The Emergence of the Child Quantity-Quality Tradeoff insights from early modern academics

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Introduction

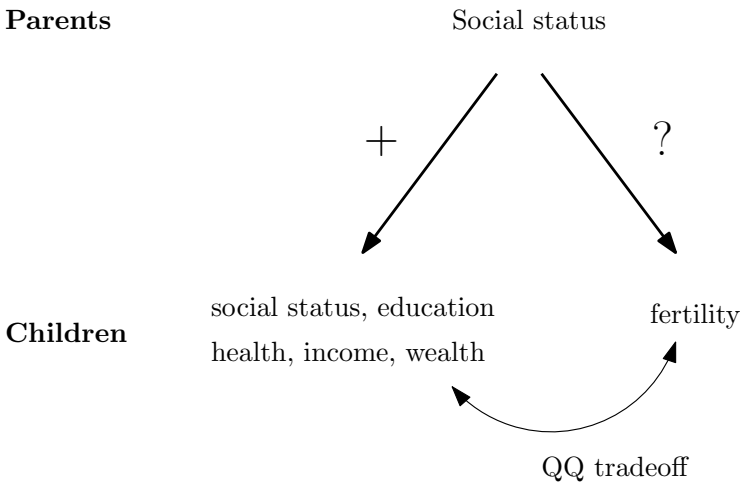
In the 20th century, children from large families have less education than children from small families (Doepke et al. 2022). True within and across countries
→ Beckerian tradeoff between quality and quantity of children (substitution effects dominate)

In the premodern era, upper class families had both more children and better education
→ Malthusian logic: fertility and education increasing with income (income effects dominate)

There was a reversal at some point in history
–Timing uncertain - lack of measures on child quality over a long period of time
–Reasons still debated

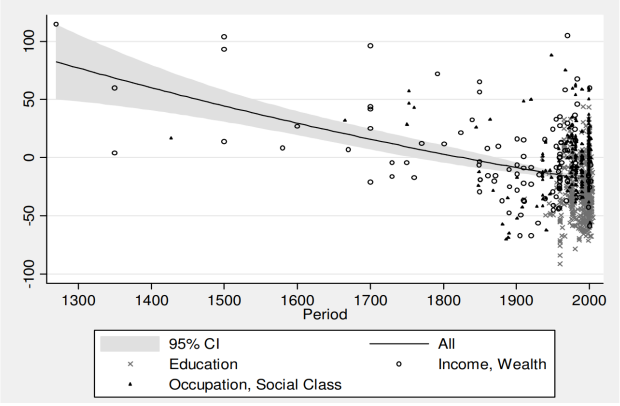
UGT (Galor & Moav 2002, Galor 2022) predicts such a reversal following the industrial revolution (19th century).
Rooted in the hypothetical rise in the return to education

Relation between QQ tradeoff and parental social status



The meta-analysis of Skirbekk (2008)

Figure 1: **Percentage fertility difference, high relative to low status individuals by period. All countries. All Measures. R^2 (adj.) for the fitted curve=0.09**



What we do

Consider the critical period before the transition to modern growth: 1500-1800

Consider a population for whom there is a clear measure of quality:
academics and publications

+ observable through time and space
– not applicable outside academia

Ask the question: how are publications (quality) and sibshipsize correlated ? how did this correlation change over time ? How can we explain it ?

Geographical coverage

Consider Northern Europe, an area for which genealogical data are abundant → matching publications with family sizes

Protestant world: cultural similarities + no bias in genealogies due to celibacy in priesthood

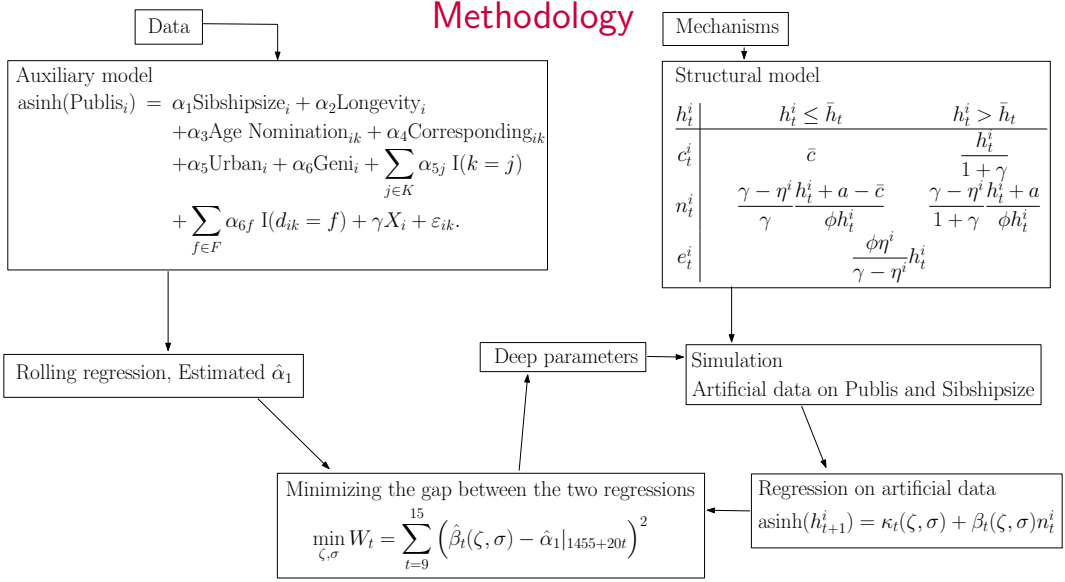
Large geographical area to smooth out all the local shocks affecting scholars

No single micro event can be used as an exogenous force affecting the QQ tradeoff

Most significant exogenous event is the plague affecting Stockholm in 1710-1711; only 49 scholars were born in a twenty-year window surrounding this event.

→ Methodology: no exploitable exogenous variations. Alternative: indirect inference

Methodology



Preview of results

Database: c. 2000 scholars with genealogies of good quality having been members of university or academy in Northern Europe

Auxiliary model: rolling regression (time window) of number of publications on sibshipsize
Bef. 1700, scholars with high number of publications have more brothers [Malthusian regime]
After 1700, this is reversed: scholars with high number of publications have fewer brothers [interior regime – QQ tradeoff]

Structural model: through slow human capital accumulation, people escape from Malthusian constraints, and the substitution effects emerge endogenously

Indirect inference: Implications of the structural model match quantitatively the data, if we allow for measurement error in genealogies

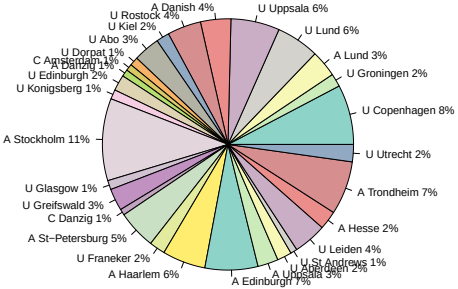
Academies and Universities

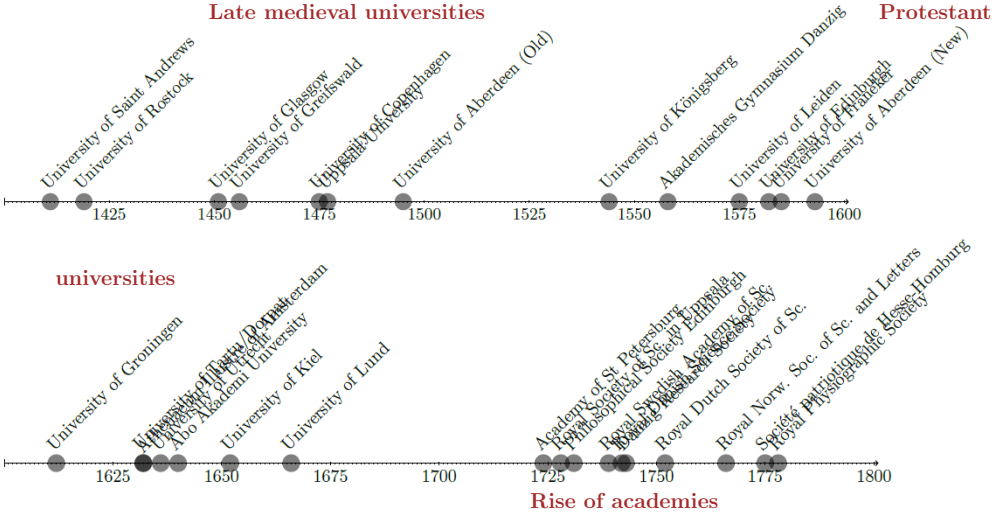
Universities: emergence during the Middle Ages.
Teach Arts (incl. sciences), Theology, Law, Medicine

Academies: informal clubs becoming formal institutions after 1650.
Mostly arts & sciences (+ applied) – Meetings, publications, letters, prizes

▸ Detail

30 institutions




Late medieval universities
Protestant
universities
Rise of academies
University of Saint Andrews
University of Rostock
University of Glasgow
University of Greifswald
University of Copenhagen
Uppsala University
University of Aberdeen (Old)
University of Königsberg
Akademisches Gymnasium Danzig
University of Leiden
University of Edinburgh
University of Franeker
University of Aberdeen (New)
1425
1450
1475
1500
1525
1550
1575
1600
University of Groningen
University of Utrecht
Abo Akademi University
University of Kiel
University of Lund
Academy of St. Petersburg
Royal Society of Sc. in Uppsala
Royal Swedish Academy of Sc.
Royal Society of Edinburgh
Royal Dutch Society of Sc.
Royal Norw. Soc. of Sc. and Letters
Société patriotique de Hesse-Homburg
Royal Physiographic Society
1625
1650
1675
1700
1725
1750
1775
1800

Matching three different types of sources

Secondary source on members of a university/academy $\rightarrow$ field, dates, type of membership

Crowdsourced genealogical website $\rightarrow$ sibshipsize, info on father, info on descendants

VIAF (Virtual International Authority File) page $\rightarrow$ publications

THE STORY

OF THE

UNIVERSITY OF EDINBURGH

DURING

ITS FIRST THREE HUNDRED YEARS

BY

SIR ALEXANDER GRANT, BART.,

LL.D. (EDINBURGH, GLASGOW, CAMBRIDGE), D.C.L. (OXFORD),
PRINCIPAL AND VICE-CHANCELLOR IN THE UNIVERSITY OF EDINBURGH,
FORMERLY FELLOW AND NOW HONORARY FELLOW OF
ORIEL COLLEGE, OXFORD

WITH ILLUSTRATIONS

IN TWO VOLS.—VOL. I.

LONDON
LONGMANS, GREEN, AND CO.
1884

At last, in 1674, the Town Council took the enlightened step of inducing James Gregory, who had been for four years Professor of Mathematics at St. Andrews, to transfer himself to the same office in the College of Edinburgh. In so doing they conferred distinction upon the College, for they secured the services of a great mathematical genius, perhaps in that age second to Newton alone. James Gregory had been educated at Marischall College, but soon passed beyond the teaching of that place, for at the age of twenty-four he invented the reflecting telescope, and brought out his *Optica Promota*, in which he was the first to suggest that the transits of Venus and Mercury might be used in determining the solar parallax. Afterwards he started to visit the seats of mathematical learning in Italy, and took up his abode at Padua, where, in 1667, he brought out a work which at once became famous, *On the Quadrature of the Circle and Hyperbola by means of infinitely converging series*. Returning to England he was immediately elected Fellow of the Royal Society, and was warmly welcomed by Newton, Wallis, Lord Brouncker, and other mathematicians. In 1668 he published his *Exercitationes Geometricæ*, and in 1670 was appointed Professor of Mathematics in the University of St. Andrews. In the following spring he wrote to his friend Collins a letter, an extract from which is preserved in the *Biographia Britannica*: "I am now much taken up and have been all this winter past with my public lectures, which I have twice a week, and in resolving doubts which some gentlemen and scholars propose to me. This I must comply with, nevertheless that I am often troubled with great impertinences, all persons here being ignorant of those things to admiration; so that I have but little time to spare in those studies my genius leads me to." From which we learn that two lectures a week was the amount of teaching expected from a Professor in those days, and also that a Professor was regarded as a sort of oracle *pro bono publico*.

(1) When JAMES GREGORY was brought to Edinburgh he became the first substantive Professor of Mathematics there, the first non-Theological Professor in the College who was not hampered with the drudgery of Regenting. In November 1674 he delivered an inaugural oration before a distinguished audience. But the hopes that might have been formed on that occasion

James Gregory

Also Known As:	"F.R.S"
Birthdate:	November 1638
Birthplace:	Kinairdy, Abderdeenshire, Scotland (United Kingdom)
Death:	October 1675 (36) Edinburgh, Midlothian, Scotland (United Kingdom)
Immediate Family:	Son of John Gregorie and Janet Gregory Husband of Mary Gregory Father of James Gregory; Janet Gregory and Helen Gregory Brother of Alexander Gregory; David Gregory of Kinairdy and Margaret Mercer
Occupation:	Mathematician
Managed by:	Ric Dickinson, Geni Curator
Last Updated:	March 31, 2023

Gregory, James, 1638-1675

Gregory, James NII

James Gregory

VIAF ID: 39475242 (Personal)
Permalink: http://viaf.org/viaf/39475242

Preferred Forms

4xx's: Alternate Name Forms (48)

5xx's: Related Names (12)

Works

Show 10 entries Search:

Title	Sources
[Nobilisssimo] viro Georgio vice-comiti à Tarbat, regulo Macleod à Castlehaven, &c	
Catoptricae et dioptricae sphaericae elementa.	
Dr. Gregory's Elements of catoptrics and dioptrics	
Exercitationes geometricae	NII
Geometriæ pars vniversalis : inserviens quantitatum curvarum transmutationi & mensurae	
James Gregory : tercentenary memorial volume : containing his correspondence with John Collins and hithero unpublished mathematical manuscripts ...	NII
James Gregorys frühe Schriften zur Infinitesimalrechnung	
Optica promota, 1663.	
Optica promota, seu Abdita radiorum reflexorum & refractorum mysteria, geometrice enucleata; cui subnectitur appendix, subtilissimorum astronomiæ problematon resolutionem exhibens. Authore Jacobo Gregorio, Abredonensi Scoto.	NII
Scriptores optici ; or, A collection of tracts relating to optics.	

Showing 1 to 10 of 14 entries Previous 1 2 Next

Some facts on publications

Individual length of life is a significant determinant

Slight increasing trend over time, mostly (but not entirely) due to increase in longevity

Institutions fixed effects are important

Fields as well ($+$ for theology, $-$ for law)

Corresponding members of academies have more publications

Scholars with genealogies have more publications
(but this selection bias is constant over time)

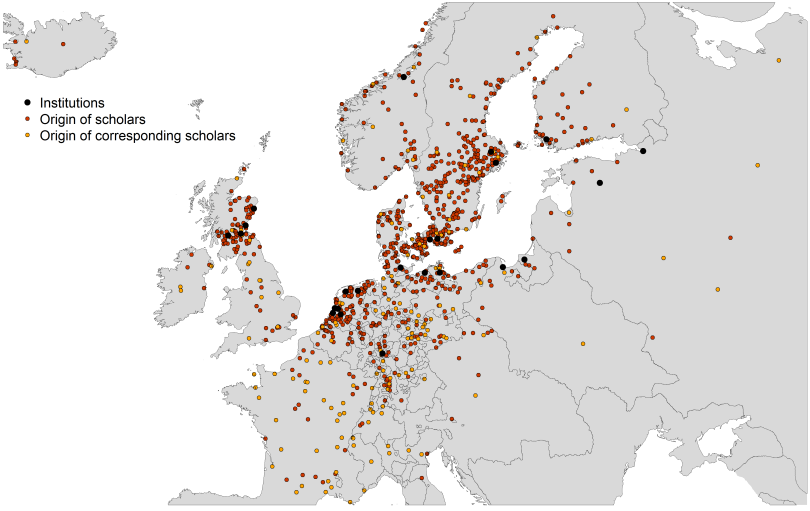
▸ Regression

Genealogies: coverage

▸ Full list

Institutions	members	with genealogies	in %
University of Copenhagen	343	216	63
Royal Swedish Academy of Sc.	425	295	69
University of Lund	263	154	59
Royal Dutch Society of Sc.	364	155	43
University of Leiden	281	119	42
University of Rostock	318	121	38
University of Königsberg	337	34	10
TOTAL	6226	2867	46

Genealogies: geographical coverage



Genealogies: main occupations

Elite	professor (159), councillor (71), bishop (43), mayor (41), doctor (42), rector (35), general (27), governor (23), lord (29), colonel (24)
Middle class	preacher (164), priest (91), merchant (80), pastor (66), farmer (31), officer (28), trader (28), master (26), superintendent (22), vicar (21), secretary (20)
Workers	goldsmith (5), fisherman (4), miner (4), brewer (4), builder (4), tailor (3), innkeeper (3), gardener (3), baker (3), grocer (2), tanner (2), saddler (2) carpenter (2), engraver (2)

Many academics were born to families of pastors and priests (de Candolle 1885)

Stability of parental social class distribution over time ▸ Plot

Genealogies: quality

Issues:

- Old-White-Men (OWM) bias: some amateur genealogists are more interested by the male branches of family trees

Number of children	2	3	4	5	6+	$+\infty$
Theoretical sex-ratio (M/F)	3.01	2.07	1.73	1.56	1.34	1.05
Sex ratio in our data	4.11	2.44	2.47	1.71	1.73	-

- Verticality bias: Some amateur genealogists are interested into the parents of their ancestors rather than the siblings of these latter. (could also be a "lazy genealogy" bias)

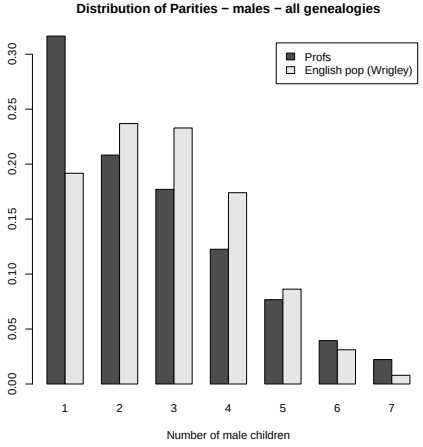
Genealogies: quality

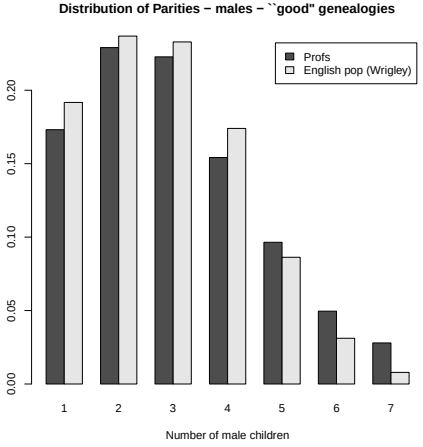
Solutions:

- we will only consider the males (less bias)
- exclude from the sample low parities (1&2) when age of death of father in unknown ($\rightarrow$ exclude 450 genealogies)
- exclude scholars who are single child and have themselves only one child (additional 122 genealogies)

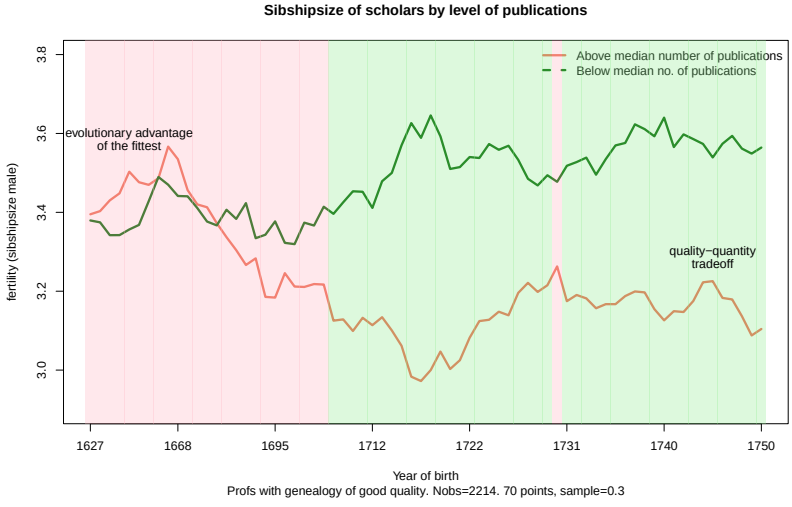
Check the validity of our correction

compare the distribution of parities with English parish data 1550-1800

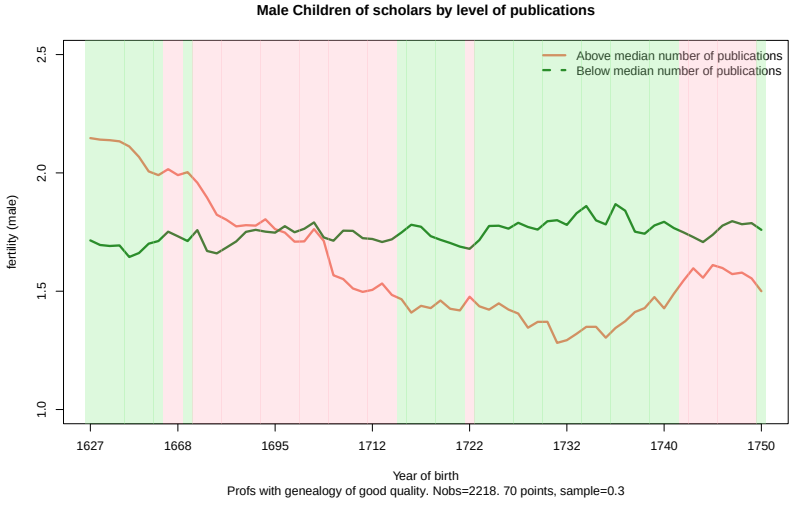




Two groups: high/low publis. Sibshipsize over time in 30% of the sample



Two groups: high/low publis. Fertility over time in 30% of the sample



Rolling linear regression

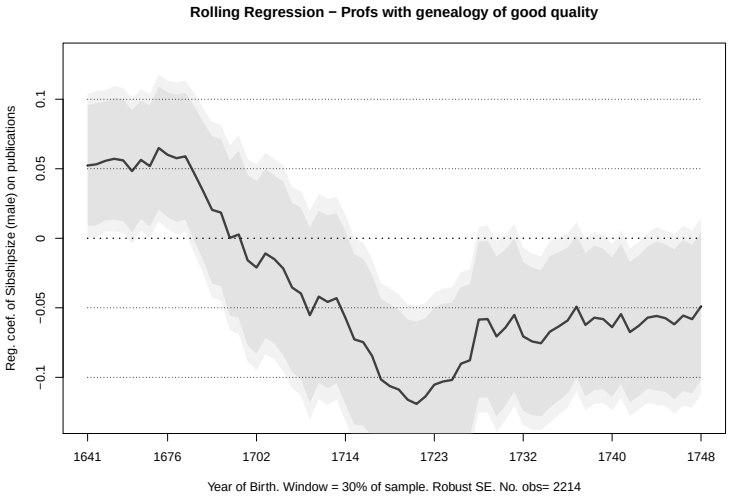
We run 70 successive regressions, each of them includes 30% of our professors ordered by date, ie: 1st one then concerns the 30% of the oldest professors.

Observation: a individual (i)-institution (k) pair. SE clustered at the individual level.

$$\begin{aligned}\text{asinh}(\text{Publis}_i) = \; & \alpha_1 \text{Sibshipsize}_i + \alpha_2 \text{Longevity}_i + \alpha_3 \text{Age Nomin}_{ik} \\ & + \alpha_4 \text{Corresponding}_{ik} + \alpha_5 \text{Urban}_i + \alpha_6 \text{Geni}_i + \alpha_7 \text{Academic father}_i \\ & + \sum_{j \in K} \alpha_{5j} \, \mathbb{I}(k = j) + \sum_{f \in F} \alpha_{6f} \, \mathbb{I}(d_{ik} = f) + \gamma X_i + \varepsilon_{ik}.\end{aligned}$$

Institutions dummies: $\mathbb{I}(k = j)$
Field dummies (theology, law, medicine, science), $\mathbb{I}(d_{ik} = f)$

Rolling linear regression: α_1



Robustness of auxiliary model

- is any field key for the result?
- is any country key for the result?
- different samples: all genealogies, published scholars, requiring girl presence
- alternative measure of sibshipsize (Worldcat)
- including all potential controls (age at father's death, father's profession, age at nomination, etc.)

▸ Details

Mechanism

At the time of the reversal in the correlation quantity-quality:
– no Industrial Revolution yet (except in selected places, selected industries)
– but rise in human capital: every city wanted its own Academy of Sciences and Arts

Structural model belongs to unified growth family:

- autonomous regime change triggered by human capital accumulation
- no exogenous shock, everything is endogenous

Households

Heterogeneous households: various **taste for quality** η^i (as in Galor Moav 2002) "quality oriented households = high η^i. Same initial condition h_0.

$$\max_{c_t^i, n_t^i, e_t^i} \quad u(c_t^i, n_t^i, h_{t+1}^i) = \ln c_t^i + \gamma \ln n_t^i + \eta^i \ln h_{t+1}^i.$$

$$\begin{aligned} \text{s.t.} \quad & h_{t+1}^i = \psi e_t^i, \\ & c_t^i \geq \bar{c}, \\ & c_t^i + e_t^i n_t^i = (1 - \phi n_t^i) h_t^i + a. \end{aligned}$$

No occupational choice. Some of these households are observed in academia.

Households

Assumption

$\gamma > \max\{\eta^i\}$, $h_0 > \bar{c} - a > 0$

$\exists \bar{h} = (1+\gamma)\bar{c} - a$ such that:

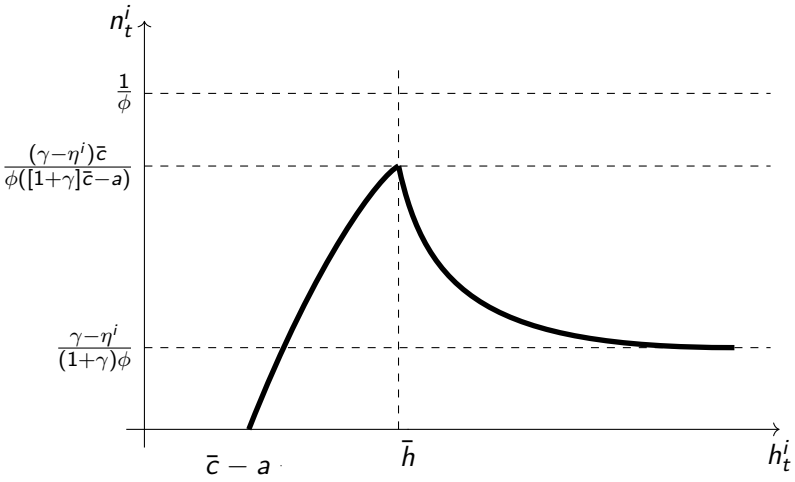
For $h_t^i \leq \bar{h}$ (Malthusian regime)

$$\begin{aligned} c_t^i &= \bar{c} \\ e_t^i &= \frac{\phi\eta^i}{\gamma - \eta^i} h_t^i \\ n_t^i &= \frac{\gamma - \eta^i}{\gamma} \frac{h_t^i - (\bar{c} - a)}{\phi h_t^i} \end{aligned}$$

For $h_t^i > \bar{h}$ (Beckerian regime)

$$\begin{aligned} c_t^i &= h_t^i/(1+\gamma) \\ e_t^i &= \frac{\phi\eta^i}{\gamma - \eta^i} h_t^i \\ n_t^i &= \frac{\gamma - \eta^i}{1+\gamma} \frac{h_t^i + a}{\phi h_t^i} \end{aligned}$$

Fertility as a function of parents' human capital



Human capital accumulation

Assumption

$\psi > \frac{\gamma - \eta^i}{\phi \eta^i}$

$$h_t^i = \left[\frac{\psi \phi \eta^i}{\gamma - \eta^i} \right]^t h_0$$

Dynasty i escapes the Malthusian regime at time $\bar{t}^i$:

$$h_t^i \geq (1+\gamma)\bar{c} - a \;\Leftrightarrow\; t \geq \frac{\ln((1+\gamma)\bar{c} - a) - \ln h_0}{\ln \psi \phi \eta^i - \ln(\gamma - \eta^i)} \equiv \bar{t}^i$$

Quality oriented households escape the Malthusian regime sooner: $\frac{d\bar{t}^i}{d\eta^i} < 0$

Dynasty i fertility in both regimes

Proposition

Under assumptions 1 and 2

- $\dfrac{\partial h_t^i}{\partial \eta^i} > 0 \ \forall i,$
- $\forall t > \bar{t}^i, \dfrac{\partial n_t^i}{\partial \eta^i} < 0 \quad \forall i,$
- *there exists a date* t_0^i *such that:*

$$\bar{t}^i > t_0^i > 0,$$

$$\forall t \in (t_0^i, \bar{t}^i), \frac{\partial n_t^i}{\partial \eta^i} \geq 0 \quad \forall i.$$

Macroeconomic fertility differentials

Proposition

There exist dates $\hat{t}$, $\bar{t}$, *and* $\check{t}$ *such that:*

$$\hat{t} > \bar{t} > \check{t} > 0,$$

$$\forall t \in (\check{t}, \bar{t}), \frac{\partial n_t^i}{\partial \eta^i} \geq 0 \quad \forall i,$$

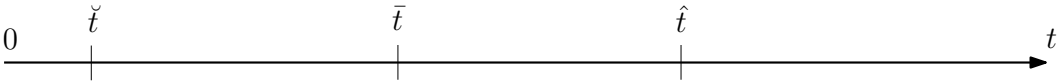
$$\forall t > \hat{t}, \frac{\partial n_t^i}{\partial \eta^i} < 0 \quad \forall i.$$

Macroeconomic fertility differentials

all households in Malthusian regime

high η households already in interior regime

all households in interior regime



evolutionnary advantage of the fittest $\frac{\partial n_t^i}{\partial \eta^i} > 0$

quality-quantity tradeoff $\frac{\partial e_t^i}{\partial \eta^i} > 0, \frac{\partial n_t^i}{\partial \eta^i} < 0$

Distributional assumption: η

Preference parameter η is distributed over $\eta_{\text{min}}, \eta_{\text{max}}$ following:

$$\eta = \eta_{\text{min}} + \varepsilon^{\eta}(\eta_{\text{max}} - \eta_{\text{min}})$$

where ε^{η} is drawn from a symmetric Beta distribution with shape parameter $\zeta \geq 1$, $\mathcal{B}(\zeta, \zeta)$.

The case $\zeta = 1$ corresponds to a uniform distribution. The higher ζ the lower the variance of ε^{η}. The lower bound η_{min} is given by Assumption 2, i.e. $\eta_{\text{min}} = \frac{\gamma}{1+\phi\eta}$. By definition of a symmetric distribution, the higher bound will be $\eta_{\text{max}} = E[\eta] + E[\eta - \eta_{\text{min}}] = 2E[\eta] - \eta_{\text{min}}$. $E[\eta] = \bar{\eta}$ is a parameter to be calibrated.

Additional assumptions

Measurement error affecting fertility:

$$n_{obs} = n + \varepsilon^n$$

where ε^n is drawn from a normal distribution $\mathcal{N}(0, \sigma^2)$.

The full set of parameters to be identified is now:

$$\{h_0, \gamma, \psi, \bar{c}, \phi, a, \bar{\eta}, \zeta, \sigma\}$$

We consider that one period lasts 20 years and focus on the years 1635, 1655, 1675, 1695, 1715, 1735, and 1755.

Parameters set a priori

Parameter	value	matched moment	value	fit
Fixed ex ante				
h_0	1	normalization		
ϕ	$1/11$	Distribution of parities		
Exact identification				
γ	0.187	$\lim_{h_t \to \infty} n_t$ for average family	1	1
$\bar{\eta}$	0.079	$\lim_{h_t \to \infty} \frac{e_t n_t}{a+(1-\phi n_t)h_t}$ for average family	0.073	0.073
ψ	15.446	$\psi\phi E[\eta]/(\gamma - E[\eta])$	1.025	1.025
$\bar{c}/a$	1.207	$\lim_{h_t \to \bar{h}} n_t$	3.316	3.316
a	3.011	regime shift attained after 11 periods		

Third step

Estimate how much heterogeneity is needed, ζ, and importance of measurement errors in fertility σ.

For given (ζ, σ) simulate the model under an horizon of 20 periods starting in 1455 and with 600 families i. For each period, run:

$$OLS : \text{asinh}(h^i_{t+1}) = \kappa_t(\zeta, \sigma) + \beta_t(\zeta, \sigma) n^i_t$$

$\beta_t(\zeta, \sigma)$ is the coefficient of interest reflecting the correlation between sibshipsize and publications.

The estimated regression coefficient $\hat{\beta}_t(\zeta, \sigma)$ depends on the chosen parameters (ζ, σ) and is comparable to α_1.

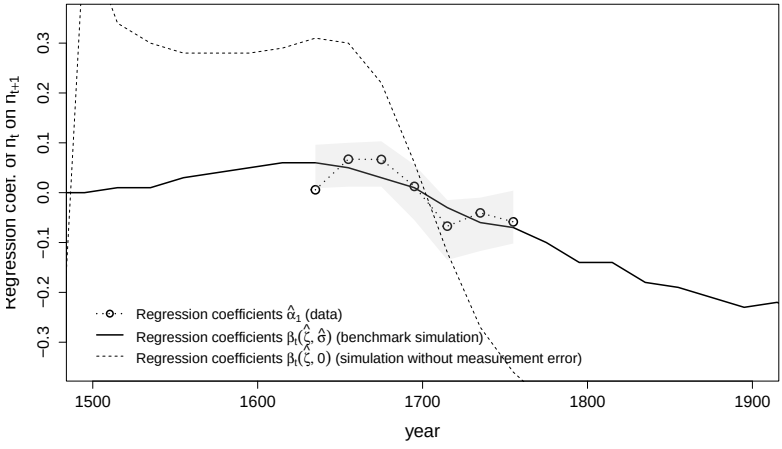
Estimation

$$\min_{\zeta,\sigma} W_t = \sum_{t=9}^{15} \left(\hat{\beta}_t(\zeta, \sigma) - \hat{\alpha}_1|_{1455+20t} \right)^2$$

Parameter	value	matched moment	value	fit
		$\hat{a}_1\|_{1635}$	0.052	0.056
		$\hat{a}_1\|_{1655}$	0.056	0.057
ζ	3.635 (1.001)	$\hat{a}_1\|_{1675}$	0.058	0.042
σ	0.357 (0.064)	$\hat{a}_1\|_{1695}$	0.000	-0.002
		$\hat{a}_1\|_{1715}$	-0.075	-0.023
		$\hat{a}_1\|_{1735}$	-0.063	-0.047
		$\hat{a}_1\|_{1755}$	-0.049	-0.078

SE in parenthesis from 100 draws of the empirical moments

Fit with Parameters Estimated via Indirect Inference



Results

The structural model accurately accounts for the observed data patterns without requiring any external shocks. Key features:

- endogenous regime shift
- Malthusian regime not same as stagnation: consumption is stagnant ($\bar{c}$) but share of education spending in GDP is rising over time

Minimal heterogeneity in preferences $\eta \in [0.078, 0.080]$ is needed to produce the appropriate differential fertility over time: some evolutionary advantage of the fittest, reinforcing the rise in premodern human capital

Measurement errors in fertility are crucial in explaining why our regression coefficients are generally small.

Conclusion

A new database with a time consistent measure of quality: publications

Observe a reversal in fertility differential in the 18th century

In line with unified growth theory of Galor & Moav (2002)
But reversal of fertility differentials among the elite occurred too soon to link it to the industrial revolution

A new interpretation: human capital was accumulating slowly in the Malthusian regime, and this led high human capital people to enter the interior region

Academies and Universities: our sample

Institution	City	Country	Dates		Sources
University of Copenhagen	Copenhagen	DNK	1475		Slottved (1978)
Royal Danish Science Society	Copenhagen	DNK	1742		Lomholt (1950)
Uppsala University	Uppsala	SWE	1477		Von Bahr (1945), Astro.uu.se, Jensen (2018)
Royal Society of Sc. in Uppsala	Uppsala	SWE	1728		Karlberg (1977)
Royal Swedish Academy of Sc.	Stockholm	SWE	1739		Dahlgren (1915)
University of Lund	Lund	SWE	1666		Delen and Weibull (1868)
Royal Physiographic Society	Lund	SWE	1778		Gertz (1940)
Åbo Akademi University	Turku	FIN	1640		Klinge et al. (1988)
University of Tartu/Dorpat	Tartu	EST	1632	1710	Inno (1972)
Royal Norw. Soc. of Sc. and Letters	Trondheim	NOR	1766		Schmidt (1960)
University of Groningen	Groningen	NLD	1612		`https://hoogleraren.ub.rug.nl/`
Athenaeum Illustre of Amsterdam	Amsterdam	NLD	1632	1877	`http://www.albumacademicum.uva.nl/`
University of Franeker	Franeker	NLD	1585	1811	Feenstra et al. (2003), Napjus and Lindeboom (1985)
Royal Dutch Society of Sc.	Haarlem	NLD	1752		`https://khmw.nl/historische-leden/`
University of Leiden	Leiden	NLD	1575		`https://hoogleraren.universiteitleiden.nl/`
University of Utrecht	Utrecht	NLD	1636		Academia Rheno-Trajectina (1861)

Academies and Universities (2)

Institution	City	Country	Dates		Sources
Société patriotique de Hesse-Homburg	Bad-Homburg	DEU	1775	1781	Société patriotique (1777)
University of Greifswald	Greifswald	DEU	1456		various encyclopedia
University of Rostock	Rostock	DEU	1419		Krüger (2019)
University of Kiel	Kiel	DEU	1652		Volbehr and Weyl (1956)
Akademisches Gymnasium Danzig	Gdansk	POL	1558		Hirsch (1837)
Danzig Research Society	Gdansk	POL	1743	1936	Schumann (1893)
University of Königsberg	Kaliningrad	RUS	1544		Naragon (2006),Schwinges and Hesse (2019)
Academy of St Petersburg	St-Petersburg	RUS	1724	1917	Shemivot (1873)
University of Edinburgh	Edinburgh	GBR	1582		Grant (1884)
University of Glasgow	Glasgow	GBR	1451		Coutts (1909)
Philosophical Society Edinburgh	Edinburgh	GBR	1731		Emerson (1981), RSE (2006)
University of Aberdeen (Old)	Aberdeen	GBR	1495		Anderson (1893)
University of Aberdeen (New)	Aberdeen	GBR	1593		Anderson (1898)
University of Saint Andrews	St-Andrews	GBR	1411		Smart (2004)

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Some facts on publications

Dependent variable is asinh(publis)			
birth date	0.0012***	0.0005	0.0007*
	(0.0004)	(0.0004)	(0.0004)
longevity		0.0181***	0.0190***
		(0.0019)	(0.0017)
theology			0.3298***
			(0.0646)
law			−0.3919***
			(0.0734)
medicine			−0.0186
			(0.0726)
science			0.2042***
			(0.0712)
corresp. member			0.9571***
			(0.0763)
with genealogy			0.5356***
			(0.0504)
Instit. FE.	N	N	Y
Adj. R^2	0.0026	0.0335	0.2325
Num. obs.	5247	5215	5215
N Clusters	4224	4192	4192

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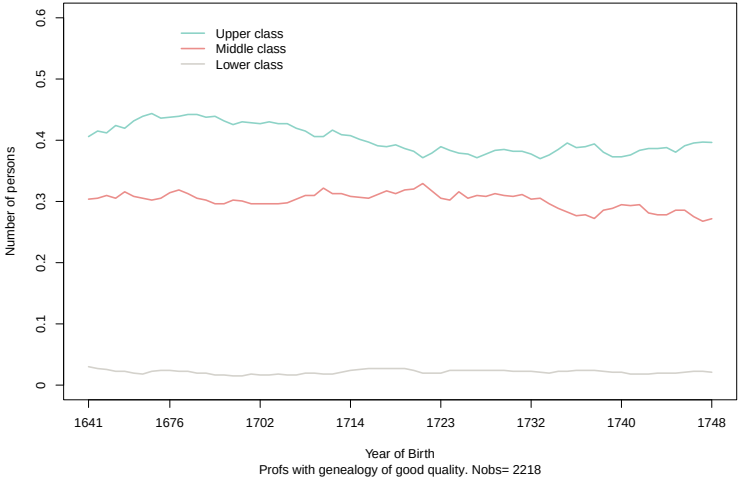
Stability of parental social class distribution



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Genealogies: coverage

Institutions	members	with genealogies	in %
University of Copenhagen	343	216	63
Royal Danish Science Society	155	109	70
Uppsala University	242	175	72
Royal Society of Sciences of Uppsala	98	74	74
Royal Swedish Academy of Sc.	425	295	69
University of Lund	263	154	59
Royal Physiographic Society	146	96	66
Åbo Akademi University	118	95	81
University of Tartu/Dorpat	54	31	57
Royal Norw. Soc. of Sciences and Letters	321	193	60

Genealogies: coverage (2)

Institutions	members	with genealogies	in %
University of Groningen	103	47	46
Athenaeum Illustre of Amsterdam	74	24	32
University of Franeker	147	57	39
Royal Dutch Society of Sc.	364	155	43
University of Leiden	281	119	42
University of Utrecht	125	62	50
University of Edinburgh	160	58	36
University of Glasgow	103	35	34
Academy of Edinburgh	394	191	48
University of Aberdeen (old)	198	34	17
University of Aberdeen (new)	107	21	20
University of Saint Andrews	87	25	29

Genealogies: coverage (3)

Institutions	members	with genealogies	in %
Société patriotique de Hesse-Homburg	144	67	47
University of Greifswald	261	79	30
University of Rostock	318	121	38
University of Kiel	218	47	22
Akademisches Gymnasium Danzig	90	22	24
Danzig Research Society	102	25	25
University of Königsberg	337	34	10
Academy of St Petersburg	304	139	46
TOTAL	6226	2867	46

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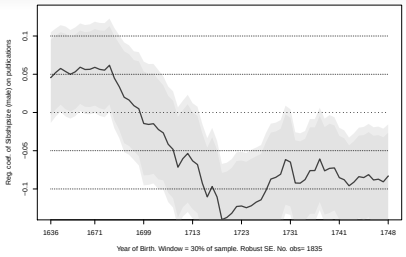
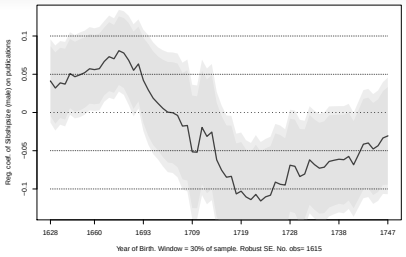

Profs with genealogy of good quality. No Medicine.
Reg. coef. of Shahjaize (male) on publications
0.1
0.05
0
−0.05
−0.1
1636
1671
1699
1713
1723
1731
1741
1748
Year of Birth. Window = 30% of sample. Robust SE. No. obs= 1835


(F) Profs with genealogy of good quality. No Science.
Reg. coef. of Shahjaize (male) on publications
0.1
0.05
0
−0.05
−0.1
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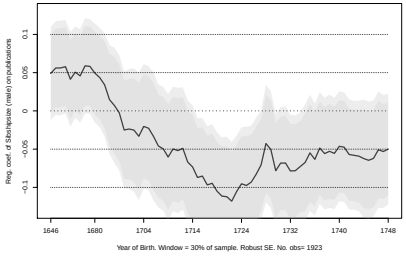
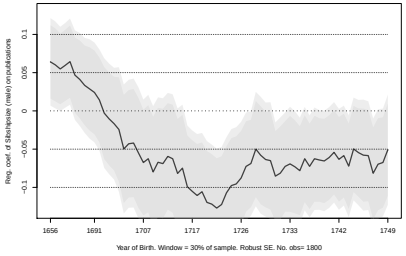
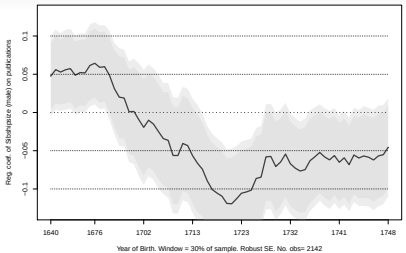
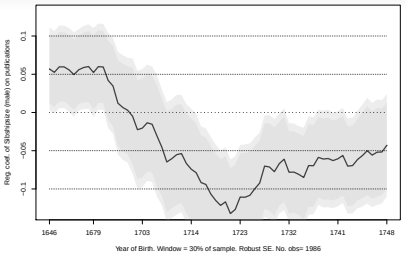
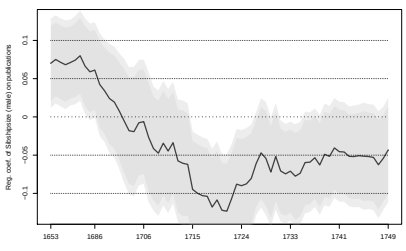
1660
1693
1709
1719
1728
1738
1747
Year of Birth. Window = 30% of sample. Robust SE. No. obs= 1615

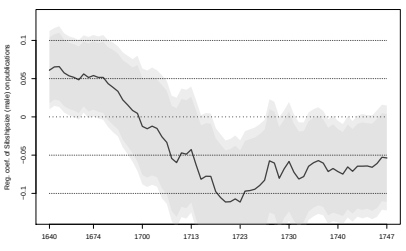

Profs with genealogy of good quality. No Law.
Reg. coef. of Shahjaize (male) on publications
0.1
0.05
0
−0.05
−0.1
1646
1680
1704
1714
1724
1732
1740
1748
Year of Birth. Window = 30% of sample. Robust SE. No. obs= 1923

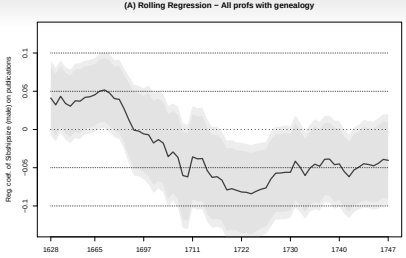

Profs with genealogy of good quality. No Theology.
Reg. coef. of Shahjaize (male) on publications
0.1
0.05
0
−0.05
−0.1
1656
1691
1707
1717
1726
1733
1742
1749
Year of Birth. Window = 30% of sample. Robust SE. No. obs= 1800

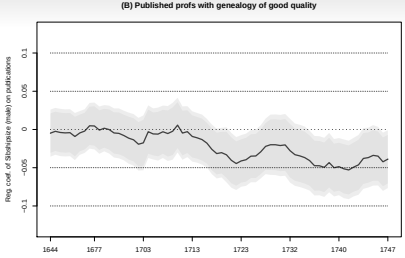

(E) Profs with genealogy of good quality. No French.
Reg. coef. of Shshipiare (male) on publications
0.1
0.05
0
−0.05
−0.1
1640
1676
1702
1713
1723
1732
1741
1748
Year of Birth. Window = 30% of sample. Robust SE. No. obs= 2142

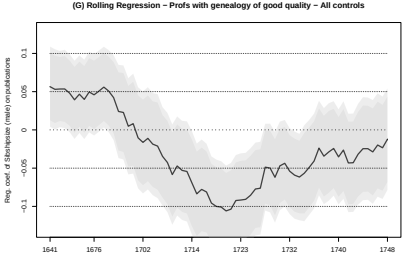

Profs with genealogy of good quality. No Dutch.
Reg. coef. of Shshipiare (male) on publications
0.1
0.05
0
−0.05
−0.1
1646
1679
1703
1714
1723
1732
1741
1748
Year of Birth. Window = 30% of sample. Robust SE. No. obs= 1986

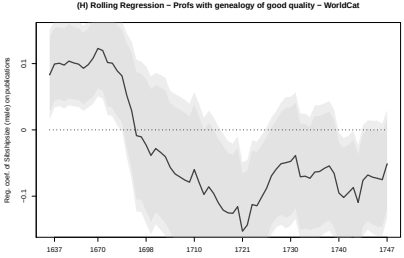

Profs with genealogy of good quality. No German.
Reg. coef. of Shshipiare (male) on publications
0.1
0.05
0
−0.05
−0.1
1653
1686
1706
1715
1724
1733
1741
1749
Year of Birth. Window = 30% of sample. Robust SE. No. obs= 1914


Profs with genealogy of good quality. No British.
Reg. coef. of Shshipiare (male) on publications
0.1
0.05
0
−0.05
−0.1
1640
1674
1700
1713
1723
1730
1740
1747
Year of Birth. Window = 30% of sample. Robust SE. No. obs= 1957


(A) Rolling Regression – All profs with genealogy
Reg. coef. of Shishpanx (male) on publications
0.1
0.05
0
−0.05
−0.1
1628
1665
1697
1711
1722
1730
1740
1747
Year of Birth. Window = 30% of sample. Robust SE. No. obs= 2788


(B) Published profs with genealogy of good quality
Reg. coef. of Shishpanx (male) on publications
0.1
0.05
0
−0.05
−0.1
1644
1677
1703
1713
1723
1732
1740
1747
Year of Birth. Window = 30% of sample. Robust SE. No. obs= 1953


(G) Rolling Regression – Profs with genealogy of good quality – All controls
Reg. coef. of Shishpanx (male) on publications
0.1
0.05
0
−0.05
−0.1
1641
1676
1702
1714
1723
1732
1740
1748
Year of Birth. Window = 30% of sample. Robust SE. No. obs= 2214


(H) Rolling Regression – Profs with genealogy of good quality – WorldCat
Reg. coef. of Shishpanx (male) on publications
0.1
0
−0.1
1637
1670
1698
1710
1721
1730
1740
1747
Year of Birth. Window = 30% of sample. Robust SE. No. obs= 1756

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