Spectacles & Productivity

Data and Identification, March 2021

Aim

- This project looks at the impact of eye-glasses on productivity in early-modern England.
- Hypothesis: As eye-glasses became more accessible in the 17th and 18th centuries, they increased productivity in certain jobs.

Datasets

- Apprenticeships and Masters
- Patents
- Scientific exhibitions
- Occupational census
- British Book Trade Index
- Library History Place Index
- Prices of spectacles
- Engineers and Philosophers
- Friendly Societies?

Apprenticeships and Masters (A&M)

- We have two datasets on A&M: the London's livery companies and the Stamp Duty tax.
- London's livery companies: We have data on 212,252 apprentices and their masters (lived b. 1550 and 1830). We have names, companies (N=66), place of residence (London), and year of indenture. More on fathers of apprentices, but not really interesting.
- The Stamp duty payment on apprenticeship contracts was introduced in 1710 in England. We have individual data (N=333,793) from 1710 to 1800. For A&M we have names, occupation of the master, place of birth, year of indenture and premium paid (£ sterling). Also more on fathers of apprentices, but not really interesting.

Apprenticeships and Masters

- What do we need to do?
- We need to know the age/year of birth of the masters.
- Why do we need it? Answer this question: When did masters stop accepting apprentices? Signals they retired. If, over time, they retired later $\rightarrow$ Glasses increased longevity in certain jobs!
- Link masters to `www.ancestry.co.uk/`. How?
- We know the name/surname of the master, his place of birth (town/county) and when the indenture was agreed.
- An alternative (or an important double check) would be to locate the apprentices on ancestry, they were admitted normally at the ages of 8-9 $\rightarrow$ when the master stopped accepting applications (retired).

Link A&M to ancestry.co.uk

- David Ampudia Vicente will be on charge of this.
- Use Python.
- Contact Chris Minns (c.minns@lse.ac.uk). He did something similar in the past. Check this paper: "Leaving home and entering service" (2010). I contacted Chris last September and he promised to take a look at the data and he is always supportive. In the paper they acknowledge the following: "We would particularly like to thank Philip Clarkson for his work programming the linkage scripts." As far as I know, he is now working at Microsoft, but worth to contact him and ask for the script. First ask Chris.
- Contact Neil Cummins (n.j.cummins@lse.ac.uk) and ask for help. He is really good working with historical records and ancestry.

Patents

- All patents (N=14,360) produced between 1617 and 1853.
- Variables: name/surname, town/county of residence, year patent, occupation (p.s.t. index), type of patent (linked to the patent's subject-matter index) and citations (linked to the reference index).
- Data source: Bennet Woodcroft (1854).
- GGV collected and organized the data.
- What do we need to do next? Age of inventors $\rightarrow$ ancestry

Patents: Example of linkages between sources

Description

Cook. 31st October 1812.	**3609.** A grant unto Benjamin Cook, of Birmingham, in the county of Warwick, gilt toy manufacturer, for his invented improved method of making or constructing window blinds, fire screens, chimney pieces, sashes, doors, picture frames and frames for dressing, pier, and other glasses, and various other useful and ornamental articles and things; to hold to him, his exors, admors, and assigns, within that part of our united kingdom of Great Britain and Ireland called England, our dominion of Wales, and town of Berwick-upon-Tweed for the term of fourteen years pursuant to the statute; with a clause to inroll the same within 6 calendar months from the date thereof. By writ, &c.

Number of citations (index of quality)

3609 { Rolls Chapel Reports, 8th Report, page 97.
Rolls Chapel.

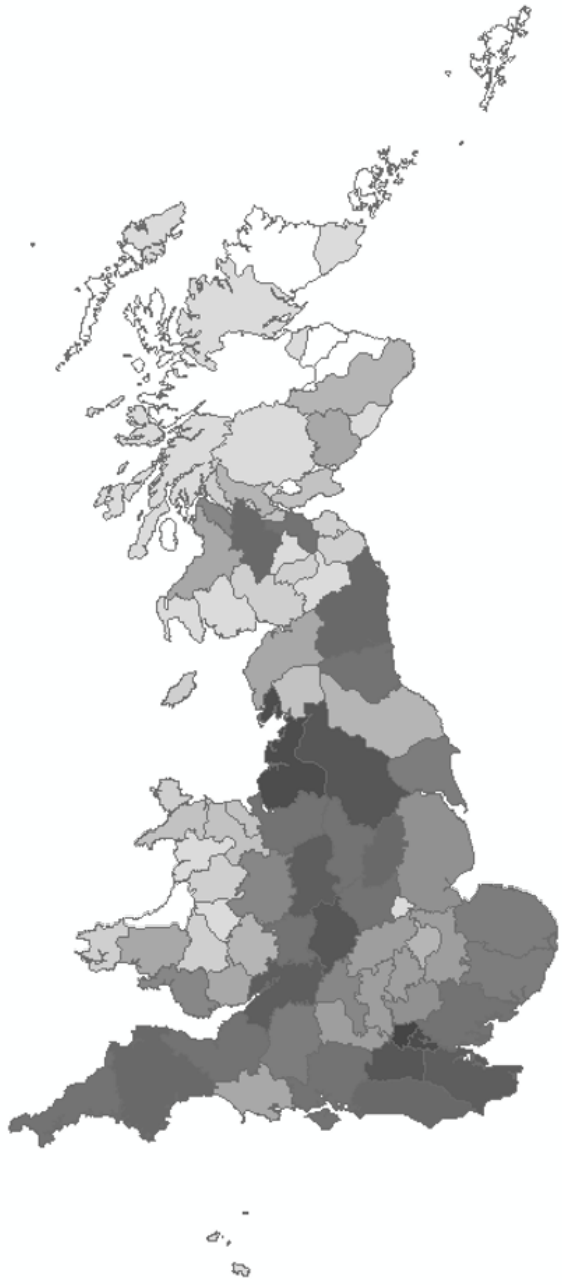
Classification

Frames for Pictures and Looking-glasses.

Making, ornamenting, and suspending.

Chasing frames for pier-glasses, in lead - - -	1068	14th April	1774	William Storer.
Ornamenting picture-frames and other kinds of furniture with carved and moulded glass in relief, plain or coloured;—applicable to many purposes.	1568	7th Nov.	1786	Thomas Rogers.
Making frames for pictures and other things - -	1576	14th Dec.	1786	Obadiah Westwood.
Making looking-glass frames and picture-frames -	1577	19th Dec.	1786	Valentine Gottlieb.
Apparatus by means of which several drawings may be contained and exhibited in one frame.	1934	27th Feb.	1793	James Hitchcock.
Making picture-frames; frames for pier and other glasses.	3609	31st Oct.	1812	Benjamin Cook.

Output: Number of patents by county



Scientific exhibitions

- Crystal Palace World's Fair (1851). Shared by Petra Moser (February 2021) based on her AER (2005) paper. She will also send us the data on the Centennial Exhibition (1876).
- Variables on inventors: name/surname, town/county, awards, link to patents, description of the invention and industry class index. N=6,378.
- What do we need to do next? Age of inventors $\rightarrow$ ancestry.
- "The Crystal Palace exhibition of 1851 was the first world's fair that allowed inventors and firms to exchange information on technological innovations across countries. At a time when London had fewer than two million inhabitants, it attracted more than six million people ... the Crystal Palace was the largest enclosed space on earth ... housed a total of 17,062 exhibitors from 25 countries and 15 colonies.

Occupational census

- The first occupational census took place in 1813, and the second in 1851 (ICeM Project).
- Occupational census 1813: Mainly a count of 'all' occupations (p.s.t) at the county-level (N=526,612).
- Datasets shared by Leigh Shaw-Taylor.
- For the period 1600-1800 no census data, but I asked for the data on men who left wills and other probate documents for large swathes of the country (`www.economiespast.org`). I guess good enough to identify spatial occupational concentrations. However, we need to be very specific of what we want. They will not share the full dataset.

British Book Trade Index

- Judith Siefring (Bodleian Library) promised to send the data.
- Biographical and trade details of workers in the English book trades up to 1851. Printers, publishers, booksellers, etc.
- This is similar to what Squicciarini and Voigtländer have in their QJE paper.

Details for: JOHNSON, John

Name:	JOHNSON, John
County:	Yorkshire
Town:	York
Address(es):	None
Book Trades:	Cartographer
Non-Book Trade:	Not known
Trading Dates:	1436 (before) - 1436
Biographical Dates:	1436 (before) - 1436 (date from will)
Notes:	Will dated 30/6/1436 proved at York Vol 3/459
Sources:	• *Yorkshire Archaeological Society Record Series* (with vol. no. where appropriate) Extra source information - 6

Library History Place Index

- Place (county), year and name of all libraries in the UK. Data from 1060 to 1850. Sample size = 11,740.
- Data source: Robin Alston Library History Place Index.
- GGV collected and organized the dataset.

id	area	district	county (abr)	county (name)	county (fid)	year	library	brackets
1	england	ampthill	bed	bedfordshire	10	1773	Giberne's Circulating Libra	[Daniel G
2	england	ampthill	bed	bedfordshire	10	1845	Literary Society	.
3	england	ampthill	bed	bedfordshire	10	1850	Mechanics' Institution	.
4	england	bedford	bed	bedfordshire	10	1847	Archaeological & Architect	.

Prices of spectacles

- Catalogues stored in the College of Optometrists.
- Person of contact Neil Handley, neil.handley@college-optometrists.org.
- GGV will visit the archives in London (when safe), and do the data collection.
- So far, we have evidence based on the records of the Old Bailey court (London) that prices of spectacles started to decline in the 18th century (N=388).

Engineers, philosophers and prominent people

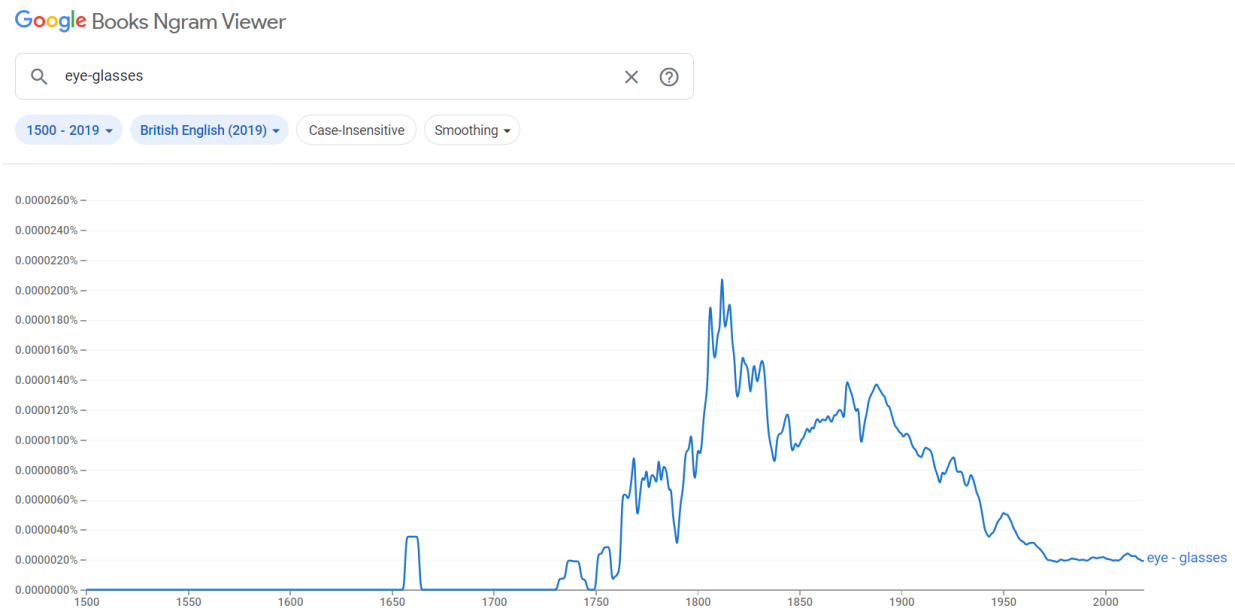
- Biographical Dictionary of Civil Engineers in Great Britain, `www.icevirtuallibrary.com/isbn/9780727745828`
- Also... The Continuum Encyclopedia of British Philosophy, `www.oxfordreference.com/view/10.1093/acref/9780199754694.001.0001/acref-9780199754694`
- GGV happy to do it. I think data on engineers would be cool, given their importance during the Industrial Revolution.
- British Who's Who (problem – first issue 1849). Can DAV create a script to download the data? `https://www.ukwhoswho.com/`

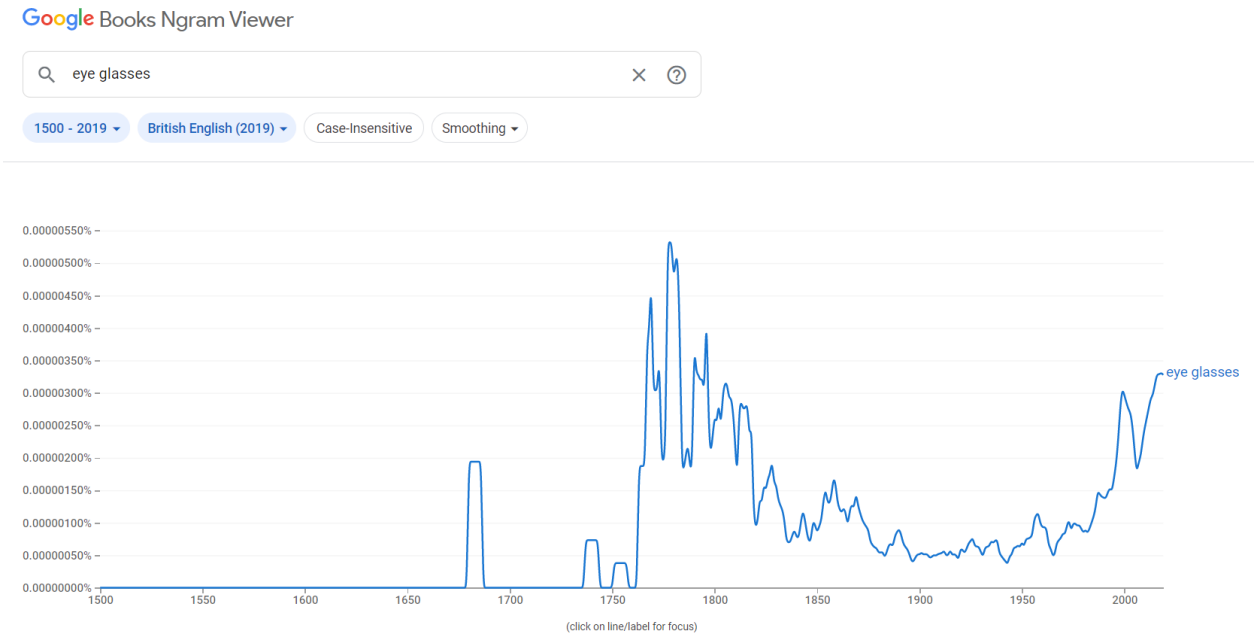
Friendly Societies

- Mutual association for the purposes of insurance.
- On acceptance, they were asked if wearing glasses.
- Evolution over time: use (of glasses) and use by age/ occupation.
- Help to answer when glasses became more widespread $\rightarrow$ the number of accidents (of certain jobs) decreased. One of the causes for 'sickness' was 'diseases of the eyes and ears'.
- Lot of work to do here! We need to locate the early Friendly Societies (arose in the 17th and 18th centuries) and do the data collection. Provides a good ID.

Identifications

Google Books Ngram - Eye-glassses





Identifications based on A&M

- Show where spectacle makers (SM) locate using the stamp duty tax (SDT). Also occupational census. How does this evolve over time? Distance to main cluster of SM.
- How does the cost of apprenticeships for SMs evolve over time? How does the cost of apprenticeships for different profession evolve over time?
  - Using the SDT dataset, does the cost of apprenticeships evolve differently over time for professions with high vs. low potential for glasses use?
  - Construct an objective measure of professions' reliance on glasses (RoG)
- How did the life expectancy on the job evolved over time for different professions. Interact with RoG.

Identifications based on patents/scientific exhibitions

- How did the number of patents evolve over time in different professions in general and depending on RoG?
- Do we observe more patents being filed by older people?
- Did these inventions have a higher reward (citations on patents, and prizes/awards for scientific exhibitions)?

Identifications based on the BBTI and others

- How does the location/consumption of books evolve over time for places with more and less access to spectacles?
- Does the average reader's age increase over time as more readers adopt spectacles?
  - We don't have the details of encyclopaedia's subscribers. Neither did Squicciarini and Voigtländer – only subscribers density by city.
  - If we can locate a source with subscribers to a magazine/ newspaper, that would be really cool and credible $\rightarrow$ we can check if the average subscriber's age increase over time as more readers adopt spectacles?
- Look at biographies i.e., Encyclopedia of British Philosophy, British Who's Who, etc. does access to spectacles increase longevity/productivity in writing books?

Identifications based on prices

- We want to confirm the decline in prices starting in the mid-18th century using the data from the Old Bailey court.
- Check the archives in London: For sure, catalogues have prices by item's characteristic, but do we have sufficient regional variation?
- How does the price of spectacles (controlling for quality) evolve over time in absolute value and relative to local income? Do prices vary much across locations? Do we observe convergence in prices over time between cities and non-urban areas?

Endogeneity and reverse causality

- Big issue in the paper!
- We need a very good IV.
- Check the the *Domesday Book*, a survey published in 1085. Check Mokyr et al. *The Wheels of Change*.
- Something on priting press in the 15th century?

Suggested plan

Task	**Responsable**	**Timing**
End data collection	GGV	Today - May 2021
Database homogenization	GGV	Today - May 2021
Links with ancestry	DA	Today - Oct. 2021
Define a credible ID	RD, DA, GGV	May - Sept. 2021
Define a credible IV	RD, DA, GGV	May - Sept. 2021
Write a result set	RD, DA, GGV	May - Oct. 2021
Write a first draft	GGV	Oct. - Jan. 2022

GGV Gregori Galofré Vilà, DA = David Ampudia Vicente and RD = Ruben Durante.