Literacy before the French Revolution



*Notes:* Binscatter plot, grouping the x-axis into 20 equal-sized bins. Departement-level analysis.

# Encyclopedia Subscriptions

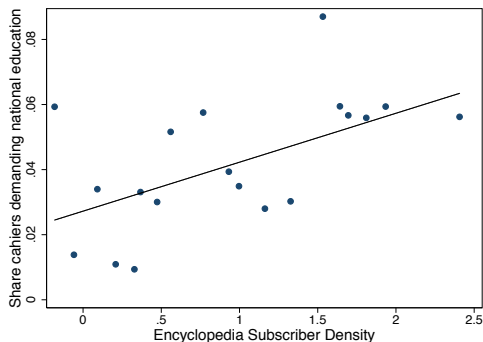
Subscriptions per 1,000



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# Evidence from the *Cahiers de Doléance* (1788): Knowledge Elites and Demand for National Education



Notes: Binscatter plot, grouping the x-axis into 20 equal-sized bins. City/bailliage-level analysis.

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