

SPECTACLES & PRODUCTIVITY

DATA & IDENTIFICATION

October, 2021

Aim

- ▶ Study 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 (A&M)
- ▶ Patents
- ▶ Scientific Exhibitions
- ▶ Occupational census
- ▶ British Book Trade Index
- ▶ Prices of spectacles
- ▶ Engineers and Philosophers
- ▶ Friendly Societies?

Apprenticeships and Masters (A&M)

- ▶ We have access to two datasets on A&M: the **London's livery companies** and the **Stamp Duty tax**
- ▶ **London's Livery Companies** ([link](#))
 - ▶ Data on 212,252 apprentices and their masters (c. 1550-1830)
 - ▶ *names, companies (n = 66), residence, indenture year, father information*

id	person_id	archive	event_year	forename	surname	gender	location	county	occupatio	notes	roles	status	company	event_id	event_type	event_id
1	BWMM1	GLMS5353	1724	Richard	Wallis	m	Location i	County ur	Occupation not stat	New free	Co Bowye	bw	BWMM1	Freedom	BWMM1	
2	BWMM10	GLMS5353	1726	John	Fox	m	Location i	County ur	Occupation not stat	New free	Co Bowye	bw	BWMM10	Freedom	BWMM10	
3	BWMM100	GLMS5353	1752	William	Johns	m	Location i	County ur	Occupation not stat	New free	Co Bowye	bw	BWMM100	Freedom	BWMM100	
4	BWMM100	London Ac	1733	Henry	Cole	m	Twickenh	Middlese	merchant		Father of apprentic	bw	BWMM40	Apprentic	BWMM405	
5	BWMM100	London Ac	1795	Jonathan	Cole	m	St Luke	Middlese	upholsterer		Father of apprentic	bw	BWMM40	Apprentic	BWMM406	
6	BWMM100	London Ac	1705	Edward	Collins	m	Wimbled	Surrey	clerk		Father of apprentic	bw	BWMM40	Apprentic	BWMM407	
7	BWMM100	London Ac	1691	John	Collins	m	Location i	County ur	Occupation not stat	Father of apprentic	bw	BWMM40	Apprentic	BWMM408		

- ▶ **Stamp Duty Tax on Apprenticeship Indentures** ([link](#))
 - ▶ Data on A&M bindings between 1710-1800. N=333,793
 - ▶ ([link to data description](#))

year	circs_year	premium	app_forei	apprentic	parent_fc	sponsor	parent_ci	parent_bi	parent_ci	parent_pi	parent_pi	parent_pi	parent_cc	father_de	mr_occn	mr_occ1	master_pi	mr_citizen	mr_burge	master_ft	master_s	ndmaster	mr_place	master_ci	error
1716	0	6	John	Richards	John		0	0					Heckintor	Lincolnsh	1	0	blacksmil	2,60, 0, 1	0	0	Thomas	Dickins	Heckintor	Lincolnsh	0
1730	0	60	Richard	Parry	Jane		0	0					Easton Gr	Wiltshire	0	0	apotheca	5,35, 2,60	0	0	William	Wilkins	Malmesb	Wiltshire	0
1725	0	21	Johanna	Darby	Daniel		0	0					St Botliop	London	0	0	milliner	2,10, 1,60	0	0	Sar.	Haywood	St Botliop	London	0
1724	0	4.2	James	Yewill	George		0	0	malster	2, 2, 1, 1			East Lowthing		0	0	merchant	3, 0, 0, 3	1	0	John	Alder	London	London	0
1741	0	5.25	Michael	Bligh			0	0					Heath an	Bedfords	0	0	cordwain	2,15, 1, 1	0	0	Thomas	Wootton	Crawley	Bedfords	0
1715	0	50	Joseph	Bradney	Benjamin		0	0					5 Buttolph	without	0	0	apotheca	5,35, 2,60	1	0	James	Smith	London	London	0
1711	0	16	Thomas	Archer			0	0					Stratton	Hampshi	0	0	gardener	1, 2, 0, 1	0	0	John	Rogers	Avington	Hampshi	0

Patents

- ▶ Bennet Woodcroft's (1854) patents of invention
 - ▶ All 14,360 patents produced between 1617 and 1853
 - ▶ Name, surname
 - ▶ Town, county of residence
 - ▶ Year patent
 - ▶ Occupation (P.S.T. index)
 - ▶ Type of patent (subject-matter index)
 - ▶ Citations/Relevance (reference index)

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.	1634	27th Feb.	1793	James Hitchcock.
Making picture-frames; frames for pier and other glasses.	3609	31st Oct.	1812	Benjamin Cook.

Scientific exhibitions

► Crystal Palace World's Fair (1851)

- Shared by [Petra Moser](#) (February 2021) based on her AER (2005) paper. We can also ask for the data on the Centennial Exhibition (1876).

- N=6,378
- Name, surname
- Town, county
- Awards
- Patents
- Description of the invention
- Industry class index

various kinds; *asphaltum* var. white phosphorus; *osmium* var. sal ammoniac; 660,000 bone black in grains and powder.

377 JOINT STOCK COMPANY OF THE PAPER MILLS OF SOUCHE (*Vosges*), Mr. MAURAN, Agent, 5 *Rue du Pont de Lodi, Paris*—Manufacturer.

Various sorts of writing, painting, hanging, test, and flower papers; imitation of India paper.

378 THE SLATE COMPANY OF RIMOGNE, AND OF ST. LOUIS-SUR-MEUSE, Producers.—A. MORREUX, Registrar.

Various samples of Rimogne slates, and grey slates of Deville.

The slate quarries of Rimogne, after having been worked during many ages, are, at the present day, the deepest in all France. The vein of the present dyke in which this slate formation occurs is the thickest that is known. These subterranean labours, especially those carried on at the great dyke, present mining operations carried on upon a scale of the most interesting and remarkable character. Besides these quarries in Rimogne, the Society possesses, at Beville, the slate works at St. Louis-sur-Meuse, one of the most ancient along the course of the Meuse. It is this establishment which has given its name to that variety of slate called the "Grand St. Louis."

The slate of Rimogne, which is of a beautiful azure-

380 SCHNEER BROTHERS, 17 *Rue des Vinaigriers, Paris*—Manufacturers.

Various sorts of varnish, for leathers, wood, and metals, and for oil and water-colour paintings.

Natural flowers preserved by a chemical process.

381 SOINS and SON, *Esquermes-les-Lille (Nord)*—Dyers.

Linen twills dyed and satinised; cotton twills dyed and glazed, by a new patent process.

382 STEINBACH, J. J., *Petit Quevilly, near Rouen, (Seine-Inférieure)*—Manufacturer.

Samples of starch, fecula, and gums, chiefly used in print-works.

383 STRINER, CHARLES, *Ribeauville (Haut-Rhin)*—Manufacturer and Printer. (Agents in London, J. S. DE GANTAN & Co., 8 *Bow Lane, Cheapside*.)

Plain cotton fabrics, dyed Turkey red; shawls and handkerchiefs of the same colour, with white ground, and several colours introduced. Exhibited for the brightness and harmony of the pattern, and the richness of the dye.

Occupational Census (sources)

- ▶ The first census took place in 1813, and the second in 1851
- ▶ Occupational census 1813-20 ([link](#))
 - ▶ An account of p.s.t. occupations at the county level (N=526,612). Shared by [Leigh Shaw-Taylor](#)
 - ▶ Data documentation ([link](#))

file_name	file_id	id	porid	ruid	por	runame	utype	parish	window	numeven	pcs	sr	numyears	iratio	occ	n	adjn
bed_coun	1	1	BED/001/r	BED/001	rose	Amphthill	AP	Amphthill	1813-1820	292	0	1	8	1	tailor	9	9
bed_coun	1	2	BED/001/r	BED/001	rose	Amphthill	AP	Amphthill	1813-1820	292	0	1	8	1	whitesmit	3	3
bed_coun	1	3	BED/001/r	BED/001	rose	Amphthill	AP	Amphthill	1813-1820	292	0	1	8	1	gamekeep	3	3
bed_coun	1	4	BED/001/r	BED/001	rose	Amphthill	AP	Amphthill	1813-1820	292	0	1	8	1	labourer	152	152
bed_coun	1	5	BED/001/r	BED/001	rose	Amphthill	AP	Amphthill	1813-1820	292	0	1	8	1	draper	4	4
bed_coun	1	6	BED/001/r	BED/001	rose	Amphthill	AP	Amphthill	1813-1820	292	0	1	8	1	shoemaker	19	19
bed_coun	1	7	BED/001/r	BED/001	rose	Amphthill	AP	Amphthill	1813-1820	292	0	1	8	1	salesman	1	1
bed_coun	1	8	BED/001/r	BED/001	rose	Amphthill	AP	Amphthill	1813-1820	292	0	1	8	1	bricklayer	3	3
bed_coun	1	9	BED/001/r	BED/001	rose	Amphthill	AP	Amphthill	1813-1820	292	0	1	8	1	millier	3	3
bed_coun	1	10	BED/001/r	BED/001	rose	Amphthill	AP	Amphthill	1813-1820	292	0	1	8	1	brewer	1	1
bed_coun	1	11	BED/001/r	BED/001	rose	Amphthill	AP	Amphthill	1813-1820	292	0	1	8	1	servant	2	2
bed_coun	1	12	BED/001/r	BED/001	rose	Amphthill	AP	Amphthill	1813-1820	292	0	1	8	1	carpenter	7	7
bed_coun	1	13	BED/001/r	BED/001	rose	Amphthill	AP	Amphthill	1813-1820	292	0	1	8	1	hairdresser	4	4

- ▶ Occupational census 1851 ([ICeM Project](#))
 - ▶ Data documentation ([link](#))

town	regcounty	sex	age	occ	n
Bath	Somerset	F	0-19	actors and	4
Bath	Somerset	F	0-19	annuitant	8
Bath	Somerset	F	0-19	baker	4
Bath	Somerset	F	0-19	bonnet-m	3
Bath	Somerset	F	0-19	bookselle	1
Bath	Somerset	F	0-19	"cabinet n	5

Occupational census (cont.)

- ▶ For the period 1600-1800 no census data, but there is data on men who left wills and other probate documents for large swathes of the country ([link](#)).
 - ▶ Full dataset won't be shared.

British Book Trade Index (link)

- ▶ [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 Squicciarini and Vigtländer's (2014) 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:	<ul style="list-style-type: none">• <i>Yorkshire Archaeological Society Record Series</i> (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 (N=11,740)
- ▶ Source: Robin Alston Library History Place Index

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

Prices of spectacles

- ▶ Catalogues stored in the College of Optometrists
- ▶ Contact [Neil Handley email](#)
- ▶ Need to visit archives in London. Meanwhile, we have evidence based on the records of the Old Bailey Court (London-specific) that prices of spectacles started to decline in the 18th century (N=388)

Id	Reference	Day	Month	Year	Useful?	Number	Text for coding	Pounds (£)	Shillings (s)	pence (d)	Conversion	Unit price
1	t17161105-61	5	11	1716	Y	2	stealing a pair of Spectacles	0	2	0	2.000	2.000
2	t17240812-29	12	8	1724	Y	6	bought 6 Pair of Spectacles	0	0	10	0.833	0.278
3	t17410701-11	1	7	1741	Y	2	Pair of Spectacles	0	2	0	2.000	2.000
4	t17470715-17	15	7	1747	Y	2	one Pair of Spectacles	0	5	0	5.000	5.000
5	t17490411-24	11	4	1749	Y	2	one pair of spectacles	0	0	6	0.500	0.500
6	t17491011-15	11	10	1749	Y	2	one pair of spectacles	0	0	2	0.167	0.167
7	t17510116-5	16	1	1751	Y	2	1 pair of spectacles	0	0	6	0.500	0.500

Additional datasets

- ▶ **Engineers**

- ▶ Biographical Dictionary of Civil Engineers in Great Britain
([book](#))

- ▶ **Philosophers**

- ▶ The Continuum Encyclopedia of British Philosophy ([book](#))

- ▶ **Prominent People**

- ▶ British Who's Who (1849 onwards only) ([link](#))

Friendly Societies

- ▶ Mutual association for the purposes of insurance. On acceptance, individuals were asked if they wore glasses.
- ▶ Plausible evaluation over time: use of glasses and an age, occupational breakdown
- ▶ It may help shed light on the relationship between glasses becoming more widespread and the number of accidents decreasing.
 - ▶ One of the causes for sickness was [diseases of the eyes and ears](#)
- ▶ [Need](#) to locate the early Friendly Societies and do the data collection.

Identification - Google Books N-grams

Google Books Ngram Viewer

Q eye-glasses

X ?

1500 - 2019

British English (2019)

Case-insensitive

Smoothing



Google Books Ngram Viewer

Q eye glasses

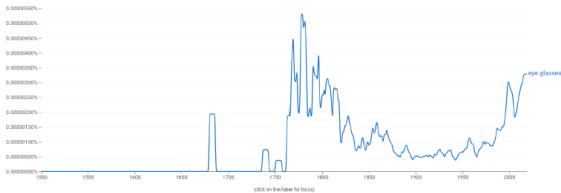
X ?

1500 - 2019

British English (2019)

Case-insensitive

Smoothing



Identification - Apprentices and Masters

- ▶ Show where spectacle makers (SM) locate using the stamp duty tax (SDT). Also use 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 professions 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
- ▶ How did the life expectancy on the job evolved over time for different professions. Interact with the reliance on glasses metric

Identification - Patents and Scientific Exhibitions

- ▶ How did the number of patents evolve over time in different professions in general and given a reliance metric?
- ▶ Do older people file more patents
- ▶ Do these later-on inventions have a higher reward?
 - ▶ Citations on patents, prizes/awards for scientific exhibitions, etc.

Identification - Book Trade and Libraries; Others

- ▶ How does the location and 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?
 - ▶ No details of encyclopaedia's subscribers (neither do Squicciarini and Voigtländer, only subscribers density by city)
 - ▶ If we can locate a source with subscribers to a magazine/newspaper, that would be credible: we can check if the average subscriber's age increases over time as more readers adopt spectacles.
- ▶ Look at biographies: does access to spectacles increase longevity/productivity in writing books?

Identification - Prices

- ▶ We want to confirm the decline in prices starting in the mid-18th century seen in the old Bailey court
- ▶ Archives in London have catalogues with prices by item's characteristics, but is there enough regional variation there?
- ▶ How does the price of spectacles (controlling for quality) evolve over time in absolute value and relative to local income? Do prices vary across locations? Do we observe price convergence between cities and non-urban areas?

Endogeneity

- ▶ We need a good instrument to control for reverse causality
 - ▶ *Domesday Book*, a 1085 survey. See Mokyr et al.'s (2020) **paper**
 - ▶ Local introduction of the printing press in the 15th century

Genealogical matching (David)

- ▶ We need to know the age/year of birth of the masters in the A&M section
- ▶ We need to answer the question: when did masters stop accepting apprentices?
 - ▶ A signal they retired. If they retire later over time, glasses may increase longevity in certain jobs
- ▶ Idea: link masters to censuses in [ancestry.co.uk](https://www.ancestry.co.uk)
- ▶ Use name surname of master, place of birth and indenture date
- ▶ Alternatively, use apprentice-father link to generate tree matches, provides an estimate of a master's retirement age