

Demographic Change and Development: Three Hundred Years of Crowdsourced Historical Data in Europe

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Summary of results

- Novel individual-level dataset from crowdsourced genealogies: period before census
- Matched with urbanization data + rigorously assess selection at country level in Europe

- I analyze three dimensions (mortality, mobility, fertility) at European and disaggregated level
- Aggregate changes after 1850s, but 100 years earlier at disaggregated level: Age of Enlightenment?

Introduction

- **Problem:** historical data on populations is often missing, incomplete/unreliable, and does not allow for cross or even within-country comparisons - also at an aggregated level and if local level no spatial variation
- **Why:** no census in the 18th century in most of Europe
- **For example:** France - first country to have experienced a decline in fertility. We know it happened in second half of 18th century yet data is very limited (mostly parish reconstitution) - because first census in 1831 - therefore no precise date and it remained a puzzle until now (see Blanc, 2019)
- **Solution:** Crowdsourced genealogies
 - Scrapped by Kaplanis et al (2018) from geni.com: millions of observations with geocoded birth and death + intergenerational links
 - Essentially parish reconstitution at the lineage rather than town level: complete data, migration accounted for, and important spatial variation
 - 7,425,964 individuals who were born or died in Europe, 1675 – 1900
 - What I do:
 1. I improve the geocoding and match it with Bairoch data on urbanization
 2. I generate fertility measure from the intergenerational links
 3. I compare observables (mortality, urbanization, fertility) with census for available years, country by country: no sample selection (see Table 1)
 4. I reconstruct urbanization, fertility series in the 18th century
- **Findings:** stylized facts for mortality, human mobility, fertility in Europe, at the regional level but also at a disaggregated level (country or urban/rural)
- Aggregate changes in 1850s, but 100 years earlier at disaggregated level: Age of Enlightenment?

Table 1: Correlation with census (available years), by group of country

| | Life expectancy | Urbanization | Fertility |
|----------------------------------|-----------------|--------------|-----------|
| British Isles | 0.98 | 0.98 | 0.89 |
| Central Europe and Low Countries | 0.89 | 0.91 | 0.95 |
| Eastern Europe | | 0.91 | |
| France | 0.87 | 0.99 | 0.97 |
| Northern Europe | 0.86 | 0.93 | 0.94 |
| Southern Europe | 0.94 | 0.92 | 0.66 |

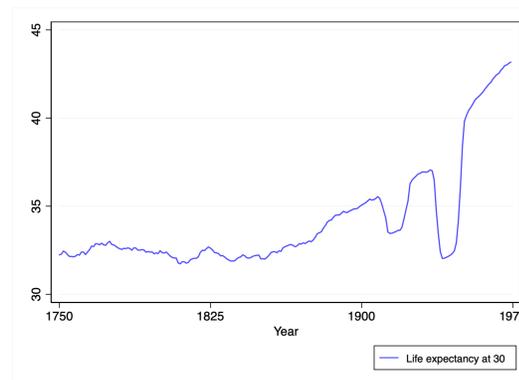
Main References

- Kaplanis, Joanna, et al. 2018. Quantitative analysis of population-scale family trees with millions of relatives. *Science*, vol. 360(6385), pp. 171-175.
- Blanc, Guillaume. 2019. Modernization Before Industrialization: Cultural Roots of the Demographic Transition in France. Working paper.

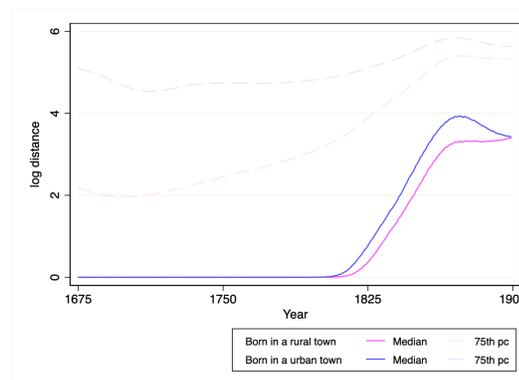


Demographic change and development in Europe

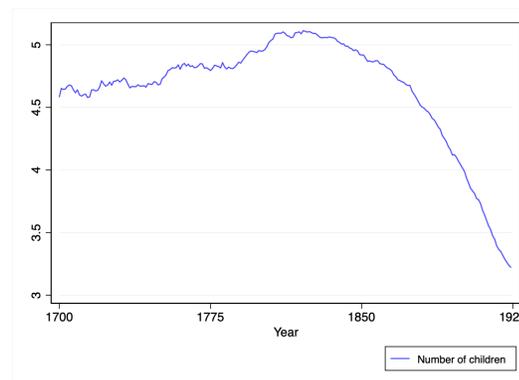
Adult mortality



Human mobility

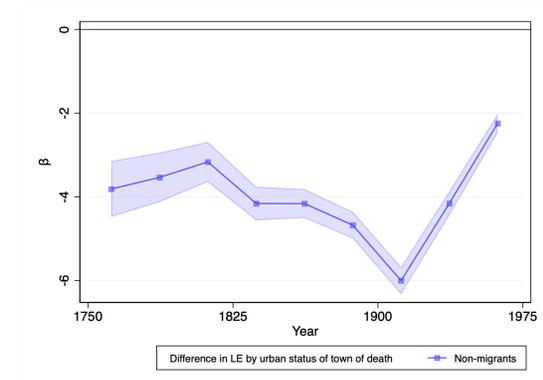


Fertility

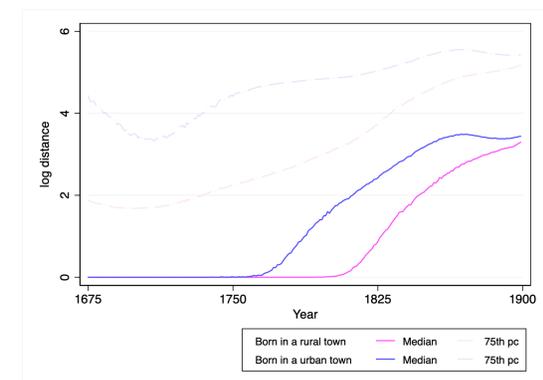


Progress and change in the Age of Enlightenment

... in urban centers



... in France & in the UK



... in France

