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From Mill Town to Board Room: The Rise of Women's Paid Labor

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In the United States and in other OECD countries of the twenty-first century, women are likely to be active participants in the labor force, holding the full range of unskilled, professional and managerial jobs. Widespread work for pay outside of the home and work in the highest echelons of society would have been unheard of for the women of a century ago. In the United States, only 20 percent of all women worked for pay in 1900. Less than 6 percent of all married women older than 15 labored for pay. Those who did work came from predominately working-class families. By the century's end, the labor force participation of all women older than 16 had risen to 60 percent, participation of all married women older than 16 had risen to 62 percent, and participation rates were higher among college educated women than among those with a high school education or less.

This dramatic change in women's social and economic status can only be understood by looking to the past. In the first few decades of the twentieth century, the "factory girl" set the stage for the unmarried "office girl." The unmarried office girl paved the way for the entry of married women into the labor force in the late 1950s, even though this entry was primarily in dead-end jobs in the clerical sector. In turn, the married women in the labor force paved the way for the rise of the modern career woman, doing work that requires a lengthy period of training and that offers genuine opportunities for promotion. As late as 1970, only 14 percent of all doctoral degrees were awarded to women, only 8 percent of all students enrolled in law schools were women, and only 8 percent of all medical school graduates were women. By the end of the 1990s, women earned 40 percent of all doctoral degrees and represented over 40 percent of all graduates from medical and law schools

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This increase in women's paid work has had enormous social and political significance. Increased retirement has decreased the paid labor of older men and increased education has reduced the paid labor of the young. The one major countervailing trend in the twentieth century that has expanded the labor force participation rate has been the increased participation of women. During the twentieth century, the rising labor force participation of women has increased the aggregate labor force participation rate of 25 to 44 year-olds by about 50 percent (Goldin, 1986). Women's greater participation has also led to the growth of market substitutes for such home-produced goods as food and clothing. Women's greater work for pay has altered the power relationships between husbands and wives, has influenced family formation and dissolution, and has affected the distribution of resources within the family (Lundberg and Pollak, 1996). One husband in a study of working-class families gave an inadvertently memorable flavor of the changes wrought by women's entry into the workforce when he complained that his wife "doesn't know how to give respect . . . Because she's working and making money, she thinks she can argue back whenever she feels like it" (cited in Goldin, 1990, p. 11).

We have not yet seen the full social and political impact of the rise in women's paid labor, because the more fundamental changes come from women's entry into careers, and this entry is still a relatively recent phenomenon. Work for money, regardless of type of work, generates different attitudes and relationships among family members. Two careers, by bringing true equality into marriage, generate yet another set of attitudes and relationships between husband and wife. The increased importance that both husbands and wives attach to her career has been felt in all sectors of the economy. The rise of dual career households has benefited large metropolitan areas and has hurt the ability of smaller cities to attract highly skilled individuals because these individuals are increasingly bundled with an equally skilled spouse and need the larger labor markets offered by larger metropolitan areas to solve their colocation problem (Costa and Kahn, forthcoming). Since the 1960s labor force participation rates have increased fastest among the wives of college educated men (Juhn and Murphy, 1997), the rise of the dual career household has affected household income inequality. The increased supply of professional women has benefited firms needing highly skilled workers, but women's expanding career opportunities have hurt such fields as education that traditionally depended upon women's labor (Flyer and Rosen, 1997).

This essay begins with a description of trends in women's labor force participation rates in the United States, France, and Great Britain over more than 100 years. Britain and France present two extreme cases: Britain was highly industrialized early in the twentieth century, while a large proportion of France's population at that time worked in agriculture. It examines the types of jobs women held and the life cycle of paid work in the United States over the last two centuries. It also describes trends in several OECD countries since 1960, with a particular focus on

the growth in the labor force participation of married women. It concludes with a look towards the future.

Trends

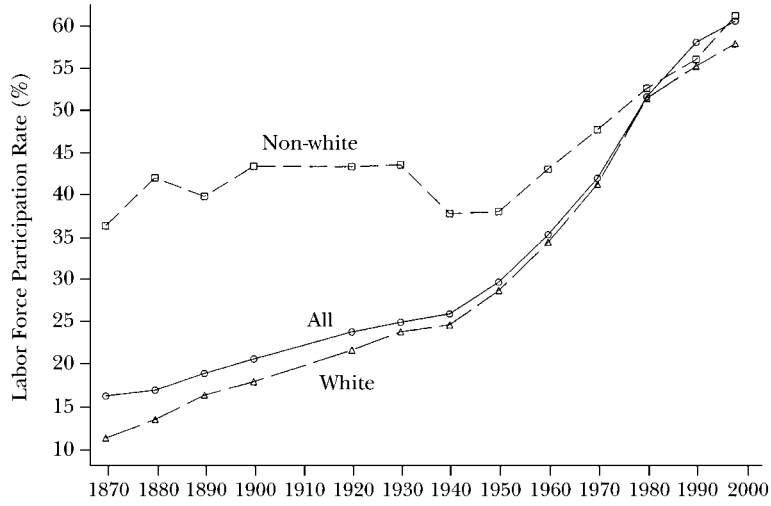
Long-Run Labor Force Participation Rates

The history of women's participation in market work is complicated by issues of measurement. The basic concept of being "in the labor force" is fraught with ambiguities. In the United States prior to 1940, only women who claimed to have had an occupation during the year just prior to the census were considered to be "gainfully employed" and therefore enumerated as being in the labor force. Beginning in 1940, the definition of the labor force changed to include all individuals working for pay, unpaid family workers, and the unemployed seeking work during the survey week. These differences in definition are unlikely to affect the enumeration of the adult male labor force by much. However, they will definitely affect the enumeration of female labor at a time when many women worked as unpaid farmwives, boardinghouse-keepers, and industrial homeworkers. Although consistency suggests that these women should be included in the definition of the labor force, their exclusion does not affect the measurement of women's paid work outside of the home.

Figure 1 shows the growth in women's labor force participation rates in the United States. In 1890 only 18 percent of women worked for pay, and that figure had risen only to 26 percent by 1930. By 1998, the participation rate for women was 60 percent. Most of the growth prior to 1940 was in the labor force participation of white women. Labor force participation rates for black women were constant at about 43 percent prior to 1940, fell during the Depression, and then began their modern rise. Participation rates were traditionally higher for black than for white women in part because black household incomes were lower, making the income earned by women more important, and also because the legacy of slavery may have made paid work less socially stigmatized among black than among white married women (Goldin, 1977). Figure 1 overstates the increase in women's economic activity rates during the nineteenth and early twentieth century because, prior to 1940, the largest shift for women in the labor force was movement from unpaid family businesses to paid jobs outside of the home. Correcting the 1890 figure to account for the omission of unpaid family farm labor, of boardinghouse-keepers, and of manufacturing workers suggests that broader participation in market work in 1890 was about the same in 1890 as in 1940 among all women and was higher in 1890 than in 1940 among married women (Goldin, 1990, p. 44).

Figure 2 shows labor force participation rates in Great Britain and France reaching back to the early nineteenth century. In Great Britain, women's participation rates were the same in 1881 and 1961. But by 1998, labor force participation rates for women were 53 percent. In contrast, labor force participation rates for French women trended upwards during the nineteenth century to reach a peak of

Figure 1
Labor Force Participation Rates by Race, United States, 1870–1999



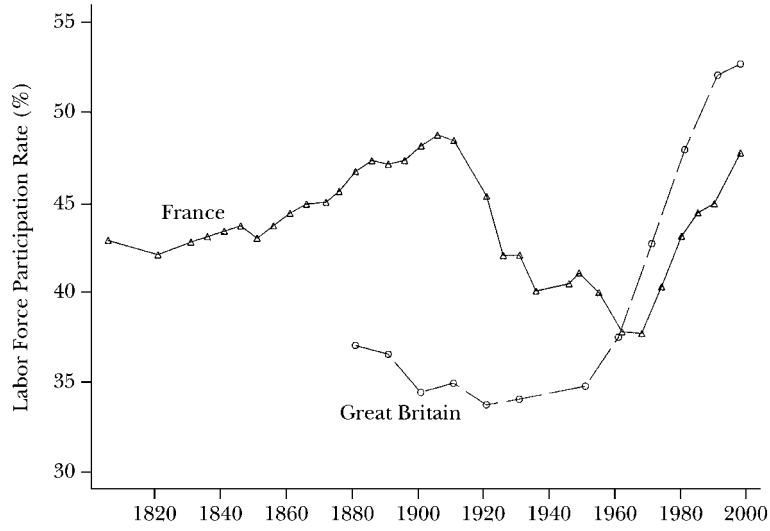
Note: Rates for 1890–1980 are from Goldin (1990, p. 17). Rates for 1870 and 1880 were estimated from the integrated public use micro census samples (Ruggles and Sobeck, 1997). Rates for 1990 and 1999 are from the Bureau of Labor Statistics website.

48 percent in 1911, declined with the industrialization of the first half of the twentieth century (as did those of men), and then rose beginning in the 1960s. French labor force participation rates for women may have been higher than the British because French agriculture employed many women and France industrialized only very slowly. France may also not have developed the male breadwinner ideology associated in Britain with industrialization (Marchand and Thelot, 1991; Horrell and Humphries, 1995). As in the American case, British and French labor force participation rates prior to the second half of the twentieth century are probably understated because they undercount employment in family enterprises and casual labor (Higgs, 1987; Grantham and Grimard, 1999). Joshi and Owen (1987) argue that because even the later censuses do not fully enumerate married women working only a few hours a week, the rise in women's participation rates after 1951 may be overstated, reflecting a movement from part-time to full-time work rather than a true increase in labor force participation rates.

In the United States and in Great Britain, the biggest increase in participation rates in the twentieth century has been for married women. In both countries, most of the increase was after 1940, as shown in Table 1, but was unrelated to World War II.[1] Among British women of working age, the participation rate of unmarried women was

[1] In the United States, empirical work shows that the direct impact of the war was small. The majority of women who entered the labor force during the war exited it after the war (Goldin, 1991). Finegan and Margo (1994) argue that in the 1930s married women were very unresponsive to short-run movements in aggregate demand but that their responsiveness to sustained increases in aggregate

Figure 2
Labor Force Participation Rates in Great Britain and France



Note: French participation rates for 1820–1990 are from Marchand and Thélot (1991, p. 175). The French participation rate for 1995 is from the INSEE website. British participation rates for 1891–1961 are from Matthews, Feinstein, and Odling-Smee (1982, pp. 563–65). Those for 1971–1998 are from the Office for National Statistics website. Participation rates for 1891–1971 are for ages older than 14 and those for 1981–1998 are for ages older than 15.

roughly constant between 1911 and 1998; in contrast, the participation of married woman hovered at about 10 percent between 1911 and 1931 but by 1998 surpassed that of unmarried women. In the United States, the labor force participation rate of single women older than 15 or 16 rose from 41 to 51 percent between 1890 and 1970 and then to 68 percent in 1998. The participation rate of married women in the same age group was less than 5 percent at the end of the nineteenth century and by 1940 was still only 14 percent. Between 1950 and 1998, it rose from 22 to 62 percent, with particularly large increases between 1950 and 1980. The growth of labor force participation rates for women has continued in the 1990s, but at a markedly lower rate. The time trend among black women is similar, but participation rates were initially higher for married black women (Goldin, 1990, p. 17).

As seen in Table 1, labor force participation rates of married women have always been very similar in Britain and the United States, while those of single women have differed. However, in the United States, participation rates increased for single women, while the same increase in unmarried women's labor force participation rates is not observed in Britain because unmarried women's participation rates were high even at the beginning of the century. Around 1920, 62 percent of unmarried British women

demand, such as that during World War II, was quite large. Note also that Figure 2 shows no direct effect of the war in either Britain or France.

Table 1
Labor Force Participation Rates by Marital Status, United States and Great Britain

United States							*Great Britain*			
Year	*Age*	*Married*	*Single*	*Age*	*Married*	*Single*	*Year*	*Age*	*Married*	*Unmarried*
1880	15+	4.6	37.6	15–64	5.8	35.1				
1890		4.6	40.5							
1900		5.6	43.5		5.9	46.7	1911	15–64	9.9	66.0
1920		9.0	46.4		9.2	51.3	1921		9.0	67.0
1930		11.7	50.5				1931		10.6	69.6
1940		13.8	45.5		13.4	50.1				
1950		21.6	50.6		22.5	52.5	1951		23.6	72.3
1960		30.6	47.5		32.7	50.5	1961		32.6	71.8
1970	16+	39.5	51.0		42.1	47.1	1973		48.2	62.3
1980		50.1	61.5	16–59	56.3	62.9	1981	16–59	60.0	75.0
1990		57.6	66.4		68.9	68.8	1990		71.0	71.0
1998		61.8	68.1		72.6	72.8	1998		74.0	67.0

Notes: The United States figure for 1880 for women age 15+ and the figures for American women age 15–64 and 16–59 are compiled from the micro-census samples (Ruggles and Sobeck, 1997) and the Current Population Survey (U.S. Department of Commerce, 1998). No figure is given for 1910 because this census enumerated unpaid family workers and is therefore not consistent with the others. Figures for women age 15+ and 16+ for 1890–1900 and for 1920–1980 are from Goldin (1990, p. 17). Those for 1990 and 1998 are from Handbook of U.S. Labor Statistics (1999). The numbers for Great Britain for 1911–1973 are from Matthews, Feinstein, and Odling-Smee (1982, pp. 563–65). The figures for 1981 and 1990 are from graphs in various issues of *Social Trends* and are therefore not precisely calculated. The numbers for 1990 and for 1998 are for married/cohabitating and not married/not cohabitating. The 1998 figures are from the Office for National Statistics website.

age 15 to 64 were in the labor force compared to 51 percent of American women in the same age group. By 1998, the participation rate of unmarried American women slightly exceeded that of unmarried British women.

The low labor force participation rate of married women in the 1940s and 1950s partly reflects the presence of young children in the household. Only 10 percent of married women age 15 to 64 with a child under age 5 were in the labor force in 1950 compared to 28 percent of married women in the same age group without a child under age 5. By 1998 differential participation rates had narrowed—64 percent of married women with a young child were in the labor force compared to 76 percent without a young child. Most of the decline in differential participation rates occurred after 1980. British labor force participation rates for married women with and without children exhibited a similar degree of convergence in the 1980s and 1990s.[2]

Women's broader participation in market work has followed a different pat-

[2] Estimated from the micro-census samples of Ruggles and Sobeck (1997), the Current Population Survey, and data from the Office for National Statistics website.

tern over time from women's work for pay outside the home (documented in the figures and the table). Goldin (1995) argues that women's labor force participation, when measured to include unpaid family workers, is U-shaped. When incomes are low, women are in the labor force as unpaid workers in family farms or businesses. As incomes rise, women's participation first falls and then rises as their educational levels grow and their market work becomes more valuable than their household work. In Britain, the contribution of wives and daughters to household incomes declined between 1790 and 1865, coinciding with the commercialization of agriculture and the decline of such domestic outwork activities as spinning for pay inside the home (Horrell and Humphries, 1995). Revised estimates of the census figures for England and Wales that account for women's roles as unpaid workers show that participation rates declined between 1851 and 1891 (Higgs, 1987). The enumeration of unpaid family workers in the French census of 1851 implies that women's participation fell with the contraction of agriculture between 1850 and 1950 (Grantham and Grimard, 1999). If we go back even further in time, women's participation may have more of an N-shape. De Vries (1994) and Voth (1998) argue that prior to the industrial revolution, there was an "industrious revolution" because the increased availability of consumer goods led both men and women to increase their hours of work.

Women's Work

Cohorts of women differ in their education and wealth, their fertility, their accumulation of labor market experience, and their socialization experiences when young. In the United States, labor force participation rates among women in their 40s increased sharply beginning with the cohort born between 1906 and 1915. Among women in their 20s and 30s, labor force participation rates have been increasing for all cohorts born since the 1940s (Goldin, 1990, pp. 21–23). In the following paragraphs I will therefore describe the experiences of American women who worked before 1890, between 1890 and 1940, 1940 and 1970, and after 1970, drawing heavily upon Goldin (1990).

At the beginning of the nineteenth century when the United States was still a heavily agricultural nation, wives and daughters of farmers who were economically active were most likely to be unpaid workers on the family farm. Industrialization divided the workplace and the home and decreased the economic activity of married women. It increased the participation of young, single women in paid labor prior to 1850 because the spread of new large-scale methods of production facilitated the substitution of unskilled for skilled labor. Farmers' daughters flocked to the newly established mill towns where they earned higher wages than as servants and worked shorter hours. In the Northeast in 1820 approximately 9 percent of workers in manufacturing were women. This figure reached a peak of 33 percent in 1832 before falling (Goldin and Sokoloff, 1982).

The mill town declined as industry became progressively urbanized. Whereas the mill girls worked at factories built at water sites and some even lived in boardinghouses built by factory owners, the working girl of the second half of the

nineteenth century was more likely to live at home and to give more of her earnings to her family. Beginning in the 1840s, working women were more likely to be immigrants, and hours, wages, and conditions of work probably worsened.

The rise of the clerical sector transformed women's work. At the end of the nineteenth century most working women were employed in either the service or the manufacturing sector and most men were employed in either agriculture or manufacturing, as shown in Table 2. By 1930, the service, clerical, and manufacturing sectors had become the most important sectors of employment for women, whereas manufacturing and agriculture remained so for men. Women also entered into the professions, particularly teaching.

At the end of the nineteenth century, clerks and secretaries were trusted male employees familiar with the entire operations of the firm. They were also employees who could be promoted to the top echelons of the company. As firm size increased, as accounting departments within firms grew, and as departments run by middle managers were created, demand for clerical staff increased. The division of labor and specialization increased because the typewriter and other machines, including those for bookkeeping, accounting, and duplicating, allowed firms to hire workers who had either attended commercial schools or taken commercial classes in high school and to put them to work with very little on-the-job training. Many of these workers were women, because the growth in high school education between the 1890s and the 1940s provided them with the necessary general skills. The clerical sector provided them with better pay and cleaner, less arduous work than manufacturing. But because women were expected to leave the labor force upon marriage, they worked at jobs from which they were never promoted, whereas men could rise from office boy to president of the company. It is therefore in this sector that we first observe substantial wage discrimination (Goldin, 1990, pp. 110–117).

The clerical sector transformed the work of married women. Female manufacturing workers were heavily penalized for changes in both occupation and firm, retaining only 20 percent of their experience-related increase in earnings. Women in the clerical sector who changed both occupation and firm kept more than 60 percent (Goldin, 1990, p. 108). Women in the clerical sector could therefore leave the labor force when their first child was born and then re-enter the labor force when their children were of school age without paying a heavy penalty for time spent out of the labor force. Members of the cohort born between 1906 and 1915 were among the first to follow this pattern of exit when their children were young and re-entry when they were in their 40s. By 1970, 35 percent of all working women were in the clerical sector, compared to 8 percent of men, as shown in Table 2. This sector drew not only from the ranks of high school graduates, but also from those of college graduates.

The emergence of part-time work after 1950 altered the paid work opportunities of married women. A working woman in 1890 was faced with an average work day of 9.5 hours (Costa, 2000), six days a week. The length of the work day was rigid, with penalties for tardiness (Atack and Bateman, 1992). Only outwork, with its low pay, or boardinghouse-keeping, with its requirement of home ownership, provided opportu-

Table 2
Occupational Distributional, 1890–1999

	1890/1900		*1930*		*1970*		*1999*	
	Men	*Women*	*Men*	*Women*	*Men*	*Women*	*Men*	*Women*
Professional	10.2%	9.6%	13.6%	16.5%	24.9%	18.9%	31.5%	35.9%
Clerical	2.8	4.0	5.5	20.9	7.6	34.5	5.5	23.4
Sales	4.6	4.3	6.1	6.8	6.8	7.4	11.3	13.0
Manufacturing	37.6	27.7	45.2	19.8	48.1	17.9	37.9	9.2
Service	3.1	35.5	4.8	27.5	8.2	20.5	9.9	17.4
Agricultural	41.7	19.0	24.8	8.4	4.5	0.8	3.8	1.1

Note: The figures for 1890/1900–1970 are from Goldin (1990, p. 64). Those for 1999 are from the Bureau of Labor Statistics website.

nities for part-time work. This set of work opportunities changed after 1950, when firms were faced with a declining supply of young, unmarried female workers because of increases in school attendance, declines in age at first marriage, and the baby boom. Firms sought to accommodate the work schedule demands of married women (Goldin, 1990, p. 175, 181). Much of the growth in women's employment between 1950 and 1970 consisted of growth in part-time work. In 1950, 23 percent of all working married women in couples where both spouses were between ages 25 to 39 were working fewer than 35 hours a week. By 1970 this proportion was 35 percent and in 1998 was still 33 percent.[3] In Britain, the increase in women's part-time employment between 1950 and 1970 was even larger (Joshi, Layard and Owen, 1985). The proportion of women working part-time is now greater in Britain than in the United States—40 percent in the U.K. versus 20 percent in the United States working less than 30 hours a week in 1997—whereas the proportion of men working part-time is about 8 percent working less than 30 hours a week in 1997 in both countries, according to data from the OECD website.

Since 1970, women have begun to enter careers in large numbers. The college educated women who graduated in the 1950s majored in such fields as education and nursing where few men got degrees. Upon graduation, these women were tracked into traditionally female sectors, regardless of their majors. They left the labor force when their first child was born and only re-entered when all children were in school. Goldin (1997) characterizes their experience as "family then job," while the cohorts who graduated 20 years later, aspired to "career then family" or "career and family." Women's college majors and their graduate degrees became more similar to those of men. In 1970, only 10 percent of undergraduate economics degrees were awarded to women, but by 1996 the figure was 30 percent. The fraction of economics doctoral degrees that went to women rose from 5 to 22 percent between these years. The

[3] Estimated from the integrated public use census samples (Ruggles and Sobeck, 1998) and the 1998 Current Population Survey.

increase in the proportion of professional degrees awarded to women was even sharper. In 1970, 6 percent of all first-professional degrees (degrees requiring at least six years of college work and two years of pre-professional training) awarded in health went to women but by 1996 the figure was 43 percent (National Science Foundation, 1999). Women are now more likely to be in nontraditional professions. In 1970 only 10 percent of all physicians were women; by 1998, 29 percent were.[4]

Table 3 illustrates trends in married women's labor force participation rates and part-time work since 1940 by examining their participation rates by their own and their spouse's education. Since 1960, labor force participation rates have increased more sharply among college educated women married to college educated men than among high school educated women married to high school educated men. This phenomenon of increasing participation among women married to high wage men was first pointed out in the U.S. case by Juhn and Murphy (1997); it is also observed in Britain and in France (for example, Dex, Walters, and Alden, 1993). Wives' labor force participation rates also increased sharply among couples in which only one spouse had a college education because the proportion of couples in which the wife was college educated rose from 27 percent in 1940 to 50 percent in 1998. In 1960 and 1970, when most college educated women entered either nonprofessional jobs in the clerical or sales sector or traditional professional jobs such as that of nurse, schoolteacher, librarian, or social worker, part-time work was more common among college educated women married to college educated men than among high school educated women married to high school educated men. After 1970, when college education became increasingly associated with careers, the proportion of wives working part-time no longer varied by their own and their spouse's education. The fraction of wives (and also of husbands) working part-time increased between 1990 and 1998.

International Trends Since 1960

How unique is the recent American story of rising women's labor force participation rates? Figure 3 and Figure 4 paint a picture of women's labor force participation rates in the paid, formal sector. Figure 3 compares the United States and Canada with Australia and Japan. Figure 4 compares the United States with various European countries. Most of the countries show sizable increases in women's labor force participation rates since 1960, and in most countries this change was primarily a result of changes in the participation of married women. Naturally, Figures 3 and 4 show differences across countries; for example, the French increase in aggregate participation rates since 1960 was smaller than that observed in Australia, Canada, Sweden, the Netherlands, and the United Kingdom, but was higher than that in Germany (once the rise in participation rates with unification is excluded) or Italy.

But three countries stand out as special cases in these figures. In Sweden, women's labor force participation rates were consistently higher than any other

[4] Estimated from the integrated public use census sample (Ruggles and Sobek, 1997) and the BLS website.

Table 3

Participation Rates and Part-time Work Among Married American Women by Own and Husband's Education

	1940	*1960*	*1970*	*1980*	*1990*	*1998*
Wife's labor force participation						
Both spouses college educated	19.7%	28.1%	40.8%	63.8%	72.9%	76.7%
Only one spouse college educated	18.4	22.2	33.1	56.8	70.3	78.2
Neither spouse college educated	16.7	27.3	36.7	52.5	64.8	69.3
Couples in which wife works: % wives working part-time						
Both spouses college educated	26.7%	36.7%	39.4%	30.6%	28.3%	33.4%
Only one spouse college educated	22.0	33.3	38.5	33.1	29.7	30.1
Neither spouse college educated	23.0	29.8	33.7	31.4	29.9	33.8

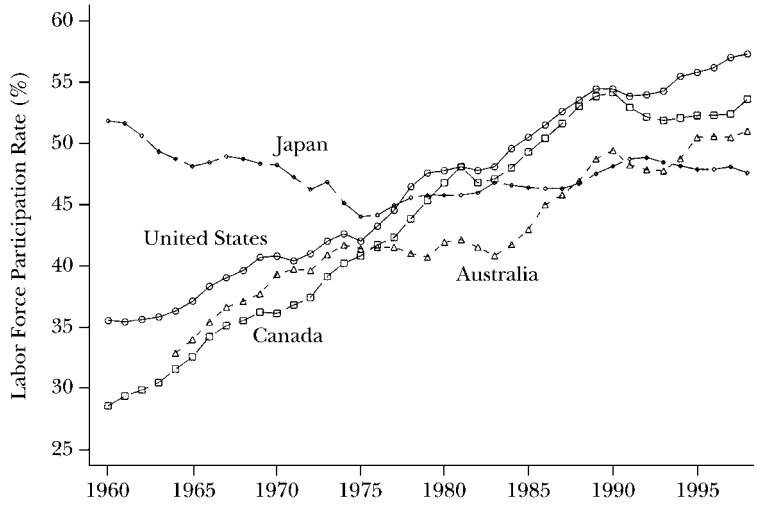
Note: The data consist of matched couples where both spouses are between ages 25–39. The figures for 1940–1990 were estimated from the integrated public use census samples (Ruggles and Sobek, 1997). The 1950 census provides information on the education of only one spouse. The 1998 figures were estimated from the Current Population Survey (U.S. Department of Commerce, 1998). Population weights are used for 1940 and 1990. Part-time work is defined as less than 35 hours per week.

country, before dipping in the 1990s. Sweden has both actively encouraged paid female labor force participation and promoted pronatalism since the 1930s. Swedish taxation provides substantial incentives to be a dual earner couple whereas, in contrast, taxation in Germany penalizes dual earner couples and taxation in the Netherlands penalized dual earner couples until 1990 and is now neutral (Gustafsson and Bruyn-Hundt, 1991). Subsidized child care in Sweden reduces the negative effect of children on women's earnings (Gustafsson and Stafford, 1992). Sweden's recent decline in labor force participation seems to be primarily related to its recession of the early 1990s; the percentage point decline in labor force participation since then has been the same for men as for women.

Italy stands out as the country in the figure with the consistently lowest labor force participation rate for women, although participation rates for women are similarly low in Spain and Greece. The Italian pattern does show a mild U-shape: women's participation rates fell as the size of the agricultural sector declined and then rose as women's educational levels rose and as the service sector and manufacturing industries that employed women became more important (del Boca, 1988). But the labor force participation rate of married women has barely changed in Italy. Low Italian (and Spanish and Greek) participation rates may arise from undercounting women in the informal sector or from the high costs to employers of part-time work (determined by legislation and by union contracts) and the heavy expectations placed upon mothers (even those with only one child) combined with little support (del Boca, 1988).

Japan is the one case in the two figures where the graph does not offer a good indicator of women's participation in the paid, formal labor force. In Japan, women's participation rates have been relatively high because a large fraction of the

Figure 3
Labor Force Participation Rates in North America, Australia, and Japan, 1960–1998



Note: Rates are from the Bureau of Labor Statistics website and were adjusted by the bureau to be comparable to the American concepts of the labor force, except in the treatment of age cutoffs and of layoffs. The U.S. data relate to the population older than 15. The Canadian, Australian, and Japanese data relate to the population older than 14. The data are for the civilian noninstitutionalized working age population, except for Japan, where the institutionalized working population is included.

female labor force—21 percent in 1984 compared to 1 percent in the United States—consists of family workers (Hill, 1988). The participation rates for Japanese are now lower than they were in 1960 because of the decline of family enterprises, and because discrimination and social norms have hindered the movement of married women into paid labor.

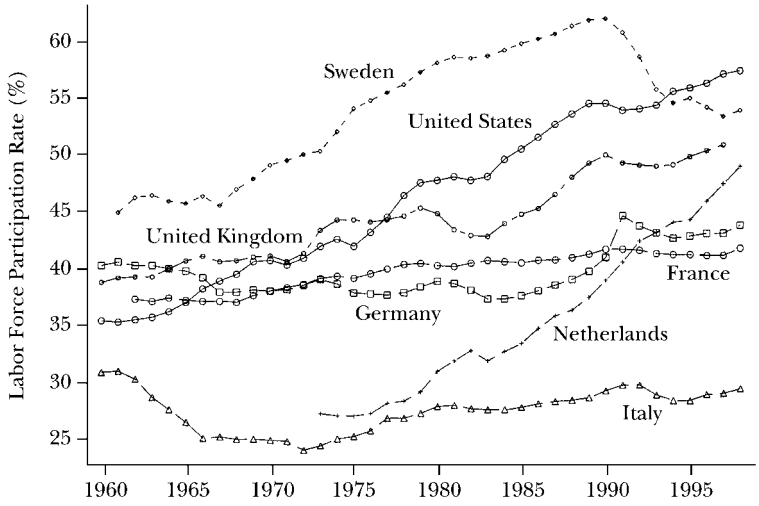
Additional explanations, some potentially endogenous, for the low female labor force participation rates observed in some countries include relatively low wages for women (the difference between male and female earnings in 1997 was highest in Japan at 40 percent and lowest in Sweden and France at less than 20 percent); high unemployment rates (rates that among the countries of continental Europe are higher for women than for men); the dominance of the manufacturing sector and of tool-making and machine-building in Germany; laws regulating store hours; school hours (including children being sent home from school for lunch); and weak or unenforced antidiscrimination legislation.[5]

Women's experiences across countries have differed not just in terms of their labor force participation rates, but also in terms of their jobs and careers. Blau and Kahn (this issue) show that once adjustments are made for the more unequal U.S. wage distribution, the gender gap in wages is lowest in the United States. There are

[5] For relative wages and unemployment rates by sex, see *OECD in Figures, 1999*, on the OECD website.

Figure 4

Labor Force Participation Rates in Selected European Countries and the United States, 1960–1998



Note: Rates are from the Bureau of Labor Statistics website and were adjusted by the Bureau to be comparable to the American concepts of the labor force, except in the treatment of age cutoffs and of layoffs. The French, German, and Swedish data relate to the population older than 15. The British data relate to the population older than 14 prior to 1972 and older than 15 thereafter. The Dutch data relate to the population older than 13 before 1975 and older than 14 thereafter. Italian data relate to the population older than 13 before 1992 and older than 14 thereafter. The Swedish statistics were adjusted to include persons older than the upper age limit. The data are for the civilian noninstitutionalized working age population, except for Germany, where the institutionalized working population is included. Beginning in 1991 the German data are for a unified Germany. The French and British figures differ from those presented in Figure 2 because of differences in the labor force concept.

differences in other dimensions as well. Rates of part-time work vary widely. The Netherlands had the highest percentage of women working less than 30 hours a week in 1997—55 percent—followed by the United Kingdom and Australia at 40 percent each. The United States, Italy, and Sweden had the lowest rates of women working part-time: 20, 24, and 25 percent, respectively (*OECD in Figures*, 1999). Among men, the highest part-time rates in 1997 were in Australia, Japan, and the Netherlands—4, 13, and 11 percent, respectively—and the lowest in Germany, Italy, and France—3, 5, and 6 percent, respectively.

The types of jobs held by women also vary widely. Occupational segregation is higher in the Nordic countries than in other OECD countries. In the Nordic countries, women are mainly employed in education, health care, child day care, and social services, all of which are monopolized by the state. In these countries, the public sector accounted for 58 percent of total female employment in 1992 (Melkas and Anker, 1998). Occupational segregration is lowest in the United States (Anker, 1998, p. 176). Women's shares of administrative and managerial jobs in 1994–95 (jobs that range from the chief executive of a major corporation to the manager of

a local fast food store) were 43 percent in the United States and Australia, 28 percent in Sweden, and 9 percent in Japan (International Labour Organization, 1997, p. 15).

Whether women have achieved positions of power differs across countries and differs depending upon whether one examines the public or private sector. Women have a larger role in government in the Nordic countries than elsewhere. In Sweden, women held 30 percent of ministerial level positions in 1994 compared to 16 percent in Germany, 12 percent in Italy, 9 percent in the United Kingdom, and 7 percent in France (International Labor Organization, 1997, p. 28). However, positions of power in the governments of Nordic countries do not translate into positions of power in the private sector. For example, in 1990 in Finland women held 39 percent of all seats in parliament, but only 6 percent of all board seats of the 100 largest private firms (International Labour Organization, 1997, p. 27).

Although comparisons of women's success in business are harder to make across countries, the available data suggest that women in the United States fare relatively well. The number of chief executives who are women is tiny in all countries. But a comparison of the boards of major corporations—ranking companies by total revenues in the United States and Canada and by market capitalization in the United Kingdom—shows that women hold more seats in the United States than in Canada or the United Kingdom. In the United States in 1999 women held 11 percent of all board seats of the first 500 companies of the Fortune 1000, up from 9 percent in 1994, and 9 percent of the seats of the next 500 companies. In contrast, in Canada women held only 6 percent of the board seats of the Financial Post 500 in 1998.[6] In the United Kingdom, a 1995 survey of over 300 enterprises reported that 3 percent of board members were women (International Labor Organization, 1997, p. 20). Another survey that examined Times Top 200 companies plus a number of leading Building Societies (thrifts) reported that 6 percent of board members were women (McRae, 1996).

Explaining the Growth in Labor Force Participation of Married Women

The increase in married American women's work for pay outside of the home in the second half of the twentieth century represents a dramatic break with women's past experience. Why did this change occur? On the supply side, more women may have been willing to enter the labor market because they were having fewer children (though better job opportunities may have helped lower fertility rates); because their time spent producing such household goods as food or cleanliness was falling thanks to new household technologies such as washing

[6] Findings are from 1999 *Catalyst Census of Women Board Directors of Fortune 1000* and Catalyst Census of Women Board Directors of Canada. Excerpts can be found on the Catalyst website. See this site for the 1994 figures as well.

machines, cleaner lighting, vacuum cleaners and prepared foods; because their conditions, hours, and status of work were improving; and because their preferences for work may have changed. On the demand side, firms may have been more willing to hire women because of the rise of the clerical and sales sector; the development of technologies that allowed firms to substitute the labor of women for that of men; the growth of formal education that could replace on-the-job training; and changes in the tastes of employers and their male employees or reduced discrimination.

Provided that we know women's elasticity of labor supply with respect to wages and income, we can determine whether demand or supply factors were more important in increasing married women's participation, as shown formally by Goldin (1990, p. 119–158). Inelastic labor supply with respect to wages means that changes in participation are most likely due to movements of supply. Conversely, a more elastic labor supply with respect to wages would suggest that substantial movements in participation are more likely to be driven by demand.

Numerous cross-city studies provide evidence on labor supply wage and income elasticities for married women over the entire twentieth century (see references in Goldin, 1990, p. 132). Although cross-city studies are not the ideal way to estimate women's labor supply elasticities, they offer the only consistent way of doing so for the whole century. Consistency is important because estimates of labor supply can vary widely with changes in sample composition or in estimation method (Pencavel, 1986; Killingsworth and Heckman, 1986). These estimates from cross-city studies suggest dividing the twentieth century labor force experience of women into three time periods.

For the first three decades of the twentieth century, married women's uncompensated wage elasticities of labor force participation were close to zero. At this time, women's income elasticities of labor force participation were negative and substantially greater than one. Goldin (1990, pp. 133–135) points out that in 1900, most women were employed in either service, manufacturing, or agricultural occupations. The working conditions in these occupations were poor and the hours long. A working wife implied that the household was in financial crisis, either because the husband was too poor to provide adequately for his wife, or he was unemployed or ill. Income elasticities were large and wage elasticities small because the only women in the paid labor force were those pushed in because their husbands' incomes were low. Goldin (pp. 136–138) thus argues that supply explains virtually all of the increase in married women's participation between 1890 and 1930.

At mid-century, women's uncompensated wage elasticities were quite high—up to 1.5 in some studies. However, the absolute value of their income elasticities had fallen below one. By 1950 the rise of the clerical sector, with its better conditions of labor, and the entry of college educated women into the clerical sector reduced the social stigma that had been associated with a working wife. Now a woman might be working because her value of time was high. The increased availability of market goods that could substitute for home goods weakened the

income effect even further. The income effect weakened and the wage elasticity rose. Thus, Golden (1990) argues that demand explains almost all of the increase in women's labor force participation between 1940 and 1960.

In the final decades of the twentieth century, women's wage elasticities were smaller, although not zero, as were their income elasticities. After mid-century, the increase in divorce rates (which made a husband's income undependable), the increased status and meaning found in work, and the increased cost of intermittency in the labor market made women's labor force experiences more like those men and reduced both the income and substitution effect. Demand and supply share in causing the increase in women's labor force participation between 1960 and 1980.

Estimates from national surveys of individuals suggest that in the past few decades the relationship between wife's employment and husband's earnings has grown weaker, while the relationship between wife's employment and her wages has grown stronger, though it is still small (Juhn and Murphy, 1997). Examining the 1975–94 period, Pencavel (1998) finds that increases in own wages account for about one-quarter of the increased employment of women at younger ages and about half of the increase in employment at older ages. He concludes that market work has become relatively more hospitable and household activity less attractive to women for reasons beyond that provided by movements in wages.

This line of argument suggests that changes in women's labor force participation rates may be fairly slow, because they must await the movement of cohorts, with their different set of expectations and characteristics. For example, the increase in labor force participation for cohorts born around the turn of the century is connected to their particularly sharp fertility declines and to the expansion of high school education from 1900 to 1930. Because this cohort of women had relatively high participation rates in the clerical sector when single, re-entry into the labor force when they were in their 40s was easier. Of course, in retrospect, these cohorts may have underinvested in on-the-job training and in formal schooling. Because they could use only the experience of their mothers and grandmothers as a guide, they could not have predicted their re-entry into the labor force when their children were grown (Goldin, 1990, pp. 138–157). Change will therefore take time because expectations need to adjust.

Change in women's participation rates may also be slow because the social norms of cohorts regarding work and family evolve over time. Eighty-two percent of Americans (both male and female) told pollsters in a Gallup poll of November 15, 1936, that a married woman should not earn money if her husband was capable of supporting her. Seventy-three percent of married women of childbearing age in 1970 agreed that preschool children suffered if the mother works. That figure declined to 58 percent by 1977, 37 percent in 1985, and 34 percent by 1991 (Rindfuss, Brewster and Kavee, 1996).

Finally, change in women's labor force participation may also be slow because of discrimination. This discrimination was institutionalized in the first part of the 20th century in the "marriage bars" in school districts and firms that in the United

States and Britain simply prohibited the employment of married women. Demographic change that reduced the supply of young female employees led to the disappearance of the marriage bar (Goldin, 1990, pp. 160–179). Discrimination also affected the willingness of employees to work with women and the willingness of employers to hire women. Pressure from the feminist movement and government antidiscrimination policy may therefore have played a role in increasing women's labor force participation.

Women's Labor Force Participation in Future Generations

The relatively small size of married women's wage and income elasticities suggests that those women who are out of the labor force today may very well have a very strong taste for remaining at home, which implies that unless these tastes change, the labor force participation rate of married women may not increase much above its current rate of 62 percent. But looking to the past suggests that these tastes may very well change—greater proportions of women have been looking more like men in their career investments and in their responsiveness to economic incentives. Additional factors that might increase their labor force participation include the greater availability of child care, including that provided by fathers, and improvements in household technology. Another frequently cited factor that might increase women's participation includes tighter labor markets—a possibility if aggregate labor supply declines when the baby bust generation comes of age and if aggregate consumer demand remains roughly constant.

Regardless of future trends in women's labor force participation rates, the ways in which women participate in the paid labor market appear likely to undergo considerable change in the next few decades. The entry of women into the professions and other nontraditional careers did not really begin until 1970 or later, and the history of this change is still being written. On one side, many more women are acquiring the education, skills and experience that make them well-suited for nontraditional careers. On the other hand, women continue to face serious conflicts between work and family, and the legacy of discriminatory attitudes.

The early 1970s were a turning point in women's entry into graduate and professional schools. In 1970, according to the American Medical Association website, only 9 percent of all applicants to medical school were women; by 1976, 24 percent were; and by the end of the 1990s, 43 percent. Trends in law schools were similar. In 1970, according to the American Bar Association website, only 10 percent of all first-year law school students were women; by 1976, 28 percent were; and by the end of the 1990s, almost 50 percent. Other social trends of the early 1970s also may have contributed to the rise in women's professional education as well, including the widespread availability of the birth control pill (Goldin and Katz, 2000); the availability of legal abortion; and the passage of Title IX in 1972 which applied civil rights legislation to universities and thus may have exerted direct pressure on graduate and professional school admissions committees.

Despite the increasing proportion of women graduating from professional and graduate programs, however, many believe that a glass ceiling limits the advance of women to the highest professional levels. Among Ph.D. economists who enter tenure-track positions in academia, women have a harder time achieving tenure and take longer achieving it, controlling for other factors (Kahn, 1993).

While both college men and women majoring in business believe that they will start with the same salaries, women anticipate lower earnings in subsequent years (Blau and Ferber, 1991). These expectations reflect experience. Among individuals who received their MBAs between 1975 and 1980 there were no gender differences initially in income, but six years later the women were earning 9 percent less than the men (Schneer and Reitman, 1995; see also Stroh, Brett and Reilly, 1992). In 1973 and 1978, *Fortune* reported that only 0.2 percent of the highest paid officers and directors in the top 1,000 industrial and 300 service companies were women (Robertson, 1978). By 1990 the fraction had risen only to 0.5 percent (for a slightly different sample of companies) (Fierman, 1990). By 1995, women held 1.2 percent of the top-earner spots at the Fortune 500, although that share did jump to 3.3 percent in 1999.[7]

The difficulty of combining career and family partially explains the slow advancement of women into positions of power. Career advancement may require relocation and frequent travel, which is difficult when both spouses have careers. Higher earners today work more hours than low earners (Costa, 2000; Coleman and Pencavel, 1993a, b). Managers in Fortune 500 companies work an average of 56 hours a week (Brett and Stroh, 1999). There is no job-sharing or part-time work at the top, so time with children may be squeezed. Among college educated women who were age 34 to 44 in 1988, only 13 percent achieved career and family, where a woman was said to have "achieved a career" if in 1985, 1987, and 1988 she had hourly earnings exceeding that of the 25th percentile of college educated men (Goldin, 1997). Among executives at the vice president level and above surveyed circa 1990, 37 percent of the women were childless compared to 5 percent of the men (Korn/Ferry International and UCLA Anderson Graduate School of Management, as cited in Weeks, 1993).

The significant negative impact on earnings and promotions of taking time off from work to care for children is well-documented. Nonetheless, many women still do take time off. A study of University of Michigan Law School graduates concludes that even among lawyers who have invested heavily in their careers, women are more willing than men to sacrifice wages and promotions for the joys of parenting (Wood, Corcoran and Courant, 1993).

Women's prospects of combining career and family are improving, but they still face a difficult task. Their continued progress in careers may well depend upon men's willingness to share child-rearing responsibilities. Although the gender gap in housework has narrowed since the 1960s both in the United States and in the

[7] See the 1995 and 1999 *Catalyst Census of Women Corporate Officers and Top Earners* on the Catalyst website.

United Kingdom (it is narrower in the United States where women spend less time in domestic work and men spend more time shopping), even women who work still disproportionately bear the brunt of domestic chores (Gershuny and Robinson, 1988; Blau, 1998). Among dual career households, men are somewhat more likely than women to classify their careers as equal (58 versus 49 percent), but they are also more likely than women to say their own careers are primary (33 versus 6 percent).[8] The fraction of female executives who are childless fell from 61 to 37 percent between 1982 and 1992 (Korn/Ferry International and UCLA Anderson Graduate School of Management, as cited in Weeks, 1993). But more than a third is still a high number, particularly given that the fraction of male executives who were childless remained a constant 5 percent.

Not all of the glass ceiling phenomenon is attributable to children; some of it probably results from discriminatory attitudes. It is always difficult to prove discrimination with statistical studies, of course. But among Michigan law school graduates, women earned 61 percent as much as men 15 years after graduation. Even controlling for child care, work history, labor supply, school performance, and job settings, one-quarter of the gap in male and female salaries was still unexplained (Wood, Corcoran and Courant, 1993). However, as more women successfully combine career and family and as the attitudes of employers, co-workers, and husbands change, discrimination is likely to fall. Certainly, the amount of discrimination perceived by women has fallen. In 1982, 39 percent of female executives considered sexism the biggest obstacle to achieving success. By 1992, this figure was down to 27 percent (Korn/Ferry International and UCLA Anderson Graduate School of Management, cited in Weeks, 1993).

Conclusion

The biggest changes in women's labor force participation in recent decades has been in careers that were nontraditional for women in the past. In 1960 only 7 percent of all lawyers and judges were women and 9 percent of all physicians; by 1998 women were 29 percent of lawyers and judges and 26 percent of doctors.[9] But despite their breakthroughs in the professions and in management, women are only slowly moving to the top. Women lawyers, physicians, and managers earn less than men. In 1999 women held only 3 percent of the top-earner spots in the Fortune 500. Nor are women currently well-positioned to break through to the top. In 1999, 28 percent of women corporate officers in the Fortune 500 held line jobs (posts with profit-and-loss or direct client responsibility) compared to 50 percent of men corporate officers; but of all line jobs, only 7 percent were held by women.[10]

[8] See *Two Careers, One Marriage* on the Catalyst website.
[9] Estimated from the 1960 public use micro census sample (Ruggles and Sobek, 1997) and from the BLS website.
[10] See the 1999 *Catalyst Census of Women Corporate Officers and Top Earners* on the Catalyst website.

The difficulty of combining work and family has slowed women's move to the top. More women than men are willing to sacrifice their careers for time spent with children and those women who reach the top are disproportionately childless. This has led to calls for more family-friendly policies, such as generous parental leave. But an overly generous policy may raise the labor force participation of women, while leading to cohorts of women with less experience, lower relative wages and limited career advancement (Ruhm, 1998).

History suggests that changes in women's labor force experience can be frustratingly slow. Progress may have to wait for the entry of new cohorts of women, with different characteristics and expectations, into the labor market. It may also have to wait for the entry of new cohorts of men with different expectations regarding work and family into the labor market.

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References

American Bar Association. ⟨http://www.abanet.org/legaled/stats.html⟩.

American Medical Association. ⟨http://www.ama-assn.org⟩.

Anker, Richard. 1998. *Gender and Jobs: Sex Segregation of Occupations in the World.* Geneva: International Labor Office.

Atack, Jeremy and Fred Bateman. 1992. "How Long was the Workday in 1880?" *Journal of Economic History.* 52:1, pp. 129–60.

Blau, Francine D. 1998. "Trends in the Well-Being of American Women, 1970–1995." *Journal of Economic Literature.* 36:1, pp. 112–65.

Blau, Francine D. and Marianne A. Ferber. 1991. "Career Plans and Expectations of Young Women and Men: The Earnings Gap and Labor Force Participation." *Journal of Human Resources.* 26:4, pp. 581–607.

Brett, Jeanne M. and Linda K. Stroh. 1999. "Women in Management: How Far have We Come and What Needs to Be Done as We Approach 2000?" *Journal of Management Inquiry.* 8:4, pp. 392–97.

Bureau of Labor Statistics. ⟨http://www.bls.gov/⟩.

Catalyst. ⟨http://www.catalystwomen.org/⟩.

Coleman, Mary T. and John Pencavel. 1993a. "Changes in Work Hours of Male Employees, 1940–1988." *Industrial and Labor Relations Review.* 46:2, pp. 262–83.

Coleman, Mary T. and John Pencavel. 1993b. "Trends in Work Behavior of Women since 1940." *Industrial and Labor Relations Review.* 46:4, pp. 653–76.

Costa, Dora L. 2000. "The Wage and the Length of the Work Day: From the 1890s to 1991." *Journal of Labor Economics.* 18:1, pp. 156–81.

Costa, Dora L. and Matthew E. Kahn. Forthcoming. "Power Couples: Changes in the Locational Choice of the College Educated, 1940–1990." *Quarterly Journal of Economics.*

del Boca, Daniela. 1988. "Women in a Changing Workplace: The Case of Italy," in *Feminization of the Labor Force.* Jane Jenson, Elisabeth Hagen, and Ceallaigh Reddy, eds. New York-Oxford: Oxford University Press, pp. 120–36.

Dex, Shirley, Patricia Walters, and David M. Alden. 1993. *French and British Mothers at Work.* Houndsmills, Basingstoke, Hampshire: Macmillan Press.

De Vries, Jan. 1994. "The Industrial Revolution and the Industrious Revolution." *Journal of Economic History.* 54:2, pp. 249–70.

Fierman, J. 1990. "Why Women Still Don't Hit the Top." *Fortune.* July 30, 1990: 41–62.

Finegan, T. Aldrich and Robert A. Margo. 1994. *Journal of Economic History.* 54:1, pp. 64–84.

Flyer, Frederick and Sherwin S. Rosen. 1997. "The New Economics of Teachers and Education." *Journal of Labor Economics.* 15:1 (Part 2), pp. S104–39.

The Gallup Poll; Public Opinion. Wilmington, DE: Scholarly Research.

Gershuny, Jonathan and John P. Robinson. 1988. "Historical Changes in the Household Division of Labor." *Demography.* 25:4, pp. 537–52.

Goldin, Claudia. 1986. "The Female Labor Force and American Economic Growth: 1890 to 1980," in *Long-Term Factors in American Economic Growth,* Conference on Income and Wealth, Volume 51. Stanley Engerman and Robert Gallman, eds. Chicago: University of Chicago Press, pp. 557–604.

Goldin, Claudia. 1990. *Understanding the Gender Gap: An Economic History of American Women.* New York-Oxford: Oxford University Press.

Goldin, Claudia. 1991. "The Role of World War II in the Rise of Women's Employment." *American Economic Review.* 81:4, pp. 741–56.

Goldin, Claudia. 1995. "The U-Shaped Female Labor Force Function in Economic Development and Economic History," in *Investment in Women's Human Capital and Economic Development.* T. Paul Schultz, ed. Chicago: University of Chicago Press, pp. 61–90.

Goldin, Claudia. 1997. "Career and Family: College Women Look to the Past," in *Gender and Family in the Workplace.* Francine D. Blau and Ronald Ehrenberg, eds. New York: Russell Sage Press, pp. 20–58.

Goldin, Claudia and Lawrence F. Katz. 2000. "The Power of the Pill: Oral Contraceptives and Women's Career and Marriage Decisions." National Bureau of Economic Research Working Paper Number W7527.

Goldin, Claudia and Kenneth Sokoloff. 1982. "Women, Children, and Industrialization in the Early Republic: Evidence from the Manufacturing Censuses." *Journal of Economic History.* December, 42:4, pp. 741–74.

Grantham, George and Franque Grimard. 1999. "Female Labour Force Participation in Nineteenth Century France and the 1851 Census of Population: A Quantitative Analysis." Unpublished manuscript. McGill University.

Gustafsson, S.S. and M. Bruyn-Hundt. 1991. "Incentives for Women to Work: A Comparison be-

tween The Netherlands, Sweden, and West Germany." *Journal of Economic Studies*. 18:5/6, pp. 30–65.

Gustafsson, S. and Frank Stafford. 1992. "Child Care Subsidies and Labor Supply in Sweden." *Journal of Human Resources*. 27:1, pp. 204–30.

Handbook of U.S. Labor Statistics: Employment, Earnings, Prices, Productivity, and Other Labor Data. 1999. Lanham, MD: Bernan Press.

Higgs, Edward. 1987. "Women's Occupations and Work in the Nineteenth Century Censuses." *History Workshop*. 23, pp. 60–80.

Hill, Anne M. 1988. "Female Labor Supply in Japan: Implications of the Informal Sector For Labor Force Participation and Hours of Work." *Journal of Human Resources*. 24:1, pp. 143–61.

Horrell, Sara and Jane Humphries. 1995. "Women's Labour Force Participation and the Transition to the Male-Breadwinner Family, 1790–1865." *Economic History Review*. 48:1, pp. 89–117.

INSEE. ⟨http://www.insee.fr/⟩.

International Labour Organization. Sectoral Activities Programme. 1997. *Breaking through the Glass Ceiling: Women in Management*. Geneva: International Labour Office.

Joshi, Heather E., Richard Layard and Susan J. Owen. 1985. "Why Are More Women Working in Britain?" *Journal of Labor Economics*. 3:1 (pt. 2), pp. S147–S176.

Joshi, Heather and Susan Owen. 1987. "How Long is a Piece of Elastic? The Measurement of Female Activity Rates in British Censuses, 1951–1981." *Cambridge Journal of Economics*. 11:1, pp. 55–74.

Juhn, Chinhui and Kevin M. Murphy. 1997. "Wage Inequality and Family Labor Supply." *Journal of Labor Economics*. 15:1 (pt.1), pp. 72–97.

Kahn, Shulamit. 1993. "Gender Differences in Academic Career Paths of Economists." *American Economic Review*. 83:2, pp. 52–56.

Killingsworth, Mark R. and James J. Heckman. 1986. "Female Labor Supply: A Survey." in *Handbook of Labor Economics*. Orley Ashenfelter and Richard Layard, eds. Amsterdam: North-Holland, pp. 103–204.

Lundberg, Shelly J. and Robert A. Pollak. 1996. "Bargaining and Distribution in Marriage." *Journal of Economic Perspectives*. 10:4, pp. 139–56.

Marchand, Olivier and Claude Thélot. 1991. Deux Siècles de Travail en France: Population active et structure social, durée et productivité du travail}. Paris: INSEE.

McRae, Susan. 1996. "Women at the Top: Progress after 5 Years." *King-Hall Paper, No. 2*. London: The Hansard Society for Parliamentary Government.

Melkas, Helina and Richard Anker. 1998. *Gender Equality and Occupational Segregation in Nordic Labour Markets*. Geneva: International Labor Office.

National Science Foundation. Division of Sicen Resource Studies. 1999. *Science and Engineering Degrees: 1966–96*. NSF 99-330. Arlington, VA. ⟨http://www.nsf.gov⟩.

OECD. ⟨http://www.oecd.org/⟩.

Office for National Statistics. ⟨http://www.ons.gov.uk/⟩.

Pencavel, John. 1986. "Labor Supply of Men: A Review." in *Handbook of Labor Economics*. Orley Ashenfelter and Richard Layard, eds. Amsterdam: North-Holland, pp. 3–102.

Pencavel, John. 1998. "The Market Work Behavior and Wages of Women, 1975–94." *Journal of Human Resources*. 38:4, pp. 771–804.

Rindfuss, Ronald R., Karin L. Brewster and Andrew L. Kavee. 1996. "Women, Work, and Children: Behavioral and Attitudinal Change in the United States." *Population and Development Review*. 22:3, pp. 457–82.

Robertson, Wyndham. 1978. "The Top Women in Big Business." *Fortune*. July 17, 58.

Ruggles, Steven and Matthew Sobek. 1997. Integrated Public Use Microdata Series, IPUMS-98 Version 2.0, Social History Research Laboratory. Minneapolis, MN: Department of History, University of Minnesota, ⟨http://www.ipums.umn.edu/⟩.

Ruhm, Christopher J. 1998. "The Economic Consequences of Parental Leave Mandates: Lessons from Europe." *Quarterly Journal of Economics*. 113:1, pp. 285–318.

Schneer, Joy A. and Frieda Reitman. 1995. "The Impact of Gender as Managerial Careers Unfold." *Journal of Vocational Behavior*. 47:3, pp. 290–316.

Social Trends: A Publication of the Government Statistical Service. Various issues. London: HMSO.

Stroh, Linda K., Jeanne M. Brett and Anne H. Reilly. 1992. "All the Right Stuff: A Comparison of Female and Male Mangers' Career Progression." *Journal of Applied Psychology*. 77:3, pp. 251–60.

United States Department of Commerce, Bureau of the Census. 1998. Current Population Survey: Annual Demographic File, 1998, ICPSR 2573. Ann Arbor, MI: Inter-university Consortium for Political and Social Research.

Voth, Hans-Joachim. 1998. "Time and Work in Eighteenth-Century London." *Journal of Economic History*. 58:1, pp. 29–58.

Weeks, Julie R. 1993. "Women in Business: Dramatic Work-Force Change." *The Public Perspective*. 5:1, pp. 31–34.

Wood, Robert G., Mary E. Corcoran and Paul N. Courant. 1993. "Pay Differences among the Highly Paid: The Male-Female Earnings Gap in Lawyers' Salaries." *Journal of Labor Economics*. 11:3, pp. 417–41.