

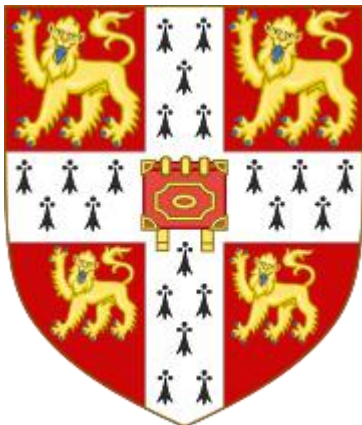
ESTIMATING THE NUMBER OF COTTON HANDLOOM WEAVERS IN  
ENGLAND, C. 1780-1813; WOMEN AND CHILDREN HIDING IN PLAIN  
SIGHT.<sup>1</sup>

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## *Abstract*

It is a common perception that before the mechanization of the textile manufacture, spinning was an occupation for women and children and weaving was undertaken essentially by men. This view is surprising given that over 90 years ago Ivy Pinchbeck recognized many women and children also wove a variety of yarns. This study of the cotton manufacture utilizes contemporary accounts and new adult male weaving data to concur with Pinchbeck. As many as one-half of cotton hand weavers c.1800, were women and children.

## *Introduction.*

It is well known that the British textile manufacture was a major employer of women, children, and men throughout the eighteenth and nineteenth centuries, both before and after mechanization. Leigh Shaw-Taylor and Ben Schneider have both attempted to quantify female employment but further work needs to be done not least because whilst it is known and accepted that yarn, whether it be wool, linen, or cotton, was invariably spun by women and children, it is implicit in the literature that essentially all weaving was undertaken by men.<sup>2</sup> As Ingvild Øye notes ‘while prehistoric weaving appears as a predominantly female work domain, weaving became a male profession in urban contexts, organised within guilds. Hence, it has almost become a dogma that the expanding medieval textile industry, and corresponding transition from a female to a male work domain, was caused by new technology—the horizontal treadle loom’.<sup>3</sup> Recently, Ben Schneider has investigated the relationship between technology change and unemployment but the focus of his work was upon spinning and not on weaving.<sup>4</sup> The omission in the literature of a quantitative discussion of the numbers of women and children who wove is surprising given that in 1930 Ivy Pinchbeck used late eighteenth-century and early nineteenth-century accounts and

parliamentary papers to show that many did so, as far as she could determine constituting between two fifths and half of all weavers depending on the branch of the trade.<sup>5</sup> Moreover, since that time other scholars have provided examples of women weaving in particular times and places. For instance, Maryanne Kowaleski found women weaving in the later middle ages in Exeter and P.J.P. Goldberg did so too in York.<sup>6</sup> Jane Whittle and Mark Hailwood found no evidence of women weaving in southwest England between 1500 and 1650, and suggest that women's absence from the trade in this period may have been due to guild restrictions and the inaccessibility to women of apprenticeships.<sup>7</sup> Attempts by weavers to prevent women entering the trade were not new and centred on enforcement of the apprenticeship regulations.<sup>8</sup> For instance, in 1698 the serge weavers of Taunton asked their MP to enforce the regulations on apprenticeship, complaining that 'a multitude of young women, because they can get a little more by weaving than by going to service, and because therein they can have more liberty than in service at houswifery fall into the trade of weaving though they were never brought up apprentices in that trade'.<sup>9</sup> In the first half of the eighteenth century, George W. Daniels suggested, women served apprenticeships in cotton weaving under the same rules as men.<sup>10</sup>

By 1802, when apprenticeship regulations were not enforced for men, Pinchbeck observed that witnesses to a House of Commons select committee were agreed that apart from parish apprenticeship for a long term of years (to twenty-one or marriage), which was frequently practiced in the clothing counties, women were rarely legally indentured in the latter half of the eighteenth century. Some, indeed, served seven years with their parents or others on an informal agreement which was considered as equivalent to apprenticeship, but many after a short training and experience in the loom at home became journeywomen wage earners at an early age.<sup>11</sup>

A need for physical strength was thought to limit women's weaving, but the introduction of the 'one-hand' loom after 1733, the flying shuttle that required less strength to operate than looms requiring two people, allowed women to take up worsted weaving in Essex and the West Country, and linen weaving in Ireland.<sup>12</sup> But in silk weaving, centred in Spitalfields in east London, in Coventry and in villages in Essex, women as well as men wove both broad silk and the narrow ware.<sup>13</sup><sup>14</sup> They were widely employed as silk weavers during the Napoleonic Wars'.<sup>15</sup> Like silk, cotton calico is a lighter cloth than either wool or linen, and exclusion on the basis of strength was more difficult to justify. Maxine Berg believes the 'casual nature of the references to women weavers make it impossible to determine what actually was their position in the trade prior to the eighteenth century', but did find women weaving in the cloth trade in both the west country and in Yorkshire in the mid-eighteenth century.<sup>16</sup>

This study builds upon these observations by focussing upon the English cotton manufacture during the period 1780-1813, before the power loom was in commercial use and when essentially all weaving was by handloom. We show that women and children were heavily involved in calico weaving by a novel method of counting precisely the number of men who wove relative to the size of cotton imports and to contemporary estimates of the total number of weavers required to turn raw cotton into cloth. The paper begins with a brief discussion of the growth and location of the cotton manufacture from 1780. Estimates of the number of handloom weavers in the early nineteenth century proposed by contemporaries and other scholars are discussed. In the absence of reliable numerical data on women and children, our analysis is confined to the quantification of adult male cotton handloom weavers only, for which we use digitized 1813 baptism registers.<sup>17</sup> This resource, not available to previous scholars, allows an analysis of occupations with a precision not possible hitherto. Our estimate of the number of adult male weavers falls substantially below the total number

of weavers suggested by others. The only plausible explanation for this short-fall is that women and children also wove in significant numbers. Evidence from contemporary commentators and from others is presented to support the case.

### *The Rise of the Cotton Manufacture*

The 1721 Calico Act ‘to Preserve and Encourage the Woollen and Silk Manufactures of this Kingdom’ prohibited the use in England of all printed cloths woven with cotton warp and cotton weft.<sup>18</sup> Manufacturers, who were almost exclusively in Lancashire, circumvented the ban by producing fustians, woven with a linen warp and a cotton weft, and fabrics such as checks or stripes which were mainly linen but offered the appealing bright patterns of imported Indian cottons.<sup>19</sup> To remove any doubt or controversies as to whether fustians contravened the law, all prohibitions on printed fustians manufactured anywhere in Great Britain were removed in 1736 by the so called ‘Manchester’ Act, the name reflecting the importance of the town and of Lancashire to the trade.<sup>20</sup> In 1774 the Calico Acts were repealed and calico, or pure cotton cloths woven with a cotton warp and a cotton weft, were thereafter produced in large quantity. As Duncan Bythell points out, ‘before the 1770s, the cotton hand weavers as a body had not existed’.<sup>21</sup>

The rapid increase in the quantity of cotton consumed in Great Britain over the period 1751-1825, calculated by subtracting cotton re-export figures from cotton imports, is shown in Figure 1.<sup>22</sup> The data show limited quantities consumed in the mid-eighteenth century, reflecting the impact of the Calico Act. The second half of the century saw great technological change, particularly in yarn preparation and spinning, which was mechanized in the 1760s with the introduction of James Hargreaves’ jenny and Richard Arkwright’s water frame. These machines spun cotton weft and cotton warp, respectively. As spinning productivity increased, the demand for weavers and weaving looms began to exceed their

supply. Manufacturers in and around Manchester testified to a Parliamentary Committee in 1780 that ‘there are Three Times as many Looms employed now as there were Ten Years ago; and that if there were many more Looms than there are at present, the Manufacturers would be glad to employ them’.<sup>23</sup> Samuel Crompton’s spinning mule, a hybrid of the jenny and the water frame, was introduced in 1780. Not only did the mule spin both cotton warp and weft, it also enabled fine yarn to be spun in Great Britain and cotton cloth could be now woven to a quality similar to that of Indian calico. Cotton consumption more than doubled over the 1780s and increased fourteen-fold over the period 1780-1813. With no major technological change in weaving during this time, the need for additional handloom weavers grew concurrently in the two major cotton manufacturing districts of Lancashire and in and around Glasgow.

The only significant inventions in weaving had occurred earlier in the eighteenth century. The first of these was John Kay’s flying shuttle patented in 1734. Before the shuttle’s introduction, broad cloth weaving was a two-person affair, nominally a male weaver assisted by a boy whose role was to move the shuttle manually across the cloth. Once the flying shuttle was employed, the movement across the weft became automatic and the boy redundant. The flying shuttle was not used to weave narrow cloth because it was not needed, the weaver was able to manually reach across the width. Akos Paulinyi believes the flying shuttle may have improved productivity by perhaps by as much as 50 per cent, but the gain was realized long before demand for calico weaving exploded in the 1780s.<sup>24</sup> The second invention, Robert Kay’s drop box, a shuttle used to weave multi-coloured striped fustians, was introduced in the 1760s, but it had little use in the manufacture of printed calico cloth.<sup>25</sup> The technology, therefore, had made little impact on hand weaving productivity . Although the power loom had been patented by Edmund Cartwright in 1785, the early machines were unable to weave fine cloth and it was not until the second decade of the nineteenth century

that modifications were sufficient to enable their commercial use.<sup>26</sup> All cotton weaving during this time was by a handloom. Some weaving workshops with multiple looms were in use, and larger ‘sheds’ with 20 or more, but the trade was very largely domestic, undertaken in the home and organized on a putting-out system.<sup>27</sup> Neil Smelser in 1960 thought that before spinning was mechanized there were two classes of cotton handloom weavers, some working full-time and others combining farming with weaving, working the land in summer and the loom in winter.<sup>28</sup> The extent to which farmer-weavers existed, or whether the class is mis-named, more likely relating to weavers with a garden, or cottagers, rather than a farmer who also wove, was questioned in 1920 by George W. Daniels.<sup>29</sup> More recently, Sebastian Keibek and Leigh Shaw-Taylor re-examination of probate inventories suggests that by-employments were much more limited than previously supposed.<sup>30</sup> Regardless, once mechanized spinning took hold and cotton consumption soared, the demand was such that weaving as a by-employment became unviable. In summary, it is a reasonable assumption that if raw cotton consumption increased fourteen-fold from 1780-1813, the number of handloom weavers must have increased by a similar factor.

The county of residence of early nineteenth-century cotton weavers is shown in Table 1. These are annual 1813 data are taken from the 1813-20 baptism registers of England and Wales database which capture the occupation and parish of the father of every baptized child, illegitimate children excepted.<sup>31</sup> There are no digitized data for Scotland but the records do provide a ‘census’ of adult male occupations in England and Wales at that time. They show that 76 percent of cotton weavers lived in Lancashire and a further 18 per cent lived in parishes in the adjacent counties of the West Riding of Yorkshire, Cheshire, and Derbyshire. Only 6 per cent of cotton weaving was undertaken elsewhere in the country. Manchester parish occupied an area of approximately 60 square miles, containing many townships, and was the commercial centre of the national manufacture.

The temporal growth of cotton weaving is shown by the analysis of occupations of bridegrooms who married at the church of Manchester St. Mary, St. Denys and St. George, the main church in the parish (given cathedral status in 1847).<sup>32</sup> Following Hardwicke's Marriage Act of 1753 all marriages had to be undertaken in an Anglican church in accord with the Prayer Book. Only Jews, Quakers and members of the royal family were exempt.<sup>33</sup> The Act determined that marriage was to be recorded in a prescribed format for which templates were provided and although it was not mandatory for church officials to record the occupation of the bridegroom, some parishes did so, including Manchester. Figure 2 shows the proportion of bridegrooms married there who were cotton weavers over the period 1777-1813, converted into estimates of the actual number of adult male weavers. Two factors are used to derive numbers from proportions: one, E. A. Wrigley's decennial population totals from 1777 onwards; and two, the first available observation from the 1821 census that 27 per cent of the Lancashire population were adult males, defined here as those aged 15 years and over.<sup>34</sup> The number of adult male cotton weavers grew more than five-fold over the period. The population of Manchester parish trebled during this time (Table 2). The demand for weavers in Manchester was met in part by population growth and in part by men changing occupations, for example switching from work with other yarns to cotton.<sup>35</sup> Analysis of the marriage records shows that Manchester parish cotton weavers held a 12 per cent labour share in 1777 and a 26 per cent share in 1810, with men clearly switching into weaving from other work. In 1800, a meeting of Lancashire manufacturers agreed:

‘there is not a village within thirty miles of Manchester, on the Cheshire and Derbyshire side, in which some of us were not putting out cotton warps and taking in goods, employing all the weavers of woollen and linen goods who were declining those fabrics as the cotton trade increased; in short, we employed every person in



cotton weaving who could be induced to learn the trade. But want of *population*, want of *hands*, and want of *looms*, set us fast on the subject upon which we were then assembled.’<sup>36</sup>

The switch from another occupation into weaving was not evident in all cotton parishes. Analysis of bridegroom occupations held in the marriage records of the churches of Blackburn St. Mary, Bolton le Moors, St. Peter, Bury St. Mary, and Oldham St. Mary shows that weavers already held a higher labour share before Crompton’s spinning mule was introduced in 1780 than they did in Manchester.<sup>37</sup> Figure 3 shows that weaver shares in these places did not increase and in Bury and Bolton they fell over time. These data are restricted to places for which bridegrooms’ occupations are available, but they do suggest that the need for weavers could not be met by men changing jobs. Nor could it be met by population growth alone. Table 2 shows that in Lancashire population grew by less than two-fold, 1781-1811, and in Cheshire, and Derbyshire by less than one third – clearly insufficient to keep pace with national cotton consumption if only adult men wove.

The need to recruit women and children led to the removal of restrictions to enter into the trade.<sup>38</sup> The enforcement of apprenticeship had been in decline since the middle of the eighteenth century and although not fully repealed until 1814, it was largely obsolete by at least the 1780s.<sup>39</sup> Learning to weave cotton was relatively easy; manufacturers claimed that a labourer could learn to plain weave within three weeks.<sup>40</sup> In giving evidence to a Select Committee on Hand-loom Weavers in 1834, John Kingan, a former employer, stated that muslin weaving

is the easiest learnt of all trades; a lad of fourteen may acquire a sufficient knowledge of it in six weeks. He can be taught it generally in his father’s house, he is freed from

the necessity of an apprenticeship and all its disagreeable things, of being under a master seven years, the common term of other trades; when in the course of a few months he becomes a very good weaver. <sup>41</sup>

From the late eighteenth century onwards, there were few barriers, therefore, for unapprenticed family members, or other women and children, to take up handloom weaving.

#### *Estimates of the Number of Cotton Weavers by Nineteenth-century Commentators*

Several estimates of the number of cotton handloom weavers in Great Britain have been made. In 1823, Richard Guest published his history of the cotton manufacture and used yarn production statistics to suggest ‘the number of cotton weavers in Great Britain cannot be less than three hundred and sixty thousand, and with their families, they are probably half a million’.<sup>42</sup> These numbers are out of kilter with other nineteenth-century commentators and are considered to be exaggerated. Geoffrey Timmins agrees with John Clapham that ‘Guest’s figure bears little semblance to reality’.<sup>43</sup> Edward Baines, who published his *History of the Cotton Manufacture in Great Britain* in 1835, reported that manufacturers, including John Kennedy in Manchester, estimated 240,000 to 250,000 between 1820 and 1833 (despite the invention of the power loom), of which 40-45,000 were in Glasgow.<sup>44</sup> The same figure of 200,000 was given for 1815, relative to 5000-7000 power loom weavers, by Thomas Ellison in 1886, ‘as nearly can be ascertained’.<sup>45</sup> In 1895, G. von Schulze-Gaevernitz reported a similar figure although it is not clear if he was referring to 1808 or to 1813.<sup>46</sup> Kennedy’s estimate was used in the early twentieth century by G. H. Wood to construct a temporal series assuming the number of weavers grew by 4,000 every year from 1788 onwards. This series needs to be treated with caution; the temporal regularity of the increase is problematic and

Wood himself wrote that the figures 'are not intended so much for definite estimates', his aim being to understand the number of handloom weavers relative to factory workers.<sup>47</sup>

These estimates refer to Great Britain and include cotton weaving in England, Scotland, and Ireland. The labour force in the 1830s Scottish manufacture, estimated from the quantity of raw cotton consumed and adjusted for the import of yarn from Lancashire, was reckoned by Baines to be around one-seventh the size of that in England.<sup>48</sup> Norman Murray reckons there were 78,000 Scottish handloom weavers in 1820, of whom approximately 60 per cent wove cotton.<sup>49</sup> In Ireland, up to half a million pounds of cotton were annually imported in the mid-1770s. By the early nineteenth century, the quantity had risen to two million pounds but by now accounted for only around one per cent of British cotton consumption.<sup>50</sup> J. Warburton and others believed that there were approximately 20,500 cotton handlooms in Ireland at the end of the eighteenth century. Of these, approximately 10,000 looms were in Ulster, and the other half in Leinster and Munster.<sup>51</sup> In summary, if these Scottish and Irish estimates are reasonably accurate, and there were 200,000 cotton weavers in Great Britain in 1815, then there were of the order of 130,000 cotton weavers in England and Wales. If the higher overall estimate of 250,000 weavers in the 1820s is correct then there were 180,000 weavers in England and Wales, but we will opt for the lower estimate.

#### *Late Twentieth-century Estimate of Cotton Handloom Weaving in Lancashire*

In 1993, Geoffrey Timmins sampled marriage records to determine the number of cotton weavers in Lancashire, 1818-22.<sup>52</sup> He supplemented these data with occupations recorded in baptism records for those parishes in which marriage registers have not survived.<sup>53</sup> Timmins was reluctant to use baptism data because there were many more baptisms than there were marriages, and hence time-consuming to analyse in a pre-computer

age. He also believed Anglican baptism registers held an inherent bias because they excluded Nonconformists, whereas marriage records he considered more reliable.

The Timmins methodology involves calculation of the proportion of weavers in each Lancashire register. He assumes that all marriages and baptisms involved men aged 20-39 years, and converts the percentage share data into estimates of actual numbers in each place using the 1821 census which provides age data.<sup>54</sup> From this, Timmins determines the number of adult weavers in each parish. Then, ‘finally, using mid-nineteenth century census data, estimates are made for several districts as to the proportions that male hand weavers in their twenties and thirties formed of the total hand weaving labour force’.<sup>55</sup> Applying these factors, he concludes there were between 150,000 and 190,000 cotton handloom weavers in Lancashire 1818-22, male and female (although how the women were counted is not clear).<sup>56</sup>

#### *New Estimate for Lancashire and Adjacent Counties*

Timmins’ estimate is plausible insofar as it is not dissimilar to that of earlier commentators, but his methodology is problematic on a number of counts. First, the marriage and baptism data represent different sectors of the adult male population and ideally should not be mixed: fathers were likely to be older than bridegrooms and not necessarily aged 20-39 years. Second, by the mid-nineteenth century the cotton manufacture was far different from that of 1818-1822, occupations having changed markedly. By the 1850s, fewer children were employed and although handloom weaving was still significant the power loom was widely adopted and was the machine of choice. Weaving in the early nineteenth century was all by hand, but this was not the case mid-century. Factories provided many other work opportunities, particularly prevalent in towns and cities. Third, the estimate provides a total count but does not separate males from females and hence does not provide any estimate of women.

We provide new estimates using two methodologies, both quantifying the number of adult male weavers and inferring the number of women and children weaving. The first method examines Lancashire at the county level. The second estimate uses the same methodology but calculates the number in each parish and also includes the places other than Lancashire where cotton weavers were at work. Both estimates use only the 1813-20 baptism registers of England and Wales, now accessible in digitized form and a resource not available to Timmins. This database allows adult male weaving to be quantified with more precision than was previously possible.<sup>57</sup> Our analysis of occupational structure of Lancashire in 1813 indicates that 15 per cent of Lancashire fathers worked in the primary sector (agriculture), 63 per cent in the secondary sector (manufacturing), and 13 per cent in the tertiary sector (services). Another 9 per cent were labourers. Textiles held a 40 per cent share of the labour force, and weavers alone accounted for 29 per cent of the total male workforce. Using the same methodology as that previously used to examine the marriage records of Manchester, these shares are converted into estimates of actual numbers. The 1821 census, the first to record age, indicates that 27 per cent of the total Lancashire population were adult males aged 15 years and over.<sup>58</sup> There is no reason to believe that this percentage differed in 1811. Given that the population of Lancashire in 1811 was 806,906, it is reasonable to suggest that 217,865 were adult males, of whom we estimate 63,181 were weavers. This number falls far short of the total number of weavers proposed by earlier commentators. Moreover, a further 21,786 adult men were employed in other textile occupations and 132,898 worked in non-textile jobs (Table 3).<sup>59</sup> These data suggest it is inconceivable that over 200,000 men could have been employed as handloom weavers.

It is possible, as Timmins suggested, that the estimate is understated because it is derived from Anglican records which take no account of nonconformism.<sup>60</sup> We believe it is not a problem for this study. Although there are no surviving occupational data for

nonconformists in early nineteenth-century Lancashire, data from the 1830s suggest that nonconformism did not attract weavers disproportionately. For instance, analysis of the register of births of dissenting protestants in the Grosvenor Street Chapel, Manchester, 1829-37, shows that in 125 baptisms only 3 per cent of fathers were weavers, whereas the 1833 Anglican baptism register of Manchester St. Mary, St. Denys, and St. George records 5,603 baptisms of whom 6 per cent of fathers were weavers.<sup>61</sup> In Blackburn, another major centre of the cotton manufacture, of the 681 baptisms recorded in the 1833 registers of the Anglican church of St. Mary, 50 per cent of fathers were weavers. Of the 90 entries for fathers in 1832/33 registers of the Ebenezer Primitive Methodist Chapel, 54 per cent were weavers. The data suggest no significant difference between the churches and our estimate does not appear to be adversely affected by the absence of nonconformist data.<sup>62</sup>

The second methodology refines the first, taking into account that cotton weaving was not carried out across the whole of Lancashire.<sup>63</sup> Figure 4 shows the distribution of male weavers by parish in Lancashire and surrounding counties in 1813-20. Some districts, for instance those towards the coast in west Lancashire, did not have a cotton industry. Liverpool, a major city with a population of 104,424 in 1811, had a relatively small cotton manufacture. Also, the methodology recognizes that that not all weaving in Lancashire was of cotton. To identify those who did weave cotton is not straightforward because it was common practice for the baptism registers to list occupation simply as ‘weaver’ with no reference to type of yarn woven. Some significant cotton parishes, particularly Rochdale and Whalley, also had an important woollen manufacture.<sup>64</sup> Table 4 distinguishes types of fibre woven in three parishes where the information is available in large enough quantity. For those parishes we adjust the number of cotton weavers from the cotton/wool ratio in each place and calculate that only 55 per cent of Rochdale weavers wove cotton and only 65 per cent did so in Whalley. In addition, the second methodology includes places elsewhere in

England where cotton weaving took place, notably those south of Manchester in Cheshire, and to the east of Lancashire in the adjacent counties of Derbyshire and the West Riding of Yorkshire. All Cheshire weaving was within approximately 6 miles to the south of Manchester town and, essentially an extension of Manchester parish, is considered to be of cotton. Similarly, those places in Derbyshire are also treated as if all cotton. Huddersfield, in the West Riding of Yorkshire, had both cotton and wool manufacture. Of the 52 weavers recorded in the 1813 Huddersfield baptism registers, 25 per cent were described as cotton weavers.

After subtracting woollen weaving in the two important centres of Rochdale and Whalley, and adding cotton weaving in Cheshire, Derbyshire, and West Yorkshire, our estimate is increased to 68,690 males aged 15 years and over weaving cotton by hand. Table 5 specifies the numbers by parish. The total is still far short of that noted by others. If there were at least 140,000 cotton weavers in total in England, our estimate implies that the deficit in men was made up by more women and children weaving cotton than men. Neither population growth nor the shift of adult male workers away from other work and into cotton was sufficient to provide the meet the demand for weavers.<sup>65</sup> The only plausible way that the demand could be met was by employment of women and children. This notion is supported by several commentaries and accounts which historians have previously only mentioned as asides.

#### *Accounts of Women and Children Handloom Weaving*

Guest believed that when spinning became a factory operation from the 1780s, the ancillary occupations such as carding and roving moved as well, no longer carried out in the home, and 'women and children formerly employed in those operations, applied themselves to the loom'.<sup>66</sup> Moreover, the weaver-turned-manufacturer William Radcliffe noted that with

full employment on the loom, women's wages were three to four-fold higher than they were previously as spinners.<sup>67</sup> Little capital was required to purchase a handloom and cotton weaving became a family affair, no longer just a role for men but with women and children weaving the lower qualities of cloth.<sup>68</sup> It was not unusual for families to own several looms.<sup>69</sup>

There is evidence to indicate that women were weaving a variety of cloths in the latter eighteenth century. Robert Glen notes that in and around Stockport 'women and children crowded into the trade, which they could use as a lucrative replacement for that rapidly disappearing occupation, domestic spinning'. He relates the example of Mary Bealey of Stockport, born around 1770, who married a weaver and during the period of the war had 17 children all of whom were brought up as weavers.<sup>70</sup> Reporting c. 1770, Arthur Young found women weaving broad cloth in the West Riding of Yorkshire, checks and fustians in Manchester, woollens in Kendal in Westmorland, sail cloth in Warrington in Lancashire, and women and children, some as young as seven or eight years of age, weaving ships' flags in Sudbury in Suffolk.<sup>71</sup> He found also that in the late eighteenth century essentially all carpets made in Axminster, Warwickshire, were woven by women.<sup>72</sup> Also, Pinchbeck reported women weaving small wares in Manchester, ribbons in Coventry, silk in Spitalfields, London and woollens in Trowbridge and Bradford in Wiltshire, and in Halifax in the West Riding of Yorkshire.<sup>73</sup>

Although it is apparent from these examples that women weaving were ubiquitous, involving a variety of yarn, it is not clear from these commentators how many women wove cotton. Indeed, John Honeyford, a Bolton cotton weaver, informed the 1808 Committee on Petitions of Several Cotton Manufacturers and Journeymen Cotton Weavers that he believed few did so when he entered the business in the 1780s.<sup>74</sup> Limited data, however, are available for later years. Although weaving apprenticeships had steeply declined by the end of the eighteenth century, pauper apprenticeships persisted in Culcheth, a township in the Leigh



district of Lancashire, located towards the western edge of the cotton manufacturing area where the fustian manufacture continued to hold up. It is not clear whether weavers here wove fustian or calico, but parish records show that from c.1790 boys were no longer apprenticed to husbandry or to any occupation other than weaving. Moreover, of the 24 girls apprenticed 1800-1819, 20 were put to learn weaving, whereas none had been previously.<sup>75</sup>

Several commentators have made a link between an increase in the number of women and children working and when men enlisted to fight in the French Revolutionary War. The British army concentrated its recruitment for the war in urban districts. Manchester and London, as the two largest cities in England, were particularly fruitful. Lancashire yielded more recruits per head of population than any other English county in 1808.<sup>76</sup> Pinchbeck noted that according to one estimate more than 20,000 handloom weavers from Lancashire volunteered, so ‘that women found an apparently easy entry into what had hitherto been primarily a man’s trade was probably due, not only to the expansion of trade, but also the coincidence of the French Revolutionary Wars’.<sup>77</sup> A similar view was expressed by J. Singleton, a Wigan correspondent who reported to the Home Office in 1799 that

‘the demand for manufactured goods is great, and were it possible to make one weaver into two they might be employed. Although numbers of our people are gone for soldiers and sailors there is still an increase of looms, for if a man enlists his wife turns weaver (for here women are weavers as well as the men) and instructs her children in the art of weaving; and I have heard many declare that they lived better since their husband enlisted than before’.<sup>78</sup>

Honeyford who in Bolton in 1808 had four looms, one of which was worked by a girl, also noted that when journeymen weavers enlisted in large numbers ‘householders took girls

and taught them to weave rather than let their looms stand idle'. Moreover, he believed 'women's talent is equal to men's if the work is not too heavy' particularly for what he described as 'the middle kind of work'.<sup>79</sup>

The shortage of adult male weavers during times of war also impacted upon other textile manufactures. In 1769, Spitalfields silk weavers attempted to limit women's weaving to ribbons, excluding them from better-paid work, except in times of war when their employment was encouraged.<sup>80</sup> The Napoleonic Wars also had an impact on the linen manufacture in Ireland. Anne McKernan argues that the shortage of men 'turned independent farmer-weavers into proletarian weavers' but also that women continued to weave in the Irish linen manufacture women after the Napoleonic Wars, proving that the traditional link between gender and commercial linen production was broken.<sup>81</sup> In the English West Country woollen-weaving districts, the scarcity of Spanish wool at the end of the eighteenth century, restricted employment opportunities, but when the supply resumed, and men had enlisted to fight, women went to the loom. J. L. Hammond and Barbara Hammond noted that a manufacturer in Somerset had as many women working for him as men. Another in Wiltshire in 1802 had 'two parts female weavers out of five'.<sup>82</sup>

That many women and children wove cotton in the early nineteenth century and that war had an impact, appears not to be open to question. Thomas Ainsworth, a Bolton manufacturer, stated in 1808 that women and children composed one-half of all weavers.<sup>83</sup> Our data lend support to claims that women and children commonly wove and estimate that their share of the market was at least half.

### *Women and Children Weaving: Evidence from the 1801 census*

The first census in 1801 asked not for occupations but only if a household was involved in agriculture, in manufacturing, or in neither of these. Very few original lists

survive. In Lancashire there is only one that indicates the employment of family members beyond the head of household, from Winwick with Hulme, a township located less than four miles east of Culcheth.<sup>84</sup> Uniquely, the enumerator of this list classifies even those household members who were *not* assigned an occupational descriptor, if they worked in agriculture or in the manufacture of *cotton* specifically. The most common occupational descriptor for women was ‘spinster’ and these were classified in the cotton manufacture column, indicating that the word was being used as an occupational and not a marital descriptor.<sup>85</sup> A spinning mill was in operation in Latchford, five miles away, but it seems implausible that these spinners worked there, needing to walk to work five miles each way with a 12 hour shift in between, six days a week.<sup>86</sup> Nor were there any male spinners in Winwick, who would have worked in a mill. To our knowledge, no other mills were nearby and we hypothesize that these spinners worked with jennies. There was only one female ‘weaver’, but a further 44 women were classified as in cotton manufacture without being ascribed a specific occupation. It seems unlikely that these women were spinning, because if they were they would have been identified by this particular enumerator as spinsters. They were probably not preparing raw cotton, because by 1801 much of that work of picking and carding was done by machine.<sup>87</sup> Of these 44 women, 59 per cent lived in a household where someone else wove. It is possible, therefore, that these were weavers using looms in their own households where we know others wove. The other 41 per cent of women who were in cotton manufacturing (but not spinning) lived in the households of agricultural labourers, farmers, manufacturing labourers, and craftsmen. These women could have rented their own looms or they could have used looms in a workshop, perhaps belonging to the town’s three fustian manufacturers or to one of the larger weavers. If these otherwise unspecified women in cotton manufacture were weaving, then women constituted 52 per cent of the weaving workforce in Winwick.<sup>88</sup>

*Women and Children Handloom Weaving after 1815.*

Women and children continued to weave cotton by hand beyond the Napoleonic Wars. In his analysis of cotton manufacture wages 1810-19, G. W. Daniels stated that ‘a considerable proportion of the weaving of plain goods is done by women and children’.<sup>89</sup> Moreover, when the wars finally concluded in 1815, returning soldiers found it hard to find work as weavers. The cotton manufacture was going through a slump at the time with many looms standing idle. Women were apparently unwilling to give up the trade and continued to weave plain cotton until at least 1825: Baines in 1835 commented casually, ‘A considerable portion of the weaving of plain goods is performed by women and children’.<sup>90</sup>

Three employers testified to a parliamentary investigation in 1833. George Smith, a calico manufacturer in Manchester, employed 1,200 handloom weavers, principally women and children, with ‘two looms to one family of five and half persons’.<sup>91</sup> In the same year, James Grimshaw, a cotton spinning and handloom weaving manufacturer in Colne, examined the work of 50-60 families and concluded that with an average family size of six, three were weavers, and it was not unusual for children as young as 8 years to manage a loom.<sup>92</sup> Cotton weaving was a family affair. The more common or coarser the cotton, the likelier women and children would be given the work. Richard Needham, a Bolton handloom weaver, described his workforce according to the fineness of the yarn, with men weaving 60 count cloth, women 50 count, and children 40 count.<sup>93</sup>

The 1851 census was the first to record the work of women and children in a reliable manner. By that time, handloom weaving had declined but it did remain significant even as the power loom took hold. Table 6 shows the latter providing nearly twice as much work for women than it did men.<sup>94</sup> Handloom weaving was split essentially 50/50 between men and

women and children, the latter's share of the cotton handloom weaving labour force had changed little from that at the beginning of the century.

*Conclusion.*

It is evident from the literature that late eighteenth-century and early nineteenth-century commentators were aware that many women and children wove cotton by hand c. 1800. These commentators realized that women and children were particularly afforded this opportunity once cotton consumption took off after 1780, when the introduction of Crompton's spinning mule revolutionized spinning. The once strict apprenticeship regulations to prevent women and children weaving were lifted or ignored. The demand for weavers was exacerbated when men went off to fight in the Napoleonic Wars, a short-fall in the number of available adult male weavers ensuing. Our analysis of baptism registers and population figures to quantify adult male cotton weaving in 1813-20 found less than 69,000 men, when by a conservative estimate there were 130,000 weavers in England and Wales at that point, and possibly up to 180,000. Our estimates support the work of Pinchbeck and the views of early contemporary commentators that least as many women and children wove cotton by hand as did men. Future work to quantify the impact of mechanization on the work of men, women, and children should recognize this and no longer tacitly assume that only adult males wove by hand.

Table 1

Location of cotton weavers in England and Wales, 1813

<u>County</u>	<u>%</u>
Lancashire	76
West Riding of Yorkshire	14
Derbyshire	2
Cheshire	2
Nottinghamshire	2
Denbyshire	2
Norfolk	1
Staffordshire	1

Source: 1813-20 Baptism Registers.

Table 2.

The populations of Manchester, Lancashire, Cheshire, and Derbyshire, 1781-1811.

<u>Year</u>	<u>Manchester</u>	<u>Lancashire</u>	<u>Cheshire</u>	<u>Derbyshire</u>
1781	35,433	452,675	173,486	133,476
1791	65,544	539,144	182,078	149,040
1801	87,637	703,056	200,811	168,829
1811	102,768	860,906	236,068	192,925

Source: Wrigley, *Early English Censuses*.

Table 3.

Occupational structure: Number of adult men working in Lancashire in 1813.

<b><u>Occupational Sector</u></b>	<b><u>Number</u></b>
Weavers	63,181
Other textiles	21,786
Non-textile manufacturing	52,288
Primary	32,680
Tertiary	28,322
Labourer	19,608
<b>Total employed</b>	<b>217,865</b>

Sources: Baptism Registers.



Table 4.

Number of weavers in three Lancashire parishes, 1813

<b><u>Occupational descriptor</u></b>	<b><u>Rochdale</u></b>	<b><u>Whalley</u></b>	<b><u>Huddersfield</u></b>
Weaver	540	687	37
Cotton weaver	27	96	13
Silk weaver	0	0	0
Stocking weaver	0	0	2
Woollen weaver	22	52	0
<b>Total</b>	<b>589</b>	<b>835</b>	<b>52</b>

Source: 1813 Baptism Registers.

Table 5.

Estimate of the number of male cotton weavers aged 15 years and over, by parish, 1813.

<u>County</u>	<u>Parish</u>	<u>Fathers, weavers</u>	<u>Population, 1811</u>	<u>Estimate, weavers</u>
Lancashire	Manchester	701	136,209	7,621
Lancashire	Blackburn	531	41,668	6,735
Lancashire	Whalley	543	65,707	5,293
Lancashire	Prestwich with Oldham	532	43,194	5,170
Lancashire	Bolton le Moors	421	41,474	4,572
Lancashire	Rochdale	324	52,114	3,834
Lancashire	Bury	333	29,373	3,225
Lancashire	Wigan	290	32,879	3,087
Lancashire	Leigh	273	16,244	2,709
Lancashire	Deane	218	16,864	2,578
Lancashire	Eccles	193	20,356	2,428
Lancashire	Middleton	262	10,873	1,744
Lancashire	Ashton under Lyne	263	19,903	1,743
Lancashire	Leyland	101	11,396	1,689
Derbyshire	Glossop	27	11,377	1,685
Cheshire	Stockport	144	31,952	1,641
Lancashire	Winwick	131	14,938	1,601
Lancashire	Preston	94	20,373	1,296
Lancashire	Prescot	109	20,637	1,202
Lancashire	Kirkham	90	10,799	884
Lancashire	Standish	36	6,550	670

Table 5 Continued.

<u>County</u>	<u>Parish</u>	<u>Fathers, weavers</u>	<u>Population, 1811</u>	<u>Estimate, weavers</u>
Lancashire	Warrington	73	15,249	599
Lancashire	Penwortham	52	3,881	551
Derbyshire	Mottram in Longendale	33	8,113	444
Lancashire	Ribchester	40	3,701	396
Cheshire	Cheadle	22	5,404	369
Lancashire	Radcliffe	39	2,919	342
Lancashire	Lancaster	31	18,301	320
Lancashire	Flixton	36	2,073	310
Lancashire	Croston	141	3,534	298
Lancashire	Brindle	47	1,488	251
Lancashire	Mitton	5	4,547	236
Cheshire	Bowdon	22	7,350	229
Lancashire	St Michael on Wyre	20	4,124	223
Cheshire	Wimslow	13	3,917	208
Lancashire	Eccleston	21	2,608	205
Lancashire	Ormskirk	14	10,362	164
Lancashire	Liverpool	14	98,310	151
Lancashire	North Meols	18	3,021	148
Derbyshire	Chapel en le Frith	14	3,200	122
Lancashire	Ulverston	12	6,125	104
Derbyshire	Eyam	9	1,587	99

Table 5 Continued.

<u>County</u>	<u>Parish</u>	<u>Fathers, weavers</u>	<u>Population, 1811</u>	<u>Estimate, weavers</u>
Cheshire	Ashton on Mersey	9	1,925	90
Lancashire	Bispham	7	917	87
Derbyshire	Tideswell	9	2,143	77
West Riding of Yorkshire	Huddersfield	13	10,103	72
Derbyshire	Wirksworth	9	7,244	72
Lancashire	Warton	8	1,739	67
Lancashire	Poulton le Fylde	7	3,547	63
Derbyshire	Bakewell	7	8,723	61
Lancashire	Hoole	8	779	60
Derbyshire	Ashover	2	3,019	56
Cheshire	Rosterne	8	3,563	52
Derbyshire	Hope	5	4,030	52
Derbyshire	Chesterfield	6	8,273	43
Derbyshire	Castleton	5	1,387	38
Lancashire	Chipping	4	1,506	36
Derbyshire	Heanor	3	3,773	32
Derbyshire	Derby	3	13,701	31
Derbyshire	Measham	5	1,606	29
Lancashire	Melling	2	2,094	27
Derbyshire	Hathersage	4	1,676	27
Derbyshire	Clowne	3	541	25

Table 5 Continued.

<u>County</u>	<u>Parish</u>	<u>Fathers, weavers</u>	<u>Population, 1811</u>	<u>Estimate, weavers</u>
Derbyshire	South Wingfield	3	1,041	25
Derbyshire	Youlgreave	3	3,320	25
Derbyshire	Boyleston	1	1,358	25
Derbyshire	Duffield	1	11,426	24
Derbyshire	Crich	2	2,704	21
Lancashire	Cartmel	3	4,116	20
Lancashire	Dalton in Furness	3	2,168	19
Derbyshire	Old Brampton	2	2,377	15
Derbyshire	Brailsford	2	747	13
Lancashire	Cockerham	2	2,294	12
Lancashire	Garstang, Cockerham	1	8,776	12
Derbyshire	Beighton	1	1,227	12
Lancashire	Hawkshead	1	1,787	11
Lancashire	Walton on the Hill	1	5,939	11
Derbyshire	Elmton	1	298	11
Derbyshire	Matlock	1	2,616	11
Derbyshire	Morton	1	482	11
Derbyshire	Whitwell	1	745	11
Lancashire	Huyton	1	2,513	9
Derbyshire	Ashbourne	1	4,413	9
Derbyshire	Kirk Langley	1	547	9

Table 5 Continued.

<u>County</u>	<u>Parish</u>	<u>Fathers, weavers</u>	<u>Population, 1811</u>	<u>Estimate, weavers</u>
Derbyshire	Ockbrook	1	981	9
Derbyshire	Shirley	1	592	9
Lancashire	Aughton	1	1,078	8
Lancashire	Kirkby Ireleth	1	2,502	8
Derbyshire	Bonsall	1	1,346	8
Derbyshire	North Wingfield	1	1,833	8
Derbyshire	Dronfield	1	2,616	7
Derbyshire	Hathersage	1	1,676	7
Derbyshire	Spondon	1	1,297	7
Derbyshire	Tibshelf	1	745	7
Lancashire	Halton	1	813	6
Derbyshire	Bradbourne	1	1,252	6
Derbyshire	Kirk Ireton	1	744	6
Derbyshire	Sawley	1	1,476	5
				<b>68,690</b>

Sources: Baptism Registers.

Table 6

Percentage of cotton hand and power loom weavers in Lancashire, 1851.

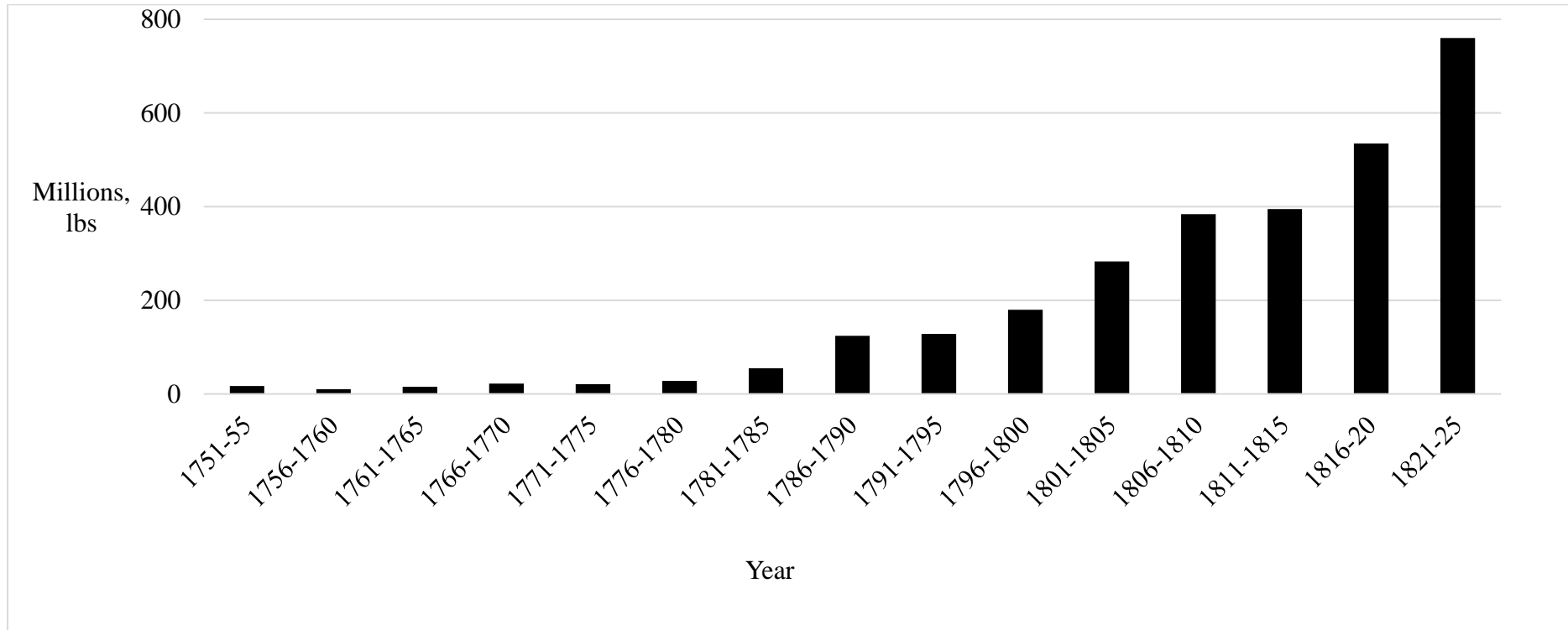
<u>Gender and age</u>	<u>Handloom</u>	<u>Power loom</u>
Males aged under 15 years	3	4
Males 15 years and over	52	30
Females aged under 15 years	3	9
Females 15 years and over	42	57

Notes. The census holds approximately 150,000 entries for Lancashire weavers of whom 15,000 wove cotton by hand and 28,000 wove cotton by power. In addition, there are approximately 25,000 entries for cotton weavers for which it is not specified whether they wove by hand or by power.

Source: I-CeM, 1851 Census.

Figure 1

Raw cotton consumption in the Great Britain 1751-1825.



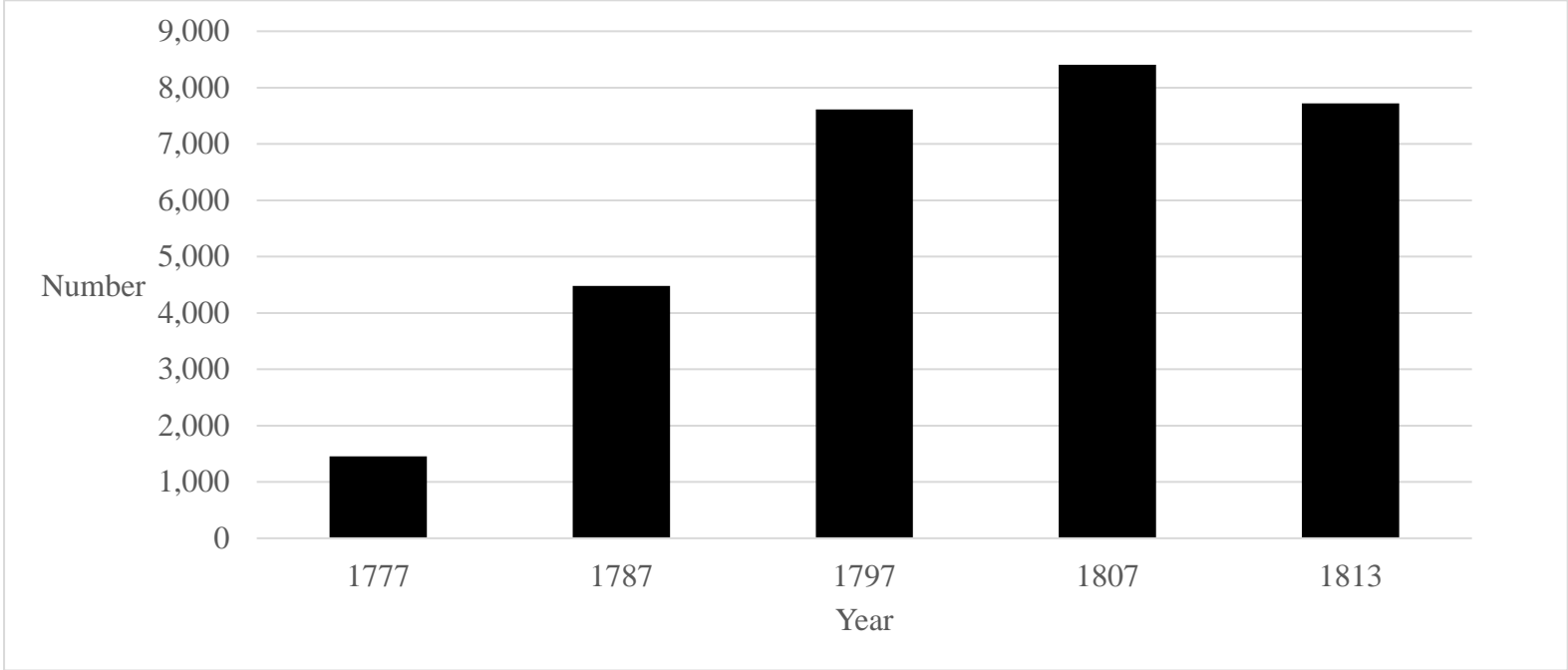
Note: Consumption 1821-25 is for the United Kingdom

Source: Mitchell (2011).



Figure 2.

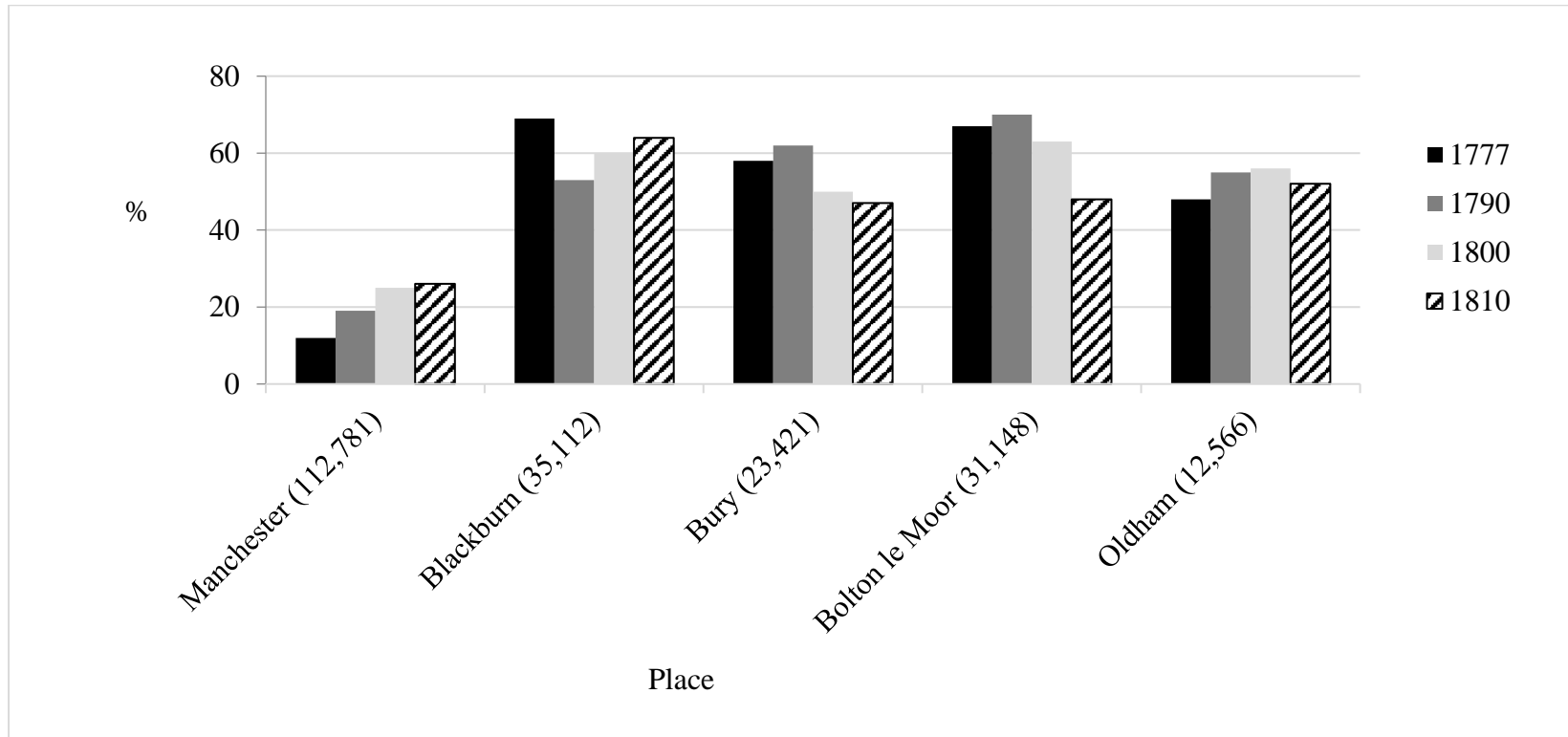
Estimated number of adult male weavers aged 15 years and over in Manchester Parish, 1777-1813.



Sources: Marriage Registers.

Figure 3

Percentage share of weavers in the adult labour force in five Lancashire parishes, 1777-1810.

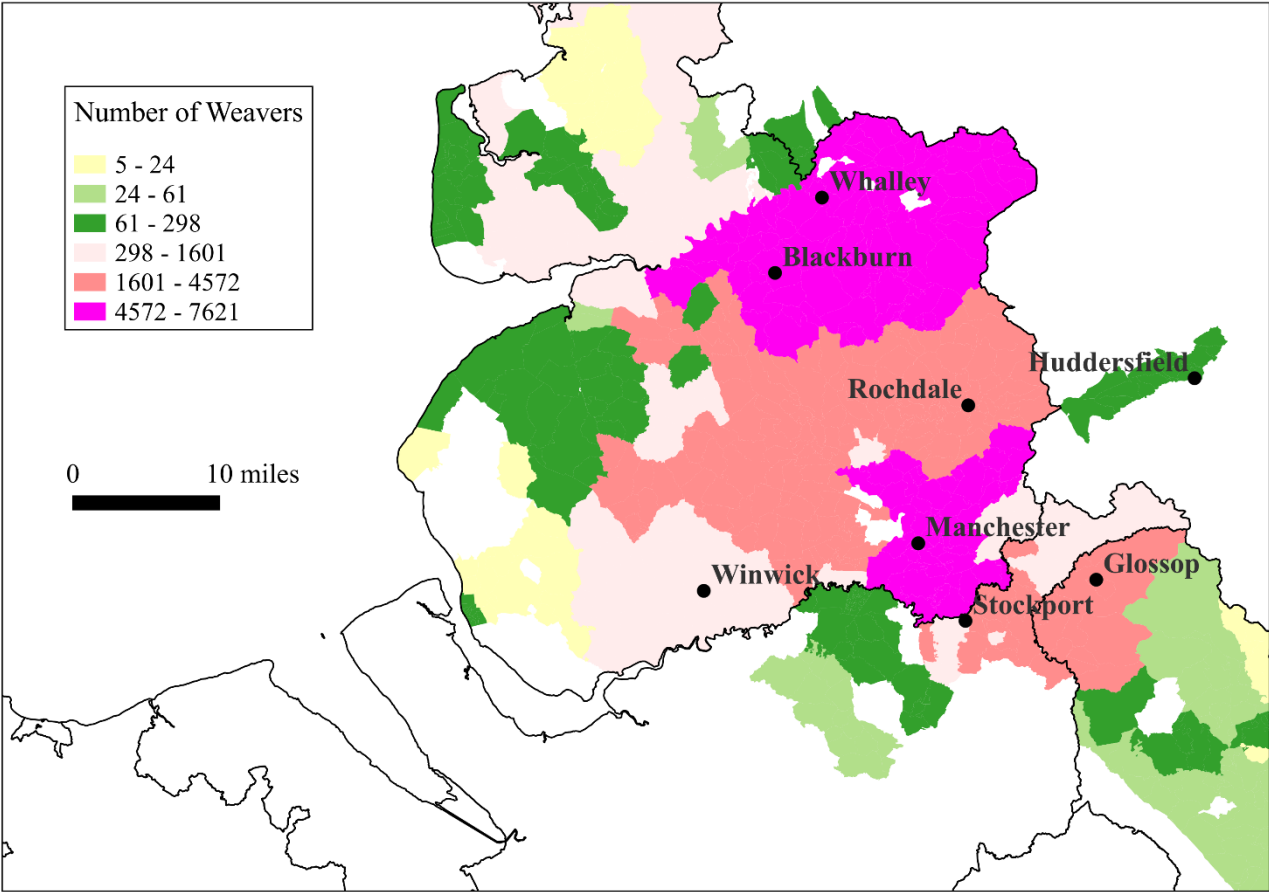


Note: Figures in parenthesis denote population in 1801.

Sources: Marriage Registers.

Figure 4

The location of adult male cotton weavers in Lancashire, Cheshire, Derbyshire and the West Riding of Yorkshire, 1813.



Sources: Baptism registers.

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<sup>1</sup> The authors would like to thank...

<sup>2</sup> For example, for a statement on the dominance of men in weaving see Craig Muldrew, 'Th' Ancient Distaff and 'Whirling' Spindle: Measuring the Contribution of Spinning to Household Earnings and the National Economy in England, 1550-1770, *Economic History Review* 65, No. 2 (2012), pp. 498-526, 500; Leigh Shaw-Taylor, Keith Sugden, and Xuesheng You, 'A Preliminary Estimate of the Female Occupational Structure of England and Wales 1700-1911', available as paper 33 at <https://www.campop.geog.cam.ac.uk/research/occupations/outputs/preliminary/>; Ben Schneider, 'Technological Unemployment in the British Industrial Revolution; the Destruction of Hand Spinning', Oxford Economic and Social History Working Papers, University of Oxford, 2023.

<sup>3</sup> Ingvild Øye, 'When Did Weaving become a Male Profession', *Danish Journal Of Archaeology* 5, Nos 1-2 (2016), pp. 34-51, 34.

<sup>4</sup> B. Schneider, 'Technological Unemployment in the British Industrial Revolution: The Destruction of Hand Spinning', Oxford Economic and Social History Working Papers Number 207, University of Oxford, May 2023, [https://ora.ox.ac.uk/objects/uuid:57ab931e-847a-4ea9-a2b1-45086758bedc/download\\_file?file\\_format=application%2Fpdf&safe\\_filename=Schneider\\_2023\\_Technological\\_unemployment\\_in.pdf&type\\_of\\_work=Working+paper](https://ora.ox.ac.uk/objects/uuid:57ab931e-847a-4ea9-a2b1-45086758bedc/download_file?file_format=application%2Fpdf&safe_filename=Schneider_2023_Technological_unemployment_in.pdf&type_of_work=Working+paper) (accessed July 19<sup>th</sup> 2023).

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- <sup>11</sup> Pinchbeck, *Women Workers*, p. 160.
- <sup>12</sup> P. Sharpe, *Adapting to Capitalism: Working Women in the English Economy, 1700-1850* (London: Macmillan, 1996), p. 33. J. L. Hammond and B. Hammond, *The Skilled Labourer* (London: Longmans, Green, and Co, 1919), p. 162. Clark, *Working Life*, pp. 102-6. Pinchbeck, *Women*

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<sup>14</sup> M. Berg, *The Age of Manufactures 1700-1820* (2<sup>nd</sup> edition, Abingdon: Routledge, 2005), p. 220

<sup>15</sup> Berg, 'Women's work', p. 80.

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<sup>45</sup> T. Ellison, *Cotton Trade of Great Britain Including a History of the Liverpool Cotton Market and of the Liverpool Cotton Brokers' Association* (London: Effingham Wilson Royal Exchange, 1886), p. 56.

<sup>46</sup> G. von Schulz-Gaevertiz, *The Cotton Trade in England and on the Continent* (Manchester: Simpkin, Marshall, Hamilton, Kent, and Co., 1895), p. 31.

<sup>47</sup> G. H. Wood, *History of Wages in the Cotton Trade During the past Hundred Years* (London: Sherratt and Hughes, 1910), pp. 125-26.  
Smelser, *Social Change*, 137 uses Woods' figures in his Table 8 without comment.

<sup>48</sup> Baines, *History of Cotton*, p. 238.

<sup>49</sup> N. Murray, *The Scottish Hand Loom Weavers, 1790-1850: A Social History* (Edinburgh: John Donald, 1978), p. 21, and cited by Timmins, *Last Shift*, p. 39.

<sup>50</sup> A. Bielenberg and P. M. Solar, 'The Irish Cotton Industry from the Industrial Revolution to Partition', *Irish Economic and Social History* 34, no. 1 (2007), pp. 1-28, 2-3, 23.

<sup>51</sup> J. Warburton, J. Whitelaw, and R. Walsh, *History of the City of Dublin vol II* (London: T. Cadell and W. Davies, 1818), p. 972; Bielenberg and Solar, 'Irish Cotton Industry'.

<sup>52</sup> Timmins, *Last Shift*, pp. 36-39, 200-23.

<sup>53</sup> *Ibid*, pp. 201.

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<sup>54</sup> Ibid, pp. 36-37. Timmins thought that among marrying men ‘the vast majority would have been in their twenties and thirties’.

<sup>55</sup> Ibid, p. 37.

<sup>56</sup> Ibid, pp. 36-39.

<sup>57</sup> Cambridge Group for the History of Population and Social Structure, ‘1813-20 PReEnglandWalesOccs. mbd’. This database covers seven years, but only 1813 data was used because power loom weaving was essentially non-existent at that time.

<sup>58</sup> Observations, Enumeration, and Parish register Abstract, 1821, p. 161,

[http://www.histpop.org/ohpr/servlet/PageBrowser?path=Browse/Census%20\(by%20date\)/1821&active=yes&mno=7&tocstate=expandnew&tocseq=100&display=sections&display=tables&display=pagetitles&pageseq=first-nonblank](http://www.histpop.org/ohpr/servlet/PageBrowser?path=Browse/Census%20(by%20date)/1821&active=yes&mno=7&tocstate=expandnew&tocseq=100&display=sections&display=tables&display=pagetitles&pageseq=first-nonblank) (accessed October 2022).

<sup>59</sup> Wrigley, *Early English Censuses*, Table A2.7.

<sup>60</sup> A. G. Gilbert, *Religion and Society in Industrial England: Church, Chapel, and Social Change, 1740-1914* (London: Longman, 1976), pp. 112-13. Timmins, *Last Shift*, p. 36.

<sup>61</sup> RG4: Register of Births, Marriages, and Deaths, Piece 105: Manchester, Grosvenor Street Chapel (Dissenting Protestants), 1829-37, Lancaster 135 II, <https://www.ancestry.co.uk/discoveryui-content/view/1004576:2972> (accessed October 2022).

<sup>62</sup> Blackburn St. Mary Baptism register 1833, <https://www.lan-opc.org.uk/Blackburn/Blackburn/stmary/index.html>, Online Parish Clerks in the County of Lancashire (accessed October 2022); Ebenezer Primitive Methodist Church, 1832-33, <https://www.lan-opc.org.uk/Blackburn/Blackburn/ebenezer/index.html>, Online Parish Clerks in the County of Lancashire (accessed October 2022).

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<sup>63</sup> The map is constructed from A. E. M. Satchell, P. M. Kitson, G. H. Newton, L. Shaw-Taylor, L., and E. A., ‘1851 England and Wales Census Parishes, Townships and Places (2006)’. This dataset was created with funding from the ESRC [RES-000-23-1579], the Leverhulme Trust and the British Academy. A description of the dataset can be found in A. E. M. Satchell, ‘England and Wales Census Parishes, Townships and Places Documentation [2005, 2015]’. The dataset is an enhanced and corrected version of N. Burton, J. Westwood, J., and P. Carter, ‘GIS of the Ancient Parishes of England and Wales, 1500-1850’, (Colchester, UK Data Archive, 2001: SN 4828), which is a GIS version of R. J. P. Kain, and R. R. Oliver, ‘Historic Parishes of England and Wales: An Electronic Map of Boundaries Before 1850 with a Gazetteer and Metadata’, (Colchester, UK Data Archive 2001, SN 4348).

<sup>64</sup> Cambridge Group for the History of Population and Social Structure, ‘1813-20 PReEnglandWalesOccs. mbd’

<sup>65</sup> Bythell, *Handloom Weavers*, pp. 41-42.

<sup>66</sup> Guest, *Compendious History*, p. 31. Also quoted in Smelser, *Social Change*, p. 137.

<sup>67</sup> Radcliffe, *Origin of Power Loom Weaving*, pp. 55-56. Also quoted in Pinchbeck, *Women Workers*, p. 163.

<sup>68</sup> F. Collier, *The Family Economy of the Working Classes in the Cotton Industry 1784-1833*, R. S. Fritton ed., (Manchester: Manchester University Press, 1965), p. 6; Pinchbeck, *Women Workers*, 159 (a loom could be built for £2-4).

<sup>69</sup> Wadsworth de Lacy Mann, *Cotton Trade*, pp. 336-37.

<sup>70</sup> R. Glen, *Urban Workers in the Early Industrial Revolution* (Beckenham: Croom Helm, 1984), p. 141.

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<sup>71</sup> A. Young, *A Six Months Tour Through the North of England vol. I* (2<sup>nd</sup> Edition, London: W. Strahan, 1771), pp. 137-8, 187-8, 190; A.

Young, *Six Months Tour Through the North of England vol. III* (London: W. Strahan, 1770), p. 172 ; A. Young, *Six Weeks Tour Through the Southern Counties of England and Wales* (London: W. Nicholl, 1768), p. 58. See also Pinchbeck, *Women Workers*, pp. 157-8, 160, and 173.

<sup>72</sup> Young cited by Pinchbeck, *Women Workers*, p. 166.

<sup>73</sup> Pinchbeck, *Women Workers*, pp. 157-165.

<sup>74</sup> *Report from the Committee on Petitions of Several Cotton Manufacturers and Journeymen Cotton Weavers & c. Together with the Minutes of Evidence Taken Before the Committee*, 1808, II.95, vol. 2, p. 27.

<sup>75</sup> G. N. Gandy, 'Illegitimacy in a Handloom Weaving Community: Fertility Patterns in Culcheth, Lancs., 1780-1860' (Ph.D diss., University of Oxford, 1979), pp. 41-2.

<sup>76</sup> K. Linch, *Britain and Wellington's Army. Recruitment, Society and Tradition, 1807-15* (Basingstoke: Palgrave Macmillan, 2011), pp. 65-7.

<sup>77</sup> Pinchbeck, *Women Workers* pp. 163-64.

<sup>78</sup> J. Singleton to the Home Office, 27<sup>th</sup> May 1799 (National Archive, HO 42/47) cited by Pinchbeck, *Women Workers*, 164 and Bythell, *Handloom Weavers*, pp. 50-1.

<sup>79</sup> *Report from the Committee on Petitions of Several Cotton Manufacturers*, 1808, p. 27.

<sup>80</sup> Pinchbeck, *Women Workers*, pp. 168-9. See also A. Clark, *The Struggle for the Breeches* (London: Rivers Oram, 1995), p. 127, citing a newspaper cutting dated July 30<sup>th</sup> 1826, in London, British Library, Place Collection of Clippings, set 16, vol 1, p. 61.

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- <sup>81</sup> A. McKernan, 'War, Gender, and Industrial Innovation; Recruiting women weavers in Early Nineteenth-Century Ireland', *Journal of Social History* 28, no. 1 (1994), pp. 109-24, 109-10 and 118.
- <sup>82</sup> Hammond and Hammond, *Skilled Labourer*, p. 162. Pinchbeck, *Women Workers*, p. 165.
- <sup>83</sup> *Report from the Committee on Petitions of Several Cotton Manufacturers*, p.13.
- <sup>84</sup> A copy of this list is held in the library of the Cambridge Group for the History of Population & Social Structure, but is not included in Wall, Woollard and Moring, *Census Schedules and Listings 1801–1831: an introduction and guide* (University of Essex 2004, republished 2012), [https://www1.essex.ac.uk/history/documents/research/RT2\\_Wall\\_2012.pdf](https://www1.essex.ac.uk/history/documents/research/RT2_Wall_2012.pdf).
- <sup>85</sup> Radcliffe in 1828 still used 'spinster' occupationally: *Origin of Power Loom Weaving*, pp. 9, 107.
- <sup>86</sup> S. D. Chapman, 'The Peels in the Early English Cotton Industry', *Business History* 11, no. 2 (1969), pp. 61-89.
- <sup>87</sup> Smelser, *Social Change*, p. 99.
- <sup>88</sup> See further, A. L. Erickson, 'Winwick with Hulme in 1801', forthcoming.
- <sup>89</sup> G. W. Daniels, 'The Cotton trade at the Close of the Napoleonic War', *Manchester Statistical Society* (1917-18), pp. 1-29.
- <sup>90</sup> Baines, *History of Cotton*, p. 438, in the 'Remarks' column of the table showing wages and prices 1810-24.
- <sup>91</sup> *Report of the House of Commons Select Committee on Manufactures, Commerce, and Shipping*, 690, 1833, pp. 561-62.
- <sup>92</sup> *Ibid*, pp. 600-01.
- <sup>93</sup> *Ibid*, pp. 701-02.

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<sup>94</sup> K. Schurer and E. Higgs, 1851 Census, , *Integrated Census Microdata (I-CeM): 1851-1911* [computer file]. Colchester, Essex: UK Data Archive [distributor], April 2014. SN: 7481.