Labor force trends: a synthesis and analysis

Since 1950, labor force participation
has increased for women and decreased
for men; their responsiveness to
the business cycle has also diverged

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During the past quarter century, changes in social attitudes, lifestyles, marital and family patterns, and employment-retirement experiences have contributed to a dramatic increase in the labor force participation rates for women, a much slower but nonetheless steady decline for men, and a mixed pattern for teenagers. This article will synthesize studies and analyze data which provide insight into the labor force behavior of these groups. Secular trends in labor force participation among women, men, and teenagers are discussed initially. Then major social changes, their interrelationships and effect on labor force trends are considered. Finally, possible changes in the responsiveness of labor force participation to the business cycle are analyzed.

Secular trends

Women. Since 1950, the proportion of women engaged in or seeking market work climbed from about one-third to nearly one-half. (See table 1.) While the overall surge has been generally steady, noticeable differences occurred in the timing for different age groups. (See chart 1.) Prior to World War II, the highest rates of female participation were among the young, because most women left the paid labor force upon marriage. In the postwar era, this pattern changed. There was a sizable jump in the participation of women age 45 to 59, the group which had largely completed the time-consuming portion of their child-rearing responsibilities. There were also rapid increases in those occupations and industries where women had traditionally found employment —education, medical care, and other personal serv-

ices. For example, the ratio of service- to goods-producing jobs widened from 1.5 to 1 in 1950 to nearly 2.5 to 1 in 1976; 7 of 10 nonfarm jobs are now service-producing.

Since the mid-1960's, the greatest labor force increases have occurred among women under age 45. These women, who often have young children, apparently did not decide to pursue market work until attitudes changed toward working mothers. Furthermore, changes in fertility and childspacing patterns during the 1960's are associated with the increased likelihood that those in their twenties would work. Currently, about 60 percent of women in their twenties, and more than half of those 30 to 45, are in the labor force. Among those over 55, there have been small declines in the 1970's, indicating that some women may be choosing earlier retirement.

Men. Despite the overall decline in male labor force participation, and the accompanying rise for women, the male rate remains substantially above the female rate. (See chart 1.) However, the gap has narrowed considerably, particularly at the younger and older end of the age groups. Clarence Long postulated as early as 1958 that the trends in male and female participation were related: "Women may have both pushed and pulled young and elderly males from the labor force, to some extent seeking jobs that had been or were being sought by males, and to some extent being drawn into the labor force by the vacuum left by the exodus of males for other reasons." He went on to suggest that better trained (and lower paid) women may have displaced older men, and the financial assistance of a working daughter or wife possibly permitted the man to retire at a younger age.[1]

Thus, the biggest changes among men have occurred in the older age groups and has been at-

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Table 1. Labor force participation rates of men and women 16 years and over, 1950–76

[Annual average]

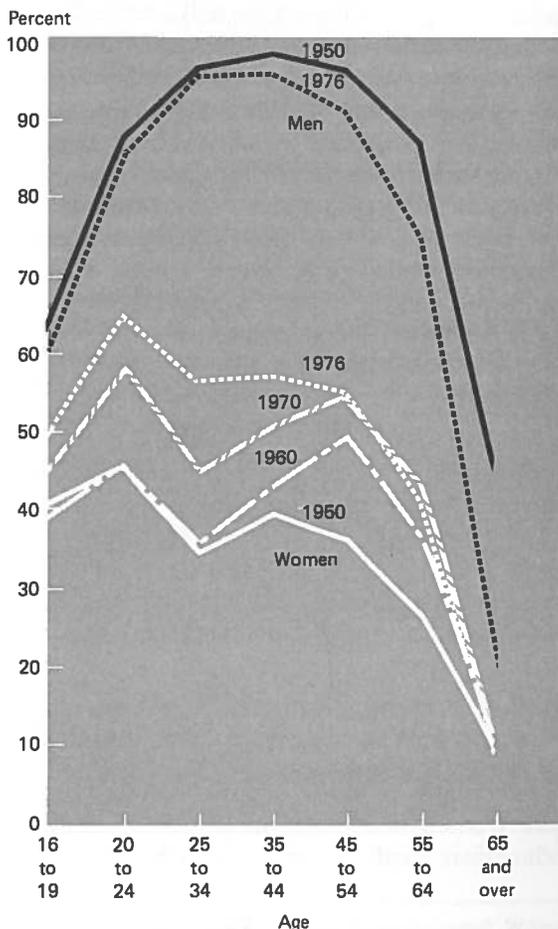| Year	Percent of civilian noninstitutional population in the labor force	
	Men	Women
1950	86.4	33.9
1951	86.5	34.6
1952	86.3	34.7
1953	86.0	34.4
1954	85.5	34.6
1955	85.3	35.7
1956	85.5	36.9
1957	84.8	36.9
1958	84.2	37.1
1959	83.7	37.1
1960	83.3	37.7
1961	82.9	38.1
1962	82.0	37.9
1963	81.4	38.3
1964	81.0	38.7
1965	80.7	39.3
1966	80.4	40.3
1967	80.4	41.1
1968	80.1	41.6
1969	79.8	42.7
1970	79.7	43.3
1971	79.1	43.3
1972	79.0	43.9
1973	78.8	44.7
1974	78.7	45.6
1975	77.9	46.3
1976	77.5	47.3

pattern, although the upward movement was not so pronounced. The healthy pace of economic activity during the latter part of the 1960's certainly contributed to this rapid rise in teenage entrants into the labor force and the 1973–75 recessionary period seems to have done little to alter this trend.

Although over the life cycle there are many forces bearing on when and why persons work, one important factor is the income the job produces. Studies have supported the generalization that larger amounts of nonwage income tend to be associated with lower labor force participation rates.[3] This is also evidenced by the downward trend in the rate of labor force participation among men in the past two decades as the Nation prospered and social security, disability, and other transfer payments increased.

For women, the continual secular increase in labor force participation rates, despite generally rising real income levels, has seemed contradictory. The para-

Chart 1. Civilian labor force participation rates by sex and age, selected years, 1950-76

(annual averages)

tributed primarily to earlier retirement. For example, more than two-fifths of men over age 65 were in the labor force in 1950, compared to only one-fifth in 1976. Among men 55 to 64, that rate dropped from 87 to 75 percent over the same period. Participation rates remain well above 90 percent for men in the prime working ages—25 to 54 years—but even in these age groups there have been some slight declines, most noticeably since the mid 1960's.[2]

Teenagers. Changes in the labor force participation among teenagers have been erratic, especially among the younger ones, as their participation responds more strongly than that of adults to cyclical shifts in the economy. Teenagers lack experience and their time at school limits their availability for work; hence, many employers are hesitant to hire them. Indeed, teenagers often do not look for work for these reasons, particularly during economic downswings. Differences in participation rates between men and women are established in their teens when they first begin to work; female rates have been substantially lower than male rates even in the teenage years.

After declining throughout most of the 1950's and 1960's, the labor force participation rates of women age 16 to 19 rose sharply between 1965 and 1976. The rates of men in this age group followed a similar

dox was first explained in a study by Jacob Mincer[4] and later supported in a similar study by Glen Cain and Martin Dooley.[5] Mincer recognized that a simple work-leisure dichotomy ignores the role of non-market work, an alternative that has been particularly important for married women. Their allocation of time requires analysis in terms of a three-way division of work in the market, work at home, and leisure. Utilizing such an allocation scheme, Mincer identified two mechanisms whereby the negative cross-sectional relationship between a husband's income and a wife's labor force participation is converted into a positive secular relation. The transitory components of income are not relevant in the long run. Mincer found that wives respond more readily to transistory than permanent variation in husband's income; therefore, long-run, permanent changes in family income will not have much downward influence on wives' participation. Also, the female wage rate has risen at least as fast as the male rate, thereby minimizing the long-term effect of husbands' income on wives' participation.[6]

All groups react to social changes

The past quarter century has witnessed an increasing tolerance of nontraditional lifestyles. Newspapers and magazines have begun to highlight human interest stories on new living arrangements, such as communes, and words like "househusbands" and "executive women" are no longer necessarily contradictions in terms. These changes have had specific impact on the labor force activities of both men and women.

Marriage patterns. In the 1950's, Americans were in a "relatively familistic period";[7] couples were marrying at the youngest age on record and the highest rates (except for the period immediately following World War II). However, since the mid 1950's, the rate of first marriages has been declining and the median age at first marriage has been increasing. In 1950, 32 percent of the women age 20 to 24 had never married, compared to 43 percent in 1976. At the same time, the divorce rate doubled to 32 from 16 divorces per 1,000 married women age 14 to 44. The following tabulation shows the changes in the marital structure of the population resulting from these developments:

	Women		Men	
	1950	*1976*	*1950*	*1976*
Total, 16 years and older	100.0	100.0	100.0	100.0
Never married	16.9	19.1	23.3	25.7
Married, spouse present	64.7	59.2	66.7	65.3
Widowed	12.2	12.4	4.3	2.4
Divorced	2.5	5.5	2.1	3.8
Separated	3.6	3.9	3.6	2.7

These changes in marriage patterns have affected labor force behavior. Single men, for example, have a lower rate of labor force participation than do other men, and their increasing proportion in the population has contributed to lower participation for men as a whole. Similarly, the increased proportions of divorced, separated, and never married women have contributed to greater overall female labor force participation because these groups are generally more likely to engage in paid work. Nevertheless, the most dramatic increases in female labor force participation have occurred among wives—the number of married women in the labor force nearly tripled between 1950 and 1976. (See table 2.) One important factor in this development was fertility patterns.

Fertility. From the mid-1950's to the present, the fertility of American women dropped from near-record highs to record lows. The fertility rate (births per 1,000 women age 15 to 44) plunged from 122.9 in 1957 (the peak year of the "baby boom,") to 65.6 in 1976. Between 1960 and 1976, the average number of children ever born to women age 20 to 24 dropped from 1.0 to 0.6, and for women age 25 to 29 from 2.0 to 1.3. This decline in fertility, which of course translates into smaller families, is also associated with the increase in female labor force participation. In 1975 only about one-third of the wives with three children or more under age 15 were in the labor force, compared with about half of the wives with only one child in that age group. Nevertheless, despite the presence of children, even young children, women are working in record numbers. In the past, many women who had worked in their early twenties left the labor market as they got older and assumed child-rearing responsibilities. Thus, as the following tabulation shows, participation among the cohort of women who were 20 to 24 years of age in 1955 declined substantially over the subsequent 5 years:

	Age 20 to 24 in 1955	Age 25 to 29 in 1960
Women born in 1931–35	46.0	35.7

By 1970, not only had there been a substantial increase in the participation of the 20- to 24-year-old women, but, unexpectedly, about the same proportion were in the labor force 5 years later:

	Age 20 to 24 in 1970	Age 25 to 29 in 1975
Women born in 1946–50	57.8	57.0

This reflects a dramatic shift in life cycle labor force patterns. For example, the proportion of married women in the labor force with school-age children nearly doubled between 1950 and 1976 and the participation rate of wives with preschool children

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Table 2. Women 16 years and over in the labor force, by marital status, selected years

Marital and labor force status	April 1950	March 1960	March 1970	March 1976
	Numbers (in thousands)			
Civilian labor force, total............	15,560	21,329	31,233	37,817
Married, husband present..............	7,682	12,244	18,377	21,554
Separated...........................	933	1,224	1,422	1,801
Divorced............................	} 2,641	{ 1,222	1,927	3,146
Widowed............................		{ 2,406	2,542	2,233
Never married.......................	4,304	4,233	6,965	9,083
	Percent distribution			
Total..............................	100.0	100.0	100.0	100.0
Married, husband present..............	49.4	57.4	58.8	57.0
Separated...........................	6.0	5.7	4.6	4.8
Divorced............................	} 17.0	{ 5.7	6.2	6.3
Widowed............................		{ 11.3	8.1	5.9
Never married.......................	27.7	19.8	22.3	24.5
	Labor force participation rates			
Total..............................	28.3	34.5	42.6	46.8
Married, husband present..............	21.6	30.5	40.8	45.0
Separated...........................	48.6	51.8	52.1	57.3
Divorced............................	} 32.8	{ 71.6	71.5	71.4
Widowed............................		{ 29.6	26.4	22.3
Never married.......................	46.3	44.1	53.0	58.9

tripled (from 12 to 37 percent). The proportion of mothers participating in the labor force has grown at a faster pace than the proportion of all women participants, and by 1976 the proportions were nearly equal. The following shows the proportion of mothers and women in the labor force for selected years:[8]

Year	Mothers	All women
1950	21.6	33.1
1960	30.4	36.7
1970	42.0	43.3
1976	46.1	47.3

Family responsibilities also affect the labor force status of men but in different ways. Regardless of the presence or number of children, nearly all married men between 25 and 55 are in the labor force. Furthermore, married men in these ages are more likely than other men to work long hours and to hold second jobs. Reflecting the fact that family responsibilities increase the need for family income, 34 percent of the moonlighting married men but only 15 percent of other men had taken their second jobs to meet regular expenses.[9]

Studies have indicated that the impact of children on the labor market activities of men is greatest in the older years when many delay retirement until their last child leaves home or completes school.[10] This hypothesis is supported by William G. Bowen and T. Aldrich Finegan's finding that family size is positively correlated with participation rates of married men over age 55.[11]

Educational attainment. The generally rising levels of educational attainment have had a different effect on men and women. For men, market work has been essentially obligatory, particularly in the 25 to 54 age groups. In 1976, among these men, labor force participation ranged from 84 percent for those with less than 8 years of schooling to 97 percent for college graduates. There is considerably more variation for men over 55 years of age; for example, only one-third of those with less than 8 years of education were in the labor force, compared with two-thirds of those with 4 years or more of college. According to Kreps and Clark, "The lack of formal education may have affected the ability of these older workers to find new jobs after 55, especially in cases where the need arises to change jobs or return to work from a layoff. In general, men with more years of schooling have tended to remain in the labor force, perhaps because of the higher opportunity cost of retiring; they have been in greater demand than their less-educated peers and more secure in their jobs."[12]

The general trend toward increasing education might then be expected to dampen the propensity of men to retire early. However, relative differences in education will remain; older men will continue on average to be less educated than young men and within cohorts considerable variation in educational attainment will persist.

Table 3. Probability of labor force entry and exit for men and women, 1950-75[1]

[Annual averages]

| Year	Male probability of labor force—			Female probability of labor force—		
	Entry	Exit, when employed	Exit, when unemployed	Entry	Exit, when employed	Exit, when unemployed
1950......	13.1	2.2	8.4	5.0	9.1	27.7
1951......	14.1	2.5	7.7	5.6	10.5	23.5
1952......	14.3	2.4	13.6	5.3	9.7	26.5
1953......	[2]13.9	[2]2.4	12.3	[2]5.1	[2]9.8	29.1
1954......	[3]10.6	[2]2.1	[2]16.1	[3]4.6	[3]9.7	49.1
1955......	11.9	2.0	6.2	5.2	9.2	22.9
1956......	11.4	2.1	10.2	5.3	9.5	30.9
1957......	10.9	2.2	12.5	5.3	9.0	29.6
1958......	11.3	2.1	13.5	5.1	8.4	39.3
1959......	11.0	2.2	8.5	5.3	8.7	25.4
1960......	10.8	2.2	11.7	5.3	8.6	31.0
1961......	10.6	2.2	12.4	5.4	8.4	34.6
1962......	10.5	2.4	10.2	5.3	8.5	26.8
1963......	9.1	2.4	13.0	5.2	8.4	30.9
1964......	9.9	2.2	13.1	5.3	8.4	29.4
1965......	10.0	2.5	14.1	5.3	8.2	29.2
1966......	9.9	2.8	14.8	5.1	8.6	31.2
1967......	10.3	2.3	18.6	5.4	7.5	42.0
1968......	10.4	2.4	19.7	5.4	7.6	37.8
1969......	10.5	2.5	21.1	5.5	7.3	40.1
1970......	10.7	2.3	24.7	5.8	6.6	41.7
1971......	11.0	2.1	20.8	5.8	6.2	38.9
1972......	10.9	2.2	18.2	5.4	6.4	31.8
1973......	10.5	2.4	17.4	6.0	6.4	32.0
1974......	10.5	2.2	18.7	6.1	6.1	35.2
1975......	10.7	2.2	22.4	6.1	5.5	38.7

[1] Data for 1950–66 include participants 14 years and over; data for 1967–75 include those 18 years and over.
[2] Based on 11 month average.
[3] Based on 10 month average.

NOTE: Probability of labor force entry = $\dfrac{\text{Number of persons who entered the labor force}_t}{\text{Labor force}_{t-1}}$, where 1 is the time period.

Chart 2. Proportion of mothers in the labor force in March 1976, by educational attainment, age of children, and 1975 income of husband
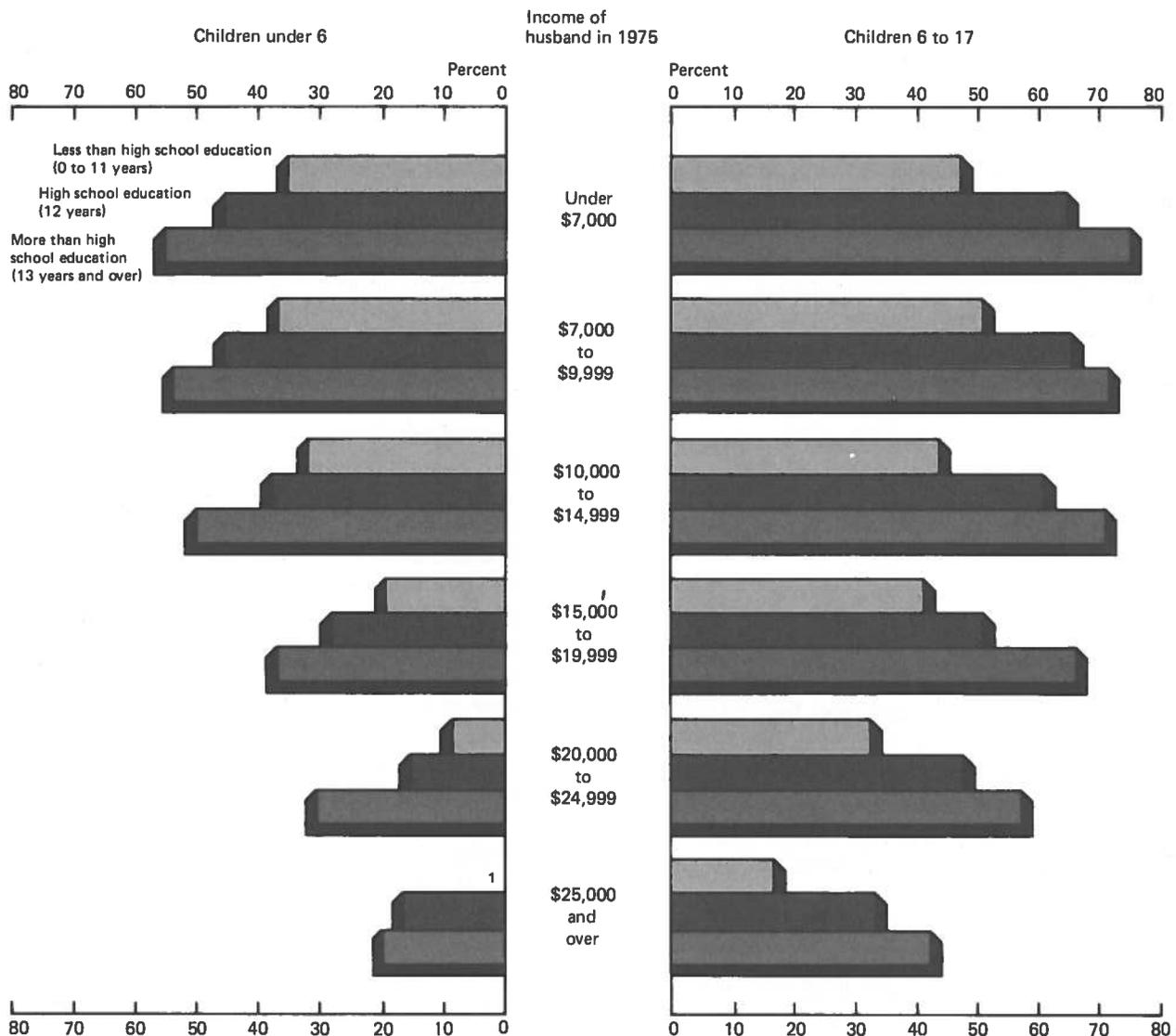
¹ Rate not publishable when base is less than 75,000.

Among women in the 25 to 54 age group, the effect of higher education is much more pronounced than that of men. For example, among these women, participation ranged from about 40 percent for those who did not complete elementary school to more than 70 percent for college graduates. This strong effect of education on participation is particularly evident among married women, for whom full-time attention to home and family may be a viable alternative to paid employment. In general, education increases potential wages and benefits from market work and, therefore, the opportunity costs of remaining at home. Chart 2 illustrates that while the ages of the children and the income of the husband are important and interrelating variables, in every in-come category, mothers with increased educational attainment are most likely to work.

It is plausible to expect that women who plan to work will be more likely to seek the education that will prepare them for better jobs. Indeed, women's educational attainment has increased over the past quarter century. Among those 25 years and older—who have generally completed their formal education—there has been a 17-percent decrease in the number who have failed to complete high school, while the number of high school graduates has more than doubled and the number of college graduates nearly tripled.

Retirement patterns. Most of the reduction in the male desire for work has been associated with earlier

retirement possibilities among older men. More and better pension programs, increased social security coverage and benefit levels, and the greater availability of disability insurance have all been cited as explanations for the reduction in the rates of participation among men age 45 to 64. This decline has been accompanied by an increase in the proportion reporting a chronic health condition that limits their ability to work or to engage in other major activities.[13] The proportion of men age 45 to 64 in the labor force and the proportion reporting limitations are shown in the following tabulation:

Year	Proportion in the labor force	Proportion with a limitation
1960	91.9	14.1
1961	92.1	15.1
1962	91.6	15.6
1964	91.4	15.4
1966	90.6	15.8
1968	90.3	17.3
1970	89.3	17.1
1972	87.6	17.9
1974	85.6	19.8

The downward movement in labor force participation of men in this age group was first noticeable in the early 1960's, and accelerated in the 1970's. Perhaps significantly, these episodes parallel changes in retirement provisions of Old-Age, Survivors, Disability, and Health Insurance: in 1961, men age 62 to 64, for the first time could retire and still receive some social security benefits, and in 1972 automatic cost-of-living adjustments to benefits were instituted.

The percentage of the adult male population not in the labor force because of long-term physical or mental illness (classified as "unable to work") has, indeed, been rising since 1962 (the first year such data are available from the Current Population Survey). The following tabulation shows men unable to work as a percentage of the total male population, by age groups:

	1962	1970	1976
20 years and over	2.0	2.7	2.8
20–24 years	.5	.5	.6
25–34 years	.6	.7	.8
35–44 years	.8	1.2	1.8
45–54 years	1.5	2.5	3.6
55–64 years	3.2	4.9	5.8
65 years and over	6.6	7.0	5.5

Herbert S. Parnes and Jack Meyer, using the National Longitudinal Survey data on middle-aged men, concluded that "while fewer than one in 20 of all of the men in the labor force in 1966 reported that their health was 'poor,' the proportion was as high as 3 of 10 among those who withdrew from the labor force during the ensuing 12 months."[14] William Deu-termann, in an analysis of CPS data, showed that 45 percent of men in the prime working age (25–54 years) who were not in the labor force in 1976 had left their last job because of ill health or disability.[15]

Many older persons have health problems which are not serious enough to completely preclude work but do make continued labor force participation less desirable. For those persons, eligibility for retirement benefits is very important and could increase the probability of their retirement. Studies have shown that economic influences such as the number of dependents, pension coverage, and net family assets are positively correlated with a high potential to retire.[16] A cross-sectional study of early retirement by Joseph H. Quinn found that the two most important determinants of retirement status were health and pension eligibility (including social security benefits), and more importantly, these two determinants were highly interactive.[17] In other words, those who were eligible and unhealthy were more likely to retire than those who were eligible and healthy. Quinn concluded, "Although both social security and other pensions have an important effect on aggregate participation, their influence falls primarily on individuals limited by health in the kind or amount of work they can do."[18]

The declining labor force participation of older workers can also be viewed as a matter of declining opportunities for work. This can be demonstrated by developments in self-employment, a very important source of jobs for older workers. Total self-employment fell from 10 million in 1950 to 7 million in 1976. In 1976, about 30 percent of persons 65 years and over and still working were self-employed, whereas less than 10 percent of all workers were self-employed. Because such workers are more likely to work fewer hours as they grow older, one would expect a smaller proportion of them than of other workers to retire. A study by Herbert Parnes and Gilbert Nestel provided some support for such a notion, as they concluded that early retirement was more common among wage and salary workers than those self-employed.[19]

Probability of labor force transitions

Although labor force movements, both long and short term, have been well documented,[20] little attention has been paid to the flows through the labor force or to changes in the responsiveness of a group's labor force participation over time that might produce these movements. Gross flow data[21] provide a supplement to the more commonly used labor force stock data, by enabling analysis of behavior underlying change in the labor force size—particularly the differences between the propensities of employed and unemployed participants to leave the labor force and

the propensities of groups outside the labor force to enter. A measure of the propensity to leave or enter the labor force has been termed "transitional probability."[22]

Because the labor force participation rate of a group is influenced by the frequency with which its members enter or leave the labor force, an estimate of the probability of such transitions is useful for analyzing the trends and fluctuations in the labor force. The average flow data in table 3 show an increasing probability of men to leave the labor force when unemployed—particularly since the early 1960's. Moreover, the probability of men entering the labor force has also dropped over the 25-year period, providing a twofold rationale for their long-run declining labor force participation.

In contrast, the probability of women entering the labor force has maintained a gradual climb, accelerating slightly in the last few years. Although women still have a high probability of leaving the labor force when unemployed, there has been a sharp drop in their probability of leaving the labor force when employed. A study, which disaggregated the labor force participation rate of women into the proportion of women who participated during the year and the mean number of weeks they actually spent in the labor force, found that 34 percent of the gain in the female labor force participation rate during the 1960–62 to 1970–72 period was accounted for by a rise in their mean number of weeks per year in the labor force.[23] In sum, the secular increase in female participation rates reflects increases in the probabilities of both entering and remaining in the labor force.

As women's participation in the labor force is maintained, and probably increased,[24] they are more likely to become more firmly attached to the labor market, unwilling to give up the income needed to maintain or increase consumption in the wake of rising prices or to leave promising careers to raise a family on a full-time basis. Any tendencies on the part of women to become more established in the work force would tend to increase the flexibility of men's labor market experience. For example, with additional family retirement income, men as well as women could retire at an earlier age. The presence of wives and younger family members in the labor force cushions the impact of male unemployment on the family. This could permit the labor force participation of men to exhibit a greater sensitivity to the cycle than in the past. Some evidence that men could be more responsive to economic conditions is illustrated by the increased number leaving the labor force for economic reasons. Between 1967 (when data first became available) and 1976, the number of men not in the labor force who stopped working during the previous 12 months for economic reasons increased

by more than 60 percent, compared to less than 15 percent for women. (See table 4.)

Cyclical sensitivity

The trends of larger percentages of women and smaller percentages of men participating in the labor force have been shown in the preceding sections. Moreover, the historical analysis of labor force flows shows that women were increasingly likely to enter and remain in the labor force while men were less likely to enter and more likely to leave.

In light of these shifting propensities and the resulting impact on the labor force flexibility of men and women, it is hypothesized that their labor supply behavior over the course of the business cycle has changed—men becoming more and women less cyclically responsive. Multiple regression analysis, comparing the 1950–62 and 1963–76 periods, was used to test for such changes. The 1950–76 period was dichotomized as indicated above because, besides providing a roughly equal number of monthly observations in each period, the early 1960's marks a clear-cut change in the probabilities of labor force entry and exit for men and exit for women, plus the start of an upward drift in the overall labor force participation rate as well.

The model. Because most time-series studies of aggregate labor supply have typically stressed cyclical and trend influences on labor force participation,[25] a version of such a model will be used with covariance analysis to examine possible changes in the responsiveness of the labor force to the business cycle.

Although there is not unanimous agreement among labor force analysts, the aggregate employment-population ratio has been widely used as a measure of the cyclical forces operating in the labor market. However, in a review of the labor force participation and unemployment literature, Jacob Mincer noted that the employment-population ratio (or the unemployment rate) is best viewed only as a proxy for transitory wage and income effects.[26]

Table 4. Persons, 16 years and over, who stopped work during previous 12 months for economic reasons[1]

Year	Men	Women
1967	440	1,155
1968	489	1,247
1969	492	1,204
1970	567	1,262
1971	619	1,355
1972	609	1,249
1973	602	1,196
1974	668	1,260
1975	759	1,405
1976	722	1,288

[1] Economic reasons include slack work and end of seasonal or temporary job.

Bowen and Finegan took issue with this interpretation and felt that a cyclical variable (employment-population ratio or the unemployment rate) was "an important variable in its own right, serving as a measure of the probability that an individual jobseeker ... will not be able to find employment within a given period of time."[27]

The aggregate employment-population ratio is the cyclical measure utilized in this study rather than employment-population ratios for the individual age-sex groups because the aggregate employment-population ratio is less vulnerable to statistical doubts.[28] Further, the model used in this study does not include a variable to measure the added worker effect to avoid a tautological construct; that is, a regression equation in which each partial regression coefficient is equal to unity. Although such an exclusion "foregoes the ambition of detecting each of the separate income and substitution effects, it would, at least descriptively, indicate the net outcome,"[29] that is, whether the added or discouraged worker effect was dominant.

A secular trend variable, the inverse of population, is included to account for omitted and unmeasurable factors such as demographic and sociological changes in preferences, for example, changes which might encourage women to move from the home into the labor force or older workers from the labor force into the home.

To test whether changes in the responsiveness of age-sex labor force participation rates between periods was more evident in recessions than recoveries, separate equations were estimated for upturns and downturns in the economic cycle. The equation takes the form:

$$(L_i/P)_t = \alpha + \beta\,(E/P)_t + \delta\,(1/P)_t + (\epsilon)_{ti}$$
$$t = 1. \ldots 318$$
$$i = \text{age-sex group}$$

where L/P represents the labor force participation rate; α is a constant term; β and δ are the coefficients of E/P and $1/P$ (a cyclical and a secular indicator, respectively); and ϵ is the error term.

Equations were estimated by generalized least squares[30] for the civilian noninstitutional population, men and women age 16 to 19, 20 to 24, 25 to 54, and 55 years and over for the cycle as a whole and separately, for upturns and downturns for the periods January 1950 to December 1962, and January 1963 to June 1976, using the Cochrane-Orcutt technique to correct for first-order serial correlation of the residuals which were initially in evidence. The overall estimates are generally in accord with the findings of previous studies of this type (see studies cited in footnotes 20 and 25). Thus, as has been found in the past, the relative responsiveness of women's labor

force participation to the business cycle was higher than that of men; however, this study found that the cyclical sensitivity of women declined, while that of men increased between the two periods under study. Also, the magnitude of these cyclical effects was generally greater during recovery than recessionary periods.

Covariance analysis. Covariance analysis provides one means to statistically analyze changes in the cyclical sensitivity of labor force participation over time. The test of the hypothesis that the coefficients of the cyclical variable (E/P) are identical in the first (1950–62) and second (1963–76) period regression is based on comparisons between pairs of unexplained sums of squares in three separate sets of regressions.[31] The results of such an analysis are shown in table 5.

Although the regression results contain some paradoxical elements, they illustrate a statistically significant increase in total labor force participation sensitivity to cyclical fluctuations between the two periods. There were, however, divergent movements among component age-sex groups. The significant decline in the sensitivity of women's labor force participation,[32] for example, was more than offset by the rise in the sensitivity of men's participation.[33] This narrowing of the labor supply behavior of men and women over time was highlighted by a significant increase in the sensitivity of young men (20 to 24) and decreases for teenage girls and women 25 years and over. These results were generally due to the changing labor force activity of these groups in economic upturns.

The rise in the sensitivity of men 20 to 24 is generally attributed to their increased flexibility to alternatives to working. For example, toward the end of the 1963–76 period, the introduction of the all-volunteer army with the accompanying rise in military pay rates provided this age group with a substitute to civilian work. There has also been an increase in the proportion of young men who are not married and

Table 5. Results of an equality test between the 1950–62 and 1963–76 regressions						
Age-sex group	Cycle		Upturns		Downturns	
	F-Ratio	Direction of change	F-Ratio	Direction of change	F-Ratio	Direction of change
Total, 16 years and over	13.45**	+	9.28**	+	11.26**	−
Men, 16 years and over ...	12.74**	+	3.00	−	2.09	−
16–19 years	7.40**	−	6.29**	−	.94	−
20–24 years	27.93**	+	20.32**	+	1.81	+
25–54 years	1.90	−	5.86*	−	1.68	+
55 years and over ..	.64	−	1.82	−	2.63	+
Women, 16 years and over..	11.94**	−	8.95**	−	11.26**	−
16–19 years	17.01**	−	16.48**	−	.53	+
20–24 years	.63	+	.56	+	.38	−
25–54 years	18.82**	−	22.08**	−	2.09	−
55 years and over ..	3.96*	−	1.87	−	.12	+

** Significant at the .01 level.
* Significant at the .05 level.

a greater number of working wives. In other words, younger men are under less obligation than their predecessors to obtain paid employment. Moreover, with respect to men in general, the greater the substitutability between husband and wife in home and market work, the greater the responsiveness to cyclical changes.

Not only has the rapid rise in the two-earner family[34] and the accompanying increase in women's earnings[35] permitted greater flexibility among men, but it appears to have reduced women's labor force sensitivity as well—particularly among women age 25 to 54. Moreover, other changes, such as more equal employment opportunities, higher educational attainment, and postponed childbearing among women, will likely make their worklife patterns more closely resemble those of men. In the National Longitudinal Survey, about three-fifths of the employed women 30 to 44 years said that they would continue to work even if they could live comfortably without working.[36]

A followup to the Bowen and Finegan study illustrated a continuation of the trend they had noted, that wives are becoming less sensitive to particular labor market variables—women's wage rate, supply of women, industrial mix, and husband's income.[37] The explanation was that as the labor force participation of married women rose, the proportion of older, more experienced work-oriented wives should behave more like male workers.[38]

Although men showed a statistically significant increase in responsiveness to the cycle as a whole, their response to recovery and recessionary periods separately were not significant between the two periods under study. On the other hand, women's labor force responsiveness to both economic upturns and downturns exhibited a statistically significant decrease. Nevertheless, cyclical variation by sex is expected as long as the female group includes persons whose home productivity is close to their market productivity, that is, as long as their market and nonmarket work are very substitutable.[39]

LOOKING AHEAD, it seems reasonable to conclude that developments in family formation, fertility, multi-earner families, income needs, educational attainment, and retirement patterns will not reverse the current trends of increasing participation among women and decreasing participation among men.

☐

————FOOTNOTES————

[1] Clarence D. Long, *The Labor Force Under Changing Income and Employment* (Princeton University Press, 1958), pp. 23–24.

[2] William V. Deutermann, Jr., "Another look at working-age men who are not in the labor force," *Monthly Labor Review,* June 1977, pp. 9–14.

[3] See, for example, William G. Bowen and T. Aldrich Finegan, *The Economics of Labor Force Participation* (Princeton University Press, 1969), pp. 309–23.

[4] Jacob Mincer, "Labor Force Participation of Married Women," *Aspects of Labor Economics* (Princeton University Press, for the National Bureau of Economic Research, 1962), pp. 62–97.

[5] Glen G. Cain and Martin D. Dooley, "Estimation of a Model of Labor Supply, Fertility and Wages of Married Women," *Journal of Political Economy,* August 1976, pp. S191–94.

[6] Mincer, "Labor Force Participation of Married Women," p. 92.

[7] Paul Glick, *Some Recent Changes in American Families* (U.S. Bureau of the Census, Current Population Reports, Special Studies, Series P-23, No. 52, 1975).

[8] Includes women 16 years and over in 1970 and 1976, but 14 years and over in 1950 and 1960.

[9] Kopp Michelotti, "Multiple jobholding rate remained unchanged in 1976," *Monthly Labor Review,* June 1977, pp. 44–48.

[10] Juanita Kreps and Robert Clark, *Sex, Age and Work* (John Hopkins University Press, 1975), p. 19.

[11] Bowen and Finegan, *The Economics of Labor Force Participation,* p. 296.

[12] Kreps and Clark, *Sex, Age and Work,* p. 22.

[13] Data are from the National Health Survey and are available from the U.S. Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration.

[14] Herbert S. Parnes and Jack Meyer, *Withdrawal from the Labor Force by Middle-Aged Men, 1966–67* (Center for Human Resource Research, Ohio State University, 1971).

[15] Deutermann, "Another look at working-age men," p. 11.

[16] See, for example, Virginia Reno, "Why Men Stop Working At or Before Age 65," *Social Security Bulletin,* June 1971, pp. 3–17; Belton M. Fleisher, "Variation in Labor Market Participation," *The Pre-Retirement Years: A Longitudinal Study of the Labor Market Experience of the Cohort of Men 45–59 Years of Age,* Volume I, (U.S. Department of Labor, October 1969); and Herbert S. Parnes and Gilbert Nestel, *Retirement Expectations of Middle-Aged Men* (Center for Human Resource Research, Ohio State University, 1971).

[17] Joseph F. Quinn, "The Microeconomics of Early Retirement: A Cross-Sectional View," (U.S. Department of Health, Education, and Welfare, 1975).

[18] *Ibid.* p. 171.

[19] Herbert S. Parnes and Gilbert Nestel, "Early Retirement," *The Pre-Retirement Years: A Longitudinal Study of the Labor Market Experience of Men,* Volume IV (U.S. Department of Labor, 1975), pp. 153–96.

[20] See, for example, Alfred Tella, "The Relation of Labor Force to Employment," *Industrial Labor Relations Review,* April 1964, pp. 454–69; and W. G. Bowen and T. A. Finegan, *The Economics of Labor Force Participation* (Princeton University Press, 1969).

[21] Gross change data, a byproduct of the Current Population Survey relate the labor force status of persons in one month to their status in the previous month. The data thus permit the identification and measurement of the flow of persons who enter or withdraw from the labor force from one month to the next. Gross changes, therefore, represent a short-run "flow" rather than a "stock" of the labor supply.

[22] See, for example, Ralph E. Smith, "Dynamic Determinants of Labor Force Participation: Some Evidence from Gross Change Data," Working Paper 350–49 (The Urban Institute, 1974), pp. 1–17, and Stephen T. Marston, "Employment Instability and High Unemployment Rates," *Brookings Papers on Economic Activity,* 2, 1976, pp. 170–72.

[23] Andrew M. Sum, "Female labor force participation: why projections have been too low," *Monthly Labor Review,* July 1977, pp. 18–24.

[24] Howard N Fullerton, Jr., and Paul O. Flaim, "Labor force projections to 1990," *Monthly Labor Review,* December 1976, p. 3.

[25] See, for example, Kenneth Strand and Thomas Dernburg, "Cyclical Variation in Civilian Labor Force Participation," *The Review of Economics and Statistics*, November 1964, pp. 378–91; Peter S. Barth, "Unemployment and Labor Force Participation," *Southern Economic Journal*, January 1968, pp. 375–83; and Joseph M. Bonin and William Y. Davis, "Labor Force Responsiveness to Short-Run Variations in Economic Opportunity," *Southern Economic Journal*, October 1971, pp. 161–72.

[26] Jacob Mincer, "Labor Force Participation and Unemployment: A Review of Recent Evidence," in Robert A. and Margaret S. Gordon, eds., *Prosperity and Unemployment* (New York, John Wiley and Sons, Inc., 1966), pp. 73–112.

[27] See W. G. Bowen and T. A. Finegan's discussion of "Labor Force Participation and Unemployment: A Review of Recent Evidence," in Robert A. and Margaret S. Gordon, eds., *Prosperity and Unemployment*, p. 13.

[28] Mincer, "Labor Force Participation of Married Women," p. 109.

[29] *Ibid.*, p. 83.

[30] Generalized least squares estimates incorporate possible correlation between the error terms of adjacent observations (autocorrelation), a problem that arises frequently when time-series data are used, especially if the time interval between observations is small. For a comprehensive discussion of autocorrelation and the Cochrane-Orcutt iterative method, see J. Johnston, *Econometric Methods* (New York, McGraw-Hill, 1972), pp. 208–65.

[31] The test for homogeneity of coefficients is an F-test where the F statistic is calculated as follows:

$$F = \frac{(S_1 - S_2)/(1)}{S_2/(n - 2k)}$$ where, n = number of observations, k = number of independent variables

S_1 = residual sum of squares from regressing, over the full set of pooled data, the dependent variable on the set of explanatory variable plus two variables: The first is a dummy variable indicating whether an observation came from period$_1$ or period$_2$. This allows the intercept to vary between the two periods. The second variable is an interaction term (the dummy variable x $1/P$) to allow for a secular trend correction, since we are trying to isolate changes in cyclical sensitivity. S_2 = residual sum squares from regressing the dependent variable on the set of explanatory variables separately for each period. For a more detailed discussion, see Franklin M. Fisher, "Tests of Equality between Sets of Coefficients in Two Linear Regressions: An Expository Note," *Econometrica*, March 1970, pp. 361–66.

[32] In a somewhat similar study, Beth Neimi and Cynthia B. Lloyd, "Labor Force Participation and Unemployment Revisited: Some New Evidence from the 1970's," Columbia University, 1976, found no significant change in the labor force sensitivity of women between the two periods under study, although they did find an increase in total and male labor force sensitivity. They dichotomized the 1956–76 period and then regressed the labor force participation rates of various age-sex groups on a labor supply function which included a lagged unemployment rate for men age 35 to 44 as the cyclical measure (they acknowledged the possible spurious correlation in the labor force participation rate equations for men) and measures of trend, real wages, and the percentage of total employment accounted for by manufacturing.

[33] It should be noted that the direction of change in the cyclical sensitivity of men's labor force participation is not as robust as the change in women's participation. There is some evidence of multicolinearity—particularly in the male labor force participation equation—in the form of a high correlation between the measures of cycle and trend and a sharp change in the coefficient of the cyclical variable when time period is changed. Besides this possibility, the relatively high serial correlation of the residuals initially in evidence leads one to question the specificity of the general model.

[34] Howard Hayghe, "Families and the rise of working wives—an overview," *Monthly Labor Review*, May 1976, pp. 12–19.

[35] U.S. Department of Labor, Bureau of Labor Statistics, "Trends in weekly and hourly earnings among major labor force groups," October 6, 1976.

[36] *Dual Careers*, Volume 1 (U.S. Department of Labor, Manpower Research Monograph No. 21), pp. 173–74.

[37] Judith M. Fields, "A Comparison of Intercity Differences in the Labor Force Participation Rates of Married Women in 1970 with 1940, 1950, and 1960," *Journal of Human Resources*, Fall 1976, p. 571.

[38] Bowen and Finegan, *The Economics of Labor Force Participation*.

[39] William F. Barnes and Ethel B. Jones, "Women's Increasing Unemployment: A Cyclical Interpretation," *The Quarterly Journal of Economics and Business*, Summer 1975, pp. 61–69.

Labor force trends: a bibliography

RICHARD M. DEVENS

This annotated bibliography reflects relevant issues covered in the accompanying article. While this particular compilation is by no means exhaustive, it is a general outline of the most recent literature on labor force participation, including both underlying secular movements and cyclical analysis.

Ball, Robert M., "Retirement Programs and the Changing Participation of the Labor Force," *The Labor Market and Social Security*. (Proceedings of the Fourth Annual Social Security Conference.) Kalamazoo, Mich., W. E. Upjohn Institute for Employment Research, 1972.
  Ball finds that the decline in labor force participation of older workers is a matter of declining opportunity to work, particularly the reduction in self employment. Declining self-employment in farming, a result of increased productivity in the agricultural sector, is found to be a major factor in the decline of self-employment among those 65 and over.

Barfield, Richard E. and James N. Morgan, *Early Retirement: The Decision and the Experience and a Second Look*, Ann Arbor, Mich., University of Michigan, 1974.
  The authors' major finding is that financial factors, especially expected income in retirement, are principal inputs in the retirement decision. Attitudinal factors are found to operate much less strongly although in expected directions.

Barnes, William F. and Ethel B. Jones, "Women's Increasing Unemployment: A Cyclical Interpretation," *The Quarterly Review of Economics and Business*, Summer 1975, pp. 61–69.
  The authors believe that the recent increase in women's unemployment is a result of the 1967 change in the definition of unemployment and of the relationship of unemployment by sex to the business cycle rather than a trend associated with higher labor force participation by females. Women's higher cy-

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clical variation in unemployment is presumed to stem from the fact that the group includes more persons whose home productivity is close to their market productivity.

Berg, Sanford V. and Thomas R. Dalton, "Labor Force Participation in Goods and Services," *The Review of Economics and Statistics,* November 1975, pp. 518–22.

The authors find that the services sector labor market is characterized by neoclassical market mechanisms while the goods sector is characterized by rigid institutional arrangements that are less responsive to price or wage changes.

Bonin, Joseph M. and William Y. Davis, Jr., "Labor Force Responsiveness to Short Run Variations in Economic Opportunity," *Southern Economic Journal,* October 1971, pp. 161–72.

Bonin and Davis found that seasonal fluctuations of labor force participation rates for all age-sex groups are associated with seasonal variations in job opportunities. The number of secondary labor force participants was highly responsive to seasonal variation in demand. Surprisingly, the number of primary labor force members was also responsive to seasonal phenomena.

Bowen, William G. and T. Aldrich Finegan, *The Economics of Labor Force Participation,* Princeton, N.J., Princeton University Press, 1969.

Using cross-sectional data of the 1960 census, Bowen and Finegan provide the exhaustive quantitative analysis of labor force participation. A major conclusion, with respect to women particularly, is that the positive impact of general unemployment on the labor supply due to the additional worker effect has been swamped by the negative impact of the "discouraged worker effect."

Cain, Glen G., *Married Women in the Labor Force,* Chicago, University of Chicago Press, 1966.

In this comprehensive study of married women's labor force participation, Cain develops an economic model based on the neoclassical tradition, and applies it to two sets of data, one marketwide and one disaggregated. A principal issue investigated by Cain is the explanation of the increase in labor force participation rates for married women by comparison of elasticities of participation with respect to wages and to income. With the disaggregated data the wage elasticity was greater than the income elasticity in each of the two samples used.

———— and Martin D. Dooley, "Estimation of a Model of Labor Supply, Fertility, and Wages of Married Women," *Journal of Political Economy,* August 1976, pp. S191-94.

The article specified a model that corresponds to the theory of household decisionmaking. Tests of the model support the conclusion that the labor supply of married women is determined simultaneously with her wages and fertility.

Campbell, Colin D. and Rosemary G. Campbell, "Conflicting Views on the Effect of Old-Age and Survivors Insurance on Retirement," *Economic Inquiry, Journal of the Western Economic Association,* September 1976, pp. 364–86.

In an examination of the literature on the reduced labor force participation of the elderly, Campbell and Campbell critically contrast the conclusions of Social Security Administration analysts, who found that OASI has little effect on participation, to the conclusions of outside economists, who find that the availability of pension is a significant factor affecting labor force participation.

Darian, J. C., "Factors Influencing the Rising Labor Force Participation Rates of Married Women With Pre-School Children," *Social Science Quarterly,* March 1976, pp. 614–30.

Darian considers factors reducing the constraint of children on labor force participation and factors associated with the youth of the women, such as changing attitudes. Findings are that both factors are significant but the youth factor is to be more heavily weighted.

Deutermann, William V., Jr., "Another look at working-age men who are not in the labor force," *Monthly Labor Review,* June 1977, pp. 9–14.

Using Current Population Survey data, Deutermann examines the current activities of working aged men not in the labor force to find why they left, how long they have been out, and if they intend to reenter. Illness, disability, and school enrollment are most cited reasons for nonparticipation.

Dowdall, Jean A., "Structural and Attitudinal Factors Associated with Female Labor Force Participation," *Social Science Quarterly,* June 1974, pp. 121–30.

The author finds that attitudinal factors, especially approval levels toward work, are closely linked to labor force participation among married women of at least moderate income.

Fields, Judith M., "A Comparison of Intercity Differences in the Labor Force Participation Rates of Married Women in 1970 with 1940, 1950, and 1960," *The Journal of Human Resources,* Fall 1976, pp. 568–77.

Fields uses a methodology similar to Bowen and Finegan (1969) to estimate a labor supply equation for married women in the 1970 census SMSA data. When she compares her results to Bowen and Finegan's regression for 1940, 1950, and 1960, she finds a decreased sensitivity to particular labor market variables (women wages, supply of women, industrial mix, and husband's income).

Hambor, John E., *Unemployment and Disability: An Econometric Analysis With Time Series Data,* Washington, U.S. Department of Health, Education, and Welfare, 1975.

Along with demographic factors, the unemployment rate is a significant variable in determining the level of initial disability applications (and awards) in an eight-equation recursive model of the social security disability program.

Kahne, Hilda, with Andrew I. Kohen, "Economic Perspectives on the Roles of Women in the American Economy," *Journal of Economic Literature,* December 1975, pp. 1249–92.

A nontechnical overview of some of the recent economic literature relating to women. The authors have included a very extensive bibliography covering all aspects of women in the economy.

Kalacheck, Edward, *The Youth Labor Market,* University of Michigan-Wayne State University, Institute of Labor and Industrial Relations, 1969.

Kalacheck finds labor force participation by teenagers to be extremely cyclically sensitive. Young workers are considerable more responsive to changes in opportunity for employment than adults.

Kreps, Juanita and Robert Clark, *Sex, Age, and Work: The Changing Composition of the Labor Force,* Baltimore, Md., Johns Hopkins University Press, 1975.

Concentrating on the empirical record, Kreps and Clark examine the changes that have occurred in recent decades in labor force participation ratios among age/sex groups. They investigate the relationship between changing allocations of market work between men and women and the reapportionment of homework responsibilities, changes in lifestyles and attitudes, and other variables.

Mincer, Jacob, "Labor Force Participation of Married Women: A Study of Labor Supply," *Aspects of Labor Economics,* Princeton University Press for the National Bureau of Economic Research, 1962, pp. 63–97.

Mincer concludes that the life cycle introduces changes in demand for and costs of market work, homework and leisure. These changes are reflected in the relationship among labor force participation and the age of women and the presence and number of children. Cyclical variations in employment opportunity, wages, and other family income sources also change these relationships.

Niemi, Beth and Cynthia B. Lloyd, "Labor Force Participation and Unemployment Revisited: Some New Evidence from the 1970's," paper presented at the Labor Workshop, Columbia University, September 1976.

The authors examine the major changes in labor force sensitivity to the cycle since the 1950's, with special regard for the changing sex/age differentials. They use regression analysis to relate labor force participation for different age/sex groups to unemployment.

Oppenheimer, Valerie Kincade, "Demographic Influence on Female Employment and the Status of Women," *American Journal of Sociology,* January 1973, pp. 946–61.

Oppenheimer concludes that the rising demand for women workers in conjunction with the relatively declining supply of single, young women leads to rising employment opportunity and participation among older and married women.

Parnes, Herbert S. and Jack Meyer, *Withdrawal from the Labor Force by Middle-Aged Men,* Ohio State University, Center for Human Resource Research, 1971.

The authors investigate the reasons for the declining labor force participation of men 45–59 years and concludes that participation is associated with being married, in good health, well-educated, having high earnings potential and little nonlabor income. Ill health was reported as having been involved in 80 percent of the decisions not to participate.

————— and Gilbert Nestel, *Retirement Expectations of Middle-aged Men,* Ohio State University, Center for Human Resource Research, 1971.

Parnes and Nestel measured the relationship between expected retirement age and four factors that influence retirement decisions: Needs, financial resources, ability to work and rewards of work. They concluded that the influence of attitudinal factors, together with the relatively small portion of the total variance explained by other variables, suggests that there are many other dimensions of attitudes that play a role in affecting the retirement decision.

Quinn, Joseph F., *The Microeconomics of Early Retirement: A Cross Sectional View,* Washington, U.S. Department of Health, Education, and Welfare, Social Security Administration, 1975.

Quinn finds that the most important determinants of retirement status are health and current status of eligibility for retirement benefits such as Social Security and other pension plans. He also finds some evidence that individuals are less likely to retire in a tight labor market and are more likely to retire from jobs with undesirable work environments.

Reno, Virginia, "Why Men Stop Working at or Before Age 65," *Social Security Bulletin,* June 1971, pp. 3–17.

When men aged 62 who were entitled to Social Security benefits were asked specific questions about the influence of pensions on their retirement deci-

sions, about one-fourth responded that benefit programs affected their thinking. Most of these also indicated that the combined availability of a pension with social security benefits was a factor.

Schwab, Karen, "Early Labor-Force Withdrawal of Men: Participants and Nonparticipants Aged 58–62," *Social Security Bulletin*, August 1974, pp. 24–38.

Using 1969 cross section data, Schwab found that most men out of the labor force left their last job because of poor health. Nonparticipants tended to have lower incomes and fewer assets than participants. Education, occupational background, and race were also found to be related to participation.

Sherman, S. R., "Labor Force Status of Women on the Threshold of Retirement," *Social Security Bulletin*, September 1974, pp. 3–15.

Sherman finds that health and age are primary factors for explaining labor force participation for women 58 to 63 years.

Smith, Ralph E., *Dynamic Determinants of Labor Force Participation: Some Evidence from the Gross Change Data*, Working Paper 350–49, Washington, The Urban Institute, 1974.

In this revision of a 1973 piece, Smith finds that the rise in female participation may be traced both to an increase in labor force entry and a rising probability of remaining in the labor force even if unemployed. There is some evidence that the decline in labor force participation among men (especially whites) is due to a rise in the probability of employed men leaving the labor force rather than reduced likelihood of entry.

———, Jean E. Vanski and Charles C. Holt, "Recession and the Employment of Demographic Groups," *Brookings Papers on Economic Activity*, No. 3, 1974, pp. 737–60.

The authors estimate the impact of rising unemployment on labor force participation rates and other behavior for several demographic groups. They found that women's labor force participation was more responsive than men's to labor market conditions.

Sobol, Marion Gross, "A Dynamic Analysis of Labor Force Participation of Married Women of Childbearing Age," *Journal of Human Resources*, Fall 1973, pp. 497–505.

Sobol's analysis of longitudinal data indicates that the wife's education (positive relation) and expected family size (negative relation) were the important influences of married women's labor force attachment. Expected increases in educational level for women and declining family size lead to prediction of rising labor force participation rates for married women.

Sweet, James A., *Women in the Labor Force*, New York Seminar Press, 1973.

Sweet uses multiple classification and regression analysis to estimate effects of family status education, economic need, and other variables on the labor force activity of married women under 60. He concludes that for women under 50 with children it is the age of the children that has the greater effect on participation, if there are no children, it is the age of the women that influences the participation. He also finds that an index of "income adequacy" acts negatively for white women's participation, but positively for non-whites.

U.S. Department of Labor, *Career Thresholds: A Longitudinal Level Study of the Educational and Labor Market Experience of Young Men 14 to 24 Years of Age*, Manpower Research Monograph 16, Vols. 1–5, 1970–75.

———, *Dual Careers: A Longitudinal Level Analysis of the Labor Market Experience of Women 30–44 Years of Age*, Manpower Research Monograph 15, Vols. 1–4, 1968–74.

———, *Years for Decision: A Longitudinal Study of the Educational and Labor Market Experience of Young Women 14 to 24 Years of Age*, Manpower Research Monograph 24, Vols. 1–4, 1970–73.

———, *The Pre-Retirement Years: A Longitudinal Study of the Labor Market Experiences of Men 45 to 59 Years of Age*, Manpower Research Monograph 15, Vols. 1–4, 1970–75.

These four monographs are the official publication of results of the National Longitudinal Study prepared by the Center for Human Resource Research, Ohio State University under contract with the Employment and Training Administration, U.S. Department of Labor. From each of the four population groups, a national probability sample was drawn and members of the sample were surveyed periodically over a 5-to-10 year period. The premise is that the experience and behavior of individuals in the labor market result from a variety of economic, social, demographic, and attitudinal characteristics of the individual. The studies seek to identify those characteristics that appear to be most important in explaining the labor market experience. ☐