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SN 7154 - Urban Population Database, 1801-1911

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1. Summary

This data collection uses Census returns to construct a consistent time series of population for urban centres in England and Wales 1801-1911, and a range of other sources to give town populations for the 17th century. It has been derived from the work of three previous researchers: (1) Chris Law (1967) originally prepared it; (2) Brian Robson (1973) developed the data further and transcribed Law's data and preserved it. Robson also added information on some smaller settlements for years before they became 'urban' under Law's criteria; (3) Jack Langton (2000) undertook a different study for the 17th century to 1841, and included Scotland as well as England and Wales. Langton used the same basic methods and definitions as Law-Robson, but independently constructed urban population data for 1801 and 1841 and corrected various errors and omissions in the Law-Robson material; however, most importantly he disaggregated the Law-Robson data for the period to 1841 to reflect the fact that many places had not coalesced into large towns by this date. The data collection here combines these three sources. It was prepared and deposited by Bob Bennett (2011; Appendix 3) for a study of local economies and business representation. This database began with the original Law-Robson data, which was stored on record cards in a shoebox. This was re-keyed and modifications inserted for 1801 and 1841 from the Langton database. Chris Law (Salford University), Brian Robson (Manchester University) and Jack Langton (Oxford University) have agreed to the release of the information so that it can be more readily used by other researchers. Note that the database as used by Bennett (2011) was supplemented to include the large centres in Scotland and Ireland (of over 10,000 population); since this uses an entirely different definition, these data are not included here.

2. The data files

Three data files are provided:

1. **Law_robson.tab, 1801-1911**, each decade for England and Wales (N=934); this is unmodified and should ***not*** be used in most instances in preference to the combined database:

2. **combined_law_robson_langton.tab, 1801-1911**, each decade for England and Wales (N=934); this is the original Law-Robson with corrections and filling of omissions;

3. **langton.tab, 17th century, 1801, 1841**, for 17th century and each decade 1801-41; includes Scotland (N=1167; 1050 for England and Wales).

3. Description of Methodology: Law-Robson

The Law-Robson data cover all settlements of 2,500 population and above from 1801 to 1911, for England and Wales only. Four criteria were used to define urban character (Law, 1967, pp. 129-132; Robson, 1973, pp. 47-52):

- Minimum size threshold (2,500 population or more)
- Density (at least one person per acre)

- Map evidence (to identify a compact settlement or amalgamate a suburb to its town)
- Degree of nucleation (spatially contiguous built up areas)

On the threshold size Law (1967, p.129) states that *'the figure of 2,500 was chosen because in practice it was found that this excluded the smaller market towns whose activities were very closely connected with the rural way of life, and which suffered a population decline similar to other rural communities in the second half of the nineteenth century. Using this ... limit, many places have been included which are often referred to as villages, such as mining villages, industrial villages and dormitory villages. While these are definitely not towns in the sense of having regional functions and a structure of services, they are more urban than rural, and have few relationships with agriculture and forestry'*. Robson (1973, p.47) states that *'this threshold is large enough to exclude many of the purely mining communities ... and also large enough to exclude most of the small market towns which never attracted industry to them'*.

It is clear that whilst the 2,500 criterion is arbitrary, it is inclusive of all towns that are realistic services focuses of, or form part of, the urban industrial structure. It excludes some small market towns that were focuses of the traditional rural economy, but for urban studies all significant and most minor settlements are included. However, it does exclude some historically significant service centres, and this was one of the issues confronted by Langton.

On density, Law (1967, p.130) states that *'this obviously has close links with minimum size. Census tables give population figures for administrative areas, the basic unit being the civil parish. Within this unit, the urban population may cover only a small proportion of the area, and most of it may be given over to rural activities. The figure of one person per acre was used to distinguish the two categories. This would be a very low figure for urban areas, but at the same time a very high figure for rural areas. Where this density is reached in a parish there is at least the suggestion of an urban settlement'*.

Again the figure is arbitrary, but it recognises the key division between urban and rural.

Map evidence was also used by Law (1967, p.129) because the density criterion could not be applied rigidly in practice: *'for in highland areas the parishes are often extensive, with very low rural densities. Even when a town is clearly present, the density may not rise above the minimum level. A similar situation arises in the Fens, where for drainage reasons the settlement is concentrated. In such cases map evidence has been used to study the degree of settlement nucleation or dispersal before it has been classified as urban or rural. The density criterion combined with map evidence is also very useful in deciding when to include the population of suburban parishes. When the density level has reached one person per acre, the suburban parish population has been added to the population of the main town'*. Robson (1967, p.47) states that the map *'criterion ... was used to define the basic areal extent of urban areas'*.

Maps provide a way of overcoming the arbitrariness of the size and density criteria used alone. Map evidence allows the inspection of the surrounding geography of each census unit in order to delimit urban from rural areas.

Degree of nucleation was also important. Law (1967, p.130-1) states that *'even when minimum size and density conditions have been satisfied there may be dispersed settlement with no strong nucleus around which an urban way of life could develop. A continuous urban environment is not necessary for this, but in the days before improved transport it certainly helped. In many old mining areas, settlement is amorphous with dispersed housing along roads, often caused by a scatter of small mines. Such parishes cannot be called truly urban, and even when for administrative reasons they have been created Urban Districts, they have not been included. Where several large mining villages exist within a civil parish, the population has been counted as urban, not however as one unit, but as the number of places recorded on the map. Military camps, prisons or hospitals may cause the density and population to rise without resulting in nucleation or a true urban community, and such parishes have*

been excluded. Similarly, low-density residential development may occur without nucleation, and these parishes have been excluded. In all these cases, maps have been used to determine whether parishes should be counted or not'. Robson (1973, p.48) states that *'the nucleation criterion takes account of the attempt to define towns as spatially continuous built-up areas'*.

The use of nucleation, combined with map evidence, is a final test of whether an urban centre existed. Taken with the other criteria, it adds a useful degree of judgement to the otherwise arbitrary criteria of density and size.

Accuracy: There are two issues about accuracy: the accuracy of the original Census data and the accuracy of the methods used to define the urban settlements.

On the first issues, possible accuracy of early Census data is a well-known problem. Between 1801 and 1831 the evaluations were made by the local overseers of the Poor and are known to have variable inaccuracies between areas of a generally unknown extent. From 1841 enumerators were used who were given detailed guidance and a basic level of training. However, it is believed that for 1841-61 there is a systematic underestimation of urban population. This arises because of the difficulties of making visits to the many courts and cellars in some of the largest cities and obtaining reliable replies. Even after 1871 this problem is believed to have continued at a more minor level. Hence, the true urban population will be larger than the figures tabulated by Law/Robson

On the issue of definitions, Law (1967, p.132) states that his *'estimates are subject to two errors: the exclusion of certain towns for which no figures are available, and the inclusion of rural population found within borough and parish boundaries. These two errors are likely to cancel each other out (in aggregate, though not necessarily for individual areas). Another possible error is the subjective element in the use of map evidence, although every effort has been made to be consistent'*. Robson (1973, p.52) comments that *'Law's figures provide as sensitive and accurate a set of estimates of urban populations as one could hope to derive'*.

Law (1967, p.132) also recognises other difficulties. Census data tend to produce a higher proportion of urban areas in the 1851-81 period as a result of *'the addition of suburban extensions, and the inclusion of some places not counted by the Census until the end of the century, which should make this new estimate more accurate. It has not been possible completely to exclude greater increases in 1851 and 1871 when figures for certain towns first became available, but those increases have been reduced to very small proportions'.* As a result some urban populations 'jump' more quickly than was true on the ground, as extensions are included in Census data which cannot be fully tracked back in earlier records. Robson (1973, p.49) comments that *'the two most troublesome of the urban definitions are, of course, those of the very largest and the smallest towns. As the nineteenth century progressed, the largest towns grew to incorporate once-separate peripheral communities. Given the definitions adopted, had the peripheral boroughs or communities been regarded as discrete places before being submerged into the sprawl of their neighbouring giants, once they had been submerged they would have "died" as towns and the larger places correspondingly would have appeared to increase rather suddenly during the decade in which the amalgamations was assumed to have occurred. The largest urban areas have therefore often been amalgamated with certain of their neighbouring communities to produce a generous definition and the population totals of the adjacent areas have been included in the overall total once the density criterion outlined above had been met'*.

These amalgamations do cause difficulties for analysis in earlier towns that became combined at a later date. In Langton (2000) many of these towns, and in Bennett (2011) several of these earlier towns, are disaggregated; e.g. Birkenhead from Liverpool, Salford from Manchester, Croydon from London. However, for the database here the original Law-Robson amalgamations have been retained so that a single comparable database is available. However, the Langton database on the larger group of towns is also provided to offer to researchers a wider range of settlements. Nevertheless, other researchers will need to confront this problem and may need to disaggregate other centres that have particular relevance in their research.

Comparison with other estimates of urban population: Law (1967, p.131-2) provides a comparison with earlier estimates of urban populations, which are summarised in Table 1, together with the information from Langton (2000). Law comments on these comparisons that *'differences at early dates reflect in part the lower limits of urban size taken, for with a small urban population the inclusion of places in the range 1000-5000 can make a significant difference to the total urban population. ... Price-William's estimates are high because of the inclusion of many places which were not urban at the earlier dates'*. For the period after 1841 the various estimates are fairly closely in line. From 1851 the census authorities made their own distinction of urban and rural, which is given in the second column (see ICSER, 1951; Drake, 1972; quoted in Robson, 1973).

	Law	Census	Price-Williams	Welton	Weber	Vince	Langton
1801	33.8		40.1	35	26.2	34	42
1811	36.6		42.8			36	
1821	40.0		43.4			39	
1831	44.3		46.0			42	
1841	48.3		48.3			45	51
1851	54.0	50.2	51.4		44.8		
1861	58.7	54.6	51.9				
1871	65.2	61.8	55.6				
1881	70.0	67.8					
1891	74.5	72.0			68.0		
1901	78.0	77.0					
1911	78.9	78.1					

Table 1. Comparison of estimates of urban population [percentage of population classified as urban] (Sources: from Law, 1967, Table VIII; and Langton, 2000, Table 14.3); other sources: Price-Williams (1880), Welton (1900), Weber (1963), Vince (1955); ICSER (1951); Drake (1972), quoted in Robson (1973). Note these are for England and Wales, except Langton (2000), which includes Scotland.

4. Description of Methodology: Langton

Whilst Robson (1973, p.52) has stated that *'Law's figures provide as sensitive and accurate a set of estimates of urban populations as one could hope to derive'*, there remain areas where different interpretations can be made. Langton also has the benefit of extending the series back to the 17th century, for a data ranging between 1662 and 1696.

Langton's population estimates of towns for the 17th century and 1801-41 mainly derive from the Census and use of hearths in the Hearth Tax (1662-1691), the Compton Census (1676), and the Poll Tax of 1694-6. Langton's list of towns is based on Clark & Hoskins (1993), Adams (1680) and Meekings (1951) as well as Law-Robson for England; Owen (1959), Carter (1965) and Jenkins (1992) for Wales; Lynch (1989) and Whyte (1989, 1991) for Scotland. However, nine English towns with no population in Clark & Hoskins and which are not in Adams (1680) are omitted; Middlesex and Monmouthshire towns, and Cranborne, Dorset, are added from Adams.

Langton's 1801 and 1841 lists of towns are based on those of the late 17th century, with the addition of Law & Robson for England and Wales, Carter for Wales in 1801, and the 1911 Census for Scotland. As in Law-Robson this is for towns with over 2,500 population (after conversion through using ratios B-E in source section 2 below, where appropriate), omitted if not also in 17th century list. The estimation procedure for Scottish towns gives totals that are only 77% of those produced by estimation procedure for English towns.

The material used here for 1801-41 is derived from Langton (2000), who sought to modify Law-Robson for the 1801-41 period in five main ways.

First, because Langton's purpose was urban comparison from the 17th century to 1841 he sought to disaggregate many settlements that in the Law-Robson information are aggregated into later urban areas. Using a base of 1911 for their data, Law-Robson naturally used a more aggregated structure in which many earlier settlements had coalesced. Langton comments that this leads to overestimation of the size of some towns in the early nineteenth century, and removes many others from the Law-Robson list that were still independent. Langton also suggests that the choice of whether places should be 'counted as separate towns or suburban extensions … seems inconsistently arbitrary'. One of the largest areas of discrepancy is London, where Langton's definitions could include up to 58 earlier towns than defined by Law-Robson. There are many trade-offs of choice of size and criteria for inclusion at any date, and in his final database Langton opts for 22 additional towns within the '1911 London' given by Law-Robson. There are similar difficulties around Manchester and all the major conurbations, and also in coalfield areas.

Second, Langton draws on the discussions of the Municipal Boundary Commissioners for 1837; in particular this disaggregates twin towns. Third, Langton includes Scotland, though not all of the smallest Burghs since many do not reach the Law-Robson size threshold.

Fourth, Langton is forced to omit some settlements that are aggregated in Law-Robson, but which probably were separate settlements in 1841 and earlier. He comments that this will cause some undercounting of the number of towns in 1801 and 1841; one example is Smethwick, included in Birmingham by Law-Robson.

Fifth, Langton takes a modified definition of the actual population numbers in some cases. He prefers to use the populations for those towns that are treated as separate settlements in the 1851 Census, including the 1851 definition of London. This reduces the populations of many places.

For other discussion of the difficulties of Eighteenth Century comparisons see Law (1969, 1972).

The final Langton database contains 1167 locations, of which 1050 are in England and Wales. The difference in numbers from the 934 in Law-Robson results chiefly from the Law-Robson standardised geographical definition based on 1911. This includes in many early years a number of separate settlements that were not connected with each other at that time, and which Langton has kept separate. Hence, emphasis on consistency of territory for 1911 undermines consistency of what constitutes a town or city in earlier years. There is no perfect solution to this problem, but the use of the Langton data to modify Law-Robson is an invaluable means of attempting to improve the count of towns and their size for the period 1801-41. However, because there is every reason to expect that other researchers will prefer one set of data over the other in different situations, the database presented here gives un-modified Law-Robson, combined Law-Robson-Langton, and the separate Langton figures.

5. Description of Methodology: Combined Law-Robson-Langton database

The combined database provided here uses the Langton modifications to the Law-Robson urban settlements, for 934 places in all.[1] This is the same number of settlements as in Law-Robson. The settlements in Langton for 1801-41 that were not contained in Law-Robson have not been added but can be found in the Langton records). The result should be, for many purposes, a more accurate urban database than previously available for the years 1801-41, but for the Law-Robson definitions based on 1911; i.e. the aim has been the same as Law-Robson, to keep a consist link from 1911. The main effects of the modifications in this combined database are as follows:

[1] Langton (2000, p. 457 n. 23) quotes the total as 1129, but this includes Scotland.

1. About 168 places use the same definitions and remain unchanged from Law-Robson (18%). An additional approximately 550 places (59%) have not been modified, mainly because of the different aggregations used for the later years (see 5 below). Thus about 77% of the database remains the same as the original Law-Robson data.
2. Modified data are provided for many places that in Law-Robson have empty cells for their early periods. Some of these were below the Law-Robson size criteria to be included, but some also were erroneously omitted in Law-Robson. Approximately 219 (23%) of places have new data for 1801, and approximately 201 (22%) of places for 1841; mostly, but not all, are the same places. The modified information for most cases results in the very minor changes, and mostly for small places that were below the 2,500 size criterion in the earlier period. But for a few places there are significant changes that would affect the interpretation in the Law and Robson publications in the lower part of the size distribution. One of the most important is for Goole.
3. One group of the corrections relates to several places that met the 2,500 size criterion far earlier than recognised by Law-Robson: e.g. Corbridge, Alnwick, Tunbridge Wells, Wellington (Salop), Uttoxeter, Horsham, E. Grinstead, Sutton Coldfield, Keighley (W. Riding), Mirfield (W. Riding), and Llanrwst (Denbigh).
4. There are also many discrepancies between Langton and Law-Robson that relate to different definitions. As noted, Law-Robson, coming from a perspective of 1801-1911, looked backwards and aggregated some areas in a different way than Langton, who was moving forwards from the 17th century. There has been no attempt to resolve these conflicts. The Law-Robson definition has been used where there is doubt because, if Langton's data had been used, there would be no consistency with the later information. This mainly affects some of the medium and largest urban areas, and usually derives from the aggregations of settlements that later became one urban unit. The most numerous areas are London satellites. In total about 155 (17%) of areas appear to use different spatial units between the two databases. In most cases the discrepancies are small, but for the large urban units they can be larger.
5. There is a further discrepancy: Langton has many more urban areas that are not included in Law-Robson at all: about 479. There are various reasons for this. Most are urban centres that are subsumed in larger areas at a later date, as noted above. Some result from the different definitions used. Some are places that declined below the 2,500 size criterion in later periods and are thus not captured by Law-Robson. Others are probably simply omissions. These places have not been added to the combined database, but have been provided in the separate Langton database. This will permit a researcher to use this larger database of urban centres for the earlier period (1801 and 1841), which will allow a wider distribution of urban settlements to be investigated (see further comment on this spread sheet below). Such analysis will not be strictly comparable with that using either the combined Law-Robson-Langton database, or Law-Robson, but provides an alternative approach.

Note that where Langton is the only source of information for 1801 and 1841 (because the numbers are blank in the Law-Robson data) these data are provided in the database, with any other data in Law-Robson for 1811, 1821 and 1831 rescaled in the combined database (this applies to only 5 cases).

6. Topic guide

The databases contain information on only one variable, population, together with location identifiers, and in the Langton database a listing of specific sources. This is given for 12 cross sections for Law-Robson and the combined databases and for 6 cross sections for Langton.

These data are not straightforward to use because the towns that are listed and their populations are very specific to the definitions that have been employed. Hence, before any researcher attempts to use these data it is important that they read the background documentation above so that the most appropriate database selected. For example, a researcher who is primarily looking at comparisons from the 17th century with 1801-41 would use the Langton data. A researcher who is seeking comparisons across the 1801-41 period might use either the modified Law-Robson or Langton data, depending on

whether they were seeking a wider or narrower definition of towns. The original Law-Robson data, which contains some errors and a greater number of omissions, should only be used to make comparisons against the Law-Robson conclusions.

7. Data Schedule

7.1 law_robson.tab: This database contains some errors and omissions; the data should only be used to make comparisons against the Law-Robson analyses or for the period from 1851. Population for towns for each decade for England and Wales (N=934 rows):

Field	Variable	Note
A	id	identifier number
B	co_abv	county abbreviation
C	county_name	county name
D	code	town identifier no. within each county
E	town	town name (alphabetical within counties)
F	1801	population 1801
G	1811	population 1811
H	1821	population 1821
I	1831	population 1831
J	1841	population 1841
K	1851	population 1851
L	1861	population 1861
M	1871	population 1871
N	1881	population 1881
O	1891	population 1891
P	1901	population 1901
Q	1911	population 1911

All population figures are absolute numbers. Some entries are not available for earlier years because the data cannot be reconstructed. These are marked NA (not available).

7.2 combined_law-robson_langton.tab: For comparisons 1801-1911 where the 1911 definitions are relevant; this is the most complete data available. Population for towns for each decade for England and Wales (N=934 rows):

The data listings are as 7.1 for each data column, with NA now covering a smaller number of entries.

7.3 langton.tab: For comparisons from the 17th century to 1801-41. Population for towns in the 17th century and each decade 1801-41; includes England, Wales and Scotland (N=1167 rows); England and Wales only (N=1050 rows).

Field	Variable	Note	Key to abbreviations (if applicable)
A	region	region name	
B	county	county name	
C	town	town name	* = in Clark and Hosking (England) and Adams; in Adams (Wales), but no population in Owen; in Lynch/White (Scotland), but no burgh or parish population given by Whyte.

D	c17th	population 17th century	
E	p/t_source	note on source:	BD = Birmingham & Deritend; C = county; LE = area of Farmers of London Excise; P = parish; T = town or township; PT = parish figure converted to town estimate using town/parish ratio of 1851 PTS1 = parish figure converted to town estimate using town/parish ratio of 1841 TBC = town, bailey & close; TC = pown & colleges; TCl = town & close; TClS = town, close & suburbs; TCS = town, colleges and suburbs; TL = town & Liberties; TS = town & soke H = households Hth = Hearths in Hearth Tax; ? = unknown CC = Compton Census PT = Poll Tax G = Guesses; basis of Guesses:- G1 = 17th century population of a town of similar size, location and function in 1801. G2 = 1801 population x ratio of recorded 17th century: 1801 populations of Somerset and Dorset towns. G3 = 1801 population x ratio of recorded 17th century: 1801 populations of Durham & Northumberland towns, excl. Newcastle, Sunderland, Tynemouth and North Shields. G4 = 1801 population x ratio of recorded 17th century: 1801 populations of all other small rural Welsh towns. G5 = Assumes proportion of total urban population in 1691 = proportion of total Burgh taxes paid in 1692 (Lynch, 1989) x population of all other towns/proportion of tax paid by all other towns.
F	1801	population 1801	
G	source	note on source for 1801 population figures	No code = parish or township figure from census. A = Figures for town from census directly: B in 1841 = figure for town in 1841, but parish in 1801. B = 1841 town/parish ratio used to estimate town from parish figures. C = 1851 town/parish ratio used for ditto. CH1811 = Clark & Hosking figure for 1811 used. CH1851 = Clark and Hosking figure for 1851 used. D = 1861 town/parish ratio used for ditto. E = 1871 town/parish ratio used for ditto. PT1851 = taken from Large towns listing in 1851 Census, except for Chatham, Oldham and Stoke-on-Trent, where constituent towns kept separate.
H	1841	population 1841	
I	source	note on source for 1841 population figures	No code = parish or township figure from census. A = Figures for town from census directly: B in 1841 = figure for town in 1841, but parish in 1801. B = 1841 town/parish ratio used to estimate town from parish figures.

			C = 1851 town/parish ratio used for ditto. CH1811 = Clark & Hosking figure for 1811 used. CH1851 = Clark and Hosking figure for 1851 used. D = 1861 town/parish ratio used for ditto. E = 1871 town/parish ratio used for ditto. PT1851 = taken from Large towns listing in 1851 Census, except for Chatham, Oldham and Stoke-on-Trent, where constituent towns kept separate.
J	note	other notes on each town	

8. Data Completeness

The data are as complete as the original Census records (and other sources for the 17th century). However, for some early locations there is no spatial unit equivalent to later units that can be readily used and the data cannot be reconstructed. These are the towns marked NA in the database.

9. End of Award report

The external funding support for keying and preparing these data was derived from the British Academy, through small grant SG39253. The End of Award Report to the Academy is formal, and a more complete coverage is given in the depositor's book (Bennett, 2011). The support for the original data extraction by Law (1967), Robson (1973) and Langton (2000) is provided in their cited works below.

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