

Gender, Work and Wages in Industrial Revolution Britain

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Gender, Work and Wages in Industrial Revolution Britain

A major new study of the role of women in the labor market of Industrial Revolution Britain. It is well known that men and women usually worked in different occupations, and that women earned lower wages than men. These differences are usually attributed to custom but Joyce Burnette here demonstrates instead that gender differences in occupations and wages were largely driven by market forces. Her findings reveal that, rather than harming women, competition actually helped them by eroding the power that male workers needed to restrict female employment and by minimizing the gender wage gap by sorting women into the least strength-intensive occupations. Where the strength requirements of an occupation made women less productive than men, occupational segregation maximized both economic efficiency and female incomes. She shows that women's wages were then market rather than customary wages and that the gender wage gap resulted from actual differences in productivity.

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Preface

Once upon a time women were largely missing from economic history. Economic historians somehow managed to make claims about the standard of living without examining women's wages. Happily, that has now changed, thanks to the efforts of pioneering feminists who made the case for the importance of including women in economic history. Since the value of studying women as well as men is now well established, I do not feel a need to justify the existence of this book. The subject matter is contentious, but it is my hope that the book will stimulate, not an all-or-nothing debate about the existence of gender discrimination, but a nuanced discussion of where, when, and how gender discrimination may have operated, and of the relationship between discrimination and markets.

This book began fifteen years ago as a PhD dissertation at Northwestern University. The origin of the project was a paper I wrote for Joel Mokyr's European Economic History class on the correlation between male and female wages in the "Rural Queries" of 1833. This paper got me thinking about how the labor market treated women, a process which eventually led to the ideas expressed here. I am grateful for the input of Joel Mokyr, my dissertation advisor, and Rebecca Blank and Bruce Meyer, the labor economists on my committee. A grant from the Mellon Foundation supported a year of dissertation research, and a Northwestern University Dissertation Year Grant supported the purchase of microfilm from the archives.

After receiving my PhD, I published parts of my research as articles, but otherwise put the dissertation aside while I concentrated on collecting data from farm accounts. I continued to think about the issues raised in this book, but did not begin to revise it until my sabbatical in 2002–3. I spent that academic year as a visitor at the London School of Economics, supported partly by Wabash College and partly by a Sabbatical Fellowship from the American Philosophical Society. Most of the revisions to the

manuscript were accomplished in the spring of 2005, during a one-semester leave funded by a grant from the National Science Foundation (Grant no. 0213954). Any opinions, findings, and conclusions or recommendations expressed in this book are those of the author and do not necessarily reflect the views of the National Science Foundation. I thank Dan Newlon for working with someone who didn't understand the grant process very well.

I am thankful for the many comments I have received from colleagues when I have presented portions of the material. Colleagues who have been especially helpful are Greg Clark, Jane Humphries, and Andrew Seltzer, who have commented on my work multiple times over many years. I am especially grateful for critics of my work who have forced me to think more carefully about specific claims. I thank James Henderson for teaching me to love economics as an undergraduate at Valparaiso University. Last but not least, I am thankful for the support of my husband Patrick, both for helping me with my prose, and for running the household when I was doing other things.

Introduction

Early in the morning of Friday, January 28, 1820, a night watchman at the Broomward Cotton Mill in Glasgow discovered a fire in the carding room. He:

gave the alarm, and, on going to the spot, found that some Person or Persons had, by getting up on a tree opposite to, and within three feet of the east side of the Mill, thrown in, through the opening pane of one of the windows, a Paper Bundle or Package, filled with Pitch and Gunpowder, and dipped in Oil, which had exploded, and set Fire to a Basket full of loose Cotton, which communicated to one of the Carding Engines, and which, unless it had instantly and providentially been discovered and got under, must have consumed the whole Building.¹

James Dunlop, the owner of the mill, was probably not surprised. The motives of the arsonists were no mystery. On January 31 the *Glasgow Herald* reported:

This fire, there is good ground to believe, has been occasioned by a gang of miscreants who, for some time past, have waylaid, and repeatedly assaulted and severely wounded, the persons employed at the Broomward Cotton Mill, who are all women, with the view of putting the mill to a stand, and throwing the workers out of employment.²

A few years later twenty-five mill owners from Glasgow petitioned the Home Secretary Robert Peel to extend the anti-union Combination Laws to Scotland. Their petition describes this case in more detail.

Messrs James Dunlop and Sons, some years ago, erected cotton mills in Calton of Glasgow, on which they expended upwards of 27,000*l.* forming their spinning machines (chiefly with the view of ridding themselves of the combination) of such reduced size as could easily be wrought by women. They employed women alone, as not being parties to the combination, and thus more easily managed, and less insubordinate than male spinners. These they paid at the same rate of wages, as were paid at other works to men. But they were waylaid and attacked, in going to, and returning from their work; the houses in which they resided,

¹ *The Glasgow Herald*, Monday, January 31, 1820, p. 3, col. 2. ² *Ibid.*, p. 2, col. 4.

were broken open in the night. The women themselves were cruelly beaten and abused; and the mother of one of them killed; in fine, the works were set on fire in the night, by combustibles thrown into them from without; and the flames were with difficulty extinguished; only in consequence of the exertions of the body of watchmen, employed by the proprietors, for their protection. And these nefarious attempts were persevered in so systematically, and so long, that Messrs. Dunlop and Sons, found it necessary to dismiss all female spinners from their works, and to employ only male spinners, most probably the very men who had attempted their ruin.³

The women spinners employed by Dunlop lost their jobs as a direct result of the male workers' opposition.

The attempt to burn Dunlop's mill was just one battle in a war between the cotton spinners' union and their employers. Other mills were attacked, and one employer was even shot at in the doorway of his father-in-law's house on his wedding night.⁴ The dispute included, among other points, an objection to the employment of women. On November 27, 1822, Patrick McNaught, manager of the Anderston Cotton Mill in Glasgow, received the following note from the spinners' union, which emphasized the employment of women:

Sir,

I am authorized to intimate jeopardy and hazardous predicament you stand in at the present time, by the operative cotton spinners, and lower class of mankind, in and about Glasgow, by keeping them weomen officiating in mens places as cotton spinners, and plenty of men going idle out of employ, which would I accept of them for the same price omiting the list which you know is triffling. So they present this proposal as the last, in corresponding terms, so from this date they give you a fortnight to consider the alternative, whether to accept the first or the latter, which will be assassination of body; which you may relie upon no other thing after the specified time is run, for you will be watched and dogged by night and by day, till their ends are accomplished; for you well deserve the torturings death that man could invent, being so obstinate, more so than any other master round the town, and seeing poor men going about the street, with familys starving, and keeping a set of whores, as I may call them, spending their money, drinking with young fellows, and keeping them up. So mark this warning well, and do not vaunt over it like you foolish neighbour, Mr. Simpson, in Calton, with his, for he was soon brought to the test, and you will be the same with murder.⁵

The writer of this note, identified only as "Bloodthirst void of fear," draws on gender ideology to create a sense of outrage. He calls the women whores for the offenses of "spending their money" and "drinking with young fellows," activities which do not seem to us worthy of condemnation

³ *Fifth Report from the Select Committee on Artizans and Machinery*, BPP 1824 (51) V, p. 525.

⁴ *Ibid.*, p. 527. ⁵ *Ibid.*, p. 531.

but clearly fall outside what the writer considers to be proper feminine behavior. One suspects, though, that the real reason for the opposition to female employment is that the women are working “in men’s places.” If women were employed, men would be unemployed, or at least would have to work for lower wages. Employers were somehow immune to these concerns about proper feminine behavior, and actively sought to hire women because they could benefit economically from doing so. It was the male workers, who would lose economically from their employment, who expressed such concerns about proper female behavior. Thus a man’s opinions on whether women should work in the factory seem to have been determined by whether he would win or lose economically from the employment of women. The union’s grievances were not directed only at women spinners, but also at other forms of competition; the employment of male workers not approved by the union was also violently opposed. The violence was economic warfare, aimed at protecting the spinners’ wages and working conditions. The actions of the Glasgow mule spinners are just one example of barriers to women’s employment that were erected because of economic motivations; men excluded women to reduce competition and raise their own wages.

In the late eighteenth and early nineteenth centuries women and men generally did not work at the same jobs, and they did not receive the same wages. These differences are widely known, and the most common explanation is that they resulted from discrimination or gender ideology. This book will argue that economic motivations explain the patterns we observe. In some cases, the occupational sorting was required for economic efficiency. Since strength was a scarce resource, the market paid a premium for it. In other cases occupational sorting was the result of a powerful group seeking to limit women’s opportunities in order to improve its own economic position, at the expense of women, and at the expense of economic efficiency. The case of the Glasgow cotton spinners illustrates the second case. Women were excluded from the highly paid occupation of cotton spinning, not because they were incapable of doing the job, or because employers refused to hire them, or because social disapproval, combined with violence, kept them at home, but because the male cotton spinners’ union was effective in excluding them, thus reducing the supply and increasing the equilibrium wage of cotton spinners.

In seeking to understand the causes of gender differences in wages and occupations, this book will focus on actuality rather than ideology. I am mainly interested in what work women actually did, rather than how people thought or spoke about this work. Both ideology and actuality are important topics of study, and one may influence the other, but we must

not confuse the two. Many researchers are primarily interested in the ideology of the period. For example, Davidoff and Hall note, "The suitability of field work, indeed any outdoor work for women, was almost always discussed in moral terms."⁶ This statement provides some insight into how people in the Industrial Revolution *discussed* women's work. By contrast, I am primarily interested in what people *did*. Which jobs did women do, and what were they paid?

We can ask two related but different questions about women's work: "What did people think women should do?" and "What work did women actually do?" What people *say* does not always match what they actually do, so evidence on the first question will not answer the second question. While social expectations influence behavior, they are not the whole story. People have an amazing ability to say one thing and do another, particularly when they can benefit from doing so. Nineteenth-century employers could hire married women at the same time they claimed to be opposed to the employment of married women. For example, in 1876 Frederick Carver, the owner of a lace warehouse, told a parliamentary committee: "we have as a rule an objection to employing married women, because we think that every man ought to maintain his wife without the necessity of her going to work." However, he seems to have been willing to break this rule without too much difficulty. Carver admitted that "As to married women, in one particular department of our establishment we have forty-nine married women and we wish that the present state of things as regards married women should not be disturbed."⁷ Because preconceived notions of women's work and actual employment often conflicted, we must make a clear distinction between the two when trying to analyze women's employment opportunities.

Amanda Vickery has warned us against taking Victorian ideology at face value. She asks:

Did the sermonizers have any personal experience of marriage? Did men and women actually conform to prescribed models of authority? Did prescriptive literature contain more than one ideological message? Did women deploy the rhetoric of submission selectively, with irony, or quite critically? ... Just because a volume of domestic advice sat on a woman's desk, it does not follow that she took its strictures to heart or whatever her intentions managed to live her life according to its precepts.⁸

⁶ Leonore Davidoff and Catherine Hall, *Family Fortunes: Men and Women of the English Middle Class, 1780–1850* (Chicago: University of Chicago Press, 1987), p. 274.

⁷ BPP 1876, XIX, p. 258, quoted in Sonya Rose, *Limited Livelihoods: Gender and Class in Nineteenth-Century England* (Berkeley: University of California Press, 1992), p. 32.

⁸ Amanda Vickery, "Golden Age to Separate Spheres? A Review of the Categories and Chronology of English Women's History," *Historical Journal* 36 (1993), pp. 385, 391.

This study will heed Vickery's warning, and will not assume that statements of gender ideology are evidence of how employers actually made economic decisions. The fact that some jobs were labeled "men's work" is not proof that women were excluded because the gender label attached to a job and the sex of the person who filled the job did not necessarily match. An 1833 parliamentary investigation finds that "In the Northern Counties, the Women engage in Men's work much more than in the Southern Districts."⁹ While there was a clear category of jobs designated "men's work," it was not true that men always filled those jobs.

Of course, customary expectations often did accurately describe the gender division of labor. Michael Roberts has suggested that the debate between custom and market is not productive because the two are compatible.¹⁰ It is true that market efficiency and custom usually prescribed the same outcomes, and I believe that this was no accident, but the result of the close relationship between the two. In theory the relationship between custom and market could run in either direction. Custom could determine the work that people did, or the work that people did could determine which customs would emerge, or both. Most historians believe that custom shaped economic outcomes. Some believe that economic outcomes shaped custom. Heidi Hartmann, for example, claims that women's low social status has its roots in the gender division of labor and can only be ended by ending occupational segregation.¹¹ I believe that economic outcomes matched custom so closely because custom was created to explain and justify the existing patterns of work and pay. In some cases the gender division of labor resulted from economic forces that promoted the most efficient outcome. However, since most people did not understand those economic forces, they relied on gender ideology to explain the patterns they observed. In other cases the gender division of labor was not efficient but benefited a particular group; in these cases the group benefiting from occupational segregation created and used gender ideology to promote their own economic interests.

By emphasizing the economic motivations for gender differences, I am providing a materialist explanation for the gender division of labor. This is meant to be an alternative to the prevailing ideological explanation, which gives priority to ideas about gender roles. I do believe that such

⁹ BPP 1834 (44) XXX, Whitburn, Durham, p. 169.

¹⁰ Michael Roberts, "Sickles and Scythes Revisited: Harvest Work, Wages and Symbolic Meanings," in P. Lane, N. Raven, and K. D. M. Snell, eds., *Women, Work and Wages in England, 1600–1850* (Woodbridge: Boydell Press, 2004), p. 89.

¹¹ Heidi Hartmann, "Capitalism, Patriarchy, and Job Segregation by Sex," *Signs* 1 (1976), pp. 137–69.

ideologies were present, but I don't think they were the driving cause of the differences we observe. Distributional coalitions could take advantage of such ideologies, and even expand them, in order to justify their inefficient policies. The Glasgow cotton spinners called the women spinners whores, not because they were driven by a concern for sexual purity, but because, by generating outrage, they could increase public support for their campaign to remove the women from their jobs. The question is not whether gender ideology existed, but whether it was the engine driving the train or just the caboose. Most research on the subject makes ideology the engine; I think it was the caboose.¹²

Even if patterns of work and pay were determined by economic forces, that does not mean that people understood them that way. Customary explanations are created partly because people do not understand economic forces. During the Industrial Revolution sudden changes in technology caused custom and the market to diverge, creating discomfort for the people involved when new realities did not match the customary explanations that had been created for a different reality. We can see an example of this discomfort in a passage by Friedrich Engels describing the husband of a factory worker:

[a] working-man, being on tramp, came to St. Helens, in Lancashire, and there looked up an old friend. He found him in a miserable, damp cellar, scarcely furnished; and when my poor friend went in, there sat Jack near the fire, and what did he, think you? why he sat and mended his wife's stockings with the bodkin; as soon as he saw his old friend at the door-post, he tried to hide them. But Joe, that is my friend's name, had seen it, and said: "Jack, what the devil art thou doing? Where is the missus? Why, is that thy work?" and poor Jack was ashamed and said: "No, I know that this is not my work, but my poor missus is i' th' factory; she has to leave at half-past five and works till eight at night, and then she is so knocked up that she cannot do aught when she gets home, so I have to do everything for her what I can, for I have no work, nor had any for more nor three years ... There is work enough for women folks and childer hereabouts, but none for men; thou mayest sooner find a hundred pound in the road than work for men ... when I got married I had work plenty ... and Mary need not go out to work. I could work for the two of us; but now the world is upside down. Mary has to work and I have to stop at home, mind the childer, sweep and wash, bake and mend." ... And then Jack began to cry again, and he wished he had never married.¹³

Both gender ideology and market forces were very real for Jack. Gender ideology told him that he should earn the income while his wife worked

¹² For an alternative view, see Rose, *Limited Livelihoods*, pp. 12–13.

¹³ Frederick Engels, *Condition of the Working Class in England in 1844* (London: George Allen and Unwin, [1845] 1926), pp. 145–6.

in the home, and the fact that this ideology did not match his situation made him miserable. Market forces, however, determined the actual pattern of work; his wife worked at the factory while Jack worked in the home.

Many studies of women's work have chosen to focus on ideology, on how people thought and talked about women workers.¹⁴ This focus may arise from an interest in ideology for its own sake, or from a belief that ideology drives action, that what people actually do is determined by the categories of how they think. My focus on actuality comes from a belief that the chain of causation more often runs the other way, that actuality drives ideology. Economic actors respond to economic incentives, and use ideology as a cover for their naked self-interest.

The relative strength of ideological and economic motivations is best seen when the two conflict. Humphries has suggested that occupational segregation was supported because concerns about sexuality required keeping the sexes apart.¹⁵ In spite of this concern, however, men were admitted to the intimate setting of childbirth. Though midwifery had historically been a female activity, men began to enter the profession as man-midwives in the seventeenth century. By the nineteenth century male physicians were favored as birth attendants in spite of the Victorians' prudishness that considered it "indelicate" for a father to be present at the birth of his own child.¹⁶ Men who otherwise would consider it dangerous to allow men and women to work together hired men to attend at the births of their children. The medical profession deflected any concerns about indelicacy by stressing male skill and supposed female incompetence. Where male jobs were at stake, impropriety did not seem to be a problem.

The existence of gender ideology sometimes makes it more difficult to discover the actuality of what work women did. Unfortunately, the ideologies that were present affected the accuracy of the historical records. Because a woman's social status was determined by her relationship to men, the census does not accurately describe the work women did. Many working women were not listed as having any occupation. The 1841 census instructed enumerators to ignore the occupations of a large fraction of women; its instructions state, "The professions &c. of wives, or of sons or daughters living with and assisting

¹⁴ For example, see Deborah Simonton, *A History of European Women's Work* (London: Routledge, 1988) and Pamela Sharpe, "Commentary," in P. Sharpe, ed., *Women's Work: The English Experience 1650-1914* (London: Arnold, 1998), pp. 71-2.

¹⁵ Jane Humphries, "'... The Most Free from Objection ...' The Sexual Division of Labor and Women's Work in Nineteenth-Century England," *Journal of Economic History* 47 (1987), pp. 929-50.

¹⁶ Jean Donnison, *Midwives and Medical Men* (London: Historical Publications, 1988), p. 64.

their parents but not apprenticed or receiving wages, need not be inserted.”¹⁷ In practice, census enumerators seem to have ignored women’s employment even when they were receiving wages; Miller and Verdon have both found examples of women who were paid wages for agricultural labor but had no occupation listed in the census.¹⁸ Whether an occupation was categorized as “skilled” was also socially determined. Bridget Hill found that census officials were unwilling to categorize occupations employing women and children as skilled.

Albe Edwards, the man responsible for the reclassification, met with a problem when he found certain occupations which technically were classified as “skilled” had to be down-graded to “semi-skilled,” “because the enumerators returned so many children, young persons, and women as pursuing these occupations.” Edwards did not hesitate to lower the status of certain occupations when he found women and young people worked in them in large numbers.¹⁹

In this case the categorization of occupations as skilled or semi-skilled reflects ideology rather than characteristics of the job.

The ability of ideology to alter the historical record is not limited to the nineteenth century. Sanderson finds that in Edinburgh women were actively involved in many skilled occupations, and that historians have devalued their contributions by assuming that women’s occupations were “merely extensions of domestic skills” or by failing to recognize that women’s occupations were skilled occupations. The most telling example of such devaluation of women’s work is from:

the entry in the printed Marriage Register for eighteenth-century Edinburgh where the advocate John Polson is recorded as married to “Ann Strachan, merchant (sic)”. The fact is that Ann Strachan was a merchant, but the modern editor, because he assumed that an advocate was unlikely to have a working wife, recorded this as an error. In a Commissary Court process it was stated during evidence on behalf of the defender, that Polson had married Ann Strachan, the defender’s sister-in-law, “who at that time had a great business and served the highest in the land.”²⁰

We must avoid making the same mistake as the editor of the marriage register, who took the gender ideology so seriously that he assumed Ann

¹⁷ Quoted in Edward Higgs, *Making Sense of the Census* (London: HMSO, 1989), p. 81.

¹⁸ C. Miller, “The Hidden Workforce: Female Fieldworkers in Gloucestershire, 1870–1901,” *Southern History* 6 (1984), 139–61, and Nicola Verdon, *Rural Women Workers in Nineteenth-Century England: Gender, Work and Wages* (Woodbridge: Boydell Press, 2002), pp. 117–19.

¹⁹ Bridget Hill, “Women, Work and the Census: A Problem for Historians of Women,” *History Workshop Journal* 35 (1993), p. 90.

²⁰ Elizabeth Sanderson, *Women and Work in Eighteenth-Century Edinburgh* (New York: St. Martin’s Press, 1996), p. 105.

Strachan's occupational title must be a mistake. If Ann Strachan the merchant disappears from history, we have lost any hope of discovering the true place of women in the economy. Because what people *said* about work is liable to be filtered through the lens of ideology, I will try wherever possible to use other types of evidence, such as statistical evidence, to determine what people actually did.

Part of this book will be devoted to documenting the gender differences in wages and occupations. However, the main question I wish to address is not whether differences occurred, but *why* they occurred. What caused the gender differences in wages and occupations that we observe? The question is not new, and many answers have been offered. The most common explanation for gender differences in the labor market is ideology: social institutions enforced socially determined gender roles, and women were confined to low-paid and low-status work. These social constraints could operate even if people were not aware of them.²¹ Differences between the genders were socially constructed. Both the gender division of labor and women's lower wages were determined by gender ideology. For example, Deborah Simonton claims that "customary practices and ideas about gender and appropriate roles were instrumental in delineating tasks as male work and female work."²² Sonya Rose focuses on the expectation that women were not supporting a family, and therefore did not need to be paid as much as a man; she claims that "Women were workers who could be paid low wages because of an ideology which portrayed them as supplementary wage earners dependent on men for subsistence."²³

The ideological explanation of gender differences has some strengths. People did express ideas about femininity and masculinity that implied women should do certain jobs, and men others. We can observe these ideas being expressed. And we have seen abrupt changes in the gender division of labor that suggest artificial barriers existed in the past. If the percentage of law degrees earned by women increased from 5 percent in 1970 to 30 percent just ten years later, this suggests that women were eager to become lawyers, and some barrier besides interest or inclination kept the number of female lawyers low in 1970.²⁴ Surely gender ideology

²¹ Sonya Rose notes that "Social actors often are unaware that these assumptions are guiding their activities." *Limited Livelihoods*, p. 13.

²² Simonton, *European Women's Work*, p. 35

²³ Sonya Rose, "'Gender at Work': Sex, Class and Industrial Capitalism," *History Workshop Journal*, 21 (1986), p. 117.

²⁴ The percentage of law degrees earned by women continued to rise, reaching 42 percent in 1990 and 47 percent in 2001. US Census Bureau, *Statistical Abstract of the United States: 2003* (Washington, DC: Government Printing Office, 2003), p. 194.

played some part in the Church of England's prohibition on the ordination of women, which lasted until 1994. However, while I do think that gender ideology is part of the story, in this book it will be cast as a supporting character rather than as the protagonist.

At the other extreme, Kingsley Browne has embraced biological difference as an explanation for all differences in labor market outcomes between men and women.²⁵ Evolution, through sexual selection, created differences between men and women. Women, who can have only a few offspring, developed characteristics that led them to nurture these offspring, maximizing the chances of survival. Men, who can father a nearly unlimited number of children, developed strategies for winning competitions that would allow them to have access to more females. Scientific studies have shown that the sex hormones cause differences in aggressiveness, risk-taking, and nurturing behaviors. Kingsley Browne has argued that these differences between the sexes explain why men are more successful in the labor market than women. Men take more risks, are more aggressive, and choose to spend less time with their families. He argues that these are biological traits, against which it is futile to fight, and that they cause the observed differences in wages and occupations.

Even if Browne is right that evolution gives men a more competitive character, his explanation provides at best part of the story. His main focus is the "glass ceiling," the gap in success at the highest levels. He claims that men are more competitive and take more risks, and therefore are more likely to reach the top. However, this explanation doesn't tell us why there is so much occupational segregation farther down the occupational ladder. Also, Browne's explanation cannot account for sudden changes in the occupational structure. If there was something in the female character, created by evolutionary sexual selection, that made women reluctant to be lawyers, the number of women entering law would not have changed so radically in the space of a couple of decades.

Happily, we have recently seen a few authors who neither assume men and women must be biologically identical because they wish it to be so, nor suggest that biological differences make any attempts to change the status quo futile. Steven Pinker notes the emergence of a new left that acknowledges both human nature and the possibility of improving our social institutions.²⁶ In his chapter on gender differences, Pinker acknowledges biological differences that might lead men and women to choose

²⁵ Kingsley Browne, *Divided Labours: An Evolutionary View of Women at Work* (New Haven: Yale University Press, 1999).

²⁶ Steven Pinker, *The Blank Slate: The Modern Denial of Human Nature* (New York: Penguin Books, 2003), pp. 299–300.

different occupations, but also acknowledges the existence of gender discrimination.²⁷ Acknowledging differences does not imply that one sex is better than the other or must dominate over the other. Leonard Sax notes that

The bottom line is that the brain is just organized *differently* in females and males. The tired argument about which sex is more intelligent or which sex has the “better” brain is about as meaningful as arguing about which utensil is “better,” a knife or a spoon. The only correct answer to such a question is: “Better for what?”²⁸

Sax suggests that the outcomes are more likely to be equal if we admit gender differences than if we don’t.

[Y]ou can teach the same math course in different ways. You can make math appealing to girls by teaching it one way, or you can make it appealing to boys by teaching it in another way. Girls and boys can both learn math equally well if you understand those gender differences.²⁹

However, ignoring gender differences and teaching math only one way is likely to disadvantage one gender. Differences between the sexes are important and must be acknowledged if we are to understand our world and work to improve it.

There are also economic historians who allow biology to have a role in shaping economic activity, without admitting it the power to determine every observed difference. Some historians allow strength to have a role in determining the sexual division of labor. Judy Gielgud notes that “there are understandable reasons for a wage differential. For example, a man’s strength might enable him to accomplish more of a given task than could a woman in the same time, where both were working at full stretch.”³⁰ Merry Wiesner claims that the gender division of labor in agriculture in the early modern period was partly, though not completely, due to differences in physical strength, “with men generally doing tasks that required a great deal of upper-body strength, such as cutting grain with a scythe.”³¹ Mary Friefeld’s story about the male domination of mule-spinning points to the male union as the factor excluding women after 1834, but acknowledges strength as the excluding

²⁷ *Ibid.*, pp. 354–7.

²⁸ Leonard Sax, *Why Gender Matters: What Parents and Teachers Need To Know about the Emerging Science of Sex Differences* (New York: Broadway Books, 2005), p. 32.

²⁹ *Ibid.*, p. 33

³⁰ Judy Gielgud, “Nineteenth Century Farm Women in Northumberland and Cumbria: The Neglected Workforce,” unpublished PhD thesis, University of Sussex, 1992, p. 85.

³¹ Merry Wiesner, *Women and Gender in Early Modern Europe*, 2nd edn (Cambridge: Cambridge University Press, 2000), p. 106.

factor in the early period. Pamela Sharpe admits a role for strength in the occupation of wool-combing.³² Other historians have noted the effect of women's role in child-bearing on their work opportunities. Brenner and Ramas, for example, note that "[b]iological facts of reproduction – pregnancy, childbirth, lactation – are not readily compatible with capitalist production," so that as factories replaced home production women were marginalized.³³ These explanations all allow biology an important role, without making the current division of labor the only one biologically possible.

This book is also located between the extremes; it neither refuses to acknowledge biological differences, nor sees observed gender differences as completely determined by biology. I believe the importance of biological differences must be acknowledged if we are to have any hope of understanding the gender division of labor, but I do not attempt to ascribe all differences to biology. There is exclusion in this story, but it's not the whole story. We don't have to deny the importance of biological differences, or minimize their importance in the labor market, but neither do we have to accept all observed differences as the inevitable result of our evolutionary heritage.

Men and women are different in ways that affect their productivity, so we must not assume that differences in wages and occupations are necessarily due to discrimination. If we accept even the least controversial differences between men and women, much of the difference in wages is explained. The biological differences that I focus on are the least controversial. Kingsley Browne has argued that gender differences in personality, created by the evolutionary process of sexual selection, explain the differential success of men and women, but it may be difficult to say whether traits such as competitiveness are determined by biology or by culture. My argument does not rely on differences in cognition or personality, and requires only two differences between the sexes, neither of which is controversial. First, men are stronger than women, and second, women give birth and breast-feed their infants, while men do not. These two differences are sufficient to explain much of the occupational segregation and gender wage gap that we observe in Industrial Revolution Britain. While I do suggest that in many cases the gender gap in wages was the result of biological differences between men and women, that does not mean that I oppose attempts to reduce the

³² Pamela Sharpe, *Adapting to Capitalism: Working Women in the English Economy, 1700–1850* (London: Macmillan, 1996), p. 24. She notes that both strength and guild restrictions kept this occupation male.

³³ Johanna Brenner and Maria Ramas, "Rethinking Women's Oppression," *New Left Review* 144 (1984), pp. 33–71.

gender gap. Referring to the assumption that biological explanations of the gender gap must support the status quo, Steven Pinker points out that, "This makes about as much sense as saying that a scientist who studies why women live longer than men 'wants old men to die'."³⁴

While I take biology seriously, I don't think it can be the whole story. I differ from Kingsley Browne in not accepting that all differences in labor market outcomes are simply the result of biology, and therefore good. I am skeptical of claims that women will never choose career over family, especially when I see so many women doing so today. Kingsley Browne claims, rather broadly, that

Women care less about climbing hierarchies and about objective forms of recognition such as money, status, and power than men. They place more importance on a high level of involvement with their children. These conclusions are consistent with evolutionary theory, biological fact, and psychological data. It is simply the case that women tend to fit work to families, while men fit families to work.³⁵

However, this statement clearly does not describe all women. I read the following in the *Guardian*: "I always expected to regret not having children . . . So it comes as something of a surprise to discover that now, in my 40s, I do not regret that I never gave birth . . . Instead, I feel more liberated than I could ever have imagined."³⁶ It could be that the columnist, Laura Marcus, is an unusual case, but it could also be that Browne has overestimated the role of evolutionary biology in determining women's choices.

The main conclusion of this book is that economic motivations caused the gender differences we observe in the labor market of Industrial Revolution Britain. In some cases these economic forces were beneficial, and in other cases they were harmful, but in either case both women and the economy in general would have benefited from more competitive markets. In the relatively competitive sectors of the labor market, strength was an important input in production, and men's higher wages represent the premium paid for strength. In order to economize on the scarce resource of strength, men were sorted into occupations requiring more strength, and women into occupations requiring less strength. Economic motivations led employers to hire men for jobs requiring strength, and hire women for jobs requiring less strength. When technology changed, the gender division of labor changed too, always allocating men to the more strength-intensive jobs. Employers were not

³⁴ Pinker, *The Blank Slate*, p. 353. ³⁵ Browne, *Divided Labours*, p. 53

³⁶ Laura Marcus, "The Joys of Childlessness," *The Guardian* August 22, 2002, p. 18.

constrained by gender roles, but switched between men and women workers when prices signaled that they should. While these forces did result in gender differences in wages and occupations, they were beneficial in the sense of improving the efficiency of the economy, and in the sense that they minimized the gender wage gap. Women's role in child-bearing reduced the time women had available for market work, and probably encouraged them to remain in the low-wage cottage industry sector, but overall child-bearing was probably not as important as strength in determining women's productivity.

Unfortunately, economic motivations were not always beneficial. The desire for gain sometimes leads groups with economic power to alter the market to favor themselves at the expense of others. Mancur Olson called such groups distributional coalitions.³⁷ While such groups take many forms, common forms are unions and professional organizations. These organizations often attempt to limit the supply of their services and thus raise their own wages. One way that occupational groups tried to limit labor supply was by excluding women from the occupation. While those in the occupation would benefit from high wages, society as a whole would suffer a loss of efficiency, and women would be harmed by having their occupational choices restricted. Heidi Hartmann has also argued that women were excluded from certain occupations because men wanted to protect their own economic interest.³⁸ Hartmann adds that men wanted not only to maintain their own high wages, but also to protect their own power within the family by ensuring that women remained dependent. I agree with Hartmann, and will argue that most of the real discriminatory constraints that women faced were restrictions put in place by men who were trying to protect their own economic position. Of course, not every group of men was able to enforce restrictions against women. Only those occupations with some source of market power, such as possession of a specialized skill, were successful in excluding women.

I offer different explanations for different parts of the labor market, but the explanations have a common strain: the importance of economic self-interest. I do not believe that self-interest is always good. In fact, one half of my story illustrates how self-interest could be harmful to both women and the economy. Self-interest is beneficial if disciplined by competition, but most economic actors would prefer to take the easier

³⁷ Mancur Olson, *The Rise and Decline of Nations: Economic Growth, Stagflation, and Social Rigidities* (New Haven: Yale University Press: 1982).

³⁸ Hartmann, "Capitalism, Patriarchy, and Job Segregation." See also Cynthia Cockburn, *Brothers: Male Dominance and Technological Change*, 2nd edn (London: Pluto Press, 1991), pp. 34–5.

route of monopoly and, if allowed, will use their power to benefit themselves at the expense of others. Competition was the most powerful force protecting women's opportunities, and barriers to women's employment appeared where competition was weakest. In competitive labor markets, market forces led to occupational sorting, but this sorting benefited women because it minimized the economic costs of their lesser strength. The main source of barriers to women's employment was groups of men, or "distributional coalitions" to use Mancur Olson's term, who wished to monopolize an occupation to raise their own wages. Where competition was strong these rules were ineffective; only where competition was limited would unions and professional organizations effectively bar women from employment. If there had been more competition, women would have been able to work in a wider variety of occupations, and would have had opportunities to earn higher wages.

In Industrial Revolution Britain men and women tended to work in different occupations, and received different wages. This book explores the reasons for those differences. I conclude that gender ideology played a supporting role, but was not the driving force behind most of the occupational segregation or wage gaps. Gender ideology had the most influence in institutions that did not have to compete to survive, such as the family and the government. Comparative advantage and productivity differences determined the division of labor and wages in the most competitive sectors of the labor market. In other sectors, where one group was able to amass enough economic power to stifle competition, men erected barriers to the employment of women in order to reduce the competition for their jobs. These men used gender ideology to increase public support for the entry barriers they erected, but their primary motivations were economic.

1 Women's occupations

Before we can discuss the causes of occupational segregation, we must first have an accurate understanding of what work women did. While this may seem to be a simple task, it presents some challenges to the historian. Measures of occupational distribution are less than perfect, and occupational patterns were changing rapidly during the Industrial Revolution. Census data on individuals begins only in 1841, and when it does exist it is not an accurate measure of women's employment. This leaves us without any aggregate measures of employment, so a glance at the statistical abstract will not suffice; instead, we must build a picture of women's employment from numerous incomplete sources. This chapter will examine the evidence and determine what work women did during the Industrial Revolution. Section I will discuss the limited statistical evidence available on the pattern of occupational sorting by gender, and Section II will examine the anecdotal evidence on women's occupations. Though the evidence is neither comprehensive nor perfectly reliable, it is clear that men and women tended to work in different occupations. However, it is also clear that the sorting was not perfect, and that women were frequently found in occupations not generally considered to be "women's work."

When examining women's employment, we must keep in mind that many of women's productive contributions remain invisible to the historian. Women at all levels of the labor market assisted their husbands but received no official recognition for their productive contributions. Frequently a marriage was also a business partnership, sometimes explicitly. An advertisement in the *Dorset County Chronicle* specified, "Wanted, A Man and his Wife, to manage a Dairy of Sixteen Cows."¹ In the parish workhouses, which separated all inmates by sex, the master took charge over the male inmates and the matron over the female inmates. The workhouse of Melton, Suffolk, paid a salary of £50 a year

¹ *Dorset County Chronicle*, December, 1860, quoted in Pamela Horn, "The Dorset Dairy System," *Agricultural History Review* 26 (1978), p. 100.

to the "governor and his wife."² In this case, a married couple shared these responsibilities and received a joint salary. We do not know how often the salary was simply given to the husband, with the understanding that the wife would contribute her services too. In many cases where a husband and wife worked as partners, the contribution of the wife was not officially acknowledged. One eighteenth-century observer noted a farmer who was assisted by his wife: "a large occupier of £17,000 a year, who was able to manage without a steward or bailiff, because he had the assistance of 'his lady, who keeps his accounts'."³ A farmer's wife was frequently his business partner, taking over the management of the dairy and the poultry. Wool manufacture was also a family business; Joseph Coope, a Yorkshire clothier, noted that he had a servant and two apprentices, "which is the whole I employ, except my wife and myself."⁴ We have enough evidence of this type to confirm that many wives worked with their husbands. In cottage industry the value of the output, such as a piece of cloth woven, was often counted as the man's earnings, even though much of the work was actually done by his wife or children. Unfortunately, we do not have the means to measure the extent of this work. In most cases the contribution of the wife to the family business went unnoticed and unrecorded.

I. Measuring occupational segregation

The first problem I will address is how to measure occupational sorting. The statistical evidence is unfortunately inadequate; the only aggregate data on employment comes from the census, which does not list occupations of individuals before 1841. Even at this late date, the census systematically underrecords female employment. Left without a comprehensive measure of employment, I use other measures to establish occupational sorting by gender. First, I show that the percentage of women employed varied greatly by industry. Then I use commercial directories to measure occupational segregation for a specific segment of the labor market – business owners. Both of these measures confirm that men and women tended to work in different occupations.

² F. M. Eden, *State of the Poor* (London: Davis, 1797), vol. II, p. 687. In other cases, married couples working as governor and governess received separate salaries. It was fairly common, however, to give one salary to a husband and wife team. John Moss and his wife received £50 a year to be master and mistress of the Preston workhouse. BPP 1816 (397) III, p. 181.

³ Ivy Pinchbeck, *Women Workers and the Industrial Revolution 1750–1850* (London: Routledge, 1930), p. 8. The observer was Marshall, *Rural Economy of Norfolk*, 1782.

⁴ BPP 1806 (268) III, p. 31.

A. *The census*

The census is usually the first place a historian looks for information on employment patterns because it provides the only complete measures of employment in the entire economy. Table 1.1 shows the occupational distribution from both the 1841 and 1851 censuses. These numbers suggest low rates of female labor force participation: in the 1841 census only 25 percent of females over age 10 had an occupation, and in the 1851 census only 35 percent. Women who did work were heavily concentrated in a few occupations. Three categories – domestic services, textiles, and clothing – accounted for 85 percent of the female workers in 1841 and 80 percent in 1851. The same categories held only 22 percent of male workers in 1841 and 20 percent in 1851. This stark contrast has been noted by many historians.⁵

Unfortunately, the census numbers are not an accurate measure of women's employment. While Hatton and Bailey conclude that the censuses of the early twentieth century accurately measured women's labor force participation, the same cannot be said of the 1841 and 1851 censuses.⁶ Edward Higgs has studied the censuses extensively and concluded that the census numbers should not be considered raw data, but rather cultural objects generated by ideology.⁷ The census data were collected by men who built some of their cultural ideology into the data. The assumption that the household, rather than the individual, was the working unit is reflected in the way the census data were collected. The 1811 to 1831 censuses collected information on the number of families, not individuals, in three broad occupational categories.⁸ Individual enumeration began with the 1841 census, but knowledge of the occupation of the household head was considered sufficient. The 1841 census instructed the enumerators to ignore a large fraction of women workers; the instructions state, "The professions &c. of wives, or of sons or daughters living with and assisting their parents but not apprenticed

⁵ For example, see Elizabeth Roberts, *Women's Work, 1840–1940* (Cambridge: Cambridge University Press, 1988), ch. 2, and Jane Rendall, *Women in an Industrializing Society: England 1750–1880* (Oxford: Basil Blackwell, 1990), pp. 55–6.

⁶ Timothy Hatton and Roy Bailey, "Women's Work in Census and Survey, 1911–1931," *Economic History Review* 54 (Feb. 2001), pp. 87–107.

⁷ "If the census reveals itself as part of the process by which gender divisions were defined, it cannot be used uncritically to study gender divisions in Victorian society. Such quantitative data is not necessarily 'raw material' for unbiased scientific analysis, it is also a human construct and therefore a worthy, and indeed necessary, subject for historical analysis." Edward Higgs, "Women, Occupations and Work in the Nineteenth Century Censuses," *History Workshop Journal* 23 (1987), pp. 76–7.

⁸ The categories were "agriculture; trade, manufactures, and handicraft, and the number not occupied in the preceding classes." Higgs, *Making Sense of the Census*, pp. 22–3.

Table 1.1. (*cont.*)

Occupational category	1841 census			1851 census		
	Males		Females		Males	
	1000s	%	1000s	%	1000s	%
				Percent female		Percent female
Clothing	358	7.0	200	11.0	418	6.4
Food, drink, lodging	268	5.3	42	2.3	348	5.3
Other	476	9.3	41	2.3	445	6.8
Total occupied	5093	100.0	1815	100.0	6545	100.0
Total unoccupied	1604		5369		1060	
Total individuals over age 10	6697		7184		7605	
Labor force participation rate	76.0		25.3		86.1	
					34.9	

Note: % = percentage of all occupied males or females in this occupational category.

Percent female = percentage of individuals in this occupational category who were female.

Source: B. R. Mitchell, *Abstract of British Historical Statistics* (Cambridge: Cambridge University Press, 1962), p. 60.

or receiving wages, need not be inserted.”⁹ Because of this aspect of the culture, the work of women was seriously undercounted, particularly in 1841. Table 1.1 suggests that female labor force participation rates were 25 percent in 1841, but 35 percent in 1851. On the surface this difference looks like a large increase in labor force participation, but it would be an error to conclude that this represents a real change, or that three-fourths of women did not work in 1841. The apparent increase just reflects how drastically women were undercounted in 1841. The 1851 census is an improvement in this respect, since it does ask that the occupations of wives be included. Even in 1851, however, the problem was not eliminated; women workers continued to be undercounted because women workers were more likely than men to be part-time, seasonal, and home workers, and because census enumerators expected women to be dependents.

Historians have debated the extent of errors in the census counts. Edward Higgs has suggested there are serious errors in the counting of domestic servants that would make the occupational distribution of females appear more skewed than it actually was, while Michael Anderson claims the problem is overstated by Higgs. In a survey of the returns of Rochdale, Lancashire, Higgs found that only 56 percent of people recorded as servants were “servants in relationship to the head of the household in which they lived.”¹⁰ Some of these people were probably servants working elsewhere but living at home. Many of these, however, would be better described as housewives; they were just female family members who did the housework. Higgs found that “For some enumerators ‘housekeeper’ and ‘housewife’ were synonymous.”¹¹ While these women were clearly workers, they were not domestic servants in the sense in which we generally use the term. While the exact amount of overcounting is not known, the potential for error is very large. For example, if the number of servants was reduced by taking out family members designated as “servants,” the number of servants in Rochdale in 1851 would be reduced by one-third.¹² Even among those who were actually hired servants, many were allocated to the wrong industry; many of the female servants recorded in the domestic service industry spent more time working in agriculture or trade rather than in domestic work.¹³

⁹ Quoted in *ibid.*, p. 81.

¹⁰ Edward Higgs, “Domestic Service and Household Production,” in Angela John, ed., *Unequal Opportunities* (Oxford: Basil Blackwell, 1986), p. 130.

¹¹ *Ibid.*, p. 131. ¹² *Ibid.*, p. 132.

¹³ Higgs, “Women, Occupations and Work.” Among farm servants, men were most likely to be allocated to the agricultural sector, while women were likely to be classified as domestic servants.

Table 1.2. *The occupations of women workers: Higgs's revisions of census data (percentage of occupied women)*

Sector	1841		1851	
	Census	Revised	Census	Revised
Agriculture	3.9	33.2	7.0	27.4
Mining	0.4	0.3	0.4	0.3
Building	0.1	0.1	0.0	0.0
Manufacture	32.0	28.0	42.7	39.4
Transport	0.2	0.1	0.5	0.4
Dealing	3.8	11.4	4.5	10.3
General laborers	0.8	0.7	0.3	0.3
Public service/professions	3.1	2.7	4.1	3.8
Domestic service	55.7	23.4	40.4	17.9

Note: The "census" figures are not directly from the census, but were revised to allow comparability across all nineteenth-century censuses. The revision adds corrections for the wives of tradesmen and the wives of agricultural workers, who are assumed to work one-sixth of the year, and moves some women from the "domestic service" category to the agricultural, retailing, and "dependent" sectors.

Source: Higgs, "Women, Occupations and Work," Tables 4 and 5.

While a male servant hired by a farmer would be counted as an agricultural worker, a female servant hired by a farmer might be counted as a domestic servant even if she did agricultural work. Thus Higgs suggests that the census data understate the participation of women and overstate the skewedness of the occupational distribution. Higgs revised the census figures to correct for seasonal work in agriculture, the undercounting of working wives, and the overcounting and mis-allocation of domestic servants. The results of this revision, shown in Table 1.2, tell a much different story. If Higgs is correct, the occupational distribution was not so heavily skewed toward domestic service, and had more women in agriculture, which was the most common occupation for men.

Michael Anderson, however, has questioned whether the problem is as bad as Higgs suggests. Rochdale does not seem to be representative of the entire country. Anderson finds that a national sample of census enumeration books suggests much lower numbers of women related to the household head who were recorded as "servant" or "housekeeper."¹⁴ Servants who were related to the household head may have been visiting their families, since the 1851 census was taken on Mothering Sunday.¹⁵

¹⁴ Michael Anderson, "Mis-Specification of Servant Occupations in the 1851 Census: A Problem Revisited," *Local Population Studies* 60 (1998), pp. 59–60.

¹⁵ *Ibid.*, p. 61.

Anderson's evidence suggests that the overcounting of servants was much smaller than Higgs suggested, but not entirely absent. Anderson estimates that 11 percent of those listed as "domestic servant" and 58 percent of those listed as "housekeeper" were related to the head of household.¹⁶ Higgs's corrections, then, are too extreme, and should not be taken as an accurate measure of the occupational distribution, but they do demonstrate that the errors present in the census data could potentially distort the occupational distribution.

Overcounting of domestic servants is not the only problem with the census data. There is reliable evidence that many women who were employed outside the home for wages were not listed as employed in the censuses. Andrew Walker notes that, while the owner of a Darfield stone quarry is listed in the 1881 census as employing nine women, no women in that enumeration district are listed as having the occupation of stone worker, suggesting that the census enumerator probably failed to record the occupations of some women.¹⁷ Miller used evidence from Gloucestershire farm wage books to show that female employment in agriculture was underenumerated in the censuses of the late nineteenth century. Individual women who were clearly employed in agriculture, and received wages that were recorded in an account book, are not recognized by the census as employed. Miller matched the names of females in the farm wage books to the 1871 censuses and found that eleven of the seventeen women matched were returned by the census as having no occupation. For example, Anne Westbury worked 221½ days at a farm in Fairford, but the 1871 census does not list an occupation for her.¹⁸ Nicola Verdon has done the same for a farm in the East Riding of Yorkshire; fourteen women were employed on this farm but not listed as agricultural laborers in the 1881 census. My own estimates suggest that the 1851 census records less than half of the female out-door laborers in agriculture.¹⁹ Leigh Shaw-Taylor has defended the reliability of census on female employment, claiming that the employment of women who worked regularly was well recorded. He notes that irregular employment was underrecorded, but does not consider that a serious fault because

¹⁶ *Ibid.*, p. 63.

¹⁷ Andrew Walker, "'Pleasurable Homes'? Victorian Model Miners' Wives and the Family Wage in a South Yorkshire Colliery District," *Women's History Review* 6 (1997), pp. 317–36.

¹⁸ Miller, "The Hidden Workforce," p. 146. See also Helen Speechley, "Female and Child Agricultural Day Labourers in Somerset, c. 1685–1870," unpublished PhD thesis, University of Exeter, 1999.

¹⁹ Joyce Burnette, "The Wages and Employment of Female Day-Labourers in English agriculture, 1740–1850," *Economic History Review* 57 (2004), pp. 664–90.

the censuses were not meant to measure irregular work.²⁰ However, if we wish to obtain an accurate picture of women's employment we cannot afford to ignore irregular work. Much of the work women did was irregular, and confining ourselves to regular work will produce a skewed picture of female participation in the labor market.

The nature of women's work during the Industrial Revolution means that it could not be well recorded by the census. The censuses recorded each individual as either having an occupation or not, and generally only one occupation was listed per person.²¹ This was not a good system for recording women's work during the Industrial Revolution period, which has been described as an "economy of makeshifts."²² Many women did not pursue one type of employment exclusively, but survived by combining many different kinds of employment with other sources of income. Peter King estimated that, by gleaning, women and children could earn between 3 and 14 percent of a laborer's family income, and Steven King has argued that poor women combined poor law payments with work income in order to make ends meet.²³ Women who worked as agricultural day-laborers usually worked only a few days in a year. Of the seventy-one different women who appear in the wage book of the Estcourt farm in Gloucestershire between 1828 and 1849, fifty-nine women (83 percent) were casual workers in the sense that they worked fewer than sixty days in a year.²⁴ At the Oakes farm in Derbyshire, approximately half of all days worked by women were worked during the two-week hay harvest, so the vast majority of women hired at this farm

²⁰ "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." Leigh Shaw-Taylor, "Diverse Experience: The Geography of Adult Female Employment in England and the 1851 Census," in Nigel Goose, ed., *Women's Work in Industrial England: Regional and Local Perspectives* (Hatfield: Local Population Studies, 2007), p. 40.

²¹ This point was made by Andrew August, "How Separate a Sphere? Poor Women and Paid Work in Late-Victorian London," *Journal of Family History* 19 (1994), p. 288.

²² See Steven King, "'Meer pennies for my baskitt will be enough': Women, Work and Welfare, 1700–1830," in P. Lane, N. Raven, and K. D. M. Snell, eds., *Women, Work and Wages in England, 1600–1850* (Woodbridge: Boydell Press, 2004), p. 126, and Samantha Williams, "Caring for the Sick Poor: Poor Law Nurses in Bedfordshire, c. 1700–1834," in Lane *et al.*, eds., *Women, Work and Wages*, p. 156. The term was first used by Olwen Hufton in reference to the poor in France. Olwen Hufton, *The Poor of Eighteenth-Century France, 1750–1789* (Oxford: Clarendon Press, 1974).

²³ Peter King, "Customary Rights and Women's Earnings: The Importance of Gleaning to the Rural Labouring Poor, 1750–1850," *Economic History Review* 44 (1991), 461–76. King, "Meer pennies," pp. 119–40.

²⁴ Joyce Burnette, "Married with Children: The Family Status of Female Day-Labourers at Two South-Western Farms," *Agricultural History Review* 55 (2007), pp. 75–94.

worked no more than two weeks in the year.²⁵ These farm accounts do not tell us what these women were doing the rest of the year, but they may have worked at other farms, or in non-agricultural work. Describing the annual cycle of female labor, Mary Collier mentions both agricultural work and charring:

The Harvest ended, Respite none we find;
The hardest of our Toil is still behind:
Hard Labour we most chearfully pursue,
And out, abroad, a Charing often go.²⁶

Given the many different forms of employment that one woman would engage in during the year, it is not surprising that the occupations listed in the census are an inadequate description of female employment.

B. *Employment ratios*

Since the census data are unreliable, and are in any case not available before 1841, it is important to look for other data to corroborate the story of occupational sorting. Employment ratios in specific occupations provide an alternative to census data and, while not as complete as the census because they do not describe the occupational distribution across the entire economy, do establish that men and women worked in different jobs, and thus provide evidence of occupational sorting.

I have collected evidence on the percentage of employees who were female in a variety of occupations, from a variety of different sources, and this material is presented in Table 1.3. Some sources are very detailed and give the exact number of persons of each sex employed. Other sources are more impressionistic and give estimates or ratios. The evidence demonstrates that there was substantial occupational sorting by gender.

Many women were employed in textile factories and potteries, but women were scarce in the copper industry of South Wales, and non-existent in the dyehouses of Leeds. Handloom weaving employed both men and women, but mining was mostly a male occupation. Glovers and screw-makers were mostly female, while stocking weavers and calico printers were mostly male. If we look more closely at particular occupations, more segregation appears. In cotton factories 50 to 70 percent of the workers were female, but within the factory men and women

²⁵ Joyce Burnette, "‘Labourers at the Oakes’: Changes in the Demand for Female Day-Laborers at a Farm near Sheffield during the Agricultural Revolution," *Journal of Economic History* 59 (1999), p. 51.

²⁶ Mary Collier, "The Woman's Labour" (London: Roberts, 1739), reprinted by the Augustan Reprint Society, No. 230, 1985.

Table 1.3. *Employment ratios*

Year	Location	Occupation	Adults		Percent women	Percent children	Source
			Men	Women			
Factories							
<i>Wool</i>							
1813	Leeds	Wool factory	426	152	26.3	24.1	a
1830	Leeds	Wool factory	605	314	34.2	18.0	a
1833	Leeds	16 wool factories	1667	1034	38.3	46.1	b
1833	Gloucestershire	17 wool factories	667	466	41.1	43.2	b
<i>Cotton</i>							
1816	Scotland	Cotton factories	1776	3820	68.3	44.0	c
1816	Nottinghamshire	Cotton factories	327	572	63.6	49.4	c
1833	Lancashire	29 cotton factories	2010	2065	50.7	46.5	b
1833	Glasgow	46 cotton factories	2413	4016	62.5	46.8	b
1833	Lancashire & Cheshire	Cleaners & spreaders			71.7		d
	cotton factories	Carders			59.8		d
		Mule spinners & piecers			18.7		d
		Throstle spinners			78.0		d
		Reelers			94.6		d
		Weavers			56.9		d
		Engineers, mechanics			0.8		d
<i>Other textiles</i>							
1816	Nottinghamshire	2 worsted factories	32	74	69.8	31.6	c
1833	Leeds	4 flax factories	514	585	53.2	57.8	b
1833	Derbyshire	10 silk factories	439	873	66.5	49.5	b
1833	Norfolk, Suffolk	6 silk factories	16	418	96.3	74.1	b
<i>Paper mills</i>							
1833	Aberdeenshire	3 paper mills	45	38	45.8	14.4	b
1833	Valleyfield, Scotland	Paper mill	86	43	33.3	26.3	e
1843	West of Scotland	Paper mill	32	63	66.3		g
Potteries							
1833	Staffordshire	7 potteries	462	244	34.6	37.7	b
1843	Staffordshire	Earthenware pottery	4544	2648	36.8		g
Handloom weaving							
1838	Norwich		2211	1648	42.7		h
1838	Spitalfields	Silk velvets (skilled)	1871	526	21.9		h
1838	Spitalfields	Plain silk	2820	2790	49.7		h
1840	Spitalfields	Silk weaving	5098	3395	40.0	8.7	i
1840	Norwich	Weaving	1863	1383	42.6	4.5	i