A new historic urban dataset for England and Wales[1]

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The main features of the dataset are the following:

- Population estimates for over 1000 urban settlements around 1680 linked with their census populations in 1801 and 1841.

- Population estimates for a subset of urban settlements going back to 1560.

- Economic, political, and infrastructure characteristics of 781 urban settlements around 1673.

- Settlement locations based on historical structures and public spaces.

- Settlement natural resources, geographic, and climate data

I. Population estimates

There are challenges in analyzing urban population change before the first census in 1801.[6] Nevertheless, there are sources upon which to base good estimates of urban population. For the 1660s and 1670s, there are counts of enumerated households in the hearth tax and Bishop Compton's count of Anglicans and other religious households. Langton (2000) uses these

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[6] The best data are for counties (see Wrigley 2009), but these are not the ideal unit for studying urban growth.

sources to estimate population for 925 urban settlements in E&W c.1680.[7] Langton also provides population for 950 settlements in 1801 and 1039 in 1841 using censuses.[8] Note that many settlements in Langton are small and have a population less than 2500, which is often the lowest standard for urban in historical studies (e.g. DeVries 2013).[9] Also several settlements have no population recording in some years, often for c.1680. Thus, the settlements include what were towns around 1680 and what would become towns by 1801.

Regarding accuracy, Langton expressed doubts about his c.1680 estimates for the largest towns and noted they could be 30 percent below the true value.[10] Since we know there is some error, the question is how much. As a check, the sum of Langton town populations in a county divided by land area is highly correlated (0.98) with independent estimates of county population density.[11] Langton's 1680 estimates are thus very accurate in comparing town populations across counties.

Table 1 shows the population of the largest 20 towns in 1680 along with their population estimates at two dates. London is at the top of the list, naturally. London grows from 1680 to 1841, but many others do not. Salisbury and Deptford are two towns that fall out of the top 20 in 1841. Several other large towns in 1680 are not as exceptional in population by 1841.

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[7] Langton (2000 pp. 460, 462 463, 486, 489). Fifty-six population estimates derive from the Compton Census in the 1670s. Fourteen towns, for which data were not available, are reasoned guesswork based on nearby towns. Ibid, p.460 and fn. 39. As sources are used in the 1660s and 1670s, we refer to the date as c1680.

[8] Langton's data are digitized and available through Bennet (2012), who also summarizes Langton's methods.

[9] Bairoch et al. (1988) use a threshold of 5000 and Buringh (2020) uses a modern threshold of 10,000.

[10] See Langton (2000, p. 461, especially footnote 46). London's population was 66 per cent of Wrigley's estimate for 1670 and 65 per cent of that by Gregory King (a statistically literate contemporary for 1695). Norwich's estimate, then the second city, is only 70% of the most widely cited estimate, Ibid, p 461 and fn. 48.

[11] County populations in 1680 are estimated by the weighted average of Wrigley (2009)'s figures in 1600 and 1700.

Table 1: Population of the largest 20 towns 1680 in comparison with situation in 1841

Town Name.County	Pop 1680	Pop 1841	Rank 1841
LONDON.MIDDLESEX	310941	1948417	1
NORWICH.NORFOLK	14216	62116	14
YORK.YORKSHIRE NORTH RIDING	14201	28842	38
BRISTOL.GLOUCESTERSHIRE	13482	136276	6
NEWCASTLE UPON TYNE.NORTHUMBERLAND	11617	99870	8
OXFORD.OXFORDSHIRE	11065	23834	48
CAMBRIDGE.CAMBRIDGESHIRE	10574	24453	46
EXETER.DEVONSHIRE	10307	38425	28
IPSWICH.SUFFOLK	9774	25264	45
GREAT YARMOUTH.NORFOLK	9248	27863	40
CANTERBURY.KENT	7671	15435	70
WORCESTER.WORCESTERSHIRE	7046	25401	43
DEPTFORD.KENT	6919	27676	101
SHREWSBURY.SHROPSHIRE	6867	18285	63
SALISBURY.WILTSHIRE	6811	10086	102
COLCHESTER.ESSEX	6647	17790	65
HULL.YORKSHIRE EAST RIDING	6600	67606	12
COVENTRY.WARWICKSHIRE	6427	37806	29
CHESTER.CHESHIRE	5849	23112	49
KENDAL.WESTMORELAND	5730	11770	91

Source: Langton (2000).

Table 2 shows the population of the largest 20 towns in 1841 and their population estimates at the two dates. London is again at the top. But interestingly the next two, Manchester and Liverpool, are not large towns in 1680. Liverpool is not even in the top 100 in in 1680. Bradford is another example of a town that grows significantly by 1841.

Table 2: Population of the largest 20 towns in 1841 in comparison with situation in 1680

Town Name.County	Pop 1680	Pop 1841	Rank C17th
LONDON.MIDDLESEX	310941	1948417	1
MANCHESTER.LANCASHIRE	2356	340708	64
LIVERPOOL.LANCASHIRE	1210	318852	123
BIRMINGHAM.WARWICKSHIRE	2745	197680	49
LEEDS.YORKSHIRE WEST RIDING	3501	146523	37
BRISTOL.GLOUCESTERSHIRE	13482	136276	4
SHEFFIELD.YORKSHIRE WEST RIDING	2050	109690	87
NEWCASTLE UPON TYNE.NORTHUMBERLAND	11617	99870	5
NOTTINGHAM.NOTTINGHAMSHIRE	4264	83102	28
PLYMOUTH.DEVONSHIRE	4000	82946	32
BRADFORD.YORKSHIRE WEST RIDING	940	82732	128
HULL.YORKSHIRE EAST RIDING	6600	67606	17
PORTSMOUTH.HAMPSHIRE	5007	66542	22
NORWICH.NORFOLK	14216	62116	2
BATH.SOMERSETSHIRE	2652	59497	56
BOLTON.LANCASHIRE	1830	58856	106
SUNDERLAND.DURHAM	1147	54740	125
HUDDERSFIELD.YORKSHIRE WEST RIDING	610	53504	138
STOCKPORT.CHESHIRE	1303	52831	121
PRESTON.LANCASHIRE	1700	50887	110

Source: Langton (2000).

Clark and Hosking (2005) give population estimates based on the 1563 Diocesan returns. As they focus on small and medium towns, their estimates are supplemented with Wrigley's (1985) top 10 city populations c.1520. Using both, this dataset provides their population estimates in the mid-16th century.

II. Location of towns

All towns in the data are linked to a larger GIS database of candidate towns, where settlements are treated as points and coordinates are identified based on a hierarchy of characteristics. The candidate town's database is from Satchell, Potter, Shaw-Taylor, and Bogart (2017). The first step was to identify the coordinates of its market. In its absence, parish church

coordinates were assigned. If no parish church, then inns, post offices, public houses, and high streets are used in that order.

The linking allows us to map for the first-time E&W town populations in 1680 and 1841 (see figure 1). In 1680, London is the only large city. Seven towns have a population over 10,000, but most were less than 2500. In 1841 London is still the largest, but towns in the west midlands and northwest have grown significantly. The latter regions have urban clusters in 1841 which are absent in 1680. For reference, Appendix I reports the list of the top 20 towns by population in 1680 and 1841.
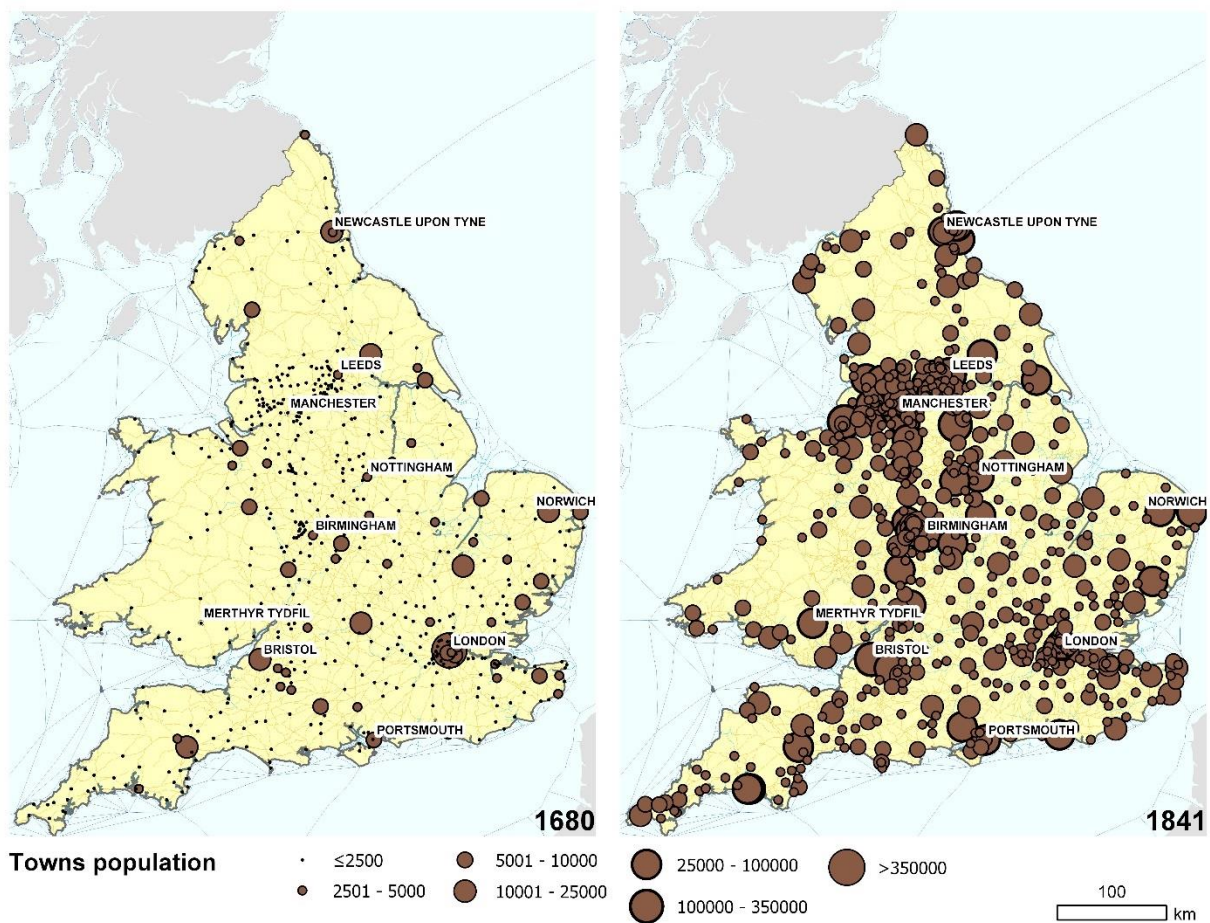

Figure 1: English and Welsh town populations in 1680 and 1841

Sources: Authors representation based on town populations sampled from Langton (2000).

III. Economic and political characteristics of towns 1673

We also include characteristics of all towns described in Richard Blome's *Britannia*, originally published in 1673 (see also Blome 1962). For 781 towns, Blome gives brief summaries of markets, economic specialties, charitable and educational institutions, and government. The text of these entries has been digitized and used in Bogart (2018). From Blome's town description, the following 11 indicator variables are created equal to 1 if the town (1) had cloth manufacturing, (2) had brewing, (3) had other manufacturing, (4) had mining, (5) had a harbour, (6) had an almshouse, (7) had a free school, (8) had municipal government, which, for simplicity, is one if the town had at least one type of official like mayors or council members, (9) was represented by MPs, (10) was on a navigable river, and (11) was on the coast. Blome also described the town's market including the number of days. We create a 12th variable for number of market days. Blome also describe the market anywhere from small and poor to medium, good, large, and impressive. We use these words to code a dummy variable equal to 1 if the market was described with words like large and zero otherwise. We also a create variable if the market was described with words like small and zero otherwise. The omitted group are markets described with words like medium. We use Blome's county maps to create a dummy variable equal to 1 if the town was not on a navigable river but was on a stream. Finally, we also supplement Blome with Robert Morden's, The New Description of the State of England. Morden (1704) provides maps of roads in each county at the start of the 18th century before turnpike trusts. Here we define another indicator variable for being on the '1700 road network'.

In total there are 16 historic variables drawn from Blome. As an illustration Figure 3 shows towns identified has having cloth manufacturing and mining.
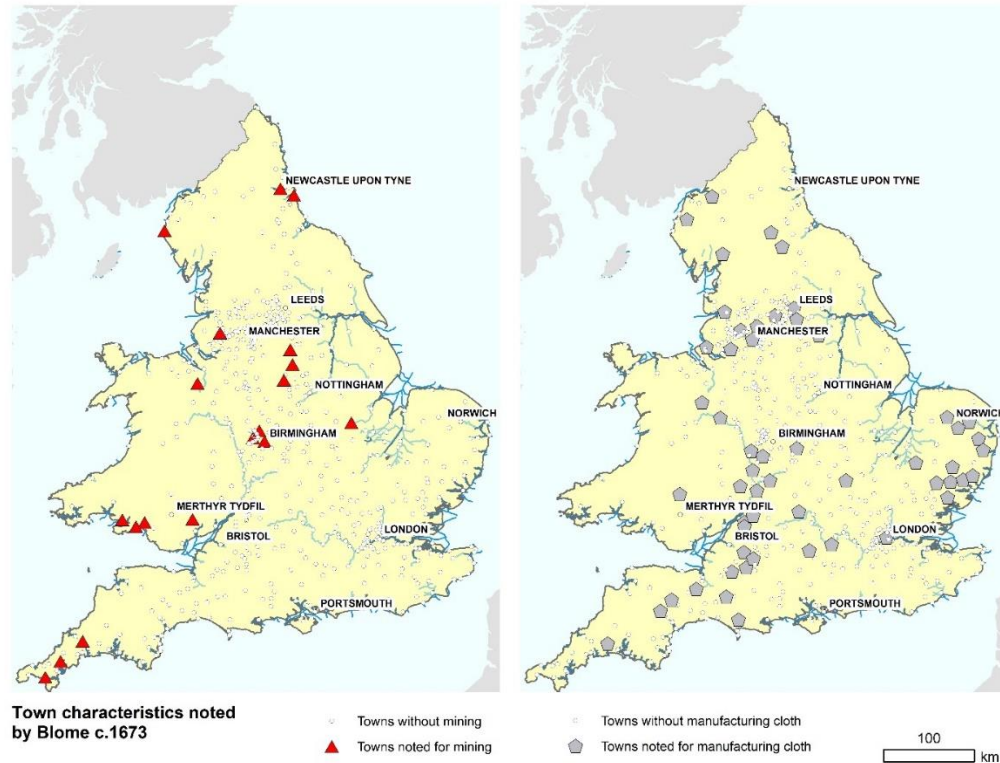
Figure 3: 1680-1801-1841 sample towns noted for mining and cloth manufacturing specialties by Blome's Britannia in 1673

Source: Author's creation based on digitization of Blome variables in Bogart (2018).

III. Town geographic variables

Town geographic characteristics are measured using a rich database of 9700 spatial units in E&W, comprised of parishes and townships. The data is developed by Bogart, You, Alvarez, Satchell, and Shaw-Taylor (2022) to study impacts of railways. Towns in our dataset belong to one of these based on their latitude and longitude, and we assign the linked-unit's geographic variables. Some towns are linked to the same spatial unit, and are identified with a unique unit linkage. From the linking, we include 5 geographic variables: an indicator for being on an exposed coalfield, average elevation, the standard deviation of elevation, average rainfall, and average temperature.[12] This dataset also gives distance to the nearest port in 1565.

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[12] The Exposed coalfields come from (Satchell and Shaw-Taylor 2013). Rainfall and temperature come from the FAO and are averaged from 1961 to 1990. Nonetheless, variation in rainfall and temp. across English and Welsh towns is likely to have been similar in the late 18th century.

One of the most important concerns towns being on the exposed coalfield. The Exposed coalfields were more easily exploited compared to concealed coal (Satchell and Shaw-Taylor 2013). Figure 3 shows the towns on the coalfield.
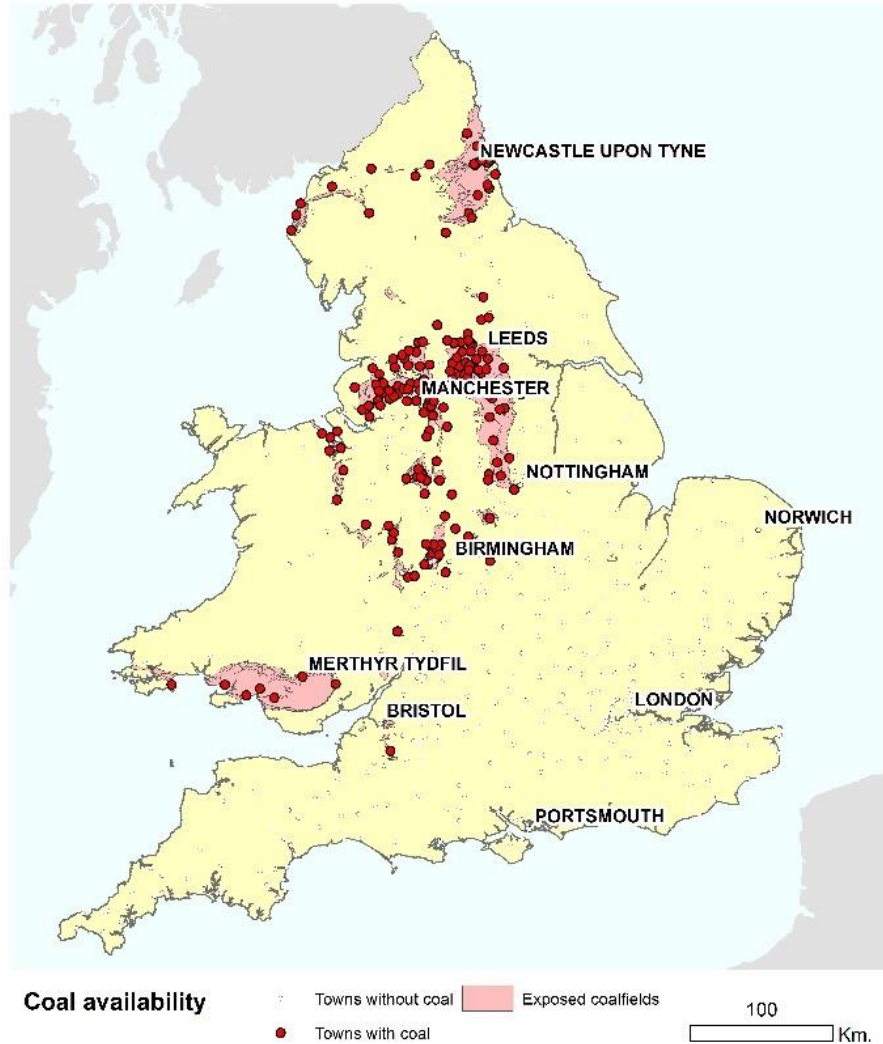

Figure 3: Towns on the exposed coalfield along with major towns
Source: Author's creation based on exposed coal data from Satchell and Shaw-Taylor (2013).

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