Diverse experiences: The geography of adult female employment in England and the 1851 census[1]

Historians concerned with women's experience of work before the twentieth century are faced with very serious problems in finding satisfactory source material with which to document that work systematically. But the problems they face for the period before the 1841 census are very different from those they face thereafter. Before the 1841 census there is a profound paucity of systematic data. The data presently available are in fact so thin that historians have found it possible to sustain a number of entirely divergent views on trends in female participation in the formal economy. They have variously held that over the course of the industrial revolution paid employment for women was increasing; decreasing; stable; increasing and then decreasing.[2] No doubt other more complex permutations can be identified in the literature.[3] To some degree these differences may arise from individual historians generalising from particular sectors or regions with which they are familiar but in the absence of datasets with complete coverage of the national economy. Such contradictory viewpoints can only be sustained in a field where the data remain radically inadequate.

From 1841 onwards two rather different problems with source material come to centre stage. The first is that, instead of a paucity of data, the sheer superabundance of data both in the published census reports and the manuscript census enumerators' books (CEBs) has been, and remains an obstacle to making full use of the available material. The second problem, and the more serious of the two is that many historians have voiced serious doubts as to the reliability and accuracy of the census data.

Most of this chapter is taken up with a discussion of the English data published in the 1851 census report and a selection of maps based on those data accompanied by a brief discussion of the geographical differences in patterns of adult female employment in 1851. It thus deals with a very small fraction of the available

[1] The work from which this chapter derives was part of a research project funded by the Economic and Social Research Council: *Male occupational change and economic growth in England 1750-1851* (RES 000-23-0131). All the maps were produced by Dr Max Satchell who also created the electronic boundary data for the 1851 registration districts. Without his work this chapter would not have been possible. The creation of the boundary data was funded partly by the ESRC as part of the aforementioned project and partly by two grants awarded by the British Academy to Professor E.A. Wrigley (The creation of the boundary data was dependent upon two pre-existing datasets. Kain, R.J.P. and Oliver, R.R., *Historic parishes of England and Wales: An electronic map of boundaries before 1850 with a gazetteer and metadata*. Colchester, Essex: UK Data Archive, May 2001. SN: 4348; Burton, N., Westwood, J. and Carter, P., GIS of the Ancient Parishes of England and Wales, 1500-1850. Colchester, Essex: UK Data Archive). The new boundary data will shortly be available from the Arts and Humanities Data Service. The data entry for the occupational data was undertaken by Ms Rebecca Tyler and the database was constructed by Dr Peter Kitson. I am grateful to them all. I am also indebted to Joyce Burnette, Amy Erickson, Nigel Goose, Eddy Higgs, Peter Kirby, Richard Wall and Tony Wrigley for comments on earlier versions of this chapter. I alone am responsible for any errors.

[2] Neil McKendrick is perhaps the best known proponent of the view that the industrial revolution increased work opportunities for women and children: McKendrick, 'Home demand'. Historians who have advocated decline include Pinchbeck, Richards, Horrell and Humphries: Pinchbeck, *Women workers*; Richards, 'Women in the British economy'; Horrell and Humphries, 'Women's labour force participation'; For London Peter Earle has suggested there was little change between c.1700 and 1851, an argument Judith Bennett has advanced more generally: Earle, 'The female labour market', Bennett, 'History that stands still.' Maxine Berg and Pat Hudson have argued that female employment rose and then fell over the industrial revolution: Berg and Hudson, 'Rehabilitating the industrial revolution'; Berg, 'What difference did women's work?'

[3] A number of historians have, more cautiously, suggested that experience was very varied: Sharpe, *Women's work;* Verdon, *Women workers*.

nineteenth century census material. But it is worth stressing that the published 1851 census alone contains a vast body of data covering all parts of the country and virtually every sector of paid employment – the only obvious omission is prostitution. It should be noted at the outset that the census tells us relatively little about unpaid housework or other forms of non-market economic activity. This chapter is concerned with economic activity which was market oriented – either paid work or unpaid work within a family business.

We can begin with a brief discussion of the occupational data published for 1851. Firstly, there are three summary tables recording female occupational data for Britain, for Scotland and for England and Wales. Females were allocated to one of 196 categories by five-year age intervals. These tables have been relatively widely used by historians.[4] Then there is a second series of very similar tables for every county in England and Scotland. Wales is somewhat less well served with tables for North Wales, South Wales and Monmouthshire. These too give occupational breakdowns in five-year age intervals. Only a handful of these county-level tables have ever been subject to detailed analysis.[5] C.H. Lee published summary tabulations deriving from the published county-level census material from 1841 through to 1971 and made use of these data to make important arguments about regional development and the service sector, though the focus was on male employment.[6] Ellen Jordan's study of female unemployment in England and Wales in 1851 is a rare example of a study of women's work making use of data from a large set of county tables, though only a very limited amount of data is drawn from each table. [7]

Thirdly there are tables giving the occupations of women aged 20 and over for every registration district in England and Wales again in 196 different categories. The data provided for the 576 English registration districts are the primary focus of this chapter. The only published study I am aware of, drawing heavily on the registration district data, is John McKay's important paper on married women's participation rates in nineteenth century Lancashire, though again this uses only a small proportion of the data available in the Lancashire tables.[8]

Fourthly there are tables enumerating the occupations of adult women in 'principal' towns (there were 72 towns so described for England). I am not aware of any published work making extensive use of this material though there must be local studies making some use of it. It is important to note that none of the published data records female employment by marital status, though this is recorded in the manuscript Census Enumerator's Books (CEBs).

Clearly then by the mid-nineteenth century there is no shortage of systematic data on female occupations but only a small fraction of this very rich body of data has ever been used by historians.[9] The reasons for this can only be guessed at but presumably relate to the two problems outlined above. Firstly, that the body of data is very large and has not been available in machine-readable form. That is now history.

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[4] See for instance, Deane and Cole, *British economic growth*; Valenze , *First industrial woman*, Kirby, *Child labour*

[5] That for London has attracted most attention. See: Schwarz, *London;* Ball and Sunderland, *London*; Kirby, 'How many children were "unemployed"?'; Kirby, 'London child labour market'.

[6] Lee, *British regional employment statistics*; Lee, 'Regional growth'; Lee, 'The service sector.' See also Lee, *British economy*, chapter 7, 'Regional growth.'

[7] Ellen Jordan, 'Female unemployment.'

[8] McKay, 'Married women.'

[9] In contrast Eddy Higgs, writing in 1982 was inclined to stress how extensively the occupational tables had been used. However, he was presumably referring to the national level tables: Higgs, 'The tabulation of occupations in the nineteenth century.'

As part of project, funded by the Economic and Social Research Council, on the changing occupational structure of England during the course of the industrial revolution, all of the English county, registration district and principal towns data for 1851 have been made fully machine-readable.[10] The second and more serious problem, that the data are widely believed to under-record female employment, may have reinforced the first problem by serving as a disincentive to making the data machine-readable. There can be little doubt that increasing awareness of the problems over the last twenty years has served to discourage the use of the published census material. However, further investigation shows that, despite the problems of under-recording, the data can tell us a great deal about female employment in the mid-nineteenth century. This chapter provides some basic mapping of these data and a very limited provisional analysis of the geography of adult female employment. Before doing so it is necessary to review the problems regarding the under-enumeration of female occupations though this takes up much of the rest of this chapter.

The problems with the 1851 census data

No-one has done more than Eddy Higgs to draw attention to the deficiencies of the nineteenth century censuses with regard to the recording of female occupations.[11] And no-one should work on either the CEBs or the printed material without being fully apprised of Higgs' work. In his early work Higgs was cautious about the implications, writing in 1987, that it might be premature to 'claim there was considerable under-enumeration ...'[12] But by 1995 he had concluded that 'the quality of the data in the Victorian census tables is indeed problematic.' He chose to illustrate this 'by way of a study of one economic sector, agriculture.'[13] However, as we will see later, agriculture is unlikely to be representative of other sectors.

In a similar vein Pam Sharpe has concluded that 'investigation of the census material has now revealed it to be a poor tool for use in analysing Victorian women's participation.'[14] Similarly Davidoff and Hall have written that the occupational recording for women who were not household heads is 'so unreliable as to be almost useless.'[15] Jane Humphries and Sara Horrell have claimed that 'the census enumeration of women's employment is demonstrably inaccurate.'[16] Michael Anderson rightly describes these views as part of a new orthodoxy and notes that it 'would be easy to read Horrell and Humphries as arguing that the reporting of married women's employment in the CEBs is so bad that the data are almost useless for serious analytical purposes.'[17] Anderson's view and the one advanced here is that the census remains the best and most comprehensive source we have on female

[10] *Male occupational change and economic growth in England 1750-1851* (RES 000-23-0131). Despite the title of the grant the project was, in part, concerned with female occupations. In due course these datasets will be made publicly available through the Arts and Humanities Data Service. Further census datasets being created as part of a second E.S.R.C. funded project, *The occupational structure of nineteenth century Britain*, covering England, Scotland and Wales over the period 1851-1911 will also be made publicly available through AHDS.

[11] Higgs, 'Domestic servants'; idem, 'The tabulation of occupations'; idem. 'Women'; idem, 'Occupational censuses'; idem, *A clearer sense of the census*.

[12] Higgs, 'Women, occupations and work', p. 68

[13] Higgs, 'Occupational censuses', p. 700.

[14] Sharpe, 'Continuity and change', p. 24.

[15] Davidoff and Hall, *Family Fortunes*, p. 273.

[16] Horrell and Humphries, 'Women's labour force, *Economic History Review*, XLVIII, I (1995), p. 95.

[17] Anderson, 'The mid Victorian census', p. 10. But see footnote 10, p. 28 of Anderson for a further elucidation of Horrell and Humphries' views on this issue. In fact Horrell and Humphries' remarks were not restricted to married women but applied to all women.

employment. It follows that historians should make extensive use of the census data and that we need to move beyond the mere identification of problems and towards an evaluation, preferably quantitative, of the impact of the problems on the recorded data.

Before discussing the problems raised in the historiography, it is important to clarify what the General Register Office wanted householders and enumerators to record in terms of women's occupations. The instructions put to householders were as follows:

> WOMEN AND CHILDREN – The Titles or occupations of ladies who are householders to be entered according to the above Instructions [for men]. The occupations of women who are regularly employed from home, or at home, in any but domestic duties, to be distinctly recorded. So also of children and young persons. Against the names of children above five years of age, if daily attending school, or receiving regular tuition under a master or governess at home, write "*scholar,*" and in the latter case add "at home."

It is immediately obvious that the census will provide only very limited direct evidence on unpaid housework. Furthermore, these instructions make it quite clear that children and women who were not household heads and who were not employed 'regularly' or who were employed at home in domestic duties, were not to be attributed an occupation. The word 'regularly' is unfortunately highly ambiguous.

However, this is the question that was asked and it is important to distinguish clearly between whether or not the 1851 CEBs fully enumerate female employment (which, as we shall see, they do not) and whether they satisfactorily record 'regular' employment (which they probably do) and to consider what exactly 'regular' employment might mean. Some of those writing about the deficiencies of the census have not made this distinction at all and do not appear to be aware that only 'regular' employment was supposed to be recorded while others have noted the use of the phrase but do not seem to have taken on board its full significance. This has led to a widespread misrepresentation of the nature of under-recording of female occupations in the census. A problem which primarily pertains to irregular work done by married women has been presented as if it pertained to all work done by all adult women.

There is a conflation in the literature between the fact that the census does not always record what historians of women's work would ideally like to know and the census being unreliable. The evidence that it does not fully enumerate female employment is overwhelming. But this is entirely unsurprising given that, female householders apart, only 'regular' work was supposed to have been recorded. The 'reliability' of the census should be judged not against whether all women who worked were ascribed occupations but against (a) whether all non-householder women who worked 'regularly' were ascribed occupations and (b) whether all female householders were ascribed an occupation.

In general householders and enumerators are thought to have tried to provide accurate information. No historian that I am aware of has suggested, that the CEBs are seriously defective in recording the names and sexes of household members. Some doubts have been expressed as to the precision with which ages and places of birth are recorded.[18] With minor caveats, the recorded relationships between household

[18] On age reporting see: Tillott, 'Sources of inaccuracy', pp. 107-8; Anderson, 'Family structure', p. 75; Razzell, 'Evaluation', pp. 123-7; Thomson, 'Age reporting', pp. 13-25; Perkyns, 'Age checkability', pp. 19-38; Higgs, 'Clearer sense', pp. 78-82. On birthplace reporting see: Tillott, 'Sources of inaccuracy', pp. 108-9; Anderson, 'Family structure', p. 75; Razzell, 'Evaluation', p. 123; Wrigley,

members are thought to be reliable. It could be suggested that male occupational descriptors mask a more complex reality of multiple employment, but no-one is suggesting that men were not generally returned with their 'principal' occupation as requested. Unless there is evidence to the contrary, it would be sensible to assume that householders and enumerators tried to answer the question about 'regular' employment to the best of their ability. The widely cited evidence that irregular employment was not *always* recorded is not evidence to the contrary. It is entirely possible that the CEBs, whilst failing to give a full enumeration of female employment, record 'regular' employment quite satisfactorily. It is, of course crucial to confront the difficulties posed by how the word 'regularly' was understood by householders and enumerators and how this might have varied.

Whilst the phrase 'regularly employed' is ambiguous, it is worth noting that it is not ambiguous with respect to all forms of employment. Any work that was both full-time and took place throughout the year would have been very difficult to construe as irregular. Factory work must have conformed to this model and, as we shall see shortly, the evidence is that this was very fully enumerated. Similarly there can have been no real doubt that women who were occupied as live-in domestic or agricultural servants were employed regularly. Although it has been suggested that domestic servants may be over-enumerated in the census, no-one has yet suggested that they are under-enumerated.[19]

A number of distinct claims about the inadequacies of recording of female occupations in 1851 can be identified in the secondary literature:

(1) child labour (both male and female) is under-recorded.[20]

(2) women's work as domestic servants is exaggerated.[21]

(3) women's work in agriculture is under-recorded.[22]

(4) married women's work is particularly poorly recorded.[23]

(5) women's work is generally under-recorded.[24]

The first of these claims is not relevant to the subject of this chapter, adult female employment, and will not be discussed further here. The remaining claims will be discussed in turn.

The over-enumeration of servants

Higgs has argued that the printed census reports overstate the number of domestic servants by a factor of about two largely on the basis of evidence from Rochdale in Lancashire.[25] In the Rochdale CEBs Higgs found that 40 per cent of the women ascribed what he classified as servant occupations were not described as servants in the relationship column and the vast majority of these were ascribed kin

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'Baptism coverage', p. 299-306; Perkyns, 'Birthplace accuracy', pp. 39-55; Higgs, *Clearer sense*, pp. 83-7.

[19] Though the way in which agricultural servants were sometimes recorded may have led to significant numbers of them being tabulated in the printed returns as agricultural labourers rather than agricultural servants: Goose, 'Farm service in southern England', pp. 77-82.

[20] Kirby, *Child labour*, pp. 11-13.

[21] Higgs, 'Domestic servants'.

[22] Higgs, 'Occupational censuses'; Miller, 'Hidden workforce'; Verdon, *Rural women workers*, p. 119.

[23] Higgs, 'Women, occupations and work', pp. 63-4.

[24] Horrell and Humphries, 'Women's labour force participation', p. 95; Sharpe, 'Continuity and change', p. 24.

[25] Higgs, 'Women, occupations and work', p. 75

relationships with the household head.[26] But Lancashire textile towns turned out to be unrepresentative of the country as a whole in this respect, and in a national sample Anderson found that 19 per cent was a more generally representative figure.[27]

Based on a further examination of CEBs Higgs argues that 25 per cent of servants in Rutland in 1871 were resident with persons not described as their employers.[28] This is closer to the figure found nationally by Anderson. But these figures may be interpreted as less problematic for the census than Higgs suggests. He himself has noted that women might well work in service occupations but nevertheless be listed in the relationship column as kin rather than servant. This could arise either, if they were employed as day-servants but lived with their kin, or if they did indeed work for individuals to whom they were related.[29] In addition Anderson points out that in 1851 census day was Mothering Sunday and suggests, though he does not cite evidence, that 'in certain parts of the country, it was conventional to give servants leave to pay a visit to their parents.'[30] In such cases the confusion would in the relationship to household head column (visitor or relative) rather than in the occupation column. But if parents were being visited by their non-resident children on census night, it would be unsurprising if the household head opted for kinship relations rather than visitor to describe his or her relationship with his or her children.

Higgs also makes the point that many domestic servants worked in farm households and were probably involved, to some degree, in farm labour, leading to some understatement of agricultural employment. Equally some female farm servants must have undertaken domestic work. Why we should suppose one of these effects was larger than the other is not clear. Thus it seems clear that Higgs has overestimated the importance of this problem and a halving of domestic servants in the printed census tables cannot be justified.

The under-enumeration of women's employment in agriculture

There are a number of studies which demonstrate conclusively that many women who worked in agriculture were not recorded as so doing in the census. The best known and most cited of these is Celia Miller's pioneering linkage of payments to female workers recorded in Gloucestershire farm accounts with the 1871 CEB material. This showed that most of the women she found recorded in the accounts were not attributed an occupation in the census, even though some of them worked more than half the days in the year.[31] Nicola Verdon found that only one of the fourteen women recorded in the wage books of Laxton Manor Farm in the East Riding was recorded as an agricultural labourer in the 1881 census, though in this case none of these women worked more than 78 days in the year. Other work by Verdon for Norfolk and by Helen Speechley for Somerset shows women working on farms but not recorded in the CEBs.[32] None of this is particularly surprising given the instruction only to record employment that was 'regular.' And the undoubted under-recording of agricultural employment should not lead us, of itself, to suspect all occupational sectors of under-recording.

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[26] Higgs, 'The tabulation of occupations', p. 61.
[27] Anderson, 'The mid-Victorian censuses', pp. 59-60.
[28] Higgs, 'Domestic servants', p. 20.
[29] Higgs, 'The tabulation of occupations', pp. 61-2.
[30] Anderson, 'The mid-Victorian censuses', p.61.
[31] Miller, 'The hidden workforce.'
[32] Verdon, 'Changing patterns of female employment', pp. 214-17; Speechley, 'Female and child day labourers', pp. 29-31.

The under-enumeration of married women's employment

Higgs cites a number of studies suggesting that married women's work was particularly prone to under-recording.[33] He even gone so far as to suggest the possibility that the belief that factory work was dominated by the young and single might be a statistical artefact of such under-recording, a claim repeated by Horrell and Humphries.[34] This argument has been emphatically rejected by Michael Anderson on convincing evidential grounds.[35]

Anderson's work on the CEBs provides compelling evidence that married women's work in factory and domestic textile employment in Cheshire and Lancashire was very well recorded indeed.[36] For instance, Anderson shows that in Preston, 34 per cent of all married women were recorded as working but that this rose to 72 percent for women married to low paid factory operatives.[37] But when he looked at women under thirty married to low paid factory operatives, the figure rose to over 90 per cent.[38] Looking at childless married women under 40 across Lancashire and Cheshire, Anderson found 85 per cent of power loom weavers' wives, 92 per cent of handloom weavers' wives and 97 per cent of the wives of unspecified weavers had recorded occupations.[39] Cleary the scope for under-enumeration here is very low indeed. McKay's work on the employment of married women in the registration districts of Lancashire in 1851 and 1861 lends further support to the view that textile employment was well enumerated.[40] This does not appear to be a peculiarity of recording in Lancashire and Cheshire. Lown's work on the Essex silk factories suggests that married women's employment in factories was pretty fully enumerated.[41]

Given the regularity of factory work, one would expect to find it fully enumerated, if householders and enumerators had attempted to answer the questions posed in the householders schedules as best as they could. The evidence appears to be that, in general, this is exactly what happened. If the work of married women in factories was very fully enumerated, then it is not very likely that regular work by married women in other sectors was any less well recorded than that of unmarried women.

Domestic industry

How well enumerated was domestic or cottage industry? Anderson's work on married women suggests that domestic textile employment was well enumerated in Lancashire and Cheshire.[42] Osamu Saito's work on the lace-making village of Cardington in Bedfordshire is also suggestive of high levels of enumeration of cottage industry there.[43] Nigel Goose's work on the straw-plait industry in south and west Hertfordshire is similarly indicative of very high participation rates.[44]

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[33] Higgs, 'Women, occupations and work', pp. 63-64.
[34] Higgs, 'Women, occupations and work', p. 64. Horrell and Humphries, 'Women's labour force participation', p.95.
[35] Anderson, 'The mid-Victorian censuses', p. 15
[36] Anderson, 'Mis-specification of servant occupations', p. 24.
[37] Anderson, 'The mid-Victorian censuses', p.13.
[38] Anderson, 'The mid-Victorian censuses', p. 15.
[39] Anderson, 'The mid-Victorian censuses', p.20.
[40] McKay, 'Married women', p.31.
[41] Lown, *Women and Industrialization*, p.91.
[42] Anderson, 'The mid-Victorian censuses.'
[43] Saito, 'Who worked when?'
[44] Goose, *Berkhamsted*, *St Albans* and chapter five of this volume.

In 1851 straw plait and lace remained important cottage industries in the counties of Buckinghamshire, Bedfordshire and Hertfordshire. The existence of a machine-readable database of the Buckinghamshire CEBS for 1851 (created by the Buckinghamshire Family History Society) allows us to investigate the recording of female occupations across the whole county.[45] Critically, the CEBs allow the examination of women's employment by marital status which the printed material for 1851 does not. How 'regular' domestic employment in these industries was is not entirely clear. But, as figures, 2.7, 2.21 and 2.22 make clear recorded employment for women in these counties was high.

A priori, the women most likely to be in regular employment would be unmarried adults. In Buckinghamshire in 1851 82 per cent of unmarried women aged 20 and over were in fact recorded as in employment. There may be some under-enumeration of regular employment, but the scope for under-enumeration is limited. Clearly this is an area where the opportunities for female employment were high, and amongst the group of female workers most likely to be in employment we do indeed find very high levels of employment enumerated. By comparison only 42 percent of married women were recorded as in employment. It is entirely probable that married women's regular employment was considerably less than that of unmarried women. No doubt there were both unmarried and married women whose part-time, casual or seasonal employment was not regarded as regular and was not therefore recorded.

If the enumeration were carried out in line with the instructions of the G.R.O., one would expect very full enumeration of widows because the majority of them would have been household heads who were supposed to record occupations whether they were employed 'regularly' or not. In fact 67 per cent of widows were recorded as in employment and a further 22 per cent indicated they were in receipt of poor-relief or alms. Thus 89 per cent of all widows recorded if not an occupational descriptor, what one might call a livelihood descriptor. Only 11 per cent did not return a livelihood descriptor. This falls to 6 per cent for widows who were household heads. Once again the evidence suggest that the instructions of the G.R.O. were complied with pretty fully.

The under-recording of female employment

The evidence, such as it is, is consistent with very high levels of recording of regular employment. However, it is very clear that irregular work by women was under-recorded in 1851, but largely because the G.R.O. did not want to know about such work. Any work that was seasonal was necessarily irregular and it is unsurprising that the problems appear greatest in agriculture and least in factory employment.[46]

As long ago as 1982 Higgs, in noting that his work did not 'attempt to measure the overall discrepancies', expressed the hope that his work would encourage others to do so.[47] He also noted that 'more work needs to be done on the relationship between the enumerators' books and the tabulations in the published census reports for which

[45] I am very grateful to the Buckinghamshire Family History Society for allowing me to use this database and to David Thorpe for his help with this.

[46] It is sometimes asserted that the recording of female occupations was related to their activity at that time of year. It is possible that seasonal work that happened to be in season in late March and early April was more likely to be reported that other seasonal work but we have no evidence that this was so and this would not be consistent with a strict interpretation of the question that was asked. It seems likely that there was some tendency of this sort but how one might assess the quantitative importance of any such effect remains unexplored.

[47] Higgs, 'The tabulation of occupations', p. 58.

they formed the raw material.'[48] Such work has been a long time coming. In 1987 Higgs published some speculative revisions of the nineteenth century census figures. For 1851 he increased the numbers of women in agriculture by a factor of 4.2, increased the numbers in dealing by a factor 2.5 and halved the numbers of domestic servants.[49] He went on to note that these 'figures are really an invitation to others to make more refined calculations and probably represent hypothetical upper bounds to any suggested changes.'[50] More recently Higgs himself has produced more refined estimates for agriculture suggesting a multiplication factor for 1851 of 3.4 and repeated his call for further work especially on agricultural under-enumeration.[51] The only historian who has taken up this invitation to date is Joyce Burnette. Her work, based on detailed empirical research, suggests that a doubling of the figures in agriculture would be more appropriate than a multiplication factor of 3.4 or 4.2 Burnette's suggested doubling is in line with Higgs' early work.

As discussed above, Anderson's recent work on servants has suggested that Higgs has considerably overestimated the scale of the problem and it is not clear that there is a serious quantitative problem with respect to domestic servants. The evidence also suggests that factory and domestic employment were well recorded. Agriculture is clearly under-recorded and no doubt much other irregular work will have escaped recording. Nevertheless, the view promoted by some historians (though not, it should be emphasised, by Higgs) that the census enumeration of female work is so poor that it is not worth using cannot be sustained. Higgs himself has argued, and there can be no doubt that he is correct in this, that 'the census enumerators' books are still our best source for understanding the economic activities of women in the Victorian period.'[52] Moreover, the census remains far and away the most comprehensive source of data we have on female employment in the nineteenth century.

None of this is to suggest that the census forms a perfect record of female occupations. Clearly it does not. In addition to the problems already noted there are reasons to think that some enumerators systematically failed to enumerate the occupations of married women.[53] How widespread this problem was remains unclear, but if it were widespread, it would create some downward bias in apparent participation rates in the published census.[54] However, there is no obvious *a priori* reason to think that the proportion of enumerators who thus flouted the instructions of the Census Office would vary much from one part of the country to another. If that supposition is broadly correct then the relative geographical patterns apparent in the maps with which the rest of this chapter is concerned should be broadly reliable.

The geography of adult female employment in 1851

Many of the problems discussed above need to be explored at considerably greater length than is possible here, and much further research is still necessary, if we are to move beyond an awareness of the problems to a capacity to assess their

[48] Higgs, 'The tabulation of occupations', p. 60.
[49] Higgs, 'Women', p.74.
[50] Higgs, 'Women', p. 76.
[51] Higgs, 'Occupational censuses', pp. 710, 714.
[52] Higgs, *Making sense of the census revisited*, p. 103.
[53] See for instance, Wall, R., 'Work, welfare and the family' and August 'How separate a sphere?', p.289.
[54] Those working from enumerators' books can rectify the problem by excluding suspect enumeration districts as Richard Wall does in 'Work welfare and the family', though there might sometimes be problems in distinguishing defective enumeration districts from those with genuinely low participation rates.

quantitative effects satisfactorily. Nevertheless the rest of this chapter comprises a preliminary discussion of the patterns recorded in the printed census tabulation for 1851 and their geography. The aim of this section of the chapter is simply to put novel spatial data into the public domain. This is done in the belief that the accompanying maps will be of value to those working on, or with an interest in, local or regional studies of female employment in the mid-nineteenth century by providing a wider context for local and regional studies, and in the hope that the geographical patterns revealed by the maps will stimulate further research. The discussion is largely a descriptive exercise restricted to picking out some basic features of interest and occasionally highlighting patterns that shed further light on the reliability of the data. The underlying data deserve a much fuller discussion incorporating a full-scale statistical analysis. Such a treatment is planned in conjunction with the analysis of comparable data from later nineteenth century censuses. [55]

In most of the figures that follow no adjustment has been made to the raw data. However, since there are strong grounds for thinking that female employment in agriculture is under-enumerated and the unoccupied are consequently over-enumerated, figures 2.2, 2.4 and 2.6 are modified versions of figures 2.1, 2.3 and 2.5 respectively in which, following Joyce Burnette, female employment in agriculture has been doubled.

Figure 2.1, which shows all the English registration counties, may be useful to readers not familiar with the locations of these administrative units. The registration counties differed somewhat from the ancient counties and were constructs created by the Census Office as an administratively convenient way of tabulating the data for publication.

All of the occupational data have been coded into the Primary, Secondary, Tertiary (PST) scheme devised by Tony Wrigley.[56] The primary sector subsumes agriculture and mining. The secondary sector refers to the production of other physical commodities and includes handicrafts, manufacturing and construction. The tertiary sector refers to services and includes retailing, dealing and transport.

Figure 2.2 shows the percentage of adult females reported as economically active in each of England's 576 registration districts. As noted earlier, these figures refer to participation in market-oriented work and exclude domestic labour at home. Moreover, it should be noted that because of the vagaries regarding the recording of irregular work the figures should be regarded as indicative rather than exact. To the extent that irregular employment was not recorded the data on which these maps are based will understate female participation rates. However, it is also the case that the data capture many women who may not have been working full-time and it is therefore unclear whether these data will over or under-enumerate adult female employment vis a vis male employment in the formal sector.

Figure 2.3 also shows adult female participation rates but, in line with the discussion above, with the proportion of women in agriculture doubled. The two maps thus give two somewhat different geographies for female participation rates. The most striking feature of both these maps is the huge range over which participation rates varied. In figure 2.2 the unadjusted adult female participation rate ranges from a low of 17 percent in the Easington registration district (north-east Durham) on the north-

[55] This work forms part of a larger project being funded by the ESRC: *The occupational structure of nineteenth century Britain* (RES-000-23-1579), which will lead, amongst other things, to the publication of a historical atlas.

[56] See Wrigley, *Poverty*, pp. 166-169, for a description of the PST scheme. I am very grateful to Tony Wrigley and Ros Davies for the coding of the occupational data to PST.

eastern coal-field to a high of 78 per cent in the hat-making registration district of Luton (south-western Bedfordshire).

Low adult female participation rates are to be expected in coal-field areas in part because of the extra-domestic labour associated with coal-mining.[57] High participation rates are also to be expected in the straw hat and pillow-lace districts of the south-east Midlands in parts of Northamptonshire, Bedfordshire, Buckinghamshire and Hertfordshire. That the published census data show such extreme variations in adult female participation rates and indicate high rates where we know we should expect high rates and low rates where we might expect them is, in itself, strong evidence that the printed census data are a very good source of evidence on the geographical variations in female employment.

Reported participation rates were over 50 per cent in parts of Lancashire and the West Riding of Yorkshire. This was clearly related to the importance of employment in cotton and wool/worsted textiles respectively. Interestingly though, the areas of high participation rates and high textile employment (compare figures 2.2 and 2.3 with figures 2.16 and 2.17) were not entirely coincident. This intriguing feature deserves more detailed exploration than is possible here. Elsewhere there were only isolated localities where reported participation rates were above 50 percent. In most of the country reported unadjusted participation rates ranged between 30 and 50 per cent.

The lowest rates of female participation were to be found in the south and east in an arc sweeping south from the East Riding of Yorkshire down through Lincolnshire and East Anglia and west as far as the eastern end of Dorset. In some parts of this zone, there were substantial areas where reported unadjusted participation rates fell below 30 per cent.

Inevitably the participation rates shown in figure 2.3 are rather higher since the figures have been adjusted upwards. Many of the same patterns remain visible especially the very low participation rates in south-eastern England. The North Riding and Lincolnshire no longer fit the same pattern of ubiquitously low participation rates. The uplands of northern England now stand out more clearly as areas of unusually high female participation with rates generally over 70 per cent and frequently over 80 per cent, probably because of the prevalence of small family farms in these areas (see below). The female participation-rates revealed by figures 2.2 and 2.3 may go a long way to explain the geography of per-capita poor relied expenditure in the nineteenth century though this hypothesis will need to be subjected to statistical scrutiny. If the hypothesis can be validated statistically then a comparative statistical analysis of the geographical relationship between rates of poor relief and the two female participation rates mapped in figures 2.2 and 2.3 might shed light on the appropriateness or otherwise of the blanket doubling of agricultural employment in figure 2.3.

Figures 2.4 and 2.5 show adult female participation rates in agriculture. Figure 2.5 brings out the relationship between the uplands and very high levels of adjusted female participation in agriculture (over 30 per cent) very clearly, most notably in the Cheviots, the Pennines and the North Yorkshire Moors. These were areas with very heavy concentrations of small family farms.[58] There were also large areas with high levels of female participation in agriculture in the south-west at the intersection of Gloucestershire, Wiltshire and Berkshire border and in northern parts of Cornwall, Devon and Somerset.

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[57] One could argue that such household labour was essentially ancillary to coal-production and thus market-oriented. Female participation rates remained low on the coal-fields well into the second-half of the twentieth century: Hudson and Williams, *The United Kingdom*, pp. 64, 68, 71.

[58] Shaw-Taylor, 'Family farms', p. 183.

Elsewhere, apart from isolated patches female participation rates in agriculture were below 20 per cent (figure 2.4) or below 30 per cent on the adjusted figures (figure 2.5). The lowest rates were in the south and east with female participation rates in agriculture commonly below ten per cent on the unadjusted figures (figure 2.4) or below 20 per cent on the adjusted figures (figure 2.5). The low rates in the south and east correspond closely to the area in which large-scale labour-employing or capitalist farms predominated.[59]

Figure 2.6 shows the percentage of adult women employed in the secondary sector. In most parts of the country less than ten per cent of adult women were employed in the secondary sector. A number of distinct clusters with much higher levels of female secondary sector activity stand out. The largest of these were: the cotton districts of south-east Lancashire and north-eastern Cheshire; the woollen and worsted districts of the West Riding; and the straw plait and pillow lace districts in the south-east Midlands (parts of Northamptonshire, Bedfordshire, Buckinghamshire and Hertfordshire). A number of other smaller regions can be identified: the silk districts at the western end of the Essex Suffolk border and around Coventry (on the Warwickshire Leicestershire border); the textile and lace districts in the south west; the worsted area around Norwich (Norfolk) and a number of other districts in the Midlands including lace making in Staffordshire, Nottinghamshire and Leicestershire and clothes-making in Leicestershire.

A conventional cartographic representation of this kind is very good at picking out which economic activities were of relative importance within particular areas. However, areas with similar *rates* of a particular economic activity but very different population densities cannot be distinguished from one another. Areas with high population densities will form a larger share of national employment in a given sector than equal areas with a similar sectoral rate of employment but a much lower population density. Thus nationally important concentrations of an industry may not be distinguishable from ones which were nationally unimportant. The conventional cartographic representation is not therefore a reliable way of identifying which areas were important for an activity at national level. Figure 2.7 is intended to show the importance of individual registration districts for national employment in the secondary sector. Each registration district has been allocated one of ten colours. Collectively all the areas in any one colour accounted for ten per cent of secondary sector employment nationally. The key indicates the number of registration districts in each colour. Thus the four registration districts shown in dark purple (Bradford in the West Riding, Stockport in north-east Cheshire, and Manchester and Ashton-under-Lyme in Lancashire) between them accounted for a full 10 per cent of all Fadult female secondary sector employment in England. At the other extreme, around half the area of the country (272 out of 576 registration districts) is shaded in light yellow. This indicates that these 272 registration districts between them accounted for only 10 per cent of all secondary sector employment. The colours from pink through to dark purple between them accounted for a full 50 per cent of secondary sector employment, although these districts formed a relatively small area (57 registration districts out of 576). I have termed this kind of map a spatial concentration map. Figures 2.9, 2.15, 2.17 are also maps of spatial concentration.

Figure 2.6 indicates that in most of the country the secondary sector was not a major employer of adult female labour in 1851. In most registrations districts, (shown in shades of green) between 5 and 15 percent of occupied women worked in the

[59] Shaw-Taylor. 'Family farms', pp. 184-5.

secondary sector. In a few areas the rate fell below 5 per cent. A number of clearly defined areas with radically higher levels of adult female secondary sector employment stand out. The textile districts of the West Riding and Lancashire together with north-eastern Cheshire; the hat and straw-plait districts of the south-east Midlands and the clothing districts of Nottinghamshire and Leicestershire all stand out with the secondary sector accounting for between 30 and 50 per cent of female employment in these areas and occasionally more. Parts of Somerset and Devon also had high rates of secondary sector adult female employment. A number of smaller districts with high levels of adult female secondary sector employment were dotted around the country including the centres of the silk industry on the Essex Suffolk border, at Coventry and in the East End of London.

When we turn to figure 2.7, which shows the spatial concentration of secondary sector employment, the much greater numerical weight of the north-western textile districts compared to the Midlands clothing districts and the straw-plait and lace districts of the south-east Midlands becomes apparent. The importance of London as an employer of secondary sector female labour also becomes clearer while the dearth of secondary sector female employment elsewhere in south-eastern England and in north-eastern England appears more starkly than in figure 2.6.

Figure 2.8 shows the percentage of adult women reported as being in tertiary employment in 1851 and figure 2.9 shows the spatial concentration of tertiary employment at the same date. As figure 2.8 indicates the local importance of tertiary employment generally varied between 10 and 30 per cent of adult female employment across most of England. In a few places but most notably in and around London, higher figures of between 30 and 40 percent prevailed. Hampstead and St George, Hannover Square registration districts had the highest proportions of occupied women in tertiary employment with rates of 48 per cent and 44 per cent respectively.

When we turn to figure 2.9 we can see, very clearly, just how misleading the conventional cartographic representation can be of the importance of local areas to the national picture. The major importance of the north-west to national service sector employment, entirely hidden in figure 2.8 is now abundantly clear, while London's leading role shows through both more clearly and over a significantly larger area.

Figure 2.10 simply shows which of the three sectors was the largest employer, on the unadjusted figures for agriculture and figure 2.11 shows which was the largest sector using the adjusted figures. The areas where the secondary sector was most important are clear enough. Whether agriculture or the service sector were the largest employers in most of the rest of the country is clearly dependent on how one adjusts the data to allow for any under-recording in agriculture. The leading role of the service sector in adult female employment in and around London is plain from figure 2.11.

Figure 2.12 shows the spatial concentration of population growth from 1801-1851. In other words what is shown is how much of the national population growth over the period from 1801 to 1851 was accounted for by each registration district. Since mortality and fertility showed no great regional differences it follows that these disparate patterns of population growth were driven by migration from the slower growing to the faster growing areas. Figure 2.13 shows the spatial concentration of male non-agricultural employment in 1851. Comparing figures 2.12 and 2.13 it clear that the geography of population growth over the first five decades of the nineteenth century was very closely related to the work opportunities for men outside agriculture. The relationship between local population growth and female work opportunities outside agriculture, however, was much less straightforward. In most cases high levels

of employment for women outside agriculture tended to be in areas which also had high levels of non-agricultural employment for men (see figure 2.13).

However, there were two major exceptions which can be seen by comparing figure 2.13 with figure 2.2. One was the north-eastern coal-field which was (in employment terms) concentrated in the north-east of the county of Durham. Here, as can be seen in figure 2.2 female participation rates were very low but work opportunities outside agriculture for men, principally in coal-mining, were plentiful (see figure 2.13). Despite the poor employment opportunities for adult women, as figure 2.12 shows, the area experienced very rapid population expansion between 1801 and 1851.[60] The other major exception was the south-east Midlands where the straw hat and lace industry offered substantial employment opportunities for women outside agriculture (see figures 2.6 and 2.7) but not for men (see figure 2.13) and where population growth (see figure 2.12) was low. Thus good employment opportunities outside agriculture for women but not for men, as in the south-east Midlands, did not lead to major population growth while good non-agricultural employment opportunities for men but for not women, as in north-east Durham, were compatible with high population growth levels. High levels of sustained relative population growth required in-migration by both men and women.[61] The evidence is only indirect but is seems reasonable to interpret these patterns as suggesting that large numbers of men would not migrate into areas with good employment opportunities for women only whereas large numbers of women would migrate into areas without good employment opportunities for women. This led to skewed sex ratios and higher than average proportions of women who never married.[62] Thus male employment opportunities appear to have been significantly more important in determining the relative population growth rates of different areas. This is readily explicable. We know from Horrell and Humpries' work that married men had much higher earning capacities than married women and this would obviously loom large in the migration decisions made by families.[63]

Figure 2.14 shows the percentage of adult women in domestic service in 1851 while figure 2.15 shows the spatial concentration. In most of the country between 5 and 15 percent of adult women worked in domestic service. In much of London and the surrounding area the figure was generally higher. In the West End over 25 per cent and in Hampstead over 30 per cent of adult women worked in domestic services. Bath, Cheltenham and Clifton also stand out with very high rates of domestic service employment at over 20 per cent. The importance of domestic service in and around London is unsurprising but the textile districts of the north-west show up as important nationally in figure 2.15.

Figure 2.16 shows the percentage of adult women employed in textile manufacture in 1851 while figure 2.17 shows the spatial concentration. The concentration of the textile employment in the north-west is extremely pronounced. The extent of the relative decline of the traditional centres of cloth-making in East Anglia and in the West country, when viewed in terms of national importance, in figure 2.17 is remarkable. If spinning really was the ubiquitous by-employment for women in pre-industrial England that it is usually assumed to have been, it had

[60] An alternative interpretation, equally consistent with the occupational and population data, would be that female participation rates were low, not because female employment opportunities were low but because male wages in mining were high and women were thus able to stay at home.
[61] Though see, Goose 'Cottage industry' for a gloss on this argument.
[62] Goose, Berkhamsted, pp. 31-2.
[63] Horrell and Humphries, 'Women's labour force participation.'

suffered a catastrophic decline in most parts of England by the mid-nineteenth century.

This leads to a more general point. Patterns of female employment in 1851 were extremely geographically diverse. That suggests that any simple aggregate national narrative about women's experience of the labour market during the industrial revolution is likely to be seriously misleading. If we return to figures 2.2 and 2.3, it would seem improbable that the female participation rate had been rising on the north-eastern coal-field or in the agricultural districts of the east and south-east. It is equally improbable that female participation rates had suffered any serious decline in the north-western textiles districts or in the hat and straw making areas of the south-east Midlands. These somewhat speculative generalisations direct our attention to the pressing need for more quantitative local and regional studies of changes in female employment over time and in particular to the vexed problem of how to obtain reliable evidence on female employment for the pre-census period.

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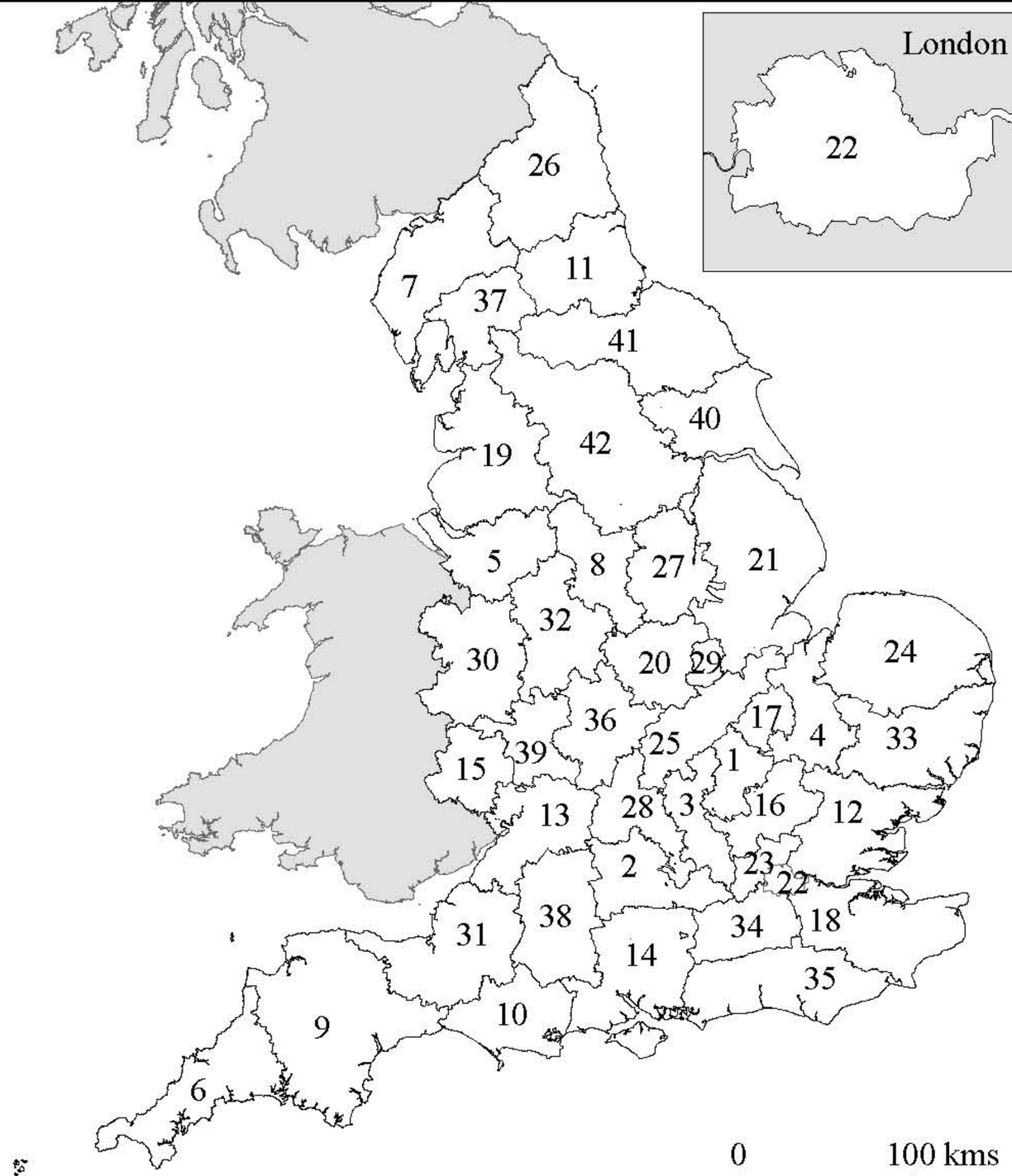
English registration counties

1. Bedfordshire
2. Berkshire
3. Buckinghamshire
4. Cambridgeshire
5. Cheshire
6. Cornwall
7. Cumberland
8. Derbyshire
9. Devonshire
10. Dorset
11. Durham
12. Essex
13. Gloucestershire
14. Hampshire
15. Herefordshire
16. Hertfordshire
17. Huntingdonshire
18. Kent
19. Lancashire
20. Leicestershire
21. Lincolnshire
22. London
23. Middlesex
24. Norfolk
25. Northamptonshire
26. Northumberland
27. Nottinghamshire
28. Oxfordshire
29. Rutland
30. Shropshire
31. Somerset
32. Staffordshire
33. Suffolk
34. Surrey
35. Sussex
36. Warwickshire
37. Westmorland
38. Wiltshire
39. Worcestershire
40. Yorkshire. East Riding with York
41. Yorkshire. North Riding
42. Yorkshire. West Riding



% active

> 70 ≤ 80
> 60 ≤ 70
> 50 ≤ 60
> 40 ≤ 50
> 30 ≤ 40
> 20 ≤ 30
> 10 ≤ 20

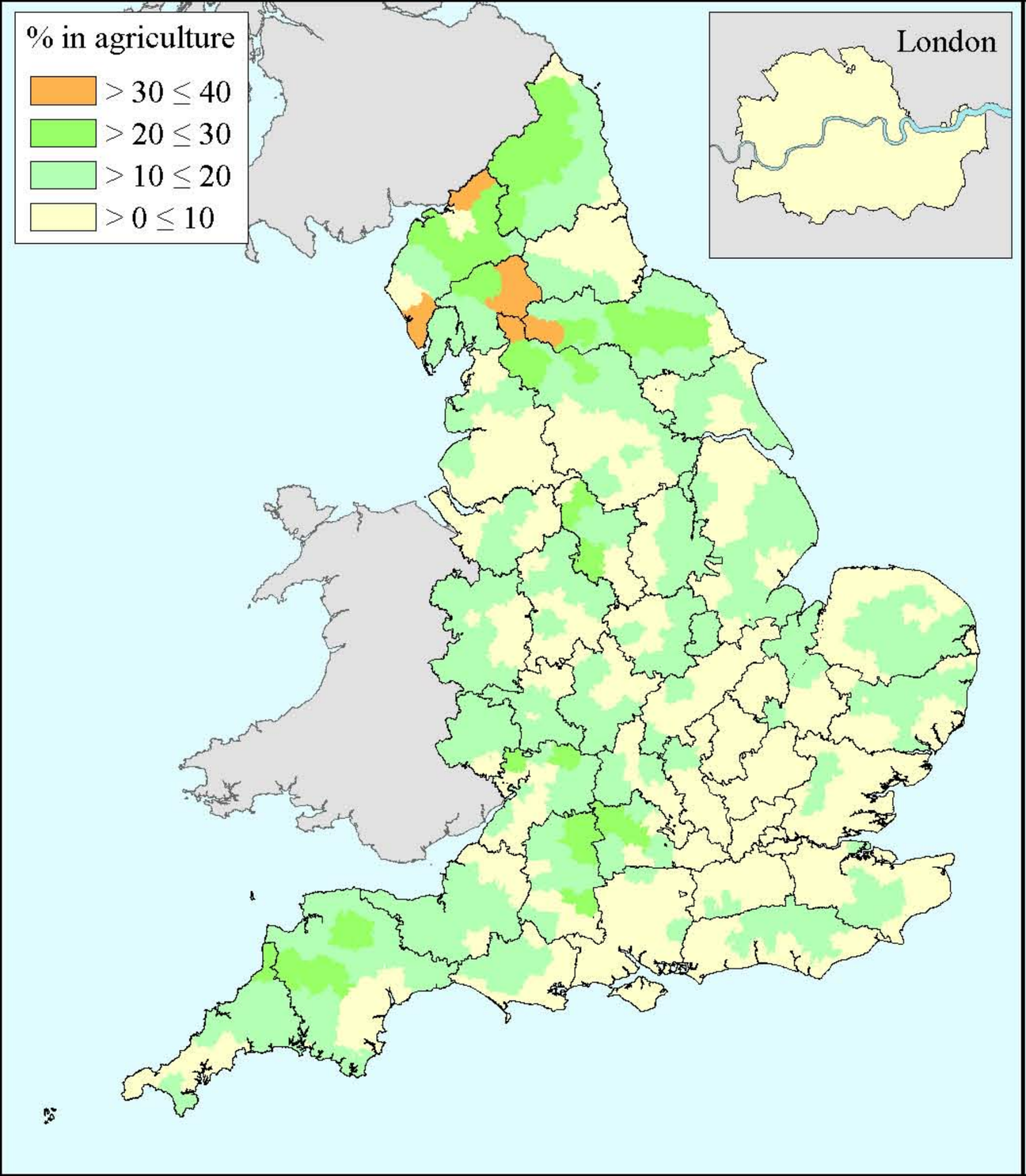
London

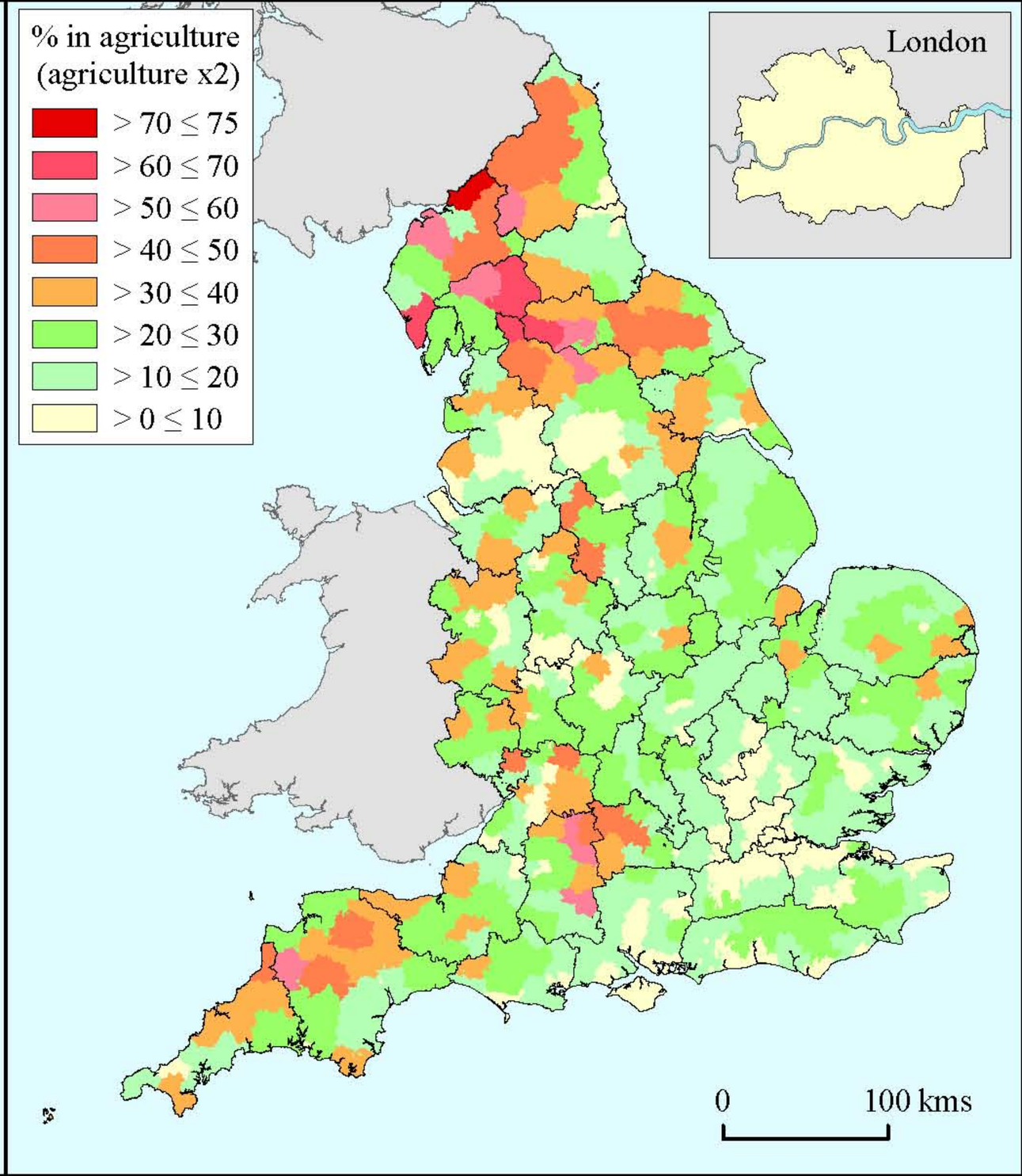
% active
(agriculture x 2)

> 90 ≤ 100
> 80 ≤ 90
> 70 ≤ 80
> 60 ≤ 70
> 50 ≤ 60
> 40 ≤ 50
> 30 ≤ 40
> 20 ≤ 30

London

0 100 kms


% in agriculture
> 30 ≤ 40
> 20 ≤ 30
> 10 ≤ 20
> 0 ≤ 10
London


% in agriculture
(agriculture x2)
> 70 ≤ 75
> 60 ≤ 70
> 50 ≤ 60
> 40 ≤ 50
> 30 ≤ 40
> 20 ≤ 30
> 10 ≤ 20
> 0 ≤ 10
London
0
100 kms

% secondary

- > 60 ≤ 70
- > 50 ≤ 60
- > 40 ≤ 50
- > 30 ≤ 40
- > 20 ≤ 30
- > 15 ≤ 20
- > 10 ≤ 15
- > 5 ≤ 10
- > 0 ≤ 5

London

No. of districts contributing 10% of the secondary sector

- 4
- 8
- 11
- 14
- 22
- 30
- 41
- 64
- 110
- 272

London

0 100 kms

% tertiary

> 40 ≤ 50
> 30 ≤ 40
> 20 ≤ 30
> 10 ≤ 20
> 0 ≤ 10

London

No. of districts contributing 10% of the tertiary sector

5
9
16
22
31
41
59
81
113
199

London

0 100 kms

Largest sector

primary sector
secondary sector
tertiary sector

London

Largest sector
(agriculture x 2)

primary sector
secondary sector
tertiary sector

London

0 100 kms

No. of districts contributing 10 % of population growth

5
10
12
18
23
34
49
76
113
236

London

No. of districts contributing 10% of non-agricultural employment

6
12
14
20
25
35
52
76
117
219

London

0 100 kms

% in domestic service

- > 30 ≤ 35
- > 25 ≤ 30
- > 20 ≤ 25
- > 15 ≤ 20
- > 10 ≤ 15
- > 5 ≤ 10
- > 0 ≤ 5

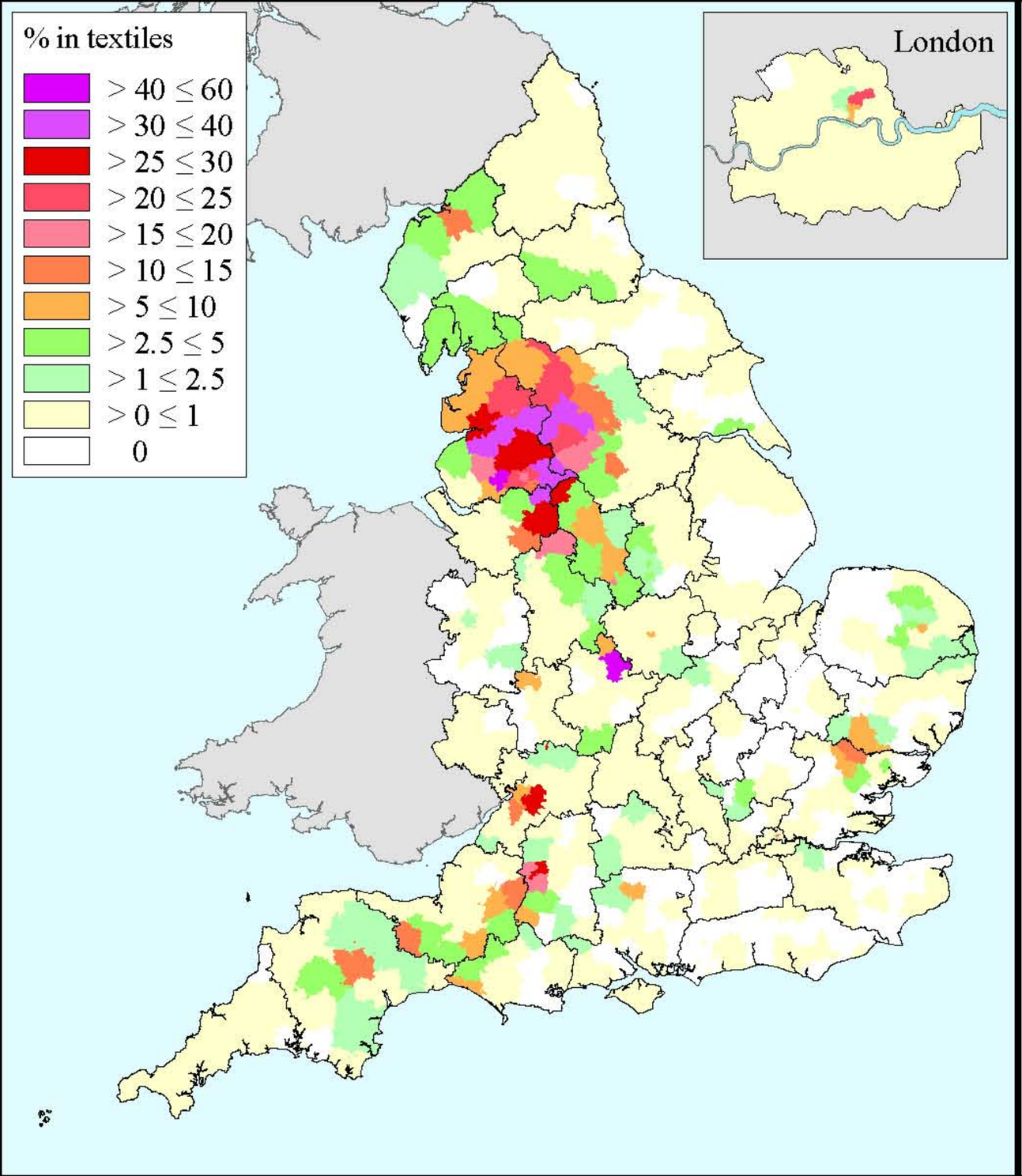
London

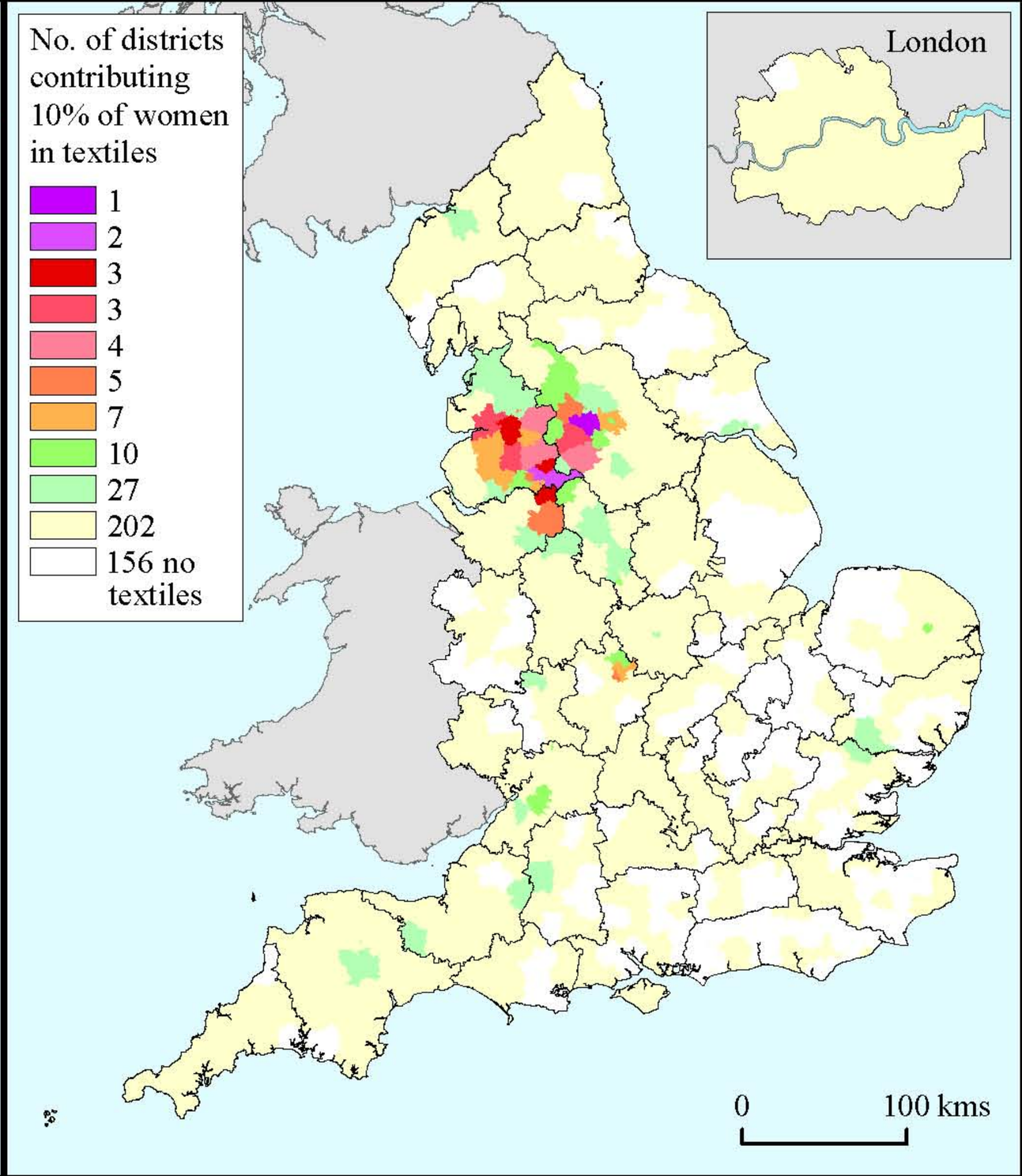
No. of districts contibuting 10% of women in domestic service

- 4
- 8
- 14
- 21
- 29
- 41
- 57
- 81
- 116
- 205

London

0 100 kms


% in textiles
> 40 ≤ 60
> 30 ≤ 40
> 25 ≤ 30
> 20 ≤ 25
> 15 ≤ 20
> 10 ≤ 15
> 5 ≤ 10
> 2.5 ≤ 5
> 1 ≤ 2.5
> 0 ≤ 1
0
London


No. of districts contributing 10% of women in textiles
1
2
3
3
4
5
7
10
27
202
156 no textiles
London
0
100 kms