The Work and Wages of Single Women, 1870-1920

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Single women dominated the U.S. female labor force from 1870 to 1920. Data on the home life and working conditions of single women in 1888 and 1907 enable the estimation of their earnings functions. Work in the manufacturing sector for these women was task-oriented and payment was frequently by the piece. Earnings rose steeply with experience and peaked early; learning was mainly on-the-job. Occupational segregation by sex was a partial product of the method of payment, and the early termination of human capital investment was a function of the life-cycle labor force participation of these women, although the role of the family was also critical.

IN the history of women's labor market experience in the United States the half-century from about 1870 to 1920 was the era of single women.[1] Fully 75 percent of the white female labor force in 1890 and 1900 were single; fewer than 10 percent were married. But by the late 1920s married women comprised over 25 percent of the female work force. Even though the participation rate of single women continued to rise, they became less a force in the economic history of American women.[2] The history of the

[1] Little is now known about the labor force participation of women prior to 1870, but existing evidence suggests that the percentage of married women then at work was higher in large cities.

[2] See Table 4 of Goldin, "Women in the American Labor Experience," paper presented at the 1979 Cliometrics meetings. Labor force participation rates for single women by age, nativity, and race are given below for the entire U.S. and for cities of over 100,000 in 1890. It can be seen that part of the rise in the labor force participation of single women after 1890 was probably a function of the movement of population to the cities.

Labor Force Participation Rates of Single Women, 1890

		Entire U.S.		Urban U.S.	
	Age:	15–24	25–34	15–24	25–34
Native-born, Native parents		24.0	42.3	42.9	48.0
Native-born, Foreign parents		41.9	55.7	54.0	62.0
Foreign-born		71.1	78.9	82.2	79.0
White		35.0	53.3	58.0	64.1
Black		55.5	78.8	82.5	67.8

Source: *Federal Census of Population, 1890*, vol. I, parts 1 and 2.

female labor force from 1870 to 1920 was shaped by single women, and, correspondingly, that from 1920 to 1970 by those who were married. Accompanying these changes in the composition of the labor force was an evolution of occupations, events that were not in the least unrelated. The first period witnessed the peaking of the employment of women in manual, manufacturing occupations and the second the peaking of clerical employment.[3]

During the Progressive Era the young and unmarried working woman was the subject of much social concern. The conditions of industrial work for single women, their health, their morals, and the sufficiency of the pay of those living away from home were the heightened issues of a period witnessing the rise of factory employment and increased immigration to large cities. Prior to the 1870s women were employed in very few industries, but as more were hired in trades previously occupied by men, increased concern was expressed about the relative efficiency of the sexes, the related issue of pay differentials, and the impact of female labor on the economic position of men.

This concern about single working women led to the collection of data on their industrial and social condition, and it is perhaps ironic that these documents were ultimately used to draft legislation limiting their employment. These reports are remarkable depositories of information on work and home life, and it is fortunate that two of the most detailed records span the high-point of single women's work in American history. Carroll Wright's Bureau of Labor document *Working Women in Large Cities* (1889) and the nineteen-volume report of the Secretary of Commerce and Labor, *Woman and Child Wage Earners* (1910), studies of women in 1888 and 1907 respectively, form the basis of this article on women in the midst of the era of single women's work.[4]

Characteristics of Single Working Women, 1888 to 1907[5]

Single working women at the turn of this century were historically unique in terms of their home lives and occupations. They worked at a time when there were primarily two types of position available to urban women—manual factory work and service employment—and their occupations, unlike those in the then nascent clerical sector, did not particularly prepare them to reenter the labor force after marriage.[6] Their jobs

[3] See Elyce Rotella, "Women's Labor Force Participation and the Growth of Clerical Employment in the U.S., 1870–1930" (Ph.D. diss., Univ. of Pennsylvania, 1977).

[4] *Fourth Annual Report of the Commissioner of Labor, 1888. Working Women in Large Cities* (Washington, 1889), and *Report on Condition of Woman and Child Wage-Earners in the U.S. in 19 Volumes*, Senate Documents Vols. 86–104 (Washington, 1910/11).

[5] This section is a highly condensed version of material in Goldin, "Women in the American Labor Experience," and *Feminine Economy* (in progress).

[6] Among all white working women in the U.S. in 1890, approximately 1/3 were employed in domestic and personal service, 1/3 in manufacturing and mechanical trades, 1/10 in trade and transportation, 1/10 in professional jobs, and the rest in agriculture. Only a trivial fraction were clerical workers.

were predominantly task-oriented, were frequently paid for by the piece (between 35 percent and 47 percent of women in manufacturing in 1890 worked on piece rates),[7] and were almost uniformly distinct from those occupied by men. They learned their trades on-the-job in the factory, store, or home; although their educations preceded the rise of vocational schools for women, the data in this article demonstrate that schooling was a clear advantage to them in the labor market.

Women frequently began their labor market experience when young, working continuously until they married. But their age at first marriage was late; indeed it was the latest of all birth cohorts of American women, and the percentage of these women who never married was correspondingly high. These women worked in the labor market when it was common for a young woman to work full-time in her parents' home instead. About 35 percent of all urban, single women 16 to 24 years old were neither at school nor working outside their homes in 1900, although this figure declined to about 5 percent by 1930. Therefore a large fraction of these women were still attached to their parents' homes, working in them or, if they worked outside, giving their entire salaries to their families. But at the same time, fully 38 percent of all single urban working women over 16 years old in 1900 lived away from their parents, with their employers or in the homes of others. Even though part of this rather large figure is accounted for by servants, housekeepers, teachers, and cottonmill towns, the nature of employment alone did not determine residence. And, as a footnote to this attempt at generalization, a hallmark of this group of single women was cultural heterogeneity.

Issues and Sources

Questions on both the demand and supply sides of the labor market are suggested by the unique position of single women during this period of American history. I have concentrated here almost exclusively on the supply side to offer answers to the following questions.

1) What was the nature of work and of skill formation? What were the functions of piece work and task-oriented jobs?
2) What governed the choice of occupation for a single woman among jobs in manufacturing, in a store, or as a servant?
3) What were the payoffs to women (or their families) from entering the labor force when young and remaining at work until marriage, and what were the gains to parents from having their daughters specialize in home or market work?
4) Why were occupations segregated by sex?
5) What determined whether working women lived at home with their families or in boarding houses?
6) How did education and ethnicity affect earnings?

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[7] The lower bound is from the *Federal Census of Manufactures, 1890*, Part I, Table 5, pp. 92–114, and the upper bound adjusts this figure for the understatement of pieceworkers in cotton and other textile mills. The figure for men is about 11%.

Data from two federal studies enable the estimation of a relationship between earnings, experience on-the-job, and other variables. These earnings functions will provide insights to these issues.

Carroll Wright's *Working Women in Large Cities* (hereafter the *1888 study*), the first federal report on working women, investigated the conditions of women "who work in great city manufactories upon light manual or mechanical labor and in stores" (p. 9). The study included 343 industries in 22 cities and contained information on 17,427 women, of whom 88 percent were single.[8] It was not until the Secretary of Commerce and Labor's multi-industry report *Woman and Child Wage Earners, (1907 study)*, that women were again a direct concern of a federal agency.[9] Only city-industry averages can be used in the *1888 study*, the original surveys having never been located, but the *1907 study* contains most of the raw data collected for 6 industries, in total information on about 10,000 single women. The present article is based on all the observations for men's clothing in Chicago, and for cotton textiles in Massachusetts and North Carolina, 1785 observations on single women of all ages. The *1888 study* includes women living away from home; the observations used for the *1907 study* are only for those living at home.

Earnings Functions: Theory and Results

The earnings equations estimated are variants of a general form implied by a model of human capital formation with a linearly declining investment ratio. The simplest statement of such an earnings function is:

$$\text{Log } Y_t = \beta_0 + \beta_1 s + \beta_2 e + \beta_3 e^2 + \sum \alpha_i x_i + \nu, \tag{1}$$

where Log Y_t is the log of earnings at time t, e is total work experience, s is years of schooling, the x_i are personal and family characteristics influencing job efficiency, and ν is the error term. The coefficient on schooling, β_1, can be interpreted as its rate of return, and one can also derive the rate of return to experience and the initial investment ratio from β_2 and β_3.[10] The data used in the estimation procedure are weighted city-industry averages for 1888 and micro-level observations for 1907. The following summarizes the major findings of the results given in Table 1.

[8] The cities included, with the regional divisions used to estimate the earnings functions in Table 1, are: *South*—Atlanta, Baltimore, Charleston, New Orleans, Richmond, Savannah; *North*—Boston, Brooklyn, Buffalo, Newark, New York, Philadelphia, Providence; *Midwest*—Chicago, Cincinnati, Cleveland, Indianapolis, Louisville, St. Louis, St. Paul; *West*—San Francisco, San Jose.

[9] This statement excludes reports using census materials, in particular *Statistics of Women at Work* (Washington, 1907) based on the 1900 Census.

[10] See in particular Jacob Mincer, *Schooling, Experience and Earnings* (New York, 1974). Under a particular set of assumptions, Mincer (p. 91) has shown that:

$$\beta_2 = \left[r_t k_0 + \frac{k_0}{T} (1 + k_0) \right] \text{ and } \beta_3 = -\left[\frac{r_t k_0}{2T} + \frac{(k_0)^2}{2T^2} \right],$$

where r_t = rate of return to experience; $k_0 = (C_0/E_0)$ = the initial investment ratio which is assumed to decline linearly with time, $k_t = k_0 - k_0(t/T)$. At time T investment is zero. If T = 10, the results in Table 1, col. 3 yield $k_0 = 0.33$ and $r_t = 0.14$; if T = 7, $k_0 = 0.35$, $r_t = 0.06$.

TABLE 1
EARNINGS FUNCTIONS FOR WOMEN IN 1888 AND 1907
(Dependent variable = log annual earnings)

Independent Variables for {1888 Study / 1907 Study}	1888 Study Mean of Dependent Variable: 5.52		1907 Study Mean of Dependent Variable: 5.30	
	(1)	(2)	(3)	(4)
Constant	4.7837*	5.4805*	−1.5350*	−2.0140*
	(0.1202)	(0.1247)		
1) Experience	0.0855*	0.0778*	0.0890*	0.0936*
	(0.0089)	(0.0082)	(0.0043)	(0.0042)
2) Experience^2 × 10^{-2}	−0.4387*	−0.4386*	−0.2809*	−0.2929*
	(0.0007)	(0.0006)	(0.0002)	(0.0002)
3) Schooling[a]	0.1553*	0.1249*	0.0564*	0.0446*
	(0.0014)	(0.0232)	(0.0133)	(0.0130)
4) Schooling^2 × 10^{-2}	−0.7148*	−0.6249*	−0.3609*	−0.2792**
	(0.0014)	(0.0013)	(0.0017)	(0.0016)
5) Log days lost / Log days worked	−0.0731*	−0.0793*	1.2133*	1.2189*
	(0.0108)	(0.0100)	(0.0169)	(0.0165)
6) % Born in state / Native-born, Native parents		−0.1557*	−0.0225	−0.0036
		(0.0441)	(0.0506)	(0.0495)
7) % Born out of state / Foreign-born		0.1872*	−0.0910*	−0.0216
		(0.0622)	(0.0456)	(0.0452)
8) % Native mothers / Foreign-born × Years in U.S.		−0.1627*	0.0006	−0.0011
		(0.0334)	(0.0015)	(0.0014)
9) % Live at home / Presence of mother		−0.3325*	−0.0763*	−0.0419
		(0.0567)	(0.0300)	(0.0296)
10) % Assist at home / Age began work		−0.1124*		0.0295*
		(0.0316)		(0.0032)
11) Store × schooling	0.0347*	0.0251**		
	(0.0154)	(0.0141)		
Number of Observations	1107	1107	1785	1785
R^2:	0.996[b]	0.996[b]	0.836	0.845
s.e.e:	0.762	0.697	0.313	0.306

Notes: 1888—All variables weighted by $\sqrt{n}$, where n = number of women in each industry-city category. The mean of the weighted dependent variable is 18.78. Other variables entered: three regional dummies, percent in bad health, percent married, widowed, separated or divorced, and percentage with previous occupations.

1907—Other variables entered: state or city dummies.

Standard errors are in parentheses under coefficients. All starred coefficients (*) are significant at the 5% level; those with (**) are significant at the 10% level.

[a] Schooling is measured as a residual (age that work began minus seven years) for 1888 but directly for 1907. The 1907 data, however, give months attended which has been converted to years by dividing by 12. This procedure understates the impact of schooling because school months per year were less than 12. Note that even though the coefficients differ for the two years, the marginal returns are about equal.

[b] This measure of R^2 overstates the "explained variance" because the weighting procedure increases the variance in the dependent variable. If, instead, one were to compute a measure of R^2 by applying the coefficients from this GLS estimation to the unweighted data, one would get an R^2 of about 0.35. The R^2 from an OLS regression on the unweighted data would, of course, be greater.
Sources: See text.

Earnings data for women doing manual work in both 1888 and 1907 indicate that there were large advantages to remaining in the labor force. Earnings rose steeply with experience on the job, peaking or leveling off early. The occupations women held during this time may be colloquially termed unskilled or, at best, semiskilled, but they involved substantial learning-by-doing, and only after several years of job training did individuals become proficient. In various industries (for example, men's clothing), moving up on the earnings function involved job mobility. "Occupational promotion in coat making necessitates changes in the character of the work done and involves a period of reduced productivity and reduced wages" (*1907 study,* vol. 2, p. 477). In others, such as weaving, it involved supervising more machines, or making more and better pieces (for example, shoes).

Learning on-the-job was considerable for individuals entering at any age. Although maturity was a factor in the earnings-experience function, it was not an overriding one. Delaying entry into the labor force for one year added less than 3 percent to earnings, whereas working for that year would have added over 9 percent.[11] In other words, a 14-year-old working for two years would earn at a maximum 6 percent less than a 16-year-old working for two years, but the 14-year-old working for two years would earn 12 percent more than a 16-year-old just entering the labor force.

Moreover, the shape of the earnings profile was not merely a function of some screening mechanism used to identify fast quitters. Various economic theorists have posited that employers who have fixed hiring costs and heterogeneous labor with characteristics that are not easily identifiable will maximize profits by having two types of earnings functions, one flat and one rising. This screening mechanism ensures the self-selection of laborers, with the slow quitters opting for the rising function. The widespread use of piece rates for women is of critical importance in this regard.[12] Piecework rates may have been used by firms to screen workers initially and then to maintain employment by continuously rewarding effort. Employers desiring to attract female labor might have altered work organization to include more task-oriented and incentive pay jobs to reward effort where occupational mobility was excluded by the limited nature of job attachment. But the use of piece rates implies that differences in earnings were a direct function of productivity and not a mere construct. Furthermore, domestic service was an alternative occupation that had a relatively high but flat earnings profile, and it might have served to attract the casual worker. Lucy Salmon, in summarizing her 1889 survey

[11] The 3% figure is a maximum because the *1907 study* does not include information on prior occupations. To the extent that there was a return to experience on other jobs the coefficient on the age at beginning work would include it.

[12] See, for example, Joanne Salop and Steven Salop, "Self-Selection and Turnover in the Labor Market," *Quarterly Journal of Economics,* 90 (Nov. 1976), 619–27, who state that "the firm could pay for piecework, thereby allowing the worker to receive the full value of his own marginal product and eliminating the firm's interest in this information [turnover costs]" (p. 627).

of domestic service, indicated precisely these market forces in determining the allocation of women among occupations.[13]

Although the earnings functions for both years display similar characteristics, that for 1907 rises more steeply and peaks later than that for 1888. The 1888 experience variable measures years in a particular occupation, and when total job experience is substituted, the profiles are virtually identical for the two years. A third type of occupation, store work, also existed for single women during this period, and it appears that store work in 1888 differed substantially from that in 1907. Although in 1888 there was a bonus to store workers with more schooling (var. 11, cols. 1 and 2), earnings did not differ by experience; that is, the profiles had the same shape but that for store work was about 3 percent greater. By 1907 there was more room for advancement in store work. Earnings were initially lower by 8 percent but rose by 1.8 percent with each year of experience over and above the same gradient in the factory (eq. 2).

$$\text{Log (weekly earnings)} = 1.506 + 0.0996 \text{ Exp.} - 0.0038 \text{Exp.}^2$$
$$(.0058) \qquad (.0004)$$

$$- 0.0758 \text{ Store} + 0.0181 \text{ (Exp. } * \text{ Store)} \qquad (2)$$
$$(.0277) \qquad (.0063)$$

$R^2 = 0.316$; number of observations = 1319; standard errors are in parentheses.

Store = 1, if woman was working in a department or retail store.

Exp. = years experience in this occupation.

Source: *1907 study,* vol. 5, pp. 268–98. New York City sample of "women living at home."

The scant existing information on the earnings of men with similar characteristics during the same time period suggests that their earnings rose less rapidly but peaked later than women's.[14] Occupations and industries were often highly segregated by sex. It is likely that these divisions were less a reflection of inherent differences in ability than they were a by-product of segregation by method of payment and the specialized nature of work. Men were infrequently found in the tedious, task-oriented jobs which women held. Because of their greater expected attachment to the labor force, they had greater incentive to perform efficiently in non-piece

[13] Lucy M. Salmon, *Domestic Service,* 1897 ed. (rpt. New York, 1972), stated:

In the two occupations the wages in which have been compared with those in domestic service [teaching and factory work] while the general average wages are low, it is possible to reach through promotion a comparatively high point. The fact that the wage plane is a high one is one inducement for women of average ability to enter the occupation [servant]. On the other hand, the fact that the wage limit, high as it is, is soon reached must act as a barrier in the case of others (pp. 103–04).

[14] See Joan Hannon, "The Immigrant in the Promised Land: Human Capital and Ethnic Discrimination in the Michigan Labor Market" (Ph.D. diss., Univ. of Wisconsin, 1977), Table 3.5 for male earnings equations in 1889.

rate work and stood more likely eventually to receive "prizes" in the form of promotions and monetary rewards.

Among those under 16 years old, earnings were somewhat higher for girls than for boys, but boys received a higher return on their education. Boys invested more in training than girls did, and given their respective life-cycle labor force participation rates, these may have been optimal strategies. But the implicit investment choice was made more by parents than by youngsters. Parents were a large factor in the intergenerational transmission of cultural norms, and the earnings functions are suggestive in this regard. Young women who lived at home earned less than those who boarded (var. 9, col. 2) and, understandably, those who assisted at home earned even less (var. 10, col. 2). Those who lived away from home may have been a biased sample of all young women in terms of differing with their parents' decisions and their innate ability. Those whose mothers were alive earned less than did those without mothers at home (var. 9, cols. 3 and 4), an indication that these girls worked at home part-time and either worked fewer hours in the factory or worked less intensively.

Education had a smaller impact on earnings than is generally observed for contemporary data, but it was nonetheless important. Ethnicity, however, was not a separate factor in determining earnings. Although the results in col. 3 indicate that the foreign-born (var. 7) earned 9 percent less than native-born with native- or foreign-born parents, this differential disappears when relative maturity is considered, that is, when the age at which work began is entered. The foreign-born began work younger; given their level of experience, they earned somewhat less. The results in col. 4 indicate no residual differences in earnings due to ethnicity, although there were differences in labor force participation by ethnicity.

Summary Remarks

In summary, work in the labor market for women from 1870 to 1920 was the realm of the unmarried, whose occupations involved much on-the-job training but little long-range advancement. The estimated earnings functions are consistent with the life-cycle labor force participation of these women. But the comment by one astute observer, that

[In] most cases, probably, woman's expectation of marriage is responsible for her lack of skill, but in some instances, doubtless, her enforced lack of skill is responsible for her longing for marriage as a relief from intolerable drudgery (*1907 study*, vol. 9, Helen Sumner, p. 32),

indicates this harmony need not have been universally felt or long-lived.