4

Discontinuous Labor Force Participation and Its Effect on Women's Market Earnings

SOLOMON W. POLACHEK

THE QUESTION of woman's role as a wage earner has become an issue of growing social, economic, and political importance in the United States today. The rapid rise in female labor force participation has led to an increased awareness among women of their status within the economy relative to males. Research in economics and other social sciences into the nature and scope of the employment and earnings differentials existing in the labor market today has been spurred on by women's claims of unequal treatment. Although discrimination may be an important determinant of women's present social and market position, economic analysis shows the phenomenon to be a far more complicated one.

In 1959, the working female earned, on the average, 53 percent as much as her male counterpart. Even on an hourly basis, the wage differential was over 30 percent. Corroborating sets of data indicate a certain consistency of these wage differentials over the last several decades (Table 4.1). Yet, because these raw differentials may overstate the real difference in wages by not comparing men and women with similar labor market attributes, the present study was designed to make more refined

The theoretical framework as well as the statistical results reported in this paper largely derive from a paper this author coauthored with Jacob Mincer of Columbia University and the National Bureau of Economic Research. This paper, which was presented at the Population Conference II in Chicago on June 4–5, 1973, is entitled "Family Investments in Human Capital: Earnings of Women." The author wishes to acknowledge the intellectual debt he owes to Jacob Mincer while at the same time taking full responsibility himself for any errors which he might have made. He also wishes to acknowledge the substantial editorial assistance received from Cynthia B. Lloyd, editor of this volume.

estimates of such wage differences as well as to shed light on their causes.

It is observed that important family characteristics, such as marital status, family size, and child spacing, have systematically different effects on the labor force participation and earnings of men and women.[1] According to Figure 4.1, wage differentials are greatest between married males and married females and smallest between single males and single females. Further analysis reveals that for single males and single females of the same age and level of education, hourly wage differentials average only 18 percent, while being over 50 percent for married males and females. Similarly, when comparing the wages of working females with

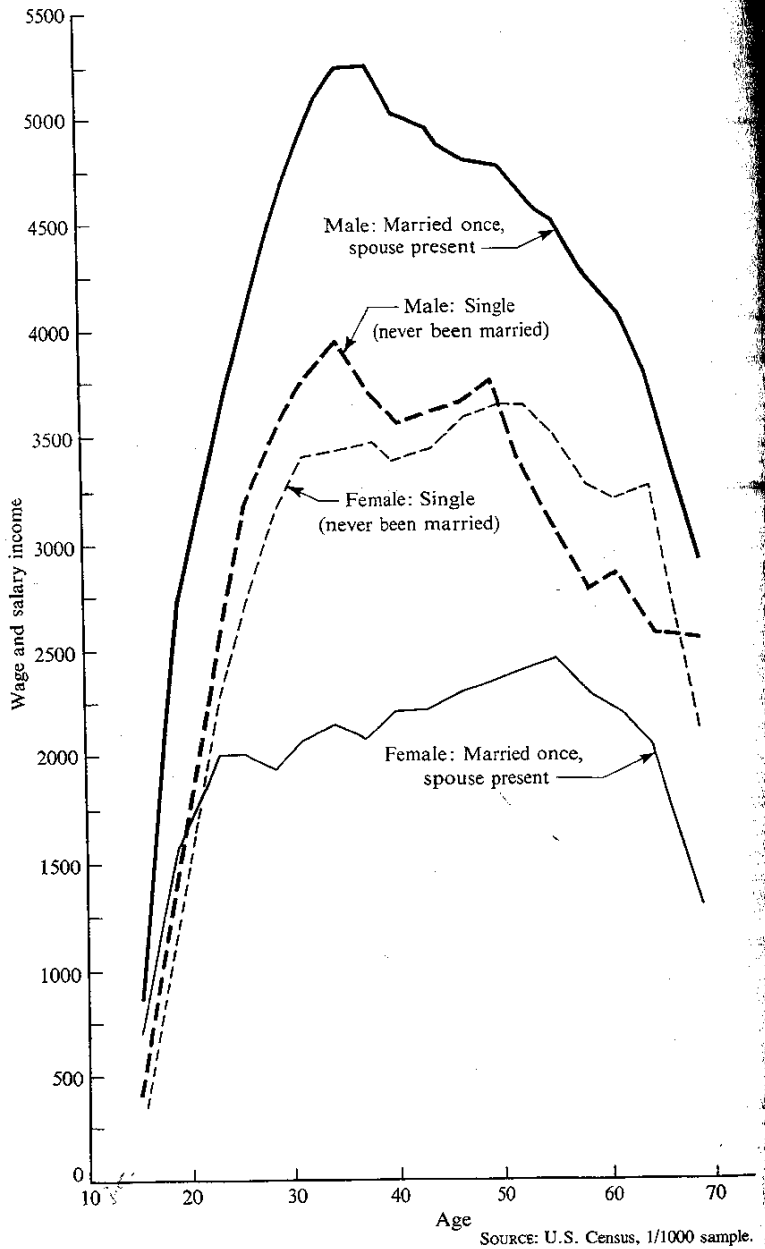
TABLE 4.1 Male–Female Wage Differentials

	1959		*1966a*		*1966b*
	Yearly	*Hourly*	*Yearly*	*Hourly*	*Yearly*
Male earnings	$4,491	$2.63	$6,870	$3.06	$5,693
Female earnings	2,391	1.81	2,390	1.99	2,149

SOURCES: 1959: Computed from U.S. Census, 1960, 1/1000 sample.
1966a: Computed for males and females 30–44 years of age from the 1966 Survey of Economic Opportunity Data.
1966b: U.S. Census, 1960, *Current Populations Reports* P-60, No. 53—median wage and salary income for persons 14 years of age and over.

children and those without children, it is found that each additional child reduces the female wage by up to 7 percent, depending on the age of the child. The spacing of children is also important. Empirically it can be shown that even when comparing women with the same number of children, the more widely spaced the children (i.e., the greater the range in the ages of the children), the lower the wage rate of the working mother. Thus, the mother of twins earns, on the average, 1.2 percent more than the mother whose children were spaced two years apart. At the same time, children have a positive although less profound effect on their father's earnings, thereby further increasing the wage gap. These effects are shown in more detail in Appendix Table 4.1.

This paper focuses upon the following question: Why do these family characteristics have such a pronounced influence on the size of the male–female wage differential? In answering this question, this study will demonstrate that family characteristics are, in fact, proxies for lifetime and



SOURCE: U.S. Census, 1/1000 sample.

FIGURE 4.1. Wage and Salary Income, 1959

life-cycle variations of labor force participation. In addition, these differences in expected and actual labor force participation will be shown to affect the amount of individual human capital investment on and off the job, which in turn affects the wage rate received for market work.

Facts about Women's Labor Force Participation

To analyze the effects of differing male–female labor force participation patterns on earnings, definitions must be established concerning the measurement of the participation variable. Traditionally, most studies of labor force behavior have measured the extent of labor force participation either by whether or not the person was in the labor force during a given survey week or by the number of weeks or hours spent at work per year. Although such measures are important in understanding aggregate male and female labor force participation, they are less useful when analyzing wage differentials. Instead, overall life-cycle labor force commitment, or the proportion of time worked from period to period over an entire lifetime, would be the more relevant variable.

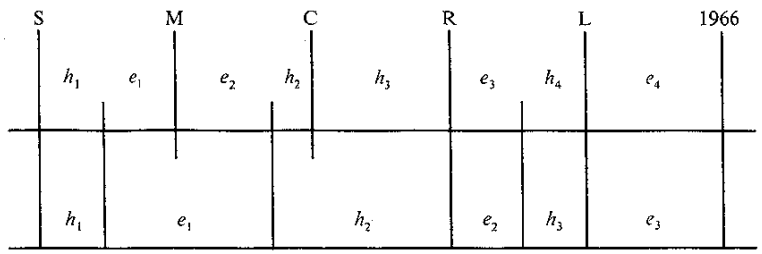
Little comprehensive data is available from which one can obtain individual work history information. Until recently, the two most comprehensive sources of individual labor market data for males and females were the *United States Census of Population and Housing* and the *1967 Survey of Economic Opportunity* (SEO). Unfortunately, neither of these Bureau of Census sources contains retrospective information on labor force participation. However, the *1967 National Longitudinal Survey of Work Experience for Females 30–44 Years of Age* (1967 NLS) which has just recently been made available, does present such work histories for a sample of females.

Although the Bureau of the Census does not collect work history data over an individual lifetime, certain life-cycle implications may be pieced together from available respondents' work habits during the census survey week. These patterns emerge by utilizing the data on each individual and aggregating them over age, sex, and marital status categories. First, labor force participation of females is less than half that of males.[2] Second, the age–participation profile of married females is characterized by a double peak, with the probability of working in the labor force highest before and after the child-bearing ages and lowest within the prime child-

bearing ages. This pattern is even more apparent when levels of schooling are taken into account. During the child-bearing period of the life cycle, even those females with the very highest levels of education drop out of the labor force to the same extent as females with the lowest levels of schooling.[3] Third, the life-cycle labor force participation patterns of single males and females show roughly similar characteristics.[4] Generally, single males and single females have lower labor force participation rates than married males, but much higher rates of participation than married females.

The National Longitudinal Survey [5] is more complete. For a sample of over 5,000 females, it presents individual information on current labor force status, work experience in 1966, work experience before 1966, attitudes toward work and women's role, marital and family history, health, education, income, wealth, and transfer payments. For each respondent, a history of work experience was computed from the time formal schooling was completed. This work history contains the number of years the respondent worked six months or more during the intervals between the following points in the life cycle (see Figure 4.2): (1) the completion of

Maximum number of work and nonwork periods that can be computed from the data



Work and nonwork periods used in Tables 4.3, 4.5, 4.6, and 4.7

Source: NLS survey

KEY:

S = year schooling ended
M = year first marriage
C = year first child born
R = year of reentry into the labor force
L = year current job began
e_i = periods of market work in the labor force
h_i = periods not at work in the labor force

FIGURE 4.2. Work History Information from NLS Survey

TABLE 4.2 Labor Force Participation of Mothers
(white married women, with children, spouse present)

	Percentages			
Proportion Working:	*In 1966*	*After first child*	*Ever*	N
Age 30–34	43	64	82	925
$S < 12$	46	63	75	294
$S = 12$	43	63	84	446
$S > 12$	40	59	88	185
Age 35–39	47	67	87	945
$S < 12$	45	66	82	336
$S = 12$	49	68	88	422
$S > 12$	47	67	92	187
Age 40–44	53	70	88	1078
$S < 12$	52	72	78	465
$S = 12$	54	70	91	446
$S > 12$	51	68	93	167

SOURCE: *1967 National Longitudinal Survey of Work Experience of Females 30–44 Years of Age;* hereafter cited as 1967 NLS.

NOTE: S = years of schooling.
N = number in sample.

formal schooling (S), (2) the time of the first marriage (M), (3) the birth of the first child (C), (4) the time of reentry into the labor force after the first child (R), and (5) the time when the last or current job was started (L). The patterns of labor force experience are enumerated in Tables 4.2 to 4.7, and confirm the patterns already encountered in the census data.

Table 4.2 indicates that, although close to 90 percent of all mothers in the sample worked at least some time since leaving school, only about two-thirds had returned to the labor market since the birth of their first child. A certain intermittency of labor force participation among these workers is indicated, in that only about 50 percent worked in 1966—the year prior to the survey. Table 4.3 indicates the difference in lifetime labor force participation between married women with and without children as well as between married and single women. Never-married women spent 90 percent of the time since they left school in the labor market, whereas married women with children spent less than 50 percent of their time in market work. Childless women, those with children but without husbands (widowed, divorced, and separated), and those who married more than once spent less time in the labor market than never-

TABLE 4.3 Work Histories of Women, Aged 30–44, by Marital Status (average number of years)
(See Figure 4.2 for key to symbols)

White, with Children	h_1	e_1	h_2	e_2	h_3	e_3	Σe	Σh	S	N_c	N
Married once, spouse present	.57	3.55	6.71	1.14	1.22	1.69	6.4	10.4	11.8	3.16	2398
Remarried, spouse present	.54	2.43	7.85	2.60	2.02	2.00	7.1	10.3	10.6	3.28	341
Widowed	1.11	4.25	9.37	1.51	1.44	2.56	8.4	11.9	12.0	2.44	45
Divorced	.94	2.96	6.54	4.24	2.38	2.92	10.1	9.8	10.8	2.98	133
Separated	.74	3.97	7.81	2.71	1.14	2.08	8.7	9.6	10.1	2.86	65
White, Childless											
Married once, spouse present	1.01	5.18		4.39	3.35	4.90	14.5	3.3	11.7		147
Never married		7.08			1.46	7.48	14.5	1.5	12.9		153
Black, with Children											
Married once, spouse present	1.12	3.00	7.12	2.95	2.14	3.26	9.1	10.3	10.0	4.59	563
Remarried, spouse present	.96	2.44	7.43	4.93	2.05	3.36	10.7	11.7	9.6	4.22	170
Widowed and divorced	1.19	2.23	7.67	4.36	1.90	3.68	10.3	10.8	9.8	4.20	149
Separated	1.28	2.86	6.24	5.57	2.38	2.81	11.2	9.8	9.4	4.22	191
Black, Childless											
Married once, spouse present	2.33	4.75		3.83	4.53	4.77	13.4	6.9	10.9		71
Never married		7.15			4.74	6.45	13.6	4.7	10.9		47

SOURCE: 1967 NLS.

NOTE: Because of coding errors in the currently available NLS versions, certain individuals listed as not having worked in 1966 were inadvertently listed as having not worked throughout their lifetime. This error in the NLS tapes means that the estimates of Σh relative to Σe in this table, Table 4.4, as well as for the second row of Tables 4.5 through 4.7, are biased upward. The remainder of the tables are based on data for those in the labor force in 1966, and therefore do not contain this bias.

S = years of schooling.
N_c = family size.
N = number in sample.

married women, but more than mothers who were married once with spouse present.

The amount of time spent in and out of the labor force also depends on the level of education. Table 4.4 indicates that the total number of years spent in the labor force, represented as a fraction of the total possible years that could be spent at work, varies not only with marital status but also with education. The higher the educational attainment, the greater the commitment to the labor force. Among females of all marital status categories (including blacks), those who attended graduate school spent,

TABLE 4.4 Percentage Lifetime Labor Force Participation by Marital Status and Education

Marital Status	*Elementary*	*High School*	*College*	*Graduate School*
Married, spouse present	27.4%	33.8%	36.4%	50.0%
Married, spouse absent	28.3	33.4	54.1	NC
Widowed	31.7	32.4	44.9	56.5
Divorced	38.1	51.8	62.4	50.0
Separated	46.1	47.5	49.6	68.2
Never married	28.2	66.9	88.9	97.2
Total	30.1	36.9	41.4	59.1

SOURCE: 1967 NLS.

NOTE: Lifetime Labor Force Participation = total years worked divided by total exposure (age minus education minus 6) to the labor force.
NC = not calculated (too few observations)

on the average, 60 percent of their working life at work, while those with lower levels of education spent only about a third of their total possible working life in the labor force. If the sample is restricted to never-married females, these percentages are much higher. In fact, never-married women who have attended graduate school work almost 100 percent of the time.

As indicated, male–female wage differentials are greatest for married females with children. A detailed analysis of their life-cycle participation is given in Tables 4.5–4.7. The major stages of labor market activity and nonmarket activity are shown chronologically as the length of nonparticipation during the interval between leaving school and marriage (h_1), the years of market work between school and the birth of the first child (e_1), and an uninterrupted period of nonparticipation, starting just before the

TABLE 4.5 Work Histories of Married Women, Aged 30–34, by Education and Current Work Status (See Figure 4.2 for key to symbols)

Worked in 1966	h_1	e_1	h_2	e_2	h_3	e_3	Σe	Σh	N_c	N
$S < 12$	1.93	2.37	5.80	3.18	2.20	1.90	7.45	9.93	3.42	135
$S = 12$–15	.90	2.84	5.41	2.21	1.39	2.31	7.36	7.70	2.89	233
$S \geq 16$	.37	2.57	2.65	2.22	1.22	2.00	6.79	4.24	2.39	35
Did not work in 1966, but worked since birth of first child										
$S < 12$	1.67	2.23	6.29	1.31	5.09		3.54	13.05	3.50	68
$S = 12$–15	.81	2.90	4.65	1.23	4.75		4.13	10.21	3.49	93
$S \geq 16$	.50	1.85	3.57	1.71	3.57		3.56	7.64	3.00	14
Hasn't worked since birth of first child										
$S < 12$	4.54	1.42	9.64				1.42	14.18	3.24	85
$S = 12$–15	2.28	3.21	7.93				3.21	10.21	3.03	211
$S \geq 16$	1.95	1.11	7.20				1.11	9.15	3.14	34

SOURCE: 1967 NLS.

NOTE: S = years of schooling.
N_c = family size.
N = number in sample.

TABLE 4.6 Work Histories of Married Women, Aged 35–39, by Education and Current Work Status

Worked in 1966	h_1	e_1	h_2	e_2	h_3	e_3	Σe	Σh	N_c	N
$S < 12$	1.94	2.78	7.98	3.47	2.78	3.40	9.65	12.70	3.37	152
$S = 12$–15	.98	3.42	6.85	3.09	2.01	3.70	10.21	9.84	2.99	250
$S \geq 16$	1.01	2.95	4.72	2.04	1.25	5.46	10.45	6.98	2.72	43
Did not work in 1966, but worked since birth of first child										
$S < 12$	2.15	2.96	9.00	1.80	6.40		4.76	17.55	3.70	65
$S = 12$–15	1.20	3.74	7.42	1.18	5.94		4.92	14.56	3.51	101
$S \geq 16$	.38	5.75	6.50	1.15	2.62		6.90	9.50	2.87	8
Hasn't worked since birth of first child										
$S < 12$	4.23	3.54	13.53				3.54	17.76	3.58	113
$S = 12$–15	2.97	3.85	11.62				3.85	14.59	3.16	170
$S \geq 16$	1.88	2.65	10.15				2.65	12.03	3.50	26

SOURCE: 1967 NLS.

NOTE: S = years of schooling.
N_c = family size.
N = number in sample.

TABLE 4.7 Work Histories of Married Women, Aged 40–44, by Education and Current Work Status

Worked in 1966	h_1	e_1	h_2	e_2	h_3	e_3	Σe	Σh	N_c	N
$S < 12$	2.41	3.29	10.38	3.94	2.95	4.93	12.16	15.74	3.18	240
$S = 12$–15	1.55	4.16	8.74	3.57	2.63	4.43	12.16	12.92	2.72	297
$S \geq 16$	.93	3.20	6.89	3.06	1.86	4.89	11.15	9.68	3.65	29
Did not work in 1966, but worked since birth of first child										
$S < 12$	2.35	3.31	12.95	1.51	6.89		4.82	22.19	3.41	89
$S = 12$–15	1.39	3.68	10.43	1.24	8.23		4.92	20.05	3.36	82
$S \geq 16$	3.19	1.19	9.80	1.34	4.80		2.53	17.19	3.59	5
Hasn't worked since birth of first child										
$S < 12$	6.23	2.63	17.66				2.63	23.89	3.93	130
$S = 12$–15	3.36	4.88	15.12				4.88	18.48	3.12	141
$S \geq 16$	3.03	2.67	13.35				2.67	16.38	2.96	31

SOURCE: 1967 NLS.

NOTE: S = years of schooling.
N_c = family size.
N = number in sample.

first child was born (h_2), followed by periods of intermittent participation and nonparticipation (e_2 and h_3), and finally by e_3, the present job tenure of women working at the time of the survey.

It is clear from the tabulations that, after their schooling, the life cycle of married women features several stages which differ by age, education, and current work status in the nature and degree of labor market and home involvement. There is usually continuous market work prior to the birth of the first child. The second stage, lasting between five and ten years, is a period of nonparticipation in the labor force on account of childbearing and child care, followed by intermittent participation before the youngest child reaches school age. For many the third stage is a more permanent return to the labor force, though for some it is still of an intermittent nature. In the NLS data, which is restricted to women less than 45 years old, only the beginning of the third stage is visible.

All of these tables point to the fact that the proportions of time spent working and not working vary among females. As indicated, much of this variation depends upon differences in home responsibilities. The married woman with many children and little education spent the most time out of the labor force. Since each additional child causes a decrease of lifetime

labor force participation, females with high levels of education tend to have less children and to space them more narrowly than do mothers of low education.

Although sex, labor force participation over the life cycle, and wages may all be related, these data certainly do not prove that such a relationship exists. By applying the human capital theory of income determination, a causal link between these three factors will be established.

Theoretical Framework

The theory of human capital evolved as an interest developed in explaining not only the distribution of earnings between the basic factors of production (capital and labor), but the narrower problem of the distribution of earnings within the labor sector itself. In this regard, it became clear *not* only that individuals differ in terms of basic attributes such as ability, but that, through their own decisions, they can play a major role in determining the nature and extent of their human capital as measured by their levels of health, education, job training, etc. Investments in developing and maintaining such stocks of human capital yield a return in terms of increased market and/or psychic income. However, like any other form of capital, the stock of human capital will depreciate if not maintained and will fail to grow unless current investments exceed the rate of depreciation. The advisability of such investments can be determined by weighing the costs against the returns: i.e., the present costs of investments (both direct costs and any foregone market earnings) against the discounted stream of future increments in income.[6]

Normally, for those who have a lifetime commitment to the labor force, job-related investment activity is concentrated in the early years and tapers off at older ages. At least two reasons can be given for the prevalence of such patterns of human capital investment. First, because there is only a finite life span over which the returns from investment can be reaped, investments made at older ages produce returns over shorter periods and, hence, have a smaller payoff to the individual. Second, time, measured in terms of foregone market earnings, becomes more valuable as one grows older. Since time is an important component of self-investment, such investment becomes more costly, and hence less profitable, at older ages. Hence, at older ages both the returns fall and the

costs rise, so that investment can be expected to decline.

A typical male age-earnings profile (i.e., a graph of the logarithm of hourly wages plotted against age) is illustrated in Figure 4.3. The profile is characterized by a steady rise in the hourly wage rate from entry into the labor force until just prior to retirement. Associated with rising wages is an increasing stock of human capital over the life cycle. This represents the netting out of two effects: (1) gross human capital investment, or the accumulation of earnings power; and (2) gross human capital depreciation, or the decline of earnings power. Net investment is the sum of these

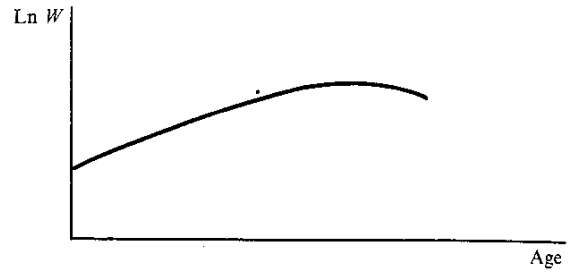


FIGURE 4.3. A Typical Age-Earnings Profile

two effects. The diminishing rate of increase in earnings with age can clearly be related to the typical decline in net investment with age.[7]

Figure 4.4 depicts these concepts graphically. The upward-sloping marginal cost (MC) curve implies a rising cost for each additional unit of human capital purchased per time period. Further, the marginal return in period i from each additional unit of human capital acquired (MR_i) is the present value of additional wages generated in each succeeding period of the working life from human capital investment.[8] Since the gains from investment decline over the life cycle, MR shifts down from period to period, MR_{i+1} being lower than MR_i.[9]

In equilibrium one purchases human capital up to the point that marginal revenue equals the marginal cost of the last unit purchased. Diagrammatically, the quantity of human capital purchased in each period can be read off the horizontal axis at I_1, I_2, I_3, etc., finally reaching zero at retirement from the labor force. By projecting these gross investments across a 45° curve, it becomes apparent that gross investment declines with age. As indicated, such an investment pattern gives rise to an earnings function of the type pictured in Panel D of Figure 4.4: steeper at

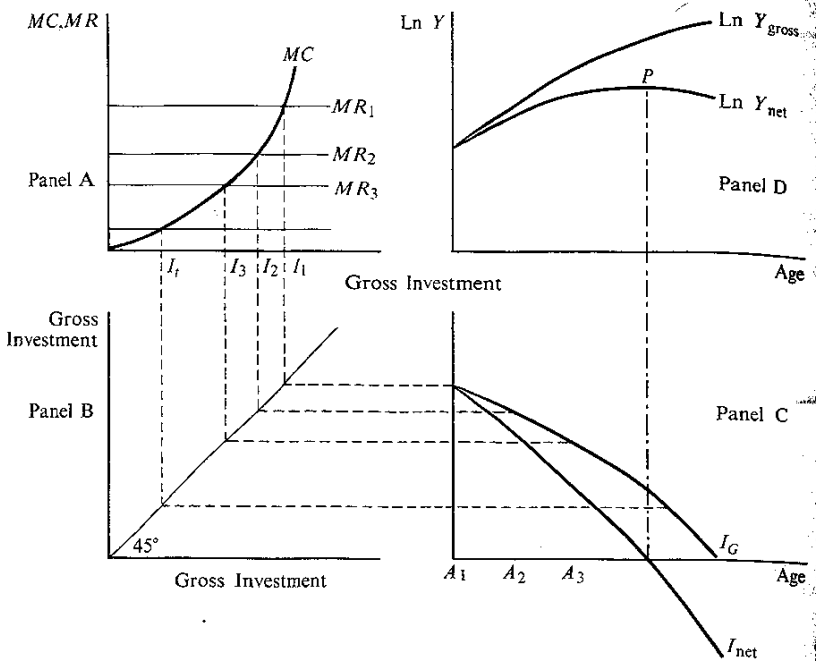


FIGURE 4.4. The Human Capital Model of Earnings Determination

younger ages, at which investment is greater, and flatter at older ages, at which investment is smaller.

If depreciation of skills (because of either age or obsolescence) occurs, then the net investment (I_{net}) will be lower than gross investment. At the age when I_{net} intersects the horizontal axis capital stock begins to decrease, and earnings are at a maximum (P on the corresponding age–earnings profile). This analysis of the costs and returns of investment, although implicitly derived for males, can be applied to female earnings patterns as well.

Females differ from males in their expectations of lifetime labor force participation. According to Tables 4.2 through 4.7, the female, especially the married female, tends to participate in the labor force more intermittently than her male counterpart. About ten years, on the average, are spent out of the labor force to bear and raise children. Still more time (about four years) is spent in intermittent participation as children are

growing up. The effect of these periods is to lower the gain from investment. That is, because monetary gains from investment cannot be reaped when not at work, the average married female's returns from investment are reduced by the present value of the extra earnings from investment she would have earned had she continued to work instead of staying at home.

If a comparison is made of the *MR* curve of the female out of the labor force for ten years (between the ages of 22 and 32) and that of one who works continuously (Figure 4.5), we find a large initial difference in returns from investment. Although, as indicated in this diagram, positive

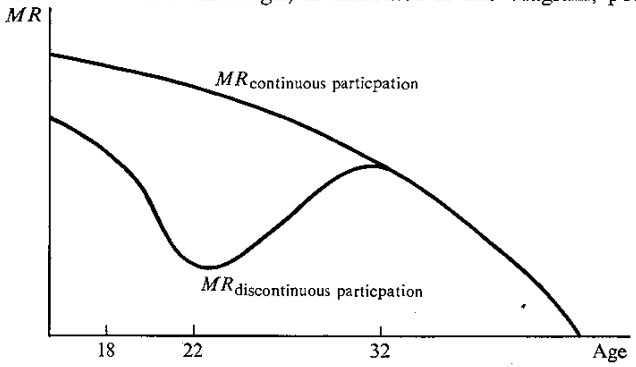


FIGURE 4.5. Comparison of Male and Female Marginal Gains from Human Capital Investment

returns from investment exist while the female is out of the labor force, positive net investment need not occur. If postschool human capital investment in part consists strictly of on-the-job training, then the costs of investment become higher when the female is out of the labor force and investment is thereby reduced.[10] Thus this analysis predicts little, if any, positive net investment during the home time and intermittent participation segments of the female life cycle. Greater investment would occur during the periods of full-time work, when the marginal returns of investment, *MR*, are relatively high and the marginal costs, *MC*, are relatively low.

Thus, since the returns from investment are in part based on the duration and continuity of labor force participation, any group expecting relatively low lifetime labor force participation would realize a smaller gain from investment and hence, all other things being equal, would invest less. As a consequence, they would be expected to have lower and flatter

earnings profiles than those with a relatively more continuous labor force participation.

Empirical Analysis and Results

Regression analysis can be used to determine how varying degrees of life-cycle labor force participation affect subsequent wage rates. This procedure entails the specification of a functional relationship between wages earned and time spent working or not working during the life cycle.[11] It is hypothesized that an individual's wage rate is functionally related to the amount of schooling, the number of years of work experience, and the extent of home time, as well as to other indices of human capital such as specific job training and certification, mobility, health, number of children, and current weeks and hours of work. This function is fitted to data in the following form:

$$\ln w = c + a_1 S + a_2 e + a_3 h + a_4 x + u, \tag{1}$$

where w is the observed hourly wage rate;
c is a constant term
S is the years of schooling;
e is a vector of work experience segments;
h is a vector of home time segments;
x is a vector of other indices of human capital investment, as well as of other related variables; [12] and
u is the statistical residual, assumed to have a zero mean and to be independently distributed with a constant variance.

With the semilogarithmic specification used, coefficients a_i can be interpreted as partial elasticities, thereby yielding the percentage change in hourly wages, given a unit change in the associated independent variable.

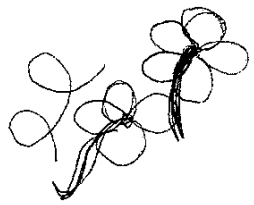
The results of these regressions are presented in Appendix Tables 4.2 through 4.4. The first table presents these findings stratified by marital status and presence of children, the second by level of schooling, and the third by lifetime work experience. In these tables, work experience is divided into three segments: e_1, which equals years worked between school and birth of the first child; e_2, which equals years worked after child rearing but before current job, and e_3, which equals years worked on current job. Time out of the labor force is consolidated into two segments: h_1, which equals home time after the first child, and h_2, which equals all other home time.

The coefficients of these variables give an indication of the effects of discontinuous labor force participation on earnings. A priori, because more investment occurs on the job than off the job, we expect the coefficients for the home time variables to be smaller in magnitude than those for the experience variables. Similarly, when the job is more permanent (i.e., before the first child and after the completion of childrearing), the rates of investment should be higher than in the periods of intermittent employment. Since the coefficients represent the relative change in earnings during these periods (i.e., the slope of the age–earnings profile), and hence represent the rate of investment, human capital accumulation should be highest for e_1 and e_3 and lowest for h_1 (the longest period out of the labor force).

Generally, the coefficients of e_1 and e_3 exceed the coefficients for e_2 implying that intermittent labor force participation does little to increase the respondent's wages. Hence, little human capital investment occurs during such periods of labor force participation. Wages rise faster, with more investment occurring, when the job is expected to be of longer duration. In most cases, extra experience in one's current job is more important with respect to earnings growth than is earlier experience, thereby implying that in the prechildrearing period women invest less, because of their expectation of being out of the labor force in subsequent periods.

Because labor force attachment is higher for those females without children than for those with children, on-the-job human capital investment should be higher for the former group. The regression results confirm this expectation, thereby indicating that over the life cycle hourly wages rise faster for those with greater labor force attachment. Similarly, classification of women by schooling and by lifetime work experience (Appendix Tables 4.3 and 4.4) illustrates that those with a stronger labor force commitment invest more heavily while at work.

The coefficient of home time is negative, indicating a net depreciation of earning power during time out of the labor force.[13] On the average, for each extra year spent at home, female earnings are lowered by 1.5 percent. This rate is smaller for those without children and those never married. Perhaps these latter groups of females devote some of their time out of the labor force to human capital investment in the form of job search.



Similarly, those females who have spent more than half the total possible years after the end of school working have greater losses from being out of the labor force than those with less of a labor force commitment. If we distinguish between h_1 and h_2, we find the rate of depreciation of earnings to be higher when time is taken off from work during the period of childbearing than when time is taken off during other life-cycle phases.

The implication of these results is that when comparing two individuals at work in the labor force, both with the same actual on-the-job experience, the worker who achieved this experience more continuously would have the higher earnings. Thus, not only is the length of labor force experience important in determining wages, but so also is the continuity of this experience.

Other variables known to affect earnings were also included in the regressions in order to isolate the effects of the human capital variables which are of particular interest in this study. For most of the equations, positive coefficients for additional training and certification variables indicate that the rate of increase of earnings is greater when special training is obtained. It was also found that the longer the length of residency in a county or metropolitan region, the higher the earnings of married women (spouse present) and the lower the earnings of single women. In economic theory, migration is usually seen as a response to better earnings opportunities elsewhere. However, in the case of married women, a move is usually motivated by better job opportunities for the husband and may result in unemployment or lesser earnings for the wife.[14] As expected, the duration of any illness as well as family size are negatively related to earnings, while the size of the place of residence (a measure of job opportunities) has a positive effect on earnings.

In summary, the coefficients of the job experience and home time variables show that intermittent labor force participation is associated with nonmonotonically declining investment behavior. Not surprisingly, the greatest investment and hence the greatest rise in earnings occur when labor force participation is most steady. In fact, during home time, the amount of depreciation caused both by aging and by nonuse of skills outweighs the appreciation of human capital stock from market investment occurring at home. Other measures of job intermittency yielded the same results. Those females who enter and exit the labor force frequently earn less than those with a strong commitment; and those who follow

their husband by moving from a county or SMSA also suffer, in general, a loss of earnings. In short, we have found that a high continuous labor force participation has the greatest impact on raising female wages.

Despite the fact that being out of the labor force has a negative effect on female earnings, maternal and family responsibilities deter most women from making a more complete commitment to the labor market.[15] Thus, it is presumably because of these responsibilities that married females tend to work shorter hours, and closer to their home, and to move when their husbands migrate to new jobs. Yet, as we have seen, such behavior is costly in terms of limiting investment and hence earnings on the job.

This discontinuous participation has both direct and indirect effects. The direct effects can be determined from the coefficients of the home time variables. For example, from Appendix Table 4.3 those females with more than a high school education who are out of the labor force after their first child suffer a direct loss in earnings of 4.3 percent a year. For those of lower education as well as during other home time periods, these rates of depreciation are not as great. Without the responsibilities of child care, however, these women could have spent this same time continuing to work in the labor force. Thus, one indirect cost of discontinuous work experience is the loss of potential earnings that could have been generated if the time spent at home had been spent in market work, with a concomitant continuing accumulation of additional experience and human capital. For these same women, this work experience would have yielded an average annual increase of 2.1 percent in earnings. Thus the total earnings loss would be the sum of the direct and indirect effects, or 6.4 percent per year.[16] Yet, this estimate of the potential loss in earnings may still be an underestimate. To the extent that women anticipate leaving the labor force to raise a family, their investment decisions while in the labor force may be affected. Perhaps without this expectation of being out of the labor force, women's investment during their first period of participation would approach that of males.

These effects of intermittent labor force participation are illustrated graphically in Figure 4.6. The vertical axis represents the loss in earnings from being out of the labor force. For women with at least one year of a college education ($S \geq 13$), five years out of the labor force would result in more than a 30 percent drop in earnings potential. For less educated

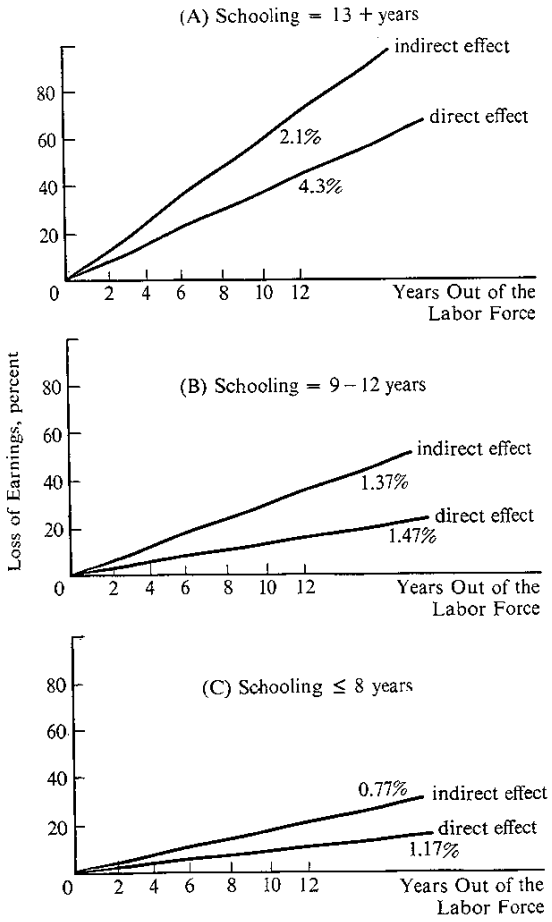


FIGURE 4.6. Direct and Indirect Effects of Intermittent Labor Force Participation

groups—those with more intermittent life-cycle labor force participation—the annual rates of loss are lower but total years out of the labor force tend to be higher.

The Male–Female Wage Gap

These results establish that, along with levels of schooling, life-cycle labor force participation patterns are the primary determinant of post-

school investment and hence of wages. All other things being equal, those with more continuous labor force experience earn higher wages, while those who take time out from work tend to earn less. One application of these findings is to determine the proportion of male–female wage differentials that can be explained by the intermittent labor force participation patterns of female workers.

To do this, the two female home time periods were consolidated into one (H), and the three job experience segments were divided into experience prior to the current job (E_1) and experience on the current job (E_2). In regressions using the SEO data for males and the NLS data for females, these three variables were used as the primary variables explaining percentage variations in income. The results of these regressions are illustrated in Figure 4.7. As expected, higher and steeper male age–earnings profiles are observed.[17]

In Figure 4.7, GF represents the earning profile (in logarithms) for males. Somewhat below this male profile is the female profile, $ABHE$. The negatively inclined segment of this curve, BH, is the net depreciation of earnings occurring during home time. The rising regions, AB and HE, are of different slopes, illustrating the differing rates of human capital investment in E_1 and E_2. Presumably because E_2 is more permanent than E_1, greater investment occurs during the former period.

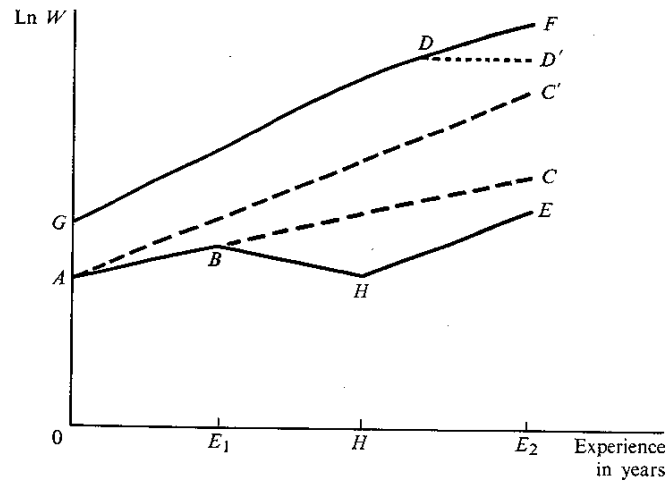


FIGURE 4.7. Male and Female Age-Earnings Profiles Computed from Regression Results

If females had the continuous labor force experience of males, their earnings profile would then continue along the dotted extension of the first segment AB up to the point C. This construction assumes that the anticipation of home time decreases the initial rate of investment. On the other hand, the profile AC' assumes that women have experience comparable to that of men and do not reduce their initial rate of investment in anticipation of future departures from the labor force. The gap between these curves ($C'F$) represents a measure of the unexplained portion of the male–female earnings differential. This method of assigning male experience to the female equation explains up to 50 percent of the differences in male–female hourly earnings. Alternatively, by assigning female experience to the male equation and assuming the male rate of investment, we can represent potential female earnings by point D. Because this latter method assumes the male rate of investment and hence neglects the effect of expectations of intermittent labor force participation on investment, the resultant gap (ED') overestimates the unexplained wage differential.

By accounting for factors other than labor force experience, a greater proportion of the wage gap would be explained. For example, wives and mothers often settle for lower-paying jobs in order to work closer to home or at more convenient hours, while factors such as geographic mobility of husbands may interrupt or curtail their wives' job advancement.

The data on work histories show a trend suggesting a prospective narrowing of the wage differential. Tables 4.5–4.7 show that the home time period starting just prior to the birth of the first child (h_1) has been shrinking when older women are compared to younger ones. Women aged 40–44 who had their first child in the late 1940s stayed out of the labor force about five years longer than women 30–34 years old whose first child was born in the late 1950s. Family size is about the same for both age groups but is higher for the middle group, aged 35–39, whose fertility marked the peak of the baby boom. Still, the "home time" interval in that group is shorter (by about two years) than in the older group and longer than in the younger group. Thus, the trend of increased labor force participation of young mothers is persistent. If by the time the women aged 30–34 get to be 40–44 (1977) they have had four more years of work experience than the older cohort, their wages should be 8–10 percent higher than those of the latter, due to less depreciation and longer work experience. Thus, the total observed wage gap between men and

women aged 40–44 should narrow by about one-fifth, while the gap due to work experience should be reduced by one-fourth.[18]

Conclusions

Despite the unexplained gap in wages between males and females, to my knowledge no other study of national scope has yet accounted for as large a proportion of the differential.[19] Nevertheless, it should be emphasized that one can conclude from these results neither that the "unexplained" portion of the wage gap is attributable to discrimination, nor, for that matter, that the "explained" portion is not affected by discrimination. More precisely, if a distinction were made between direct discrimination (the payment of differing wage rates for the same work) and indirect discrimination (the subtle socialization process of the division of labor within the household, which discourages most women from making a complete commitment to the labor market), we would find that the "unexplained" wage gap is an upper limit of direct discrimination, while the total wage gap is a reflection of discrimination in its indirect form. Obviously, if the division of labor within the family is equated with discrimination, then no studies of wage differentials would be necessary because all differentials would, by definition, be caused by discrimination.

In conclusion, the importance of continuous work experience as the major causal factor determining male–female wage differentials must be emphasized. The fact that females are, on the average, out of the labor force over ten years causes a decline in their initial human capital investment as well as a depreciation of already existing earnings potential. The result of this discontinuous labor force participation is that females both enter occupations requiring lesser amounts of training and train less even when in professions typified by much on-the-job training. As a result, we observe females being overrepresented in lower-paying occupations while also receiving lower pay in the higher-paying professions.

While I do not, in this paper, discuss a particular policy for achieving equality of wages, it is obvious that, if such is the desired social goal, legislation should be introduced easing the barriers that cause females to devote relatively less time to market work. Fully subsidized family planning services (including abortion), subsidized child care, and the adoption of tax and pension schemes that do not discriminate against the supple-

mentary earnings of married women are all examples of steps that can be taken in this direction. Because the lifetime labor force participation of women has been increasing slowly while so far affecting mostly the younger cohorts, not much discernible change has been observed in the male–female wage differential. On the other hand, discernible progress has been made for the younger cohort. It is to be hoped that this progress will continue.

APPENDIX TABLE 4.1 Percentage Effect of Indicated Variables on Wages

Population:	Sex	Years Married	Number of Children <6	6–11	12–17	Existence of Children>18	Spacing of Children (standard deviation change)
1. Single (never been married) males and females	−.187 *						
2. Married once, spouse present, males and females	−.616						
3. Married once, spouse present, males [a]		0.0039 *	0.0240 *	0.0301 *	0.0115 *	0.0064	
4. Married once, spouse present, females [a]		−.0032	−.0548	−.0669 *	−.0252	−.0112	
5. Married once, spouse present, males							
1–2 children less than 18 [b]		0.0034 *					0.0064
3 or more children less than 18 [b]		0.0019					−.0023
6. Married once, spouse present, females							
1–2 children less than 18 [b]		−.0081 †					−.0065
3 or more children less than 18 [b]		−.0092					−.0167

SOURCE: Computed from U.S. Census, 1960, 1/1000 sample, for those white individuals under age 65 at work with positive earnings.

NOTE: The percentages are coefficients of regression equations of the indicated independent variable on ln(wages/year) for the given population subgroup.

* Significant at greater than the 1 percent level.
† Significant at greater than the 10 percent level.
[a] In addition standardizing for education, exposure to the labor force, hours of work, occupation, and industry.
[b] In addition standardizing for education, exposure to the labor force, hours of work, region of country, and size of city.

APPENDIX TABLE 4.2 Earnings Functions of White Women by Marital Status and Presence of Children

Variable	Married								Never Married	
	Children						No Children			
	coefficient	*t-statistic*	*coefficient*	*t-statistic*	*coefficient*	*t-statistic*	*coefficient*	*t-statistic*	*coefficient*	*t-statistic*
Constant	.38		.21		.09		−.42		.55	
S	.076	11.5	.063	10.5	.064	12.0	.081	4.4	.077	4.9
$(A - S - 6)$	−.064	−3.8								
$(A - S - 6)^2$	.001	4.2								
e_1					.008	2.8	.014	1.6		
e_2					.001	.3	.011	1.3		
e_3			.021	2.8	.012	2.7	.015	2.2	.009	1.5
$e = e_1 + e_2 + e_3$			.012	1.6					.026	1.5
$(e)^2$			−.0002	−.5					−.0007	−1.1
$(e_3)^2$			−.0008	−1.9						
h_1					−.012	−2.5				
h_2					−.003	−.7				
$h = h_1 + h_2$			−.007	−1.5			−.005	−1.5	−.009	−.6
$(h)^2$			.000	.2			.002	.7		
etr					.0002	1.5	.0003	2.4	.0003	1.7
ect					.010	3.2	−.003	−1.2	−.011	−1.8
hlt					−.0003	−1.3	−.002	−1.3	−.0008	−1.2
res					.001	1.2	.006	1.7	−.012	−2.2
loc					.044	2.7	−.021	−.4	−.02	−.3
ln hrs					−.11	−3.7	−.15	−1.6	−.43	−4.4
ln wks					.03	1.6	.25	2.2	.21	1.4
N_c					−.008	−1.0				
R^2	.16		.25		.28		.39		.41	
N	993		993		993		147		138	

SOURCE: 1967 NLS.

NOTE: C = intercept
S = years of schooling
A = age
e_1 = years of market work between school and first child
e_2 = years of market work after first child and before commencement of current job
e_3 = current job tenure
e = total years of work
h_1 = home time after first child
h_2 = other home time
h = total home time
etr = experience x training (months)
ect = experience x certificate (dummy)
hlt = duration of illness (months)
res = years of residence in county
loc = size of place of residence at age 15
ln hrs = (log of) hours per week on current job
ln wks = (log of) weeks worked per year
N_c = family size
R^2 = coefficient of determination
N = sample size

APPENDIX TABLE 4.3 Earnings Functions of White Married Mothers, Spouse Present, by Schooling

	S ≤ 8				S = 9–12				S ≥ 13			
	b	*t*	*b*	*t*	*b*	*t*	*b*	*t*	*b*	*t*	*b*	*t*
s	.049	1.6	.044	1.3	.051	3.2	.055	3.4	.068	2.8	.079	2.7
e_1	*.007*	.4	−.002	−.4	*.013*	1.7	.012	1.5	*.021*	1.4	.018	1.2
e_2	−.004	−2.1	−.028	−1.8	.009	1.6	.003	.6	−.020	−1.5	−.020	−1.4
e_3	*−.002*	−.3	−.008	−.5	*.013*	.7	.009	.5	*.009*	+2.0	.011	2.2
h_1	−.011	−1.5	−.007	−1.2	*−.014*	−1.3	−.010	−1.6	*−.043*	−3.1	−.031	−2.8
h_2	−.006	−.4	−.003	−.2	−.002	−.4	−.002	−.4	−.005	−.4	−.004	−.3
hlt			−.0007	−.7			−.0011	−2.3			−.009	−.6
ln hrs			−.050	−.7			−.090	−1.8			−.130	−1.1
ln wks			−.070	−.6			.060	1.6			.090	1.2
N_c			−.008	−.2			−.019	−.4			−.010	−2.0
R^2	.26		.32		.21		.26		.27		.33	
N	182				593				218			

NOTE: For key, see Appendix Table 4.2.
b = regression coefficient
t = *t*-ratio

APPENDIX TABLE 4.4 Earnings Functions of White Mothers, Spouse Present, by Lifetime Work Experience

	Worked More Than Half of Years		*Worked Less Than Half of Years*	
Variable	*Coefficient*	*t-statistic*	*Coefficient*	*t-statistic*
Constant	−.28		−.10	
S	.073	9.4	.059	7.9
e_1	.009	2.1	.003	.4
e_2	.006	1.4	−.005	−.6
e_3	.017	2.0	.022	3.8
e_3^2	−.002	−.7	−.001	−1.5
h_1	−.014	−2.3	−.010	−2.6
h_2	.011	1.7	−.004	−.9
hlt	−.0008	−2.1	−.0001	−.3
res	.002	1.1	.002	1.0
loc	.064	2.8	.024	1.0
ln hrs	−.08	−2.0	−.13	−4.4
ln wks	.07	1.9	.023	1.0
N_c	−.015	−1.4	−.001	−.2
	R^2 = .22		R^2 = .21	
	N = 536		N = 604	

NOTE: For key, see Appendix Table 4.2.

NOTES

[1] Contrary to what many believe, the following statistics indicate that the male–female difference in occupational distribution is not as important a factor in defining the size of wage differentials as are family characteristics. Index-number computations were used to estimate what women would earn on the average if their distribution among occupations was the same as that of men, assuming that they would continue to earn average female wages in each occupation. The same calculation was made for men. The results, tabulated below, demonstrate that, on the average, male–female wage differentials are larger within occupations (even on as detailed a basis as the 1960 U.S. Census classification of 297 occupations) than between occupations. From these computations, it is clear that, if males had a female occupational distribution and females a male occupational distribution, the hourly wage differential would be reduced by only 12 percent.

Indices of Occupational Segregation as a Determinant of Male–Female Wage Differentials

	Yearly	*Hourly*
Mean female earnings [Y_F]	$2,391	$1.81
Mean male earnings [Y_M]	4,941	2.63
Mean female earnings with male occupational distribution [Y_{FM}]	2,706	1.87
Mean male earnings with female occupational distribution [Y_{MF}]	4,372	2.49

SOURCE: U.S. Census, 1960, 1/1000 sample.

When this same index-number calculation is applied to the subgroup of single (never-been-married) males and females, we find that wage differentials would widen if males had a female occupational distribution and females had a male occupational distribution.

[2] For a more detailed analysis of male–female differences in labor force participation, see T. Aldrich Finegan's paper "Participation of Married Women in the Labor Force" in this volume.

[3] Arleen Leibowitz, "Education and Allocation of Women's Time" (Ph.D. diss., Columbia University, 1972). Also see her paper in this volume.

[4] For an analysis of life-cycle aspects of labor force participation, see: G. Ghez and G. Becker, "The Allocation of Goods and Time Over Time" (New York, forthcoming); James Heckman, "Three Essays on Household Labor Supply and the Demand for Market Goods" (Ph.D. diss., Princeton University, 1971); and James P. Smith, "The Life Cycle Allocation of Time in a Family Context" (Ph.D. diss., University of Chicago, 1972).

[5] This survey is described in great detail in Herbert S. Parnes et al., *Dual Careers* (U.S. Department of Labor, 1970).

[6] For a detailed definition and theoretical and empirical discussion of human capital, see the now classic book: G. Becker, *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education* (New York, 1964). For detailed theoretical and empirical analyses of postschool investment, see J. Mincer, "Investment in Human Capital," *Journal of Political Economy*, Vol. LXVI (August 1958); "On the Job Training: Costs, Returns, and Implications," *Journal of Political Economy*, Vol. LXX (October 1972 Supplement); and "The Distribution of Labor Incomes: A Survey with Special Reference to the Human Capital Approach," *Journal of Economic Literature*, Vol. VIII (March 1970). T. W. Schultz, *Human Capital: Policy Issues and Research Opportunities* (New York, 1972), contains an excellent description of the directions of human capital analysis.

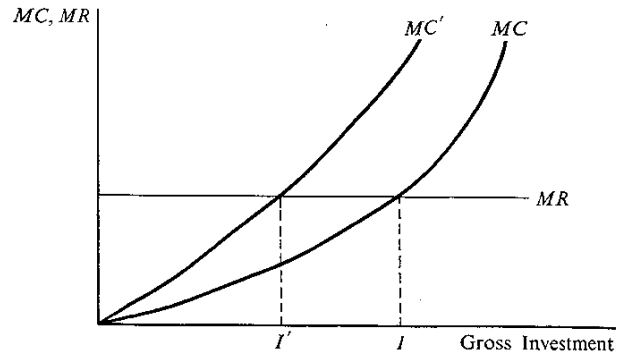
[7] Yoram Ben Porath, "The Production of Human Capital and the Life Cycle of Earnings," *Journal of Political Economy*, LXXV (August 1967): 352–65, describes in detail why human capital investment declines with age.

[8] $$MR_t = \sum_{i=0}^{T-t} \frac{\Delta W}{(1+r)^i} N_i,$$

where W = the additional wage in each year due to human capital investment;
T = year of retirement, assumed to be known with certainty;
t = period in which investment is made;
r = rate of discount; and
N_i = labor force participation in period i, which is assumed to be constant.

[9] The MR curve is horizontal in each period because ΔW is assumed to be constant and invariant with respect to quantity of human capital purchased. Clearly in reality, this need not be the case. However, whether the MR curve is downward sloping or horizontal, the fact remains that if labor force participation is constant in each period, marginal revenue declines over the life cycle.

[10] The implication is that since it becomes more difficult to obtain training, the MC' curve (see graph) shifts up to MC', further reducing investment (I to I').



[11] Such a functional specification of the relation between the logarithm of earnings and linear values of schooling and experience variances can be theoretically derived from a recursive model of human capital investment.

Let E_i = gross earnings (or earnings capacity) before investment in period i;
C_i = net investment in period i;
$k_i = C_i/E_i$ = fraction of earnings invested in period i (or "time-equivalent" of investment period i); and
r = rate of return on investment.

Beginning from period 0, if E_0 = given innate initial earnings power, then

$$E_1 = E_0 + rC_0.$$

Thus, if C_0 dollars were invested in the initial period, then earnings capacity in the following period would be increased from the initial earnings by the return on initial investment. By definition,

$$C_0 = k_0 E_0,$$

implying by substitution that

$$E_1 = E_0 + rk_0E_0 = E_0(1 + rk_0).$$

If in this period C_1 dollars are invested (or k_1, if expressed as a fraction of earnings capacity), then observed earnings (designated by Y_1) would be

$$Y_1 = E_1 - C_1 = E_1 - k_1E_1 = E_1(1 - k_1) = E_0(1 + rk_0)(1 - k_1),$$

and capacity earnings in the next period would be

$$E_2 = E_1(1 + rk_1) = E_0(1 + rk_0)(1 + rk_1).$$

If this process is followed sequentially, then in period m,

$$E_m = E_0(1 + rk_0)(1 + rk_1) \cdots (1 + rk_m) = E_0 \prod_{i=1}^{m} (1 + rk_i),$$

or

$$\ln E_m = \ln E_0 + \Sigma \ln (1 + rk_i).$$

Since $\ln (1 + rk) = rk$ when rk is small,

$$\ln E_m = \ln E_0 + r \Sigma k_i,$$

and

$$\ln Y_m = \ln E_0 + r \Sigma k_i + \ln (1 - k_m).$$

When we designate Σk_i (the sum of time-equivalent investments) as years of schooling, years of experience, years of home time, and the other variables representing investment, we obtain this semilogarithmic specification of the equation for $\ln w$ that follows in the text.

[12] The vector of variables, x, is defined as follows:

1. Training and certification variables: *etr*, which represents the product of total work experience and non-school training (in months) for the individual; *ect*, which represents the product of total work experience and whether the individual has earned a training certificate.

The coefficients of these training and certification variables can be interpreted as the additional percentage that earnings would rise per additional year of experience, given an additional month of nonschool training or a training certificate.

2. *hlt*, which represents the duration of any illness (in months);
3. *res*, which represents years of residency in the county in which one lives;
4. *loc*, which represents the size of the place of residence when respondent's wage age is 15;
5. *ln hrs*, which represents (log of) hours per week on current job;
6. *ln wks*, which represents (log of) weeks per year on current job; and
7. N_c, which represents the number of children.

[13] Since over the life cycle both positive investments and depreciation occur simultaneously, a negative coefficient implies that the depreciation is greater in magnitude during the home time period. Thus, although one may be investing during the home time period (e.g., in keeping up with one's skills or in scanning the job market), the natural depreciation of aging as well as that of not using one's training dominate and cause a net decrease in earnings potential.

[14] See Beth Niemi, "Geographic Immobility and Labor Force Mobility: A Study of Female Unemployment" in this volume for a further elaboration of this point.

[15] This fact is confirmed in many attitudinal surveys. For example, in Dykman and Stalnaker, "Survey of Women Physicians Graduating from Medical School, 1925–1940," *Journal of Medical Education* (March 1957), 57 percent of the female physicians as compared to 0.1 percent of the male physicians gave family responsibilities or problems (including pregnancy) as the reason for curtailing medical activity. Of those that did curtail their medical activity in any way, 74 percent of the married women while only 1.5 percent of the males gave reasons involving family responsibility.

[16] These rates represent averages over the periods in and out of the labor force. For example, it is thus true that, during a period out of the labor force, depreciation may be greatest the first year and decline for each additional year. For such a case, added time out of the labor force would be less costly for each succeeding year.

[17] A comparison of the relevant variables indicates the following:

A Comparison of Mean Data Values by Data Source

	SINGLE			*MARRIED*		
	SEO		*NLS*	*SEO*		*NLS*
	Males	*Females*	*Females*	*Males*	*Females*	*Females*
Education	11.57	12.62	12.75	11.63	11.40	11.75
A-S-6	18.69	18.52	15.99 [a]	19.36	20.36	9.69 [a]
ln (wks)	3.83	3.86	3.88	3.89	3.64	3.49
ln (hrs)	3.72	3.66	3.68	3.77	3.47	3.47
No children		0.16	0.033		2.58	2.35
Health	0.90	0.91	0.92	0.93	0.93	0.87
ln (w/yr)	8.49	8.25	8.35	8.83	7.78	7.48
ln (w/hr)	5.54	5.34	5.41	5.76	5.28	5.21

[a] Actual years of experience.

Analysis was performed on the data of the husbands of the married females in the NLS data. However, it was thought that their characteristics were not equivalent to those of the control group, in that some were more than 44 years old.

[18] Two opposing biases mar this conjecture. On the one hand, since the decline in home time is overestimated, too great a narrowing of the wage gap is predicted. On the other hand, since the amount of home time is declining, investment during the working phases of the life cycle would be greater than estimated, thereby causing a downward bias in the projection of the wage gap. It is encouraging to find that in recent work by Victor Fuchs, "Short-Run and Long-Run Prospects for Female Earnings," *American Economic Review,* LXIV (May 1974): 236–42, a narrowing of the male–female wage gap was found, consistent with this study's prediction.

[19] The several studies that explain a greater proportion of male–female wage differentials concentrate on narrower segments of the economy, such as particular occupations or firms. For example, see the paper by George Johnson and Frank Stafford in this volume, "Women and the Academic Labor Market" as well as Berton G. and Judith A. Malkiel, "Male–Female Pay Differentials in Professional Employment," *American Economic Review,* LXIII (September 1973): 693–705; Donald J. McNulty, "Differences in Pay between Men and Women Workers," *Monthly Labor Review,* LXL (December 1967): 40–43; and Henry Sanborn, "Pay Differences Between Men and Women," *Industrial and Labor Relations Review,* XVII (July 1964): 534–50.

Part 2

Discrimination and Occupational Segregation