# Lineages of Scholars in pre-industrial Europe: Nepotism vs Intergenerational Human Capital Transmission

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# Motivation

What is the true rate of persistence in social status $h_t$?

$$h_t = \beta h_{t-1} + (1 - \beta)\bar{h} + u_t \ ,$$

where: $\beta$: intergenerational elasticity of $h$,

Inequality in the long run: $\lim_{t \to \infty} \text{Var}[h_t] = \dfrac{\sigma_u^2}{1 - \beta^2}$

High social mobility in few generations if $\beta$ is low.

# Two issues

1) Measurement error biases downwards parent-child correlations

    Latent variable $h$ persistent across generations.

    Noisily proxied by observed outcomes $y$ (e.g., income, education, occupation).

    Literature: proposes way to correct for measurement error

2) Selection bias through nepotism

**This paper**: New method to identify nepotism

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# This paper

Identifying <u>nepotism</u> requires to separate **selection** from **measurement error**.

Our method requires:

   Well defined universe of fathers and sons with entry restrictions (selection).
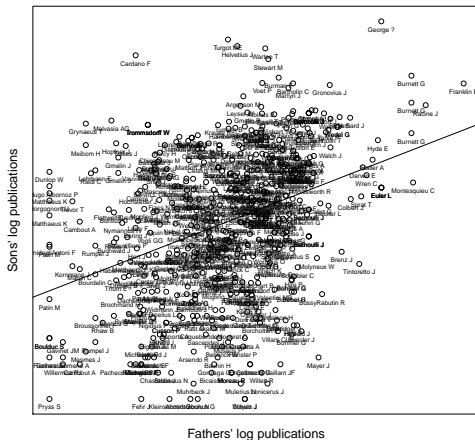   $\rightarrow$ New dataset on scholars and members of scientific academies in 1100–1800.
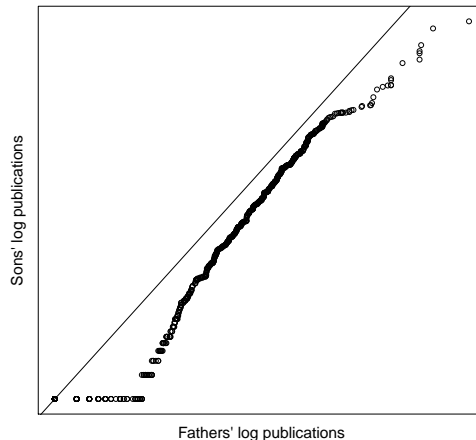   Outcome variable $y_t$ (noisily) correlated with unobservable human capital, $h_t$.
   $\rightarrow$ Publications in libraries today.

Could be applied in many other contexts as well

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# Idea: Separating "True" human capital transmission vs. Nepotism



$b = 0.508^{***}$ (s.e. 0.024)

$KS = 0.103^{***}$ (p-val. 0.000)

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# Preview of the Results

We find evidence in favor of the existence of nepotism.

$\approx 15\%$ scholars' sons are scholars themselves thanks to nepotism.

Loss of scientific output because of nepotism $\approx 17\%$

The *true* rate of transmission of human capital remains high ($\beta \approx 0.6$),

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# Database

Database built from books and catalogues of universities and academies.

Matched with biographical dictionaries.

Coverage: pre-industrial Europe ($< 1800$).

1068 father-son pairs in 112 institutions.

Scholar's publications (library holdings in Worldcat).

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# Covered institutions: top 15

| Institution | Cntry | Dates | | Nb. | Main Source |
|---|---|---|---|---|---|
| University of Bologna | ITA | 1088 | | 156 | Mazzetti (1847) |
| Royal Society of London | GBR | 1660 | | 65 | www.royalsociety.org/ |
| University of Avignon | FRA | 1303 | 1793 | 58 | Laval (1889), Laval (1889), Teule (1887) |
| | | | | | Fournier (1892), Barjavel (1841), Duhamel (1895) |
| University of Tübingen | DEU | 1476 | | 42 | Conrad (1960) |
| Leopoldina | DEU | 1652 | | 37 | www.leopoldina.org/ |
| University of Basel | CHE | 1460 | | 32 | Herzog (1780) & Rep. Acad. Germ. |
| University of Montpellier | FRA | 1289 | 1793 | 30 | Dulieu (1975, 1979, 1983) |
| University of Padova | ITA | 1222 | | 27 | Pesenti (1984), Facciolati (1757) |
| University of Jena | DEU | 1558 | | 27 | Günther (1858) |
| University of Pavia | ITA | 1361 | | 27 | Raggi (1879) |
| University of Marburg | DEU | 1527 | | 24 | Gundlach (1927) |
| University of Greifswald | DEU | 1456 | | 24 | Allgemeine Deutsche Biographie |
| University of Giessen | DEU | 1607 | | 23 | Haupt (1907) |
| University of Helmstedt | DEU | 1575 | 1809 | 20 | www.uni-helmstedt.hab.de/ |
| University of Paris | FRA | 1200 | 1793 | 18 | Herzog (1780), Antonetti (2013) |

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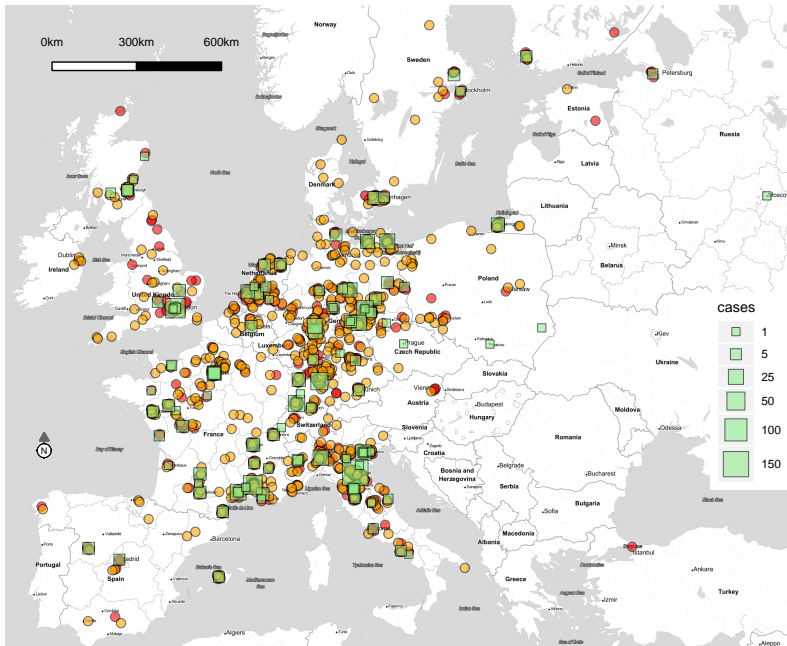
# Qualitative evidence

*Nepotism*

After sixty years of teaching canon law in Salamanca, Juan Alfonso Benavente (-1478) retired in 1463. He retained his chair and his lectures were taught by substitutes, including his son Diego Alfonso de Benavente (c. 1430-1512). Finally, on November 19, 1477, Benavente resigned to his chair on the condition that his son was firmly appointed to it. (source: Diccionario Biográfico Español)

*Human capital transmission*

About Jean Bauhin (1541-1613, professor in Basel): His father, Jean Bauhin (1511-1582, professor of medicine in Basel), was his first master in the study of medicine and of all the underlying sciences. (source: Michaud, biographie universelle, 1811)

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# Structural model

Set of all lineages: $\mathbb{I}$

Father's human capital (unobserved): $h_{t-1} \sim N(\mu_h, \sigma_h^2)$.

Children's human capital(unobserved): $h_t = \beta h_{t-1} + u_t$,

Set $\mathbb{P}$ of scholar lineages: $\mathbb{P} = \{i \mid h_{t-1} > 0, h_t > -\nu\} \subset \mathbb{I}$

Publications of fathers: $y_{t-1} = \max(\pi, h_{t-1} + \varepsilon)$

Publications of sons: $y_t = \max(\pi, h_t + \epsilon)$

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# Estimation by simulated method of moments

| parameter | estimation |
|---|---|
| $\beta$ | 0.574 |
| | (0.051) |
| $\mu_h$ | 2.526 |
| | (0.535) |
| $\sigma_h$ | 3.372 |
| | (0.245) |
| $\sigma_e$ | 0.376 |
| | (0.111) |
| $\pi$ | 2.233 |
| | (0.189) |
| $\nu$ | 5.741 |
| | (1.513) |

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# Importance of Nepotism: simulation

Simulate model with $\nu = 0$ allows to assess the size of nepotism:

$s = 14.4\%$, $s$ is the % of scholars' sons would not be scholars themselves.

Replace *nepotic* scholars with average scholar:

Increase in mean publications by 16.8%

# Heterogeneity of Nepotism *s* by Field

**Theology**

$N = 136, s = 5\%$



**Medecine**

$N = 323, s = 17\%$

**Law**

$N = 288, s = 20\%$

**Arts & Sciences**

$N = 165, s = 12\%$

Source: les cinq facultés, livre
des privilèges de l'université de
Louvain, c. 1450

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# Heterogeneity of Nepotism *s* by Religion

**Protestant institutions:**

$N = 515$, $s = 3\%$



Source: Emile Delperée (1878)

**Catholic institutions:**
(after 1527)

$N = 344$, $s = 27\%$

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# Heterogeneity of Nepotism $s$ by age at appointment

Appointed before death of father: $N = 433$, $s = 15\%$

Appointed after death of father: $N = 454$, $s = 8\%$

*THE END*