RESEARCH NOTE

THE CAUSES AND EFFECTS OF ERROR CORRECTION IN THE POPULATION TOTALS OF THE 1801 CENSUS OF ENGLAND AND WALES

Matthew Woollard

A few months ago I was asked what was the official population of England and Wales in 1801. My first reaction to this question was one of irritation. Surely it would be straightforward to find the answer by looking at one of the volumes of the 1801 census? So, I examined the first Abstract of the 1801 census where I found the information presented in Table 1.

The information presented in Table 1 is spread over a few pages of this Abstract and it has been arranged here in a different format to provide comparisons with data presented later in this article. The notes and comments in the Abstract make it clear that these figures do not represent the complete population of England and Wales as some of the local returns were not available for inclusion at the time of publication of this Abstract. The census had been taken on 10 March 1801 and these counts only include returns received by Rickman before 26 June.

In December 1801 Rickman presented updated figures in the so-called Enumeration Returns which are shown (again, reformatted) in Table 2. The publication of these updated figures shows that John Rickman had not received a substantial number of returns by late June. It also demonstrates the importance of understanding the publication sequence of census returns; taken alone, it would be quite easy to be misled by the figures in the Abstract and in Table 1. Officially, the population of England and Wales in 1801 without the military (and prisoners in hulks) was 8,872,980. However, to say that the population of England and Wales with these military and prisoners added was 9,343,378 would be jumping the gun, as the figures for the military and prisoners include Scotland as well as England and Wales.

Nevertheless, with this caveat, that should have been the end of the story, but for an entirely different reason I had on my desk a print-out of a table from a page in the General Report from the 1931 census that gave the population at each census date from 1801 to 1931. According to this table, the population of England and Wales for 1801 was 8,892,536, which is very different from the
9,343,578 given in the Enumeration Returns for 1801, and also different from the 8,872,980 recorded in the same returns if one excludes the army and navy and convicts aboard hulks. With these exclusions there remains a discrepancy of some 19,556 people. Where did this discrepancy come from? My first step in this enquiry was to attempt to find the figures reported for 1801 in the 1931 census by country and divided by sex. However, this level of breakdown is not available in the 1931 census report, so I examined the returns in the 1851 Population Tables. Table 3 gives the breakdown of population in 1801, as published in the first volume of the Population Tables for 1851. This gives the same total figure as in the 1931 General Report, and it shows that the discrepancy is evenly split between the sexes: 9,622 males and 9,934 females.

At this point I concluded that the “final” figures published in December 1801 were still based on totals with some local returns not reaching Rickman. However, in both the Comparative statements for the 1811 and 1821 censuses, the figures for England, Wales and ‘Army, Navy’ are identical to those presented in Table 2 above, though in these volumes the heading ‘Army, Navy, &c.’ sums to the total of the figures reported in the 1801 Enumeration Returns for Army, Navy as well as convicts on board hulks.5

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Table 1  Preliminary results for the population of England and Wales, 1801

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>3,580,844</td>
<td>3,911,640</td>
<td>7,492,484</td>
</tr>
<tr>
<td>Wales</td>
<td>120,712</td>
<td>135,177</td>
<td>255,889</td>
</tr>
<tr>
<td>Army and navy, etc.</td>
<td>469,188</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4,170,477</td>
<td>4,046,817</td>
<td>8,217,516</td>
</tr>
</tbody>
</table>

Source: Census of Great Britain, 1801, Abstract, presented to the House of Commons, of the answers and returns made to the Population Act of 41st Geo. III &c. BPP 1801 VI (140), 4, 6.

Table 2  Population of England and Wales, 1801, according to 1801 Enumeration Returns.

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>3,987,935</td>
<td>4,343,499</td>
<td>8,331,434</td>
</tr>
<tr>
<td>Wales</td>
<td>257,178</td>
<td>284,368</td>
<td>541,546</td>
</tr>
<tr>
<td>Army and navy, etc.</td>
<td>469,188</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convicts</td>
<td></td>
<td>1,410</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4,715,711</td>
<td>4,627,867</td>
<td>9,343,578</td>
</tr>
<tr>
<td>Total excluding military and convicts</td>
<td>4,245,113</td>
<td>4,627,867</td>
<td>8,872,980</td>
</tr>
</tbody>
</table>

Note: At the publication of this report there were still some returns missing for Scotland.

It transpires that the reformulation of the population figures actually took place around 1850. Two separate processes occurred which impinge on our understanding of the pre-1841 population totals as reported in subsequent census reports. First, military personnel were reallocated geographically and, second, parish, hundredal and county population counts were examined, assessed and corrected.

Military allocation changes

In the first volume of *Population Tables* for 1851, under the heading of ‘persons absent from Great Britain, and their usual places of abode’ we learn that ‘[i]n the censuses of 1801 to 1831 the army, navy, and seamen ashore, as well as those abroad, were not enumerated in Great Britain; but the whole of the number, including the part of the army stationed in Ireland, as well as the part of the army and navy abroad, belonging properly to Ireland, was added to the population of Great Britain. The result was an evident overstatement of the male population of this portion of the United Kingdom.’

To rectify this misallocation of military personnel, the Census Office decided to calculate the proportion of these people by their location in 1851 and allocate them across the British Isles (and further afield) for the earlier census years (with the exception of 1811 where different circumstances applied). The *Population Tables* report notes that with these adjustments ‘...we obtain a near approximation to the population of Great Britain at each decennial step of its progress through the half century.’ So, the census office reallocated the 470,598 people recorded in 1801 as military or prisoners in hulks across the United Kingdom in the following proportions: Ireland (22.00 per cent), the Colonies (6.07 per cent), England (52.69 per cent), Wales (3.33 per cent), Scotland (14.88 per cent) and Islands in the British Seas (1.02 per cent). The numbers were published in Table I of the *Population Tables* which is headed: ‘Army, Navy and merchant seamen in 1801-1851, belonging to England, Wales, Scotland, and Islands in the British Seas’. The two numbers important to this discussion—those relating to England and to Wales—are included in Table 4. When calculated out, we have yet another potential figure for the population of England and Wales in 1801. However, these totals are not found in the 1851 reports, because not only were the military personnel reallocated across the British Isles, but the base line population was altered as well. Table V in the *Population Tables Vol. I (1851)* gives a total population of England and Wales,
for the purposes of calculating the decennial increases of population at each decade from 1801 to 1851, as 9,156,171. Deducting from this figure the reallocated army personnel returns us to a ‘civilian’ population of 8,892,536, with the same difference of 19,556 compared to the original 1801 Enumeration Abstract. A close examination of the population tables in the first volume of the 1851 Population Tables allows us to construct plausible reasons for the difference in totals. This is discussed in the following section.

Error correction and administrative boundary changes

One of the aims in the 1851 census was to construct a series of county-level tables which showed the parish populations broken down by sex for this census and the preceding five censuses. We can speculate that at the Census Office the earlier volumes of the census were dusted down and brought out to build these tables, and in this process some errors and omissions were found. The correction of these errors altered the base line population of England and Wales, increasing it by exactly 19,556. Most, but not all, of these errors are documented in footnotes, and can be categorised by type (see Table 5). The first type covers duplicate entries for which deductions to the total population were made. For example, the parish of Willenhall, Warwickshire (total population 126) was recorded twice, once in Kirkby Division and once as part of the City of Coventry (and spelled Winnall). Similarly, the population of Ishcoyd Hamlet in Glamorgan was returned twice. These duplicate returns were most likely caused by clerical error during the organisation of the statistics for printing, and not double counting. The net reduction of the population of England and Wales for duplicate entries is 3,451.

The second form of correction relates to arithmetical errors made in the 1801 report. County totals in the Enumeration Abstract were cast up from the many different sub-divisions of the counties; if an error had been made in the arithmetic in calculating a subtotal these were carried forward into county totals. A dozen or so such errors were corrected, and account for a net increase in the population of 765.

Third, missing returns were added, either on the basis of estimates or based on the reported population in other census years. For example, Bradeston parish in Norfolk made no return in 1801, so the census commissioners decided that

| England | 3,987,935 | 4,343,499 | 247,966 | 8,579,400 |
| Wales | 257,178 | 284,368 | 15,886 | 557,215 |
| Total | 4,245,113 | 4,627,867 | 263,852 | 9,136,615 |

Sources: Population figures: see Table 2; Army personnel: Census of Great Britain, 1851, Population tables, I. Number of the inhabitants in 1801, 1811, 1821, 1831, 1841 and 1851. Vol. I BPP 1852-53 LXXXV (1831), xxiii.
the population would be the same as in 1811. Some of the other missing returns were estimated based (presumably) on the trends of other local parishes. In Brackenfield Township, Derbyshire, a 7.33 per cent increase was estimated whereas in Wollaston, Shropshire, a 4.00 per cent increase was estimated. Examination of a number of such alterations does not lead to a clear overall understanding of the Census Office’s strategy to correct these figures. Additions for missing returns accounted for a total of 23,373 people.

Fourth, corrections were made in the totals of some places where the returns looked defective. For example, in the 1801 Enumeration Abstract the return for Stoke Poges, Buckinghamshire, gave a total population of 288. In the following census Stoke Poges was returned with a population of 838. The numbers of inhabited houses were reported as 138 and 157 respectively. This discrepancy was spotted during the construction of the tables in 1851, and the population of Stoke Poges in 1801 was altered to 741, based on the assumption ‘that the number of people to each house was the same as in 1811.’ Another example is Chittlehampton, Devon, the population of which was reported in the 1801 Enumeration Abstract as 3,003. In 1851 the census commissioners commented ‘A manifestly excessive return...was made for Chittlehampton...: the number of males returned [1,406] is assumed to have been the total population, and the proportion of each sex has been estimated’. A similar adjustment was made in Catherington, Hampshire, where the 1801 population was given in the 1801 Enumeration Abstract as 1,199 (comprised of 829 males and 370 females) but in the Population Tables for 1851 as 559 (comprised of 289 males and 270 females). The first correction seems to be simply a transposition error, but the second is probably a typographical error. However, the Population Tables for 1851 only notes that ‘an erroneous return was made for Catherington in this year [1801]; the numbers are now given by estimation’. There are other examples of typographical errors that were not corrected until 1851, for instance, in the parish of Sellack, Herefordshire, the number of women was originally reported as 343 but adjusted in the Population Tables for 1851 to 143 as it was ‘a supposed clerical error, or misprint’. These corrections for erroneous returns account for a net increase of 226 people.

Similar discrepancies have been observed which were not corrected, for example, in Ebony, Kent, where the population was reported as 351 in 1801, 139 in 1811 and 151 in 1821; in Gressinghall, Norfolk, where the staggering decline in population from 1,224 in 1801 to 706 in 1811 was simply attributed to the large number of people in the workhouse; and in Bletchingley, Surrey where the population in 1801 of 1,344 (528 males and 816 females) fell to 1,116 in 1811 (575 males and 541 females). It is possible that 816 was a misprint for 516, which would present a more plausible sex ratio. A similar instance was found in Wolstanton, Staffordshire, where the reported male population between 1801 and 1811 jumped from 2,035 to 3,470 (an increase of over 70 per cent) while the reported female population increased less steeply by roughly 33 per cent, from 2,644 to 3,523. The Population Tables for 1851 makes no mention of these or many other identified oddities, which might have deserved further attention.
The national net increase of 19,556 (between 8,892,536 and 8,872,980) can almost be entirely explained by the corrections noted above. A breakdown by type of alteration and sex is presented in Table 5.

Table 5 shows an additional type of alteration not yet discussed. This is described here under the heading ‘additional removal’. Two forms of ‘removal’ occurred in the recasting of the 1801 population totals, causing population to be ‘moved’ from one county’s totals to another. The first type was the recording of places in the wrong county in 1801. For example, the hamlets of Bitterscote, Bonehill, Comberford, Coton and Moor, Fazeley, Hopwas and Syerscote had been reported in the 1801 *Enumeration Abstract* in Warwickshire while they were all part of Staffordshire. A total of 1,370 people were ‘transferred’ from the county totals of Warwickshire to Staffordshire. In these cases the total net national population change should be zero, since each ‘transfer’ should be balanced between the counties in question. In the case above, the Warwickshire total was reduced by 1,370 and the Staffordshire total increased by the same figure. However, there is one case—again between Warwickshire and Staffordshire—where the 1851 *Population Tables* only comments on one side of this process. A total of 1,357 people were removed from the totals of Warwickshire, but there is no evidence that they have been added to the totals of Staffordshire; hence the anomaly listed in Table 5.

The second form of alteration to the published figures for the population of 1801 in the 1851 census report was caused not by error, but by new legislation. The Boundary Act of 2 & 3 Will. IV c.64 (1832) brought detached parts of counties into the electoral jurisdiction of the county by which it was surrounded. Under the Act 7 & 8 Vict. c.61 (1844) all detached parts of a county (in England and Wales) were annexed for all purposes to the county to which it had been annexed by the Boundary Act. As an extreme example, 10,977 people in parishes considered to be in Durham in 1801 were transferred to Northumberland. The Municipal Corporations Act (5 & 6 Will. IV, c.76) of 1835 abolished the Liberty of St Peter of York affecting the reported populations of both the East and West Ridings of Yorkshire. These county-level corrections have no influence on the total population of England and Wales in 1801 but they can cause discrepancies between the populations recorded for counties. So, the recorded population of Durham in the 1801 census is 10,977 greater

<table>
<thead>
<tr>
<th>Type of change</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate returns</td>
<td>-1,754</td>
<td>-1,697</td>
<td>-3,451</td>
</tr>
<tr>
<td>Arithmetical errors</td>
<td>288</td>
<td>477</td>
<td>765</td>
</tr>
<tr>
<td>Missing returns</td>
<td>11,489</td>
<td>11,884</td>
<td>23,373</td>
</tr>
<tr>
<td>Erroneous returns</td>
<td>222</td>
<td>4</td>
<td>226</td>
</tr>
<tr>
<td>Additional removal</td>
<td>-623</td>
<td>-734</td>
<td>-1,357</td>
</tr>
<tr>
<td>Total</td>
<td>9,622</td>
<td>9,934</td>
<td>19,556</td>
</tr>
</tbody>
</table>
than the figure relating to 1801 published in the 1851 Population Tables. Similarly, Northumberland exhibits a decrease of 10,977 people. The population of virtually every county is affected by alterations of this nature.

This discussion leads to a clear conclusion. The rapid collection and tabulation of figures of population statistics in the early-nineteenth century led to a small number of errors in the published reports, some of which are only detectable with local knowledge and others by careful examination of the later reports. It is important to note that this article could equally have dealt with 1811, 1821 or 1831, as the 1851 Population Tables shows similar alterations to those which have been discussed here. All population figures reported in the census need to be used with care; using population counts in the census reports without a knowledge of their provenance and construction can be misleading. Errors and corrections are usually noted within footnotes, but not always in the appropriate section, and sometimes they can only be discovered by a process of calculation and elimination. For example a comparison of the county population figures for Westmorland in both the 1801 and 1851 reports shows a net reduction of 812 people, but there are no footnotes or comments in the Population Tables of 1851 on these alterations. By checking the individual ward level populations in the 1801 Enumeration Abstract elicits one large and two small discrepancies. First, an arithmetical error in Kendal Ward led to an additional 890 females and 10 males in the totals; second, a similar error led to a shortfall of 100 in the population of East Ward and third, the population of Appelby Gaol is given in both the total for East Ward and as a separate ‘entry’ in the county summary table, leading to a total of 10 men and 2 women being deducted from the total. These three errors were corrected in the 1851 census, but there was no reference to these changes, so patient recalculation from the 1801 Enumeration Abstract was necessary to discover the location of these errors.

Finally, it is worth remembering that the censuses which took place before self-enumeration was introduced in 1841 are prone to a number of collection-related errors. The most obvious problems occur where no enumeration takes place. The process of checking in the construction of the 1851 Population Tables identified at least 53 places where no returns had been made in 1801. These 53 places can be compared with the 264 across the whole of Great Britain which Rickman, in the Comparative account (of 1831), suggested had ‘defaulted’ in 1801. He estimated the combined population of these places at 73,000. Since Rickman did not list the 264 places, a very careful examination of the missing returns shown in the 1831 Comparative account would be necessary to identify them and discover which related to England and Wales and which to Scotland. This analysis is beyond the scope of this short article, but a partial examination of the English counties gives the impression that the population of most of these ‘missing’ places was recorded within other returns.

For an undertaking of the size of the 1801 census, with limited resources, manual calculation and a complete lack of infrastructure these omissions should be considered minor. Similarly the 16 identified arithmetical errors, which probably occurred during the preparation of the Abstract, are, on a
national scale, relatively unimportant, but they may be more troublesome on a local scale. The historian of Kendal Ward in Westmorland might be surprised by what on the face of things looks like the relatively slow increase in population between 1801 and 1811 (caused by the inflation of the population in 1801 by 900 people in the totals), but should hopefully discover the discrepancy. Numerical information by its very nature looks accurate but population statistics can suffer from inaccuracies from a number of sources, including omission, double counting and arithmetical error, as discussed here.\textsuperscript{25} Population returns may also suffer from the effects of both under-enumeration and over-enumeration, which are harder to trace.\textsuperscript{26} Finally the reallocation of population, caused either by changes in administrative geography or by special cases like the military, can also pose interpretative problems.

The official population of England and Wales in 1801 as now reported by the Office of National Statistics is 8,892,536 (excluding the military at home and abroad, which is estimated at 263,635 giving a total of 9,156,171, as shown in Table 6).\textsuperscript{27} As discussed above, this figure does not represent a precise head count, rather a figure that has been manipulated by the addition of estimates and the removal of duplicate returns from the returns published in December 1801. And, while the ‘manipulation’ of national population returns is present and visible here, one should not forget that it is not impossible that these practices may have occurred at all stages of the population enumeration process, and remain discreetly hidden.

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|c|}
\hline
 & Males & Females & Army, etc, abroad as well as at home & Total \\
\hline
Wales & 257,248 & 284,429 & 15,669 & 557,346 \\
\hline
Total & 4,254,735 & 4,637,801 & & 9,156,171 \\
\hline
\end{tabular}
\caption{‘Corrected’ 1801 population figures with estimated reallocated military personnel}
\end{table}

\textbf{Source:} See Tables 3 and 4 above.

\section*{NOTES}

\textsuperscript{1} Census of Great Britain, 1801, \textit{Abstract, presented to the House of Commons, of the answers and returns made to the Population Act of 41st Geo. III &c. BPP 1801 VI (140), 4, 6. The reports examined in this article are all reproduced on the histpop website (http://www.histpop.org).}

\textsuperscript{2} Census of Great Britain, 1801, \textit{Abstract of the answers and returns made pursuant to an Act, passed in the forty-first year of His Majesty King George III, intituled ‘An act for taking an account of the population of Great Britain, and the increase or diminution thereof’. Enumeration. Part I. England and Wales. Part II. Scotland BPP 1801-02 c VI (9), 497.}

\textsuperscript{3} This is shown in Rickman’s \textit{Observations on the results of the Population Act}, 3, a document usually bound with the \textit{Enumeration Abstract} (see note 2), where the same figures are presented along with the population of Scotland.

5. Census of Great Britain, 1811, Comparative statement of the population of the several counties of Great Britain, in the years 1801 and 1811 BPP 1812 X (12), 1; Census of Great Britain, 1821, Comparative statement of the population of the several counties of Great Britain, in the years 1801; 1811 and 1821 BPP 1822 XXI (8), 3.


8. The italics added to the word belonging in the previous sentence is important because these figures do not apply to the numbers of army, navy and merchant service actually in these places at the time of the census. The number of army, navy and merchant service at home (i.e., actually present in England and Wales) in 1801 was ‘estimated’ at 131,818 (as reported in Office of Population Censuses and Surveys, Census 1881, Historical tables, 1801-1881, England and Wales (London, 1982), I) which is exactly 50 per cent of the total shown in Table 4 of this article.

9. It is worth making a further point regarding the recalculations of the military and prisoners in hulks. The starting point was the figure of 470,598 which is the reported total of both those under the heading: ‘Army, Navy, etc.’ and ‘Convicts on board the hulks’ in the 1801 Enumeration Report rather than just those ‘Army, Navy, etc.’ The assumption that the population board hulks were distributed across the British Isles in the same proportion as the military is clearly unwarranted, and may demand further examination.


12. Census of Great Britain, 1851, Population tables, I. Number of the inhabitants in 1801, 1811, 1821, 1831, 1841 and 1851. Vol. II BPP 1852-53 LXXXVI (1632), 67 [Division XI]. (Arabic page numbers are repeated across each Division in the two volumes of this report, so to distinguish between them I shall indicate the division.)

13. Census of Great Britain, 1851, Population tables, I. Vol I, 49. [Division IV].


15. Census of Great Britain, 1851, Population tables, I. Vol I, 53. [Division VI].


23. Census of Great Britain, 1831, Comparative account of the population of Great Britain in the years 1801, 1811, 1821 and 1831 BPP 1831-XVII (348), 5.

24. As an example that was picked up in 1851, Iccomb in Gloucestershire did not report a population in 1801, while the 1831 Comparative Abstract (Census of Great Britain, 1831, Comparative account of the population of Great Britain in the years, 104) reports its population in 1811, 1821 and 1831. In 1851 it is shown ‘bracketed’ with the parish of Church Iccomb which had in 1801 been reported as in Worcestershire. (Census of Great Britain, 1851, Population tables, I. Vol I, 26. [Division VI]). It was assumed for the 1851 Population tables that in 1801 the hamlet of Icomb (Gloucecs) was reported with the parish of Church Iccomb (Worcs). However, close examination suggests that other unremarked upon alterations were made: in neither the 1801 Enumeration Abstract (Census of Great Britain, 1801, Abstract of the answers and returns .... Enumeration. Part I. England and Wales. Part II. Scotland, 132) and the 1831 Comparative account (Census of Great Britain, 1831, Comparative account of the population of Great Britain in the years, 109) is a figure is given for the 1801 population of the parish of Abbey-Dore, Hereford, which would suggest it was one of Rickman’s 204 places. However, the 1851 Population tables (Census of Great Britain, 1851, Population tables, I. Vol I, 34. [Division VII]) reports a population for 1801 as though no alterations have been made. A final example, of a printer’s error, shows the breadth of the potential problems: for the parish of Morchard-Bishop, Devon the 1831 Comparative account (Census of Great Britain, 1831, Comparative account of the population of Great Britain in the years, 74) reports the 1801 population as missing. However, the printer has placed the 1801 population in the wrong column. Examination of the 1801 Enumeration Abstract (Census of Great Britain, 1801, Abstract of the answers and returns .... Enumeration. Part I, 70) shows this to be the case.
25. Audrey Perkyns has shown that some of the Poor Law Commissioners reports suffer from sloppy proof-reading. See her note ‘Lies, damned lies and statistics’, *Local Population Studies Newsletter*, 37 (2006), 12.

26. For an examination of the levels of under-enumeration in the pre-1841 censuses see E.A. Wrigley and R.S. Schofield, *The population history of England, 1541–1871: a reconstruction* (London, 1981), 122–6. Their conclusion that ‘very many errors exist in the 1801 census but there is no firm evidence to show that they produced a general tendency to depress the national total below its true level or to elevate it excessively’ (p. 126) remains valid—the net increase of 19,556 people ‘added’ at the time of the 1851 census were the result of a series of individual error corrections and not a correction generally applied. Wrigley and Schofield also provide an interesting example of intentional over-enumeration in Farleigh Hungerford, Somerset see Wrigley and Schofield, *Population history*, 126 note 29. A later example of (unintentional) over-enumeration is discussed in M. Woollard, ‘“Shooting the nets”’ a note on the reliability of the 1881 census enumerators’ books’, *Local Population Studies*, 59 (1997), 54–7.