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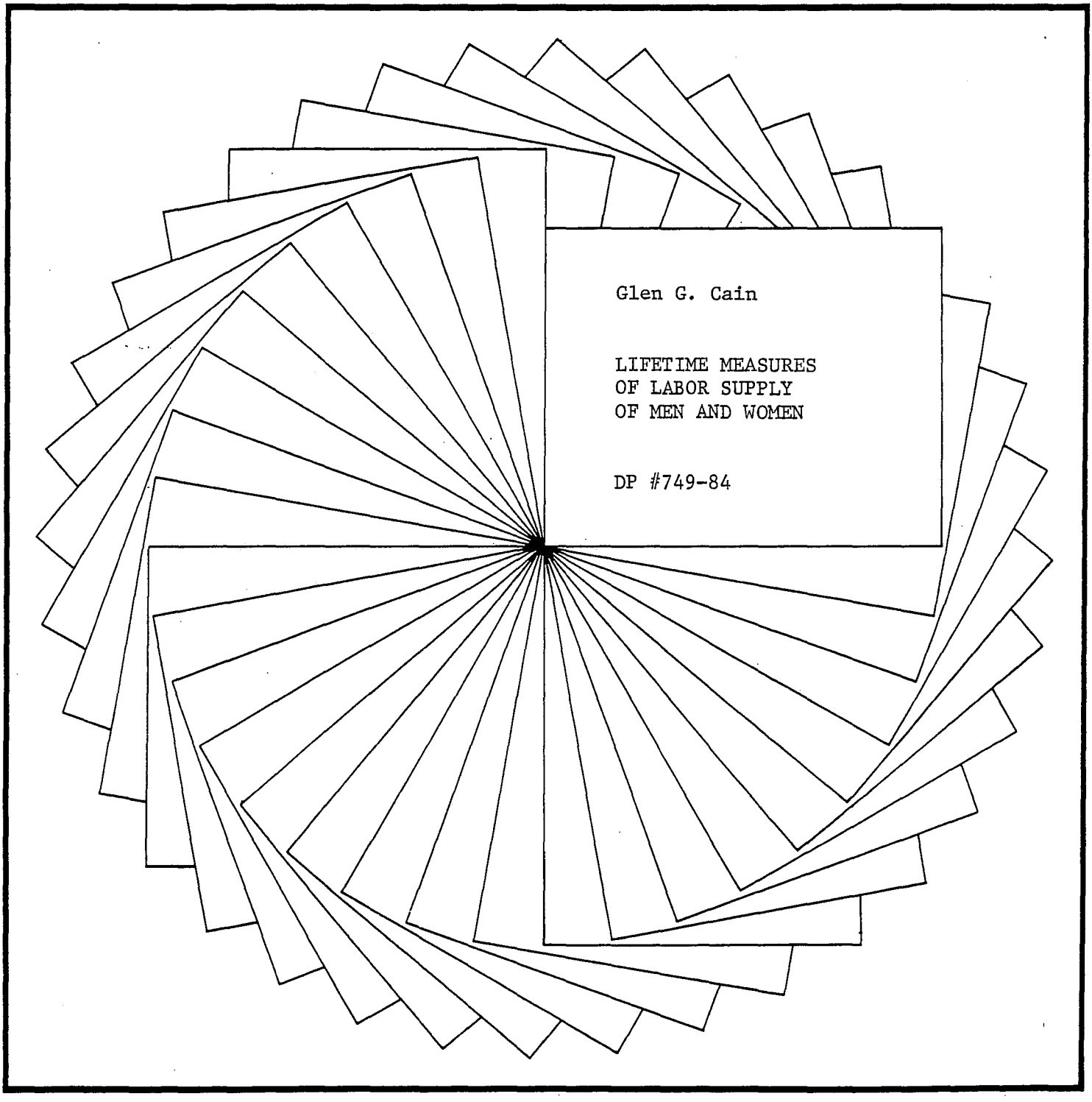

Institute for Research on Poverty
Discussion Paper no. 749-84

Lifetime Measures of Labor Supply of Men and Women

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December, 1984
Revised April 1985

This research was supported in part by the National Committee for Research on the 1980 Census and in part by a contract to the Institute for Research on Poverty from the U.S. Department of Health and Human Services. I am grateful to Ross Finnie for research assistance and comments and to Elizabeth Uhr for editorial assistance.

ABSTRACT

Trends in the labor force behavior of men and women are usually measured by labor force participation rates (LFPRs)--the proportion of a group that is in the labor force (either employed or unemployed and looking for work) at the time of the survey. For example, the LFPR of men age 14 and over declined from 86 percent in 1900 to 73 percent in 1980, while the LFPR for women rose from 20 percent in 1900 to 49 percent in 1980. This paper builds upon these statistics by taking account of hours worked, and it constructs estimates of "hours worked per lifetime" for a succession of cohorts of men and women. Decennial census data are used to estimate the lifetime of labor force activity by following cohorts over time, beginning with the 1890 Census. Using these and related measures, it is estimated that a typical man who was 42 years old in 1900 could expect to work about 2700 hours per year on average for each year of his adult life from age 14 to age 70. This constitutes about 45 percent of this man's adult lifetime of "discretionary" hours--assumed to be 16 hours per day. For the typical man aged 42 in 1980, the corresponding average annual hours of work is about 1500, which translates into 27 percent of his adult lifetime spent at work. The corresponding figures for women are the following: in 1900, a woman engaged in market work for an annual average of about 500 hours per year, which represented 8 percent of her adult life; in 1980, she was working an average of 900 hours per year, which represents 15 percent of her adult life.

The paper further analyzes the trends in labor supply for the different stages in the life cycle of men and women. A tentative explanation, based on economic theory, is suggested for the different trends in LFPRs and in hours of work for youth, older persons, and marital-status groups.

Lifetime Measures of Labor Supply of Men and Women

Long-term trends show a decrease by men and an increase by women in time spent at market work. These two contrasting changes dominate any portrayal of the American labor force for the past century. Indeed, with allowances for differences in timing, these trends characterize all industrialized economies. To measure these long-run changes in work time concisely, it will be useful to conceptualize the average adult lifetime and the total amount of work performed during adulthood by successive cohorts of men and women.

Labor force data for lifetimes of persons are limited in two important ways. First, we do not have records of the work experience of people that begin when they enter the labor force and continue until retirement. Instead, we must rely on snapshots of the population at different times to construct the experience of a cohort. Beginning in 1890, the census provides these snapshots at 10-year intervals. Second, the span of a person's work life from, say, age 14 to age 70, is so long that the census data from 1890 to 1980 can fully encompass only a limited number of cohorts. For example, a person born in 1876, who was 14 years old in 1890 and who dies at age 70 in 1946, represents the earliest cohort for which the census provides complete coverage of the 56-year adult lifetimes. Similarly, people who are 70 years old in 1980 and who were born in 1910 represent the most recent cohort for which full coverage of one's working years is available. To overcome these data limitations, recent surveys of the work experience for various age groups will be used to extrapolate the complete work experiences of some post-1910 cohorts.

The cross-section data that are relied upon in this paper are primarily labor force participation rates (LFPRs) and hours worked by those who are working. The LFPR, which is the proportion of the group's population that is either employed or unemployed (i.e., temporarily not working and searching for a job in the labor market) may be viewed as a measure of the probability that a person in this group is working.

For those who are working, the data on hours worked for a specified unit of time like a day or week permit a calculation of the expected or average amount of time at work for any group by multiplying the probability of working, using the LFPR, times the average hours for those who are working. In measuring changes over time, we can determine whether the probability of working or the hours of work (among workers) have changed. These two components of time spent at work have not always changed in the same direction.

LIFETIME MEASURES OF A WORKER'S TIME IN MARKET WORK

Let us examine the lifetime measures of market work before presenting the underlying cross-section data on LFPRs and hours of work from the decennial censuses. First, the total number of hours worked by the average person during his or her 56 years of adulthood is estimated, and from this the average hours worked per year of one's adult life is calculated. Second, the total hours of time spent in market work will be expressed as a proportion of the total time available, defining the latter as the total number of "discretionary hours" for a person from age 14 to age 70. Let 16 hours per day be considered discretionary, allowing 8 hours per day for the nondiscretionary time required for personal care and maintenance, including sleep.

Age 14 is chosen as the beginning age because it is the youngest age for which labor force status is measured over the entire 100 years. Note that using age 14 to begin a person's work life slightly understates the long-term decline in work (or increase in leisure) because in the earlier period, 1890 to 1920, some children as young as 10 to 13 were working in the market. Clarence Long reports that about 16 percent of boys aged 10 to 13 were in the labor force in 1890 and 1900. This level of child labor did not entirely reflect work in agriculture, because the LFPRs in the urban areas for boys in this age group were about 13 percent. By 1920 and 1930, however, their LFPRs in rural and urban areas combined had declined to the negligible levels of 5 and 3 percent. The LFPRs of girls aged 10 to 13 were negligible (less than 6 percent) from 1890 on in both rural and urban areas.[1]

Age 70 is chosen as the upper limit to a person's work life because this age reflects the average life expectancy for persons who reach age 14--a life expectancy that has been more stable during this 100-year period than the life expectancy at birth, the latter having increased sharply because of the reduction in child mortality. By using the same age boundaries, 14 to 70, for each cohort, the proportions of time spent at work will reflect changes in the economy and the labor market rather than mortality differences among the cohorts.

A 16-hour day as a measure of discretionary time is arbitrary, but reasonable. Time required for personal care and maintenance has probably not changed much. The standard of three meals a day, for example, has existed for generations, although the recreational (or leisure) component in meals may have increased, "fast foods" notwithstanding. Adhering to

8 hours per day for personal care over the 100-year period may actually understate the growth in leisure, because the time required for sleep probably decreased as the result of a shorter work day and the lessening of physical effort and drudgery in work. If, for example, the work day decreased from 10 hours to 8, and the amount of time required (and taken) for sleep decreased from 8 to 7, the increase in leisure time would be 3, instead of 2, hours per day.

Two techniques to measure total hours worked in one's lifetime are available. One is to use a "synthetic cohort," based on data on hours worked per year by those who work and LPFRs for each age group at a point in time, say 1900. This lifetime measure of an average individual's total work time assumes that he or she works the same number of hours at each age as those who are that age at that point in time. It is "synthetic" because it does not describe actual experiences. In fact, the time trends show that the past and future hours of work of a typical individual from each age group used in the calculation differs from the observed life-cycle pattern of hours of work at that moment in time. Nevertheless, the actual total work time may be measured reasonably accurately. Thus, the youngest age groups among men in 1900 could expect to work less when they are old than the current old groups are working in 1900. However, these age groups of the old typically worked more when they were young than the young groups work in 1900. Therefore, the "synthetic cohort" may be viewed as the average experience of the age group in the middle, which has actually worked more at younger ages than the existing young group and which is expected to work less at older ages than the existing old group. The advantage of using synthetic cohorts is

that we can approximate the "lifetime" labor supply for relatively early and late periods--in 1900 and 1980 in this case, which is an 80-year span. Measuring an "actual cohort's" lifetime labor supply, which is discussed next, permits comparisons over shorter spans of time.

An early "actual cohort's" lifetime labor supply can be calculated for those who were born in 1876, entered the labor force in 1890, and died in 1946; and, for the last period, for those who were born in 1906, entered the labor force in 1920, and died in 1976.[2] With a bit of guessing, we can construct an "actual cohort's" lifetime labor supply for the group entering the labor force in 1934 and dying in 1990. Even when using the actual experience of cohorts, we should, of course, recognize that many individuals will not experience or even expect to experience these measured outcomes. For example, consider two girls at age 16: one "knows" she will marry and the other "knows" she will remain single. Each will expect to experience a different pattern of labor supply than is revealed by the average experience of their cohort. Nevertheless, the concept of the average used here is well defined and meaningful for describing overall trends. The quotation marks around the terms, actual cohort and synthetic cohort, will be dropped.

Men

A lifetime measure of labor supply in terms of hours worked per lifetime is shown in Table 1 for both men and women for the years 1900 and 1980. It reveals the remarkable decline in time spent at work in the lifetime of the average man. The fraction of an adult man's lifetime of discretionary time that was spent in market work was 45 percent in 1900 and 27 percent in 1980. The representative man in these two comparison

Table 1

Fraction of Time Spent at Work, Adult Men and Women, 1900 and 1980
(Based on a Synthetic Cohort, Using Time Spent at Work of a Cross Section of Age Groups)

(1)	(2)	(3)		(4)		(5)	
	Fraction of Adult Life	LFPRs[b]		Hours per Week[c]		Calculation per Fraction[d] [(2) x (3) x (4)]/112	
Age	in Age Group[a]	1900	1980	1900	1980	1900	1980
MEN							
14-19	6/56	.61	.41	49.5	27.5	.028	.011
20-24	5/56	.91	.83	57.9	36.7	.042	.024
25-64	40/56	.93	.89	60.0	40.0	.356	.227
65-69	5/56	.63	.20	56.3	29.1	.028	.005
					Total Fraction:	.454	.267
WOMEN							
14-19	6/56	.27	.36	46.7	25.7	.012	.009
20-24	5/56	.32	.68	52.3	32.7	.013	.018
25-64	40/56	.16	.59	52.2	33.5	.053	.126
65-69	5/56	.08	.09	51.1	25.2	.003	.002
					Total Fraction:	.081	.155

Sources: See Table 8 and Table A.1 in the appendix.

[a]A 56-year adult life is assumed.

[b]LFPRs are from decennial census reports. See Table A.1.

[c]Hours per week are estimated from a variety of sources that are described in the footnotes to Table A.1.

[d]Columns (3) x (4) gives the expected hours worked per week and 112 is assumed to be the total discretionary hours in the week--16 discretionary hours x 7 days. The quotient, (3) x (4) divided by 112, is the fraction of the week spent at work for each group. Multiplying this by the fraction of one's lifetime spent in the age group, column (2), and summing gives the total fraction of one's lifetime spent at work.

years may be assumed to be age 42, which is midway between ages 14 and 70. Table 1 and Appendix Table A.1 reveal that the total hours worked in the representative man's life around 1900 was about 148,000, or an average of about 2650 per year for each of his 56 working years.[3] By 1980 the hours had declined to 87,000 per lifetime, or an average of 1550 per year. This decline amounts to an average of 1100 less hours for each of the 56 years of the man's adult lifetime. Most of this reduction, 88 percent, is due to the decline in hours worked per week, column (4). This figure is obtained by measuring the reduction in total hours of work with the LFPRs the same in 1980 as they were in 1900. Only 12 percent of the decline is due to the decline in LFPRs. Interestingly, the sources of decline in hours worked per year for men reversed their ranking during the past 20 to 30 years. In this recent period the hours worked per week hardly declined, while LFPRs, mainly of older men, declined sharply. (See Appendix Table A.1 and the discussion later in this paper.)

Needless to say, these figures are rough approximations in many respects. In addition to the reservations about the meaning of a synthetic cohort, no allowance is made for unemployment, and the typical man is assumed to live until age 70 with 100 percent probability, and so on. Nevertheless, the data presented next on actual cohorts indicate that the overall picture is not distorted.

Calculations of lifetime labor supply are shown for three cohorts of men, born in 1870, 1900, and 1920, and assumed to die at age 70 in 1940, 1970, and 1990 respectively. Data from each of the decennial censuses from 1890 to 1980 provide LFPRs by age group, and these and other sources allow estimates of the average hours worked per week and some extrapolations to 1990. The LFPRs and hours worked in the years between the

10-year census dates are assumed to be represented by the work figures for the census years. The data and calculations for estimating the total work time for actual cohorts are shown in Table A.2 in the appendix. Summary figures are shown in Table 2.

The earliest male cohort, which reaches age 20 in 1890 when the first data on work are available in the census, is estimated to have worked an average of about 2471 hours per year in the assumed 56-year work-life span. The prototype man in this cohort is assumed to have entered the labor force at age 14 in 1884, reached his mid-career age of 42 in 1912 and to have died at age 70 in 1940. As expected, this man's work time per year is less than the 2628 hours for the synthetic cohort shown in Table 1, where the typical man was 42 years old in 1900.

The prototype man from the middle cohort, who lived from 1900 to 1970 and who was 42 in 1942, worked an average of 1953 hours per year from age 14 to age 70. Again, this average of 1953 is derived from a life-cycle pattern in which the actual hours worked per year vary by age. The representative man in the latest cohort with available census data for estimating actual hours worked was born in 1920, became 42 in 1962, and is assumed to die at age 70 in 1990. The representative man in this cohort worked an average of 1675 hours per year, which is more than the 1554 hours shown in Table 2 for the synthetic cohort for 1980.

The rate of decline in time spent at work according to the figures for the two estimating procedures--one for the synthetic cohorts of 1900 compared to 1980 and the other for the three actual cohorts--are fairly similar. Using the following standard formula for a change by a constant rate, r:

$$LFPR_t = LFPR_o(1 + r)^t, \text{ for } t=0 \text{ in } 1900,$$

Table 2

Estimated Annual Hours of Market Work, Averaged Over a 56-Year Working-Life, for Synthetic Cohorts, 1890-1990, and for Actual Cohorts Born in 1870, 1900, and 1920, by Gender

Synthetic Cohort			Actual Cohort		
Census Year (When the Age of Worker at Mid-Career = 42)	Average Yearly Hours of Market Work (For Each Year of the Worker's Adult Life) Men	Women	Year When Worker Was 42 Birth-Death in Parentheses	Average Yearly Hours of Market Work (For Each Year of the Worker's Adult Life) Men	Women
1890	2758	439			
1900	2628	477			
1910	2534	540			
1912	...		1912 (1870-1940)	2471	498
1920	2318	462			
1930	2278	504			
1940	1864	487			
1942	...		1942 (1900-1970)	1953	570
1950	1800	587			
1960	1697	644			
1962	...		1962 (1920-1990)	1675	704
1970	1614	746			
1980	1554	899			
1990(estimated)	1554	1052			

Sources: Table A.1 in the appendix for the synthetic cohorts and Tables A.2 and A.3 for actual cohorts. (Tables 1 and A.2 show the methods for calculating the figures for the synthetic cohorts, using the data in Table A.1.)

the 1900-1980 decline of about 1100 hours per year amounts to a decline of 0.67 percent per year. The hours of lifetime work for the actual cohorts show a decline of 0.77 percent per year for 1912 to 1962 (using mid-career years).

The decade-to-decade changes have not been constant. The time series of hours worked per week, to be presented below (Table 8), shows a sharp decrease from 1910 to 1920 and then again from 1930 to 1940. The 1920 period followed an abrupt decline in immigration, a surge in union strength, and the beginnings of government regulation of labor markets--all related in part to World War I. The second period, 1930 to 1940, was also notable for the growth in unions and in government regulation, as well as for the depression-caused stagnation in the labor market. These period events should be viewed as reinforcing the long-term effect of rising incomes on the reduction in hours of work. Since 1940 the standard work week has remained stable for prime-age men, although vacations and days off for holidays have increased.

Over the long run the LFPRs for men have declined substantially only for the youngest and oldest groups. These trends have been fairly consistent until the last two decades, when the decline of young men's LFPRs ceased. (The trends in LFPRs will be discussed below.)

With the synthetic cohort data, we see that the decline in time spent at work by men has leveled off in recent years. The decline was only 0.49 percent per year from 1950 to 1980, and no change is predicted from 1980 to 1990. Even so, the long-run decline in hours of market work by men--a decline from 1890 to 1980 (or 1990) of about 1250 hours for each year of a man's 56-year adult life--is astonishing. It is doubtful that

any 100-year period in man's history witnessed a decline in work time of this magnitude or that any foreseeable future period ever will.

Women

Tables 1 and 2 also show the measure of lifetime market work by women for the synthetic cohorts for 1900 and 1980. In 1900 the typical woman worked about 27,000 hours in the market during her adult lifetime, which is about 480 hours per year for 56 years (from ages 14 to 70). This amounts to only about 8 percent of her discretionary time during her adult life. (Time spent in housework is considered discretionary in this calculation.)

By 1980 these figures had almost doubled: 50,400 lifetime hours or about 900 for each year from age 14 to age 70, amounting to almost 16 percent of her available time. The increases for women of 24,000 lifetime hours from 1900 to 1980 are, however, substantially less than the decreases in men's hours of work, which is about 61,000. For each year of adult life the women's increase is about 420 hours (from 477 to 899) and the men's decrease is about 1100 (from 2628 to 1554). Clearly, the total time spent at market work for men and women combined has decreased substantially during the 80-year period.

The lifetime amount of market work by women rose sharply for the synthetic cohort for 1980, compared to the amounts in 1970 and previous years. The representative woman of the 1970 synthetic cohort, as shown in Table 2, spends about 13 percent of her discretionary time in market work; a substantial increase over the 8 percent in 1900, but also substantially lower than the 16 percent in 1980.

The 1900 to 1980 increase for women of approximately 420 annual hours in market work, shown for the synthetic cohorts in Tables 1 and 2, amounts to an increase of 0.80 percent per year. The overall pattern of increases and the sharp rise for women in recent years are also shown for the lifetime measures of market work based on actual cohorts. In Table 2 the lifetime measure for the earliest cohort of women, born in 1870, increased at a rate of only 0.45 percent per year for the 30-year period up to the time of the cohort born in 1900. However, in the 20-year period separating the middle cohort and the later cohort (born in 1920) the increase in the hours of lifetime market work was 1.06 percent per year. Over the entire period spanned by the actual cohorts, for women born in 1870 compared to women born in 1920, the annual average increase in lifetime work is 0.69 percent per year (for the 50 years), which is notably less than the 0.80 annual percentage increase for the 1900 to 1980 period, using the synthetic cohorts.

The large difference between men and women in market work activity has indeed narrowed. The five-fold excess of men's time over women's for the actual 1870 cohort (2471 hours compared to 498 per year of adulthood) was reduced by more than half for the actual cohort born in 1920, when the ratio of men's lifetime average (1675) to women's (704) was 2.4. Still, a ratio of 2.4 indicates that the specialization of men in market work remains pronounced, and we cannot yet determine if the much smaller ratio of 1.5 (1554/1052) for the synthetic cohort of 1990 will be accurate.

THE UNDERLYING STATISTICS: LABOR FORCE PARTICIPATION RATES FROM THE DECENNIAL CENSUSES

Trends in the probability of being in the labor force as measured by LFPRs are shown in Table 3 for selected demographic groups and census years from 1890 to 1980. The complete listing of census years and greater detail by age and marital status are shown in the appendix.

From the top row of Table 3 we see that the fraction of the total population aged 14 and over in the labor force remained stable from 1890 to 1980, with a mild upward trend evident from 1950 to 1980. (Throughout, it is assumed that the measurements taken at the time of the census are representative of neighboring years.) The stability in the total masks radically different trends for men and women.

The decline in LFPRs by men, from 87 percent in 1890 to 73 percent in 1980 is mostly attributable to declines by younger men, age 14 to 24, and older men, age 65 and over. The LFPRs of men in the prime working ages, 25-64, have been relatively stable, with approximately 90 percent of these men working in the labor market throughout the 90-year period.

Young Men

Among boys between 14 and 18 market work was replaced by attendance in school as the main activity. Indeed, the increase from 1890 to 1980 in the proportion of 14-17 year olds, girls as well as boys, who were enrolled in secondary school could hardly be more impressive than that shown in Table 4. School enrollment among 14-17 year olds was practically a rarity in 1890, when only 7 out of 100 were in school, and it was virtually universal in 1980, when 94 out of 100 were in school. The

Table 3

Labor Force Participation Rates (LFPRs) from Decennial Censuses for Selected Demographic Groups, 1890, 1920, 1950-1980

Group	1890	1920	1950	1960	1970	1980[a]
Total	54%	54%	55%	57%	58%	61%
Men	87	85	82	80	77	73
14-19	57	52	40	38	35	41
20-24	92	90	82	86	81	83
25-64	94	94	91	93	91	89
65 and over	68	56	41	30	25	20
Women	20	23	30	36	41	49
14-19	24	28	23	24	25	36
20-24	30	38	43	45	56	68
25-64	14	20	32	40	48	59
65 and over	8	7	8	10	10	9
Women, by Marital Status						
Single, never married	44	51[b]	46	43	41[c]	45
Married, husband present	5[d]	9[d]	22	31	40	48
Widowed and Divorced	33	34[b]	33	36	37	42

Sources: U.S. Department of Commerce, Bureau of the Census, Historical Statistics of the United States, Part 1 (Washington, D.C.: GPO, 1975), pp. 131-133; U.S. Department of Commerce, Bureau of the Census, U.S. Census, 1970, Characteristics of the Population, Vol. I, U.S. Summary, Part I, (Washington, D.C.: GPO, 1973), Table 78, p. 372; U.S. Department of Commerce, Bureau of the Census, U.S. Census, 1980, Detailed Population Characteristics, U.S. Summary: Section A (PC80-1-D1-A) (Washington, D.C.: GPO, 1984), Table 272.

--continued--

Table 3, continued

[a]For 1980: Statistics for 14-15 year olds are from U.S. Department of Labor, Employment and Earnings, v. 27, May 1980, 42. Statistics for women by marital status for 1980 are from the Current Population Survey, (CPS) as reported in U.S. Department of Labor, Bureau of Labor Statistics, Labor Force Statistics Derived from the Current Population Survey: A Databook, Volume I, Bulletin 2096 (Washington, D.C.: GPO, 1982), pp. 708-709. These figures, which are for women aged 16 and over, are adjusted in two ways before being entered into this table. All 14-15 year old girls are assumed single and added in to the single category. All figures are adjusted downward to allow for the usual higher figures for the CPS relative to the Census. The ratio of LFPRs for all women aged 16 and over is used for this adjustment: 49.9/51.6 for Census/CPS figures.

[b]Estimated, using LFPR for total of "single, widowed, and divorced" women and the relationships of the "single" LFPR and the "widowed and divorced" LFPR for 1910 and 1930.

[c]The LFPRs for "single" women and for the 14-19 year olds for 1940-1970 are taken from the 1970 Census, rather than the Historical Statistics volume, because the former includes 14 and 15 year olds and is therefore comparable to earlier years. The exclusion of 14-15 year olds in the Historical Statistics figures for "married women, husband present" and "divorced and widowed women" has a negligible effect on the LFPRs for these groups.

[d]LFPRs are for "married women, all"; separate figures for "married women, husband present" are not available.

school enrollment proportion had reached nearly 80 percent by as early as 1940.

The rise in enrollment proportions for 18-19 year olds is also impressive, considering that enrollment by this group often connotes attendance in a college or other post-secondary school. In 1940, the first year of record for this age group, 29 percent of the 18-19 year olds were enrolled in school; by 1970 the percentage was 48 and in 1980 it was 46. The enrollment in 1890 was probably less than 5 percent.

The association between rising proportions of school attendance and declining LFPRs for 14-19 year olds is not easy to interpret in terms of cause and effect. The relation between the two variables is not negative for women, and the negative relation for men stops in the mid-1960s. Even if we confine our attention to the trends for men from 1890 to 1960, the attribution of causality is not clear. Consider that autonomous increases in school enrollment that were the result of compulsory school attendance laws must have contributed to the decline in LFPRs, particularly for 14 and 15 year olds. Similarly, autonomous decreases in LFPRs that were the result of child-labor laws, particularly as they applied to 14-15 year olds, contributed to the increase in school attendance. However, neither type of law had much effect on the work and schooling of persons 16 years of age or older, and yet the trends in work and schooling for the age groups between 16 and 19 are similar to those for the 14-15 year olds.

An economic explanation that emphasizes two exogenous forces may be more satisfying. First, the long-run growth in income stimulated increased consumption of both education (more schooling) and leisure

Table 4

The Proportion Enrolled in School for Selected Age Groups
1890 to 1980

Year	Percentage Enrolled by Age			
	14-17	18-19[a]	20-24	25-34
1890	7%	(3)%[a]		
1900	11	(4)		
1910	15	(5)		
1920	32	(12)		
1930	51	(18)		
1940	79[b]	29	7%	--
1950	83	30	9	2%[c]
1960	90	38	13	4
1970	94	48	22	6
1980	94	46	25	8

Note: The separate statistics for men and women, when available, are quite similar in levels and trends, so these are not shown.

Sources: Age 14-17, 1890-1930: U.S. Office of Education, Progress of Education in the United States of America, 1967-77 and 1977-78 (Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1979), p. 100. This source gives statistics for the 14-17 age group up to 1976-1977, and these are close to the statistics obtained in the U.S. Census Bureau sources (cited below) for 1940 on.

All ages, 1940-1970: U.S. Department of Commerce, Bureau of the Census, Historical Statistics of the United States, Part 1 (Washington, D.C.: GPO, 1975), pp. 370-372.

All ages, 1980: U.S. Statistical Abstract, 1984 (Washington, D.C.: GPO, 1984), pp. 142-143.

(continued)

Table 4, continued

[a]All figures in parentheses for 1890 to 1930 are estimates obtained by assuming that the proportion of 18-19 year olds in school has the same ratio to the proportion of 14-17 year olds in school as the ratio for 1940, which is .37 (= 29/79).

[b]The 1940 figure from the U.S. Office of Education is 73 instead of 79, and the years 1950-1970 also show slightly lower figures than those reported by the U.S. Bureau of Census sources.

[c]The published figure refers to the age group, 25-29, and this figure was adjusted to apply to the 25-34 year olds by assuming that the same relation of the figures for the groups 30-34 years old and the groups 25-29 years old shown in 1960 also holds for 1950.

(less work). The second influence, which is more complicated and speculative, is that formal schooling became a more profitable investment for preparing young people for their adult careers than home or on-the-job training. A plausible hypothesis is that changes in technology and in the industrial structure favored the more highly educated worker. In economists' terms, the demand for more educated workers increased relative to the demand for less educated workers.

Before leaving the analysis of youth, let us examine an anomaly that appears in the reported statistics on LFPRs and school enrollment. As background let us assume the following about the time-use activities of the 14-19 year old boys: (1) market work and schooling define their only market activities; (2) personal care consumed a constant fraction of their time throughout the 90-year period from 1890 to 1980; (3) housework consumed a negligible amount of their time; (4) all other uses of time may be considered "leisure." These assumptions and the statistics in Tables 3 and 4 indicate that 14-19 year old boys devoted considerably less time to market activities and more time to leisure in the early part of this century than the later part.

To see this surprising result, temporarily make the unrealistic assumption that market work and schooling are mutually exclusive activities, so that the LFPR (from Tables 3 and A.4) and the proportion in school (from Table 4) for a cohort of 14-19 year old boys can be added to calculate the proportion "active" (short for "engaged in the market activities of work or schooling"). Setting 100 percent as the maximum for this proportion, we see that approximately 62 percent of the 14-19 year old boys were "active" in 1890, 74 percent in 1920, 89 percent in 1940, and about 100 percent from 1950 to 1980. (The enrollment proportions are

a simple average of the separate proportions for the 14-17 and 18-19 age groups. Thus, the school enrollment proportion of 5 percent for 14-19 year old boys in 1890 is added to an LFPR of 57 to determine an activity proportion of 62 percent.) Given the above assumptions, (1) to (4), the calculation implies that young men of this age spent more time in leisure in 1890 than 1920, and more in 1920 than, say, 1980. This is surprising and anomalous to an economist because it violates the empirical "law" in economics that predicts that an increase in income, such as that occurring from 1890 to 1980, will lead to more, not less, consumption of leisure.

Two points of consistency between the time series of young men's activities and the economic law are that the work week of the boys 14-19 years old who worked was longer in 1890 than in 1980 and that there is a leisure component in schooling. These points do not, however, answer the puzzle of the high proportions of boys aged 14-19 who appear "inactive" in 1890 (38 percent = 100-62) and in 1920 (26 percent = 100-74). Indeed, these percentages are lower bounds of the statistics, because some of these young men were engaged in both activities during the reference period of the survey.

On the assumption that the schooling proportions are relatively accurate, we may conclude that various forms of work by these young men went unreported, such as unpaid work on family farms and in other family enterprises and low-paid work in casual and intermittent jobs. The early censuses probably understated the incidence of market work, as it is currently defined, by groups who were not primary earners. This issue will come up again in discussing work by women. Another implication is

that the long-run increase in leisure consumption is probably understated by the official statistics.

Older Men

We have seen in Table 3 that the LFPRs of men over 65 declined sharply. Table 5 shows that the decline in LFPRs for older men applies to the specific age group 65-69, as well as to men aged 60 to 64. The LFPRs of men aged 65-69 declined from 60 to 28 percent and those of the 60-64 group from 79 to 64 percent between 1950 and 1980. The decline in LFPRs by older men is conventionally explained by economists by referring to how income and wage rates have influenced the work behavior of older workers. The role of income has a popular interpretation, which is simply that increased income has made retirement affordable, permitting workers to allocate part of their earnings during their prime working ages to various private and public pension plans.

From Table A.4 we see that the LFPRs of men aged 65 and older declined at a steady but relatively slow pace from 1890 to 1940, well before the spread of retirement benefits from the government sponsored Old Age, Survivors, and Disability Insurance (OASDI) program, commonly known as Social Security. In addition to the increase in income during this period, a second important reason for the decline in work by older men is the large decline in the proportion of the work force engaged in agriculture. Older workers can more easily remain working on farms than they can in manufacturing jobs. Long used the census data for 1890 to 1950 to calculate that men over 65 years of age who lived on farms had LFPRs that were twice as large as those of men this age who were living in urban or rural nonfarm areas.[4]

Table 5

Labor Force Participation Rates for Older Age Groups, by Sex for Decennial Years, 1950-1980

	Ages 50-54		Ages 55-59		Ages 60-64		Ages 65-69	
	Men	Women	Men	Women	Men	Women	Men	Women
1950	90%	31%	87%	26%	79%	21%	60%	12%
1960	92	46	88	40	78	29	44	16
1970	92	52	87	48	73	36	39	17
1980	89	58	82	49	64	33	28	15

Sources: 1950-1970: U.S. Department of Labor, Employment and Training Report of the President, 1978 (Washington, D.C.: GPO, 1979), p. 88.

1980: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, v. 28, January 1981, 164-165.

A third possible source, which turns out not to be important, is an increase in the proportion of those over 70 among the 65-and-over age group. Actually, the age composition of the male population over age 65 from 1890 to 1950 was remarkably stable with respect to the age groups, 65-69, 70-74, etc. up to 85 and over.[5]

The sharp declines in the LFPRs of men over 65 that began in 1940 and have continued since have been strongly associated with and influenced by the expansion in pension programs, especially OASDI. The large growth in the proportion of retired people who receive OASDI payments reflects, of course, the growth in the proportion of workers who participated in (or are covered by) the program while working. In 1950 the OASDI covered about 40 percent of all civilian workers; in 1970, 70 percent; and in 1980, close to 90 percent.[6]

OASDI not only reflects the rise in income of American workers, but it also has enhanced the incomes of retired workers from the 1940s on by providing payments that were considerably higher than the actuarial value of the workers' payroll taxes that were paid into the program, even if we assume that the workers bear the employers' contributions to the payroll tax.[7] Furthermore, the value of the OASDI program to retired workers increased substantially during the last 15 years by the addition of Medicare, a subsidized health care program. Each generation of older workers from 1940 to 1980 has benefited from windfall gains that were financed by economic growth, by a favorable ratio of the working-age population to the retired population, and by an apparent willingness of society as a whole to subsidize retired workers. Each of these factors has slowed, if not reversed, in recent years, so the windfalls may end.

As a result, the steady decline in LFPRs by older workers may cease in the next several decades.

Now consider the wage rate available to older workers, W_o, relative to the wage rate available to workers in the prime working ages, W_p. A decline in this ratio, W_o/W_p, would be consistent with the decline across succeeding cohorts in the ratio of time at work by a man in his older years relative to the time at work in his prime-age years. Although it is not clear how employers' offers of W_o and W_p have changed over time, the net wage received, or more accurately, the net effect on the worker's income, has favored pre-retirement-age workers for two main reasons. First, the receipt of a pension usually requires the worker to terminate his or her regular job and thereby accept a wage reduction. That is, the older workers' alternative available wages are generally lower than the wages at their regular pre-retirement jobs.

A second reason is that pension payments from OASDI are reduced if the recipient earns more than a specified modest amount.[8] The loss in OASDI payments associated with increases in earnings is effectively a tax on earnings. OASDI payments may be reduced by 50 cents for each additional dollar earned by the recipient. This 50 percent tax lowers the recipient's wage relative to an otherwise identical worker who is not an OASDI recipient.

Prime-Age Men

The slight decline in LFPRs of prime-age men, aged 25-64, from 94 percent in 1890 to 89 percent in 1980 is attributable to some modest declines among the 25-29 and 55-64 age groups. The main reasons for the declines among the older group are (a) "early retirement," a term used

for retirements before age 65; and (b) withdrawals from the labor force by disabled workers, who have benefited from higher payments and more liberalized criteria for eligibility by the Disability Insurance program that is a component of OASDI.

The dominant change in the quantity of work by prime-age men is the reduction in their hours worked per week (or per year), to be discussed below. Clearly, the reduction in time spent at market work by men that is attributable to the lower LFPRs is only part of the total reduction, and for prime-age males it is only a small part.

Women

The demographic classification that best explains women's trends in LFPRs is marital status rather than age. The bottom part of Table 3 shows that almost all of the remarkable rise in LFPRs by women is attributable to married women, whose LFPRs rose from 5 percent in 1890 to 48 percent in 1980. Table 6 shows, moreover, that among women, the most rapid rises in the last 35 years have been by mothers, especially mothers of young children. In 1948, only about one out of every 10 mothers with a child under six years of age was in the labor force; in 1982 about half of the mothers of children of this age were working in the labor market. These statistics on married women in Tables 3 and 6 signify a social revolution--even if a "subtle revolution," to use the title of a book on the subject.[9]

It is the growth in paid market employment by women, especially wives and mothers, that defines this revolution. Women have always worked. Moreover, the labor force participation rates for women, particularly for wives, have probably been understated in periods before 1940, when the

Table 6

Labor Force Participation Rates of Married Women, Husband Present, by Presence and Age of Children 1948-1984 (Selected Years)

Year	Total	No Children < 18	Children 6-17 only	Children < 6
1948	22%	28%	26%	11%
1950	24	30	28	12
1960	30	35	39	19
1965	35	38	43	23
1970	41	42	49	30
1975	44	44	52	37
1980	50	46	62	45
1982	51	46	63	49

Note: These statistics are derived from the Current Population Survey and apply to women aged 16 and over. For both reasons these figures are somewhat higher than the Census figures for the 14-and-over population reported in Table 3.

Source: U.S. Department of Labor, Bureau of Labor Statistics, Handbook of Labor Statistics, Bulletin 2175 (Washington, D.C.: GPO, December 1983), p. 123.

modern definitions and measurements of the labor force began to be used. Women who worked on farms, who kept boarders and lodgers, or who worked in other types of family businesses may not have been paid directly, but they might well have met the current criterion for employment by having worked "15 or more hours in unpaid labor on a farm or in a family business." Reestimating the LFPRs for the early census years with an allowance for this understatement is not attempted. Instead, these forms of unpaid work are treated as nonmarket work in the home sector. (See the author's analysis of housework in another Discussion Paper.[10])

From 1890 to 1940 the increase in LFPRs of married women, from 5 percent to 14 percent, was steady but modest. (See Appendix Table A.5). By 1950 the LFPR of wives had risen to 22 percent, and this 8 percentage point increase from 1940 almost equalled in one decade the increase during the previous five decades. The impact of World War II on women's participation in the labor market is an important reason for the timing of the rising trend. However, the increases in LFPRs of wives in each of the three 10-year periods since 1950 have been larger than the 1940-1950 change, and the sharp rise in LFPRs of mothers shown in Table 6 is entirely a post-World War II phenomenon. I venture to say that if World War II had never occurred, the LFPRs in 1980 would be about the same as they turned out to be.

The experience of Sweden, a neutral country during World War II, is instructive. Sweden had an even sharper rise in LFPRs of married women from 1940 to 1965, although there was not in that country in the 1940s the spur of patriotism for women to contribute to the war effort nor the large-scale shift of men from civilian to military employment.[11] What was common to the United States and Sweden were sharp increases in

employment opportunities and wages for women that followed upon the 1930s decade of economic stagnation (especially in the United States) that had suppressed labor market activity by women. This emphasis on an economic explanation will be developed throughout the subsequent discussion, but it should be noted that a fully satisfactory explanation for the rise in market work by married women, and for the associated changes in many aspects of family life and demographic behavior, has challenged social scientists for years.

Married Women

Earlier scholars have shown that changes in various standard demographic variables, such as the age composition, nativity, rural-urban residence, and fertility behavior did not explain the rise in work rates of married women.[12] In fact, LFPRs have risen for urban (or rural) wives for each age group and for each category of numbers of children present. Most of the increases in LFPRs has come within these multiple categories.

There are other reasons for downplaying the role of demographic variables as explanations of the long-run trend. The age composition of wives (or women) did not change much over the long run. Fertility both increased and decreased during the period under study. Specifically, the long-term decline in the fertility rate, defined as the number of children born per year per 1000 women (or per women aged 15 to 44) turned upward from 1940 until the early 1960s (See Table 7). The rise in wives' LFPRs was, however, more rapid during the 1940-1960 period than ever before. This concurrence of rises in both fertility and work rates does not imply, of course, that an autonomous increase in fertility would

Table 7

Birth Rates: Children Born per 1000 Population
Decennial Census Years, 1880-1980

Year	Birth Rate	Year	Birth Rate
1880	40	1930	21
1890	35[a]	1940	19
1900	33	1950	24
1910	30	1960	24
1920	28	1970	18
		1980	16

Note: Birth rates for women aged 15 to 44, another common and more refined measure of fertility, would show a nearly identical trend as in the table above, but this series is not available for all years.

Source: 1880-1960: U.S. Department of Commerce, Bureau of the Census, Historical Statistics of the United States, Part 1 (Washington, D.C.: GPO), 1975, p. 49.
1970-1980: U.S. Statistical Abstract 1984 (Washington, D.C.: GPO), 1984, p. 63.

[a]The figure for 1890 is estimated on the basis of the reported birth rate for white women, aged 15-44 for 1890 and the ratios of the reported total birth rates to the white rate for women aged 15-44 for 1880 and 1900.

increase market work by wives; rather, we should infer that other factors more than offset the intrinsic negative causal relation between fertility and market work by wives.

The relation between the fertility of women and their market work is complex. Even the qualitative causal linkages are not well understood by social scientists. The methodological issues involved in this relation arise frequently in the attempts to explain, rather than merely describe, variation in work behavior, so let us consider several of these issues.

Let us define autonomous (or exogenous) changes in fertility as those that are due to events that affect fertility directly and only indirectly affect the LFPR "through" their effect on fertility. For example, the invention of more effective methods of birth control is an exogenous change that directly reduced fertility and that indirectly increased LFPRs through the reduction in fertility--the assumption being that births and the presence of dependent children create demands for the mother's time at home that reduces her time for market work. The change (reduction) in fertility may be said to have caused a change (increase) in LFPRs, but this attribution of causation must be qualified with the recognition that the underlying cause was the change in contraceptive technology.

Now consider a decline in fertility that is a voluntary response to, say, improved wages and employment opportunities for women--changes that also directly increase LFPRs. Here, neither fertility nor LFPRs are causal variables; both may be assumed to be choice variables and to be mutually dependent on, or responsive to, market wages and employment opportunities. (The example is intended to illustrate the direction or sign of these causal effects. It is not necessary to claim that the

effects--say, of wage rates on fertility choices--are "important.")

The economic explanation for the rise in LFPRs of wives is essentially that the market wage for women rose relative to the implicit (shadow) wage (or value) of women's time in the home. Women responded to this change in relative wages by working more in the market and less at home.[13] Note that if the reduction in housework was large enough to offset the increase in market work, then a long-run decline in total work for women as well as for men could be consistent with the economic hypothesis that the long-run increase in income leads to an increase in leisure consumption.

Single Women

The LFPRs of single women have remained relatively constant at about 45 percent. Their labor force behavior is mainly determined by that of women aged 14 to 24, who constitute about 70 percent of single women aged 14 and older.[14] We may infer, therefore, that the negative effect on work of the increase in schooling has been largely offset by the positive effects from improved job opportunities for women and, more speculatively, from reduced demands for housework by single women.

The statistics in Table 4 on the trends in educational attainment apply, with minor qualifications, to men and women separately. Girls aged 14-17 are slightly more likely and girls aged 18 and over are slightly less likely to be in school than boys of the same ages. However, there is no prima facie case for an understatement of market work by girls as there was for boys, whose "total activity" proportions --LFPRs plus schooling--appeared so low in the first fifty years of the time series. The traditional role of housework and the prevalence of

early marriage and motherhood could explain why the "total activity" proportions among girls aged 14-17 were low. Nevertheless, the same arguments about unreported farm work, work in family businesses, and casual and intermittent market work that applied to boys for the years 1890 to 1930 also applies to some extent to girls.

As shown in Table 3, girls 14 to 19 have a LFPR in 1980 of 36 percent, which is close to the 41 percent for boys that age. These LFPRs are more nearly equal than for any other age group. The convergence of the gender gap for youth reflects a 90-year trend. A later age of first marriage and, especially, of the birth of the woman's first child are factors associated with the lesser decline (or greater rise) in LFPRs of girls aged 14-19 than boys of that age.

Widowed and Divorced Women

Widows and divorced women were a stable proportion of the female population aged 14 and over from 1890 to 1960; slowly increasing from 11 percent in 1890, when nearly all the women in this category were widows, up to 15 percent in 1960, when 80 percent were widows and 20 percent were divorced. (These marital statuses refer to the time of the survey and are assumed to represent the female population for the years around the decennial year.) By 1980, the percentage of women over 14 years of age who were widowed or divorced had risen to 19. The increase is attributable to more divorced women, who constitute 37 percent of the widow/divorce category in 1980.[15]

Despite the recent decline in the proportion of widows in this group, the age composition from 1940 to 1980 remains relatively old and stable. About 40 to 50 percent of these women are 65 years of age or older.[16]

Divorced women are more likely to be employed because they are younger on average than widows. Furthermore, at a given age divorced women have higher LFPRs than widows. Thus, the stability from 1890 to 1950 and the slight increase from 1950 to 1980 in the LFPRs of the widowed/divorced group corresponds to the compositional stability and growth, respectively, in the proportion of divorced women.

The trend in LFPRs of the widowed/divorced group resembles the trend for women aged 65 and older, because about half are in this age group and somewhat more than half of the over-65 age group are widows and divorced women. The LFPRs of older women, like those of older men, are negatively affected by the growth in the following transfer payment programs for the elderly: (a) OASDI, which provides benefits to widows even though the women may not be old enough or may not have worked enough to qualify for retirement benefits on their own; (b) Medicare, which became an important benefit for OASDI recipients during the 1970s; (c) various old-age assistance programs that were part of the state-administered welfare system and which became liberalized in the early 1970s in the form of the Supplemental Security Income (SSI) program--all of which provide cash transfers and sometimes medical care benefits (Medicaid) to poor old persons who were not eligible for OASDI. Despite these programs, which have more women than men as beneficiaries, the LFPRs of older women have not declined over time, which testifies to the strength of other market forces that have stimulated more market work by women.

Another welfare program, Aid to Families with Dependent Children (AFDC), provides cash transfers and other benefits to low-income divorced, separated, widowed, and never-married women with dependent children. These welfare plans, which vary across states in their

coverage and generosity, grew rapidly in terms of persons on the rolls and expenditures from 1950 to 1973. Since 1973 the real levels of the benefits have declined as a consequence of fiscal stringency and inflation, but they remain at high levels relative to periods prior to the 1960s.[17] Indeed, the programs were small prior to 1950 and had little effect on the work trends of women.

The overall effect of these programs is to reduce or retard LFPRs of widowed, divorced, and separated women. (Official published data for the last 30 years or so typically include separated women along with widows and divorced women.) The benefits provide an alternative source of income to that of market earnings. Moreover, the terms under which benefits are received impose disincentives to market work that are generally even more stringent than those discussed above in connection with OASDI. In both programs benefits are decreased as the recipient's earnings increase, so the earnings are effectively taxed. Indeed, the effective tax rate of the AFDC programs on additional earnings may exceed 100 percent--indicating that a family would suffer an overall decline in total income if their extra earnings rose to a level that made the family ineligible for benefits.[18] Thus, the growth in welfare programs for poor and aged divorced, widowed, and separated women has served to offset the pro-market trends in better employment opportunities and wages for women.

These welfare programs have become important in terms of the numbers of women receiving payments and the amount of payments only in the last 30 years. The large proportion of black families headed by a woman and their low family incomes have meant that the programs providing income transfers have been especially important to the black population.

The Decline in Hours Worked per Year by Workers, 1890 to 1980

Recall that the lifetime quantity of time spent in market work is calculated by multiplying the probability that a person is in the labor force at a given age by the number of hours worked, conditional on being in the labor force. Using official statistics, annual hours of work is the product of the LFPRs times hours worked per week (times 52), with two important adjustments to the hours figure. One adjustment is to exclude workers who report zero or "short" hours of work because they were unemployed during the survey period or because they were working part time for such "involuntary" reasons as strikes, bad weather, or slack economic conditions. This adjustment raises the hours figure relative to the average for all workers. The excluded "involuntary" part-time work is considered temporary and is not an important source of long-run changes. Voluntary part-time working, by contrast, has been an important reason for a decline in the work week for certain demographic groups, particularly among the young, the old, and women.

A second adjustment to the series on hours worked per week is to subtract some time to allow for vacations, holidays, and "voluntary" days off for various personal reasons--to attend a funeral, visit a doctor, and so on. Hereafter, references to hours worked or to the "work week" will include these adjustments.

Two types of series for hours worked are of interest: the work week for "full-time" workers and the work week for both full- and (voluntary) part-time workers. No adjustment is needed for part-year workers, such as seasonal workers, because this reduced commitment to the labor force should already be captured in a lower LFPR for these workers. Strictly

speaking, this would be true only if the LFPRs were measured at all or at random points in time, but there is no reason for the time trends to be biased because of the timing of the censuses.

The concepts of full-time and part-time work are not entirely satisfactory. In recent decades the two statuses are defined by an arbitrary division into those who usually work 35 hours a week or more and those who usually work less than 35 hours. Nevertheless, the distinction is useful because the analyst is better able to determine whether the change in hours is attributable to a change in the so-called "standard work week," referring to full-time workers, or to a change in the mix of part-time workers among all workers.

The decline in time spent at work by prime-age men, whose LFPRs are consistently above 90 percent and who are nearly all full-time workers, is almost entirely attributable to a decline in the standard work week. Long reports a time series for the standard work week for the decennial censuses from 1890 to 1950 and shows a decline from 66 hours in 1890 and 62 in 1900 to 43 in 1940 and 41 in 1950 (see Table 8). Other estimates of the work week for this period are roughly consistent with Long's. The Census Bureau's figures in Historical Statistics are based on the estimates of Rees for 1890 to 1910 for manufacturing workers. These are about 11 percent lower than Long's, but the trends are similar. Moore and Hedges report lower estimates for 1890 to 1910, but these are for all workers, not just for the full-time or prime-age male workers who constitute the main population base for Long and Rees. (All citations are given in Table 8.)

The time series of the average hours worked by all workers is dominated by full-time workers. This category accounted for 85 to 90 percent

Table 8

Trends in Hours Worked per Week for Persons in the Labor Force: Estimates from Various sources, 1890-1980 (Selected Years)

	Source and Type of Worker							
	Historical Statistics[a] (Manufacturing Workers)			Long[b] ("Standard Work Week"[c])	Moore and Hedges[d] (All Workers)	Hedges and Taylor[e] (All Workers)	
Year	All	Men	Women	All	All	Men	Women
1890	57			66	54		
1900	55			62	53		
1910	52			57	50		
1914		52	50				
1920		49	43	53	50		
1929		49	44				
1930		44	30	52	48		
1940		39	36	43	44		
1941		42	38				
1948		41	38				
1950				41	41		
1960					41		
1968						42	35
1970					40		
1979						41	34
1980							

--continued--

Table 8, continued

[a]U.S. Department of Commerce, Bureau of the Census, Historical Statistics of the United States, Part 1 (Washington, D.C.: GPO, 1975), pp. 172-173. This source uses the estimates in Albert Rees, Real Wages in Manufacturing, 1890-1914, National Bureau of Economic Research (Princeton, N.J.: Princeton University Press, 1961).

[b]Clarence Long, The Labor Force Under Changing Income and Employment, National Bureau of Economic Research (Princeton, N.J.: Princeton University Press, 1958), p. 272.

[c]Long defines the "standard work week" as "'full-time' hours rather than hours actually worked. They were not, therefore, adjusted for time lost because of sickness, strikes, mechanical breakdowns, labor turnover, or layoffs, but represent the amount of time normally worked in all major branches of industry . . ." (p. 140).

[d]Geoffrey H. Moore and Janice N. Hedges, "Trends in Labor and Leisure," Monthly Labor Review, 94, February 1971, 3-11.

[e]Janice N. Hedges and Daniel E. Taylor, "Recent Trends in Worktime: Hours Edge Downward," Monthly Labor Review, 103, March 1980, 3-11. The figures are rounded and allow for a decline of about one-fourth of an hour per week from 1968 to 1979 in the form of additional vacation and holidays. (See footnote 9 on p. 10 of Hedges and Taylor.)

of the labor force from 1940 to 1980 and probably for a similar proportion in the earlier periods, when there were fewer women in the labor force but more of the youngest and oldest age groups.[19]

All the sources in Table 8 show that the standard work week for full-time workers was slightly over 40 hours by 1950. Thus, the decline from, approximately, 60 hours in 1890 to 42 hours in 1950 implies a reduction in work time by almost one-third for prime-age male workers, whose LFPRs remained roughly constant from 1890 to 1950. An 18-hour per week reduction amounts to 900 fewer hours of work per year--equivalent to 112 fewer 8-hour work days per year!

From 1950 to 1980 the work week remained fairly constant at around 40 hours. Allowances for vacations, holidays, and other forms of voluntary days off have reduced annual hours of work, but the extent of this reduction is not clear. Fringe benefits have not been measured extensively for the labor force as a whole or for a long-term time series. Most of the information, from private as well as government sources, comes from employment contracts in large firms, and even in these firms there are various benefits that depend on the workers' seniority and job-titles, and not much is known about the numbers of workers who actually receive the benefits.

Despite these limitations, the U.S. Department of Labor's surveys of firms about provisions for time-off from work suggest that this type of fringe benefit has led to substantial reductions in the past 30 years--perhaps as much as three hours per week. The evidence for this will be presented below, but first the counter-evidence may be stated succinctly. The Department of Labor's has also surveyed workers about their reported working time, and these surveys have shown only modest reductions--

perhaps somewhat over one hour per week--as a result of the growth in fringe benefits.

The impression of a substantial reduction in work time is obtained from the recent surveys (since 1979) of a sample of firms with (generally) 100 or more employees.[20] As of 1983, virtually all the firms surveyed provided vacations and holidays for their employees, and these allowed for an average about 12 days of vacation and 10 holidays. Paid "rest time" was formally provided in the employees' contracts in about 75 percent of the firms, and this averaged 125 minutes per week, which sums to the equivalent of 12.5 days per year (assuming an 8-hour day and 48 weeks of actual work). Contractual provisions for time off for "personal leave" were not so common, appearing in 25 percent of the firms and providing for about 4 days off per year on average. Based on these reports, the average work year has been reduced by about 32.4 days or 260 hours, which amounts to 5 less hours for each of 52 weeks.[21] These reductions are similar to those reported in the four previous surveys of the Labor Department, which began in 1979.

Assuming this survey's report of the reduction in the work year (or work week) is representative of the early 1980s for the labor force as a whole, how does it compare with 1950? No comparable surveys are available, but it is known that the sort of fringe benefits under discussion only began to be widespread among blue collar workers during the late 1940s, following a 10-year period of union growth and the four years of "overfull employment" and long work weeks during World War II. To get some idea of the quantitative change from the earlier period, assume that paid time off from one's job amounted to 13 days per year in 1950.[22] The implied reduction from 1950 to 1980 in work days per year

owing to the increases in fringe benefits is, therefore, 19.4 (= 32.4 - 13), which translates into a reduction of about 3 hours per week.

The studies of actual hours of work carried out by the Department of Labor imply a smaller reduction. For example, Hedges and Taylor report that increases in holidays and vacations from 1968 to 1979 reduced the work year by only about 14 hours per year, or one-fourth hour per week. They implied, however, that the age-specific reductions would be larger because in 1979 the labor force had a relatively large proportion of young people, who had not acquired the seniority to obtain these fringe benefits.[23] In keeping with this conservative estimate of the growth of fringe benefits, let us assume that the gains from 1950 to 1968 amounted to five additional days of vacation and three additional holidays. Eight fewer days means a yearly reduction of 64 hours, or 1.25 hours per week. For the entire period from 1950 to 1979, therefore, the decline in hours per week from these fringe benefits is a modest 1.5 hours. It is this reduction that has been used to adjust the hours of work reported in Table 8 for 1970 and 1980 to the lower levels reported in Tables 1, 2, and A.1.

In summary, we may conclude that the large decline from 1890 to 1950 in hours worked per week by persons in the labor force nearly ceased by 1950, if we accept the conservative estimate of the impact of fringe benefits. This conclusion does not mean, however, that the historic decline in time spent in market work by men has ceased. Instead, the reduction in work (and increase in leisure) have shifted toward lower LFPRs in the form of (a) more time in schooling between 1950 and 1970 or so; and (b) earlier retirements during the entire 1950-1980 period.

Changes in the work week of women who are in the labor force have been similar to those of men. A larger fraction of women than men are part-time workers, but the fraction of women who are part-time workers has been fairly constant over time. Women have not experienced a reduction in hours of market work since 1950 from either source: LFPRs or hours in the work week. This contrast with men raises the issue of whether changes in the amount of time spent in housework by women since 1950 have permitted a growth in leisure consumption that is similar to that of men.

NOTES

[1]Clarence D. Long, The Labor Force Under Changing Income and Employment, National Bureau of Economic Research (Princeton, N.J.: Princeton University Press, 1958), pp. 287, 291.

[2]To make calculations easier, a 56-year work-life span will be measured using, for example, an 1890 beginning and a 1940 terminal year, with the tacit assumption that the actual entrance was 3 years before 1890 and the actual retirement was 3 years after 1940. The 1890 and 1940 census years will be assumed to represent the LFPRs and hours worked for the 3 years on either side.

[3]Of course, the representative man would work more than the reported average amount during his prime working ages and less when young and old. The single hours amount, 2628 per year for the representative man in 1900, is merely an average over all 56 years.

[4]Long, p. 298.

[5]See Ansley J. Coale and Melvin Zelnik, New Estimates of Fertility and Population in the United States (Princeton, N.J.: Princeton University Press, 1963), p. 181.

[6]U.S. Statistical Abstract 1984, (Washington, D.C.: U.S. GPO, 1984), p. 375.

[7]See Richard V. Burkhauser and John A. Turner, "A Time Series Analysis of Social Security and Its Effect on the Market Work of Men at Younger Ages," Journal of Political Economy, 86, August 1978, 701-715; and Richard V. Burkhauser and Jennifer Warlick, "Disentangling the Annuity from the Redistributive Aspects of Social Security," Review of Income and Wealth, 27, 1981, 401-421.

[8]The provisions of OASDI that determine the relation between payments received and earned income are complicated, and they have changed several times in the forty-year history of the program. In recent years the provisions were liberalized to encourage more paid work by the retirees. Nevertheless, the point made in the text is generally valid.

[9]Ralph E. Smith, ed., The Subtle Revolution (Washington, D.C.: The Urban Institute, 1979).

[10]Glen G. Cain, "Women and Work: Trends in Time Spent in Housework," Discussion Paper #747-84 (Madison, Wisconsin: Institute for Research on Poverty, University of Wisconsin, April 1984).

[11]From 1940 to 1965, the LFPRs of married women rose by 230 percent in Sweden and by 150 percent in the United States. For the United States, the LFPR was 14 percent in 1940 and it rose to 35 percent in 1965. (See Tables 3 and 6 in the text.) The source for the LFPRs in Sweden for this period shows an increase from 10 percent in 1940 to 33 percent in 1965. (Per Silenstam, Arbetskraftsutbudgets Utveckling i Sverige, 1870-1965 (Almquist and Wiksell: Stockholm, 1970), p. 105.

[12]See John D. Durand, The Labor Force in the United States, 1890-1960 (New York: Social Science Research Council, 1948), p. 67; Seymour L. Wolfbein and A. J. Jaffe, "Demographic Factors in Labor Force Growth," in Demographic Analysis, ed. J. J. Spengler and O. D. Duncan (New York: The Free Press, 1956), pp. 492-496; Stanley Lebergott, "Population Change and the Supply of Labor," in Demographic and Economic Change in Developed Countries, National Bureau of Economic Research (Princeton, N.J.: Princeton University Press, 1958), pp. 377-422; Long, pp. 97-116.

[13]See Jacob Mincer, "Labor Force Participation of Married Women," in Aspects of Labor Economics: A Conference of the Universities, National Bureau of Economic Research (Princeton, N.J.: Princeton University Press, 1962), pp. 63-97. Mincer was the first to provide a formal economic theory and empirical evidence for the explanation of the increase in market work by wives. Kyrk had much earlier advanced all the important economic variables to explain this increase, but she did not provide as rigorous a theoretical framework nor present the empirical evidence in a systematic way, as did Mincer. See Hazel Kyrk, Economic Problems of the Family (New York: Harper and Row, 1933), p. 148.

[14]For the decennial years from 1940 to 1980, females aged 14 to 24 are 65 to 73 percent of single women over the age of 14. See the U.S. Statistical Abstracts, 1951 (p. 24), 1961 (p. 34), 1971 (p. 32), and 1981 (p. 40). The 1980 figure of 73 percent refers to the group aged 15 to 24 out of the population of single women over 15 years of age.

[15]The source for 1890 to 1970 is: U.S. Department of Commerce, Bureau of the Census, Historical Statistics of the United States, Part 1 (Washington, D.C.: GPO, 1975), pp. 20-21; for 1980, U.S. Statistical Abstract, 1984, p. 43. In 1980 the percentages are calculated on the assumption that no 14-17 year olds are widowed or divorced. It should be noted that the number of women in the divorced status and the trends in this statistic will diverge from the numbers or trends of divorces because of changes in the rate and proportion of divorced women who remarry.

[16]U.S. Statistical Abstracts, 1951 (p. 24), 1961 (p. 34), 1971 (p. 32), and 1981 (p. 40).

[17]The trends in the growth of the AFDC program and in the recent declines in their real levels--that is, inflation-adjusted--are documented in Robert J. Lampman, Social Welfare Spending, Institute for Research on Poverty (New York: Academic Press, 1984), pp. 111-130.

[18]The way in which various welfare programs creates disincentives to market work has received voluminous attention. For a recent discussion, see Lampman, pp. 111-130.

[19]About 88 percent of the work force was full time in 1940 and 1950. See Gertrude Bancroft, The American Labor Force (New York: John Wiley, 1958), pp. 90-93. Between 1965 and 1980 the percentage declined from 88 to 85. See U.S. Statistical Abstract, 1984, p. 410.

[20]U.S. Department of Labor, Bureau of Labor Statistics, "Employee Benefits in Medium and Large Firms, 1983," Bulletin 2213, August 1984. This bulletin is the fifth in the series of such reports and surveys that began in 1979. The statistics reported in the paragraph in the text are from the 1983 survey.

[21]Vacations and holidays combine to reduce the average work year by about 22 days. The "rest time" reduction is 9.4 days (= .75 x 12.5), and the "personal leave" time off is 1 day (= .25 x 4). Note that each benefit is weighted by the proportion of firms that offer the benefit. The total of 32.4 days off translates to 259 hours (= 32.4 x 8).

[22]Assume that in 1950 the number of holidays was 5; vacation days, 5; and the paid "rest time" was 10 minutes a day in 50 perent of the firms. These sum to an equivalent time off of approximately 13 days. For an account of changes in holidays, vacations, and paid sick leave in collective bargaining contracts that offers unsystematic but supportive evidence of these assumptions about fringe benefits in the 1950s and

comparisons with succeeding years up to 1983, see Bureau of National Affairs, Basic Patterns in Union Contracts, 10th Edition (Washington, D.C.: BNA, Inc., 1984).

[23]Janice N. Hedges and Daniel E. Taylor, "Recent Trends in Worktime: Hours Edge Downward," Monthly Labor Review, 103, March 1980, 8-11 and footnote 9 on p. 10.

Appendix Tables

Table A.1

Labor Force Participation Rates (L) and Estimated Hours Worked per Week (H) by Gender and Age, 1890-1990

Year LFPRs (L) Hours (H)		Age Group 14-19	 20-24	 25-64	 65-69	Total (weighted averages)
Panel A: Men						
1890	L	.57	.91	.94	.68	.86
	H	51.0	59.6	61.9	58.1	60
1900	L	.61	.91	.92	.63	.86
	H	49.5	57.9	60.0	56.3	58
1910	L	.56	.91	.95	.58	.87
	H	47.0	54.9	57.0	53.5	56
1920	L	.53	.90	.94	.56	.86
	H	43.6	51.0	52.9	49.7	52
1930[a]	L	.41	.89	.94	.54	.83
	H	43.6	50.9	52.8	49.6	52
1940[a]	L	.34	.88	.92	.42	.80
	H	37.0	43.3	44.9	42.2	44
1950	L	.40	.82	.91	.41	.80
	H	36.1	42.2	43.8	41.1	43
1960	L	.38	.86	.92	.31	.78
	H	26.4	39.5	41.9	35.6	40
1970	L	.35	.81	.91	.25	.74
	H	25.8	37.0	41.0	33.0	39
1980	L	.41	.83	.89	.20	.74
	H	27.5	36.7	40.0	29.1	38
1990	L	.43	.84	.89	.17	.74
	H[c]	27.5	36.7	40.0	29.1	38

--table continues--

Table A.1, continued

Year / LFPRs (L) / Hours (H)		Age Group 14-19	20-24	25-64	65-69	Total (weighted averages)
Panel B: Women						
1890	L	.24	.30	.14	.08	.18
	H	48.2	54.0	53.8	52.8	52
1900	L	.27	.32	.16	.08	.20
	H	46.7	52.3	52.2	51.2	51
1910	L	.28	.36	.20	.09	.23
	H	44.3	49.7	49.5	48.6	48
1920	L	.28	.38	.20	.07	.23
	H	37.9	42.4	42.3	41.6	41
1930[a]	L	.23	.42	.22	.07	.24
	H	38.9	43.6	43.5	42.7	43
1940[a]	L	.19	.46	.26	.06	.26
	H	33.5	37.5	37.4	36.7	37
1950	L	.23	.43	.32	.08	.30
	H	34.1	38.2	38.1	37.4	38
1960	L	.24	.45	.40	.10	.35
	H	27.0	35.0	35.0	31.9	34
1970	L	.25	.56	.48	.10	.40
	H	25.6	33.8	34.1	30.2	33
1980	L	.36	.68	.59	.09	.49
	H	25.7	32.7	33.5	32.5	32
1990	L	.44	.80	.69	.08	.58
	H[c]	25.7	32.7	33.5	25.2	32

--sources and notes continued--

Table A.1, continued

Sources: LFPRs, 1890-1970: U.S. Department of Commerce, Bureau of the Census, Historical Statistics of the United States, Part 1, (Washington, D.C.: GPO, 1975), p. 133. (Some exceptions: LFPRs for 1910 are not available in the Historical Statistics and are taken from Clarence D. Long, The Labor Force Under Changing Income and Employment, National Bureau of Economic Research (Princeton, N.J.: Princeton University Press, 1958). For the age group 14-19, Long's (p. 287) figures of .57 in 1890 and .61 in 1900 are used for males instead of the figures .50 in 1890 and .62 in 1900 from the Historical Statistics. The latter's figure of .50 in 1890 is unexpectedly low. For 1940-1970 the census LFPRs for 14-19 year-olds are from U.S. Department of Commerce, Bureau of the Census, U.S. Census, 1970, Characteristics of the Population, Vol. I, U.S. Summary, Part 1 (Washington, D.C.: GPO, 1973), p. 372. This source is used because Historical Statistics gives LFPR's only for 16-19 year olds for the youngest age group from 1950 to 1970. The published LFPRs of the age group 65 and over are used for the age group, 65-69 in Table A.1. The LFPRs for the 65-69 year olds would be somewhat higher, but the table is mainly used for trends, and the trends for the age group 65 and over should be close to those for the age group, 65-69.)

LFPRs, 1980: U.S. Department of Commerce, Bureau of the Census, U.S. Census, 1980, Detailed Population Characteristics, U.S. Summary (PC80-1-D1-A), Section A, (Washington, D.C.: GPO, 1984) Table 272. The figures for 14-15 year olds are from U.S. Department of Labor, Employment and Earnings, 27, May 1980, 42.

LFPRs, 1990. These are estimated, based on the 1980 and 1982 LFPRs in U.S. Department of Labor, The Employment and Training Report of the President, 1982 (Washington, D.C.: GPO, 1982), pp. 276-277, which provides an annual rate of change that is applied to the 1980 Census LFPRs to project LFPRs for 1990. These projections are similar to those based on other projection methods, such as using the 1970-1980 change to estimate the 1980-1990 change.

Hours. Two types of sources and methods are used to construct the time series. One is the sources for a time series of the average hours worked for week, shown in Table 8, from mainly non-census sources. (Citations are listed in Table 8.) The second source is the censuses for 1950-1970, which provide alternative estimates for the average hours worked per week and for the differences in hours worked by age groups.

1. U.S. Department of Commerce, Bureau of the Census, U.S. Census of Population, 1970, Employment Status and Work Experience (Washington, D.C.: GPO, 1973), pp. 202-206.

Table A.1, continued

2. U.S. Department of Commerce, Bureau of the Census, U.S. Census of Population, 1960, Employment Status and Work Experience (Washington, D.C.: GPO, 1964), pp. 90-91.

3. U.S. Department of Commerce, Bureau of the Census, U.S. Census of Population, 1950, Employment and Personal Characteristics (Washington, D.C.: GPO, 1953), pp. 117-120.

The hours figures for 1980 are derived from the change in hours from 1968 to 1979 reported by Hedges and Taylor, using the 1970 hours as the base. (Janice N. Hedges and Daniel E. Taylor, "Recent Trends in Worktime: Hours Edge Downward," Monthly Labor Review, v. 103, March 1980, 3-11.)

The hours figures reported in the censuses were adjusted downward to allow for the growth in vacation, holidays, sick leave, and so on from 1950 on. The reductions are: 7.8 percent for 1980 (based on an estimate of 7.7 percent for 1977 in Hedges and Taylor); 6.2 percent for 1970 (estimated for 1968 in Hedges and Taylor); 5.5 percent for 1960 and 3 percent in 1950, which are guesses based on the trend and on the estimates from John D. Owen, "Workweek and Leisure: An Analysis of Trends, 1948-1975," Monthly Labor Review, 99, August 1976, pp. 3-8.

The hours by age group for men and women in 1950 were used to form a ratio for the relation of the hours worked by age-group to the overall average, and these ratios were used to derive hours-by-age for 1890-1940.

[a]The overall average of hours worked for 1930 (and 1940) were estimated using the ratio of hours worked for 1929-1930 (and 1941-1940) to adjust for the unusually low hours worked in 1930 and 1940 because of the severe depression in those years.

[b]The weights for the LFPRs are the proportions of the population in each age group. The weights for the hours are the proportions of the labor force in each age group. The weighted average for hours is rounded to a whole number. The sources for the population and labor force statistics are: 1890-1970, Historical Statistics, pp. 15 and 131. 1980: 1980 Census of the Population, vol. 1, Characteristics of the Population (PC80-1-C1), General Social and Economic Characteristics, Part 1, U.S. Summary, p. 31; and Detailed Population Characteristics, U.S. Summary, Section A, Table 272.

[c]Same hours as 1980.

Table A.2

Calculations for Actual Total Lifetime Hours at Work for Male Cohorts, Born in 1870, 1900, and 1920

Year	Age[a]	LFPR	x	Work Hours: Weekly Hours	x	52 (Weeks)	x	Years (in age group)		
				1870 Cohort						
1884-1889	14-19	.57	x	52.3	x	52	x	6	=	9,301
1890-1894	20-24	.91	x	61.2	x	52	x	5	=	14,480
1895-1904	25-34	.92	x	61.6	x	52	x	10	=	29,470
1905-1914	35-44	.95	x	58.4	x	52	x	10	=	28,850
1915-1924	45-54	.94	x	52.9	x	52	x	10	=	25,858
1925-1934	55-64	.94	x	52.8	x	52	x	10	=	25,809
1935-1940	65-69	.42	x	42.2	x	52	x	5	=	4,608
Total										138,374
Average per 56 years										2,471
				1900 Cohort						
1914-1919	14-19	.53	x	43.6	x	52	x	6	=	7,210
1920-1924	20-24	.90	x	51.0	x	52	x	5	=	11,934
1925-1934	25-34	.94	x	52.8	x	52	x	10	=	25,809
1935-1944	35-44	.92	x	44.9	x	52	x	10	=	21,480
1945-1954	45-54	.91	x	43.8	x	52	x	10	=	20,726
1955-1964	55-64	.92	x	41.9	x	52	x	10	=	20,045
1965-1970	65-69	.25	x	33.0	x	52	x	5	=	2,145
Total										109,349
Average per 56 years										1,953

--table continues--

Table A.2, continued

Year	Age[a]	LFPR	x	Work Hours: Weekly Hours	x	52 (Weeks)	x	Years (in age group)		
				1920 Cohort						
1934-1939	14-19	.34	x	37.0	x	52	x	6	=	3,925
1940-1944	20-24	.88	x	43.3	x	52	x	5	=	9,907
1945-1954	25-34	.91	x	43.8	x	52	x	10	=	20,726
1955-1964	35-44	.92	x	41.9	x	52	x	10	=	20,045
1965-1974	45-54	.91	x	41.0	x	52	x	10	=	19,401
1975-1984	55-64	.89	x	40.0	x	52	x	10	=	18,512
1985-1990	65-69	.17	x	29.1	x	52	x	5	=	1,286
Total										93,803
Average per 56 years										1,675

Source: See Tables A.1 and A.4.

aFor the age groups 14-19 and 65-69, the end-of-decade data were used; for example, 1890 for the 14-19 year olds and 1940 for the 65-69 year olds for the 1870 cohort. For the age groups 20-24, the beginning-of-decade data were used; for example, 1890 for the 20-24 year olds for the 1870 cohort. For all other age groups, the data for the middle year were used; for example, 1900 for the 25-34 group and 1910 for the 35-44 group for the 1870 cohort.

Table A.3

Calculations for Actual Total Lifetime Hours at Work for Female Cohorts, Born in 1870, 1900, and 1920

Year	Age[a]	LFPR	x	Work Hours: Weekly Hours	x	52 (Weeks)	x	Years (in age group)		
				1870 Cohort						
1884-1889	14-19	.24	x	49.9	x	52	x	6	=	3,736
1890-1894	20-24	.30	x	55.9	x	52	x	5	=	4,361
1895-1904	25-34	.16	x	54.0	x	52	x	10	=	4,493
1905-1914	35-44	.20	x	51.3	x	52	x	10	=	5,335
1915-1924	45-54	.20	x	42.3	x	52	x	10	=	4,399
1925-1934	55-64	.22	x	43.5	x	52	x	10	=	4,976
1935-1940	65-69	.06	x	36.7	x	52	x	5	=	573
Total										27,897
Average per 56 years										498
				1900 Cohort						
1914-1919	14-19	.28	x	37.9	x	52	x	6	=	3,311
1920-1924	20-24	.38	x	42.4	x	52	x	5	=	4,189
1925-1934	25-34	.22	x	43.5	x	52	x	10	=	4,976
1935-1944	35-44	.26	x	37.4	x	52	x	10	=	5,056
1945-1954	45-54	.32	x	38.1	x	52	x	10	=	6,340
1955-1964	55-64	.40	x	35.0	x	52	x	10	=	7,280
1965-1970	65-69	.10	x	30.2	x	52	x	5	=	785
Total										31,938
Average per 56 years										570

--table continues--

Table A.3, continued

Year	Age[a]	LFPR	x	Work Hours: Weekly Hours	x	52 (Weeks)	x	Years (in age group)	=	
				1920 Cohort						
1934-1939	14-19	.19	x	33.5	x	52	x	6	=	1,986
1940-1944	20-24	.46	x	37.5	x	52	x	5	=	4,485
1945-1954	25-34	.32	x	38.1	x	52	x	10	=	6,340
1955-1964	35-44	.40	x	35.0	x	52	x	10	=	7,280
1965-1974	45-54	.48	x	34.1	x	52	x	10	=	8,511
1975-1984	55-64	.59	x	33.5	x	52	x	10	=	10,278
1985-1990	65-69	.08	x	25.2	x	52	x	5	=	524
Total										39,404
Average per 56 years										704

Sources and Notes: See Table A.2.

Table A.4

Labor Force Participation Rates by Age and Gender
from Decennial Censuses, 1890-1980

Year	Age Group					Total[b]	BOTH GENDERS TOTAL[b]
	14-19[b]	20-24	25-44	45-64	65+		
MEN							
1890 (June)	57.1	90.9	96.0	92.0	68.3	84.3	52.2
1900 (June)	61.1	90.6	94.7	90.3	63.1	85.7	53.7
1910 (June)[c]	56.2	91.1	96.6	93.6	58.1	86.3	55.7
1920 (Jan)	52.6	89.9	95.6	90.7	55.6	84.6	54.3
1930	41.1	88.8	95.8	91.0	54.0	82.1	53.2
1940	34.4	88.1	94.9	88.7	41.8	79.1	52.4
1950	39.9	81.9	93.3	88.2	41.4	79.0	53.4
1960	38.1	86.2	95.3	89.0	30.5	77.4	55.3
1970	35.2	80.9	94.3	87.2	24.8	72.9	55.5
1980[d]	42.5	82.7	93.3	81.1	19.3	72.7	61.8
WOMEN							
1890 (June)	24.4	30.2	15.1	12.1	7.6	18.2	
1900 (June)	26.8	31.7	17.5	13.6	8.3	20.0	
1910 (June)[c]	28.1	35.5	21.0	17.1	8.6	22.8	
1920 (Jan)	28.4	37.5	21.7	16.5	7.3	22.7	
1930	22.8	41.8	24.6	18.0	7.3	23.6	
1940	18.8	45.6	30.5	20.2	6.1	25.8	
1950	22.5	42.9	33.3	28.8	7.8	29.0	
1960	23.8	44.8	39.1	41.6	10.3	34.5	
1970	25.0	56.1	47.5	47.8	10.0	39.6	
1980[d]	36.7	67.8	64.8	50.3	8.2	48.6	

--sources and notes continued--

Table A.4, continued

Sources: For all entries except as noted in footnotes: U.S. Department of Commerce, Bureau of the Census, Historical Statistics of the United States, Part I (Washington, D.C.: GPO, 1975), pp. 131-132. U.S. Department of Commerce, Bureau of the Census, U.S. Census, 1970, Characteristics of the Population, Vol I, U.S. Summary, Part 1 (Washington, D.C.: GPO, 1973), Table 78, p. 372. (See footnote b.) Clarence D. Long, The Labor Force Under Changing Income and Employment, National Bureau of Economic Research (Princeton, N.J.: Princeton University Press, 1958), pp. 286-288. (See footnote b.) U.S. Department of Commerce, Bureau of the Census, U.S. Census, 1980, Detailed Population Characteristics, U.S. Summary: Section A (PC80-1-D1-A), (Washington, D.C.: GPO, 1984), Table 272. (See footnote d.) U.S. Department of Labor, Employment and Earnings, 27, May 1980, 42. (See footnote d.)

[a]The census was taken in April unless otherwise noted.

[b]Because Historical Statistics shows the LFPRs for the 16-19 year old group, Long (pp. 286-288) is the source for 1890-1930 figures and the 1970 Census is the source for the 1940-1970 figures for 14-19 year olds and for the two "Total" columns.

[c]1910 is not provided in Historical Statistics, and Long, pp. 286-288, is used.

[d]The 1980 Census statistics are supplemented by Employment and Earnings as the source for 14-19 year olds.

Table A.5

Labor Force Participation Rates of Women, Aged 16 and Over, by Marital Status from the Decennial Censuses, 1890-1980

Year	Total[a]	Single[a]	Married		Widowed and Divorced
			Total	Husband Present	
1890	18.9	40.5	4.6		29.9
1900	20.6	43.5	5.6		32.5
1910[b]	25.4	51.1	10.7		34.1
1920	23.7	46.4[c]	9.0		c
1930	24.8	50.5	11.7		34.4
1940	25.8	45.5	15.6	13.8	30.2
1950	29.0	46.3	23.0	21.6	32.7
1960	34.5	42.9	31.7	30.6	36.1
1970	41.6	50.9	40.2	39.6	36.8
1980	49.9	59.5		48.4	42.3

Sources: For 1890-1970: U.S. Department of Commerce, Bureau of the Census, Historical Statistics of the United States, Part 1 (Washington, D.C.: GPO, 1975), p. 133.
For 1980: The 1980 figures are from the Current Population Survey (CPS) as reported in U.S. Department of Labor, Bureau of Labor Statistics, Labor Force Statistics Derived from the Current Population Survey: A Databook, Volume I, Bulletin 2096 (Washington, D.C.: GPO, 1982), pp. 708-709. These figures are adjusted downward to allow for the usual higher figures from the CPS relative to the Census. The ratio of LFPRs for all women aged 16 and over is used for this adjustment: 49.9/51.6 for Census/CPS figures.

[a]Because these LFPRs are for the 16 and over population of women, they will be larger than the LFPRs in Tables 3 and A.4 for the "Total" and "Single" women, which include 14-15 year olds.

[b]The Historical Statistics volume notes that enumerator instructions were different in 1910 in a way that raises the LFPRs of women relative to other years.

[c]"Single" includes the widowed and divorced in 1920.