SELF-EMPLOYMENT AND LABOR FORCE

PARTICIPATION OF OLDER MALES

Victor R. Fuchs

SELF-EMPLOYMENT AND LABOR FORCE
PARTICIPATION OF OLDER MALES

Abstract

This longitudinal analysis of the labor market behavior of older,
urban white males in 1969, 1971, and 1973 focuses on changes from wage-
and-salary to self-employment and changes from working to non-working
status. In each two-year transition approximately four percent of wage-
and-salary workers switched to self-employment. They were primarily men
who were previously self-employed or who were in wage-and-salary
occupations with characteristics similar to self-employment, e.g.,
managers and salesmen. For a blue collar worker employed forty hours
per week the predicted probability of switching was close to zero.
Controlling for a large number of economic and demographic variables, the
self-employed were significantly more likely to continue to work, partly
by reducing their workweek to under 35 hours. Other significant predictors
of continuing to work are good health, years of schooling, white collar
occupation, no expectation of a private pension, and a workweek longer than
fifty hours. Age is also important, especially at the eligibility ages
set by social security.

Victor R. Fuchs
National Bureau of Economic Research
204 Junipero Serra Boulevard
Stanford, California 94305

415/326-7160

SELF-EMPLOYMENT AND LABOR FORCE PARTICIPATION OF OLDER MALES

Victor R. Fuchs

Introduction

Background

The labor market behavior of older workers is receiving increasing attention from social scientists at the same time that policies affecting such behavior are becoming important subjects of public debate. Empirical economic research has concentrated primarily on explaining labor supply-- especially the retirement decision--with ill health, social security payments, private pensions, assets, income, wage rates, taxes, and the business cycle the main variables of analysis.[1] Some economic research, primarily theoretical, has attempted to explain other phenomena such as seniority rules, rigidity of wages at older ages, and mandatory retirement.[2] Recent policy discussions have focused on the desirability of raising or eliminating mandatory retirement ages, raising the social security retirement age, and reducing or eliminating the implicit tax on earnings of those eligible for social security retirement benefits.

The principal reason for the increase in interest in older workers is the realization that current retirement patterns, longer life expectancy, and a slowing-down in the growth of the non-aged labor force will eventually necessitate either large increases in taxes or large decreases in benefits to retired workers. Short of large-scale immigration there is not much that can be done to change the size of the non-aged labor force for at least the next 20 years, and no one is advocating

shorter life expectancy. Thus, there is growing support for efforts to reverse the trend toward earlier retirement.

According to Gordon and Blinder (1980) there are five basic classes of reasons why older people retire from the labor force. They are: poor health, age-related declines in wages for reasons other than health, incentives created by the social security retirement system, incentives created by private pensions, and age-related shifts in preferences toward leisure. In a recent study, based on cross-section analysis of Retirement History Study data, they find strong effects from wages and private pensions, a "substantial, though not overwhelming" effect of ill health, some support for a shift in preferences, but an insignificant effect from social security. Boskin (1977), on the other hand, has questioned the significance of health and has emphasized the importance of social security retirement benefits, as have Pellechio (1979) and several other investigators.

Most of the published studies have concentrated on wage-and-salary workers alone; the self-employed are typically excluded. An important exception is Quinn (1980a, b), who has looked specifically at the self-employed, and who has called attention to "partial retirement." He has speculated that some wage-and-salary workers switch to self-employment toward the end of the life cycle as an alternative to withdrawal from the labor force. He assumes that there is much more flexibility in hours and wages among the self-employed and that the change in class of work is a form of partial retirement.

The increased importance of self-employment at older ages is a well established feature of the U.S. labor market. For instance, in

cross-sectional data the proportion self-employed among white urban male workers rises from about 15 percent in the late fifties to more than 25 percent by the late sixties. (See Table 1, column 1.) Given a long-term trend away from self-employment,[3/] this increase may be partly a cohort effect. However, in longitudinal data from the Retirement History Study (columns 2 through 7 of Table 1), life-cycle effects within cohorts are also very pronounced. Indeed, for every birth cohort except 1907, the within cohort change is slightly larger than that revealed in the cross-section, possibly for cyclical reasons or as an artifact of the RHS sample.

The observed increase in the importance of self-employment over the life cycle can result from class-of-worker differences in continuation at work or from shifts by wage-and-salary workers into self-employment, or both. Table 2 shows that both phenomena were present during the period under study. In the 1969-71 and 1971-73 transitions approximately four to five percent of wage-and-salary workers switched to self-employment; within this eight-year segment of the life-cycle the probability of switching does not vary systematically with age. A class-of-worker differential in the probability of continuing to work is also readily apparent. This probability was higher for the self-employed than for wage and salary workers at every age in both transitions. The differential in the probability does vary with age, rising from a very small difference at 58 and 59 to a very large one in the middle sixties.

This paper focuses on both the switch to self-employment and the class-of-worker differential in the probability of continuing to work. First, the increase in the relative importance of self-employment at each age is decomposed into its two sources. Second, the results of multiple regressions of the probability of switching are presented. The principal

Table 1. Self-employed as percent of total employed, by age, white urban males, 1969, 1970, 1971, 1973.

Age	Cross-section 1970[a]	Birth cohort[b]					
		1911	1910	1909	1908	1907	1906
55	14.9						
56	14.6						
57	15.2						
58	15.1	13.4					
59	14.6		13.4				
60	14.8	16.5		13.5			
61	13.8		15.6		13.9		
62	16.6	18.7		15.6		16.2	
63	15.9		21.7		17.6		15.4
64	17.5			19.9		20.0	
65	21.5				25.4		24.2
66	23.6					21.3	
67	25.6						34.2
68	26.2						
69	26.5						

[a] 1/100 sample, 1970 Census of Population.

[b] Retirement History Study, 1969, 1971, 1973.

Table 2. Probabilities of switching to self-employment and of continuing to work, 1969-71 and 1971-73, white urban males, by age (standard error in parentheses).

| Age at t | Probability of switching to self-employment t to t+2 [a] | | Probability of working at t+2, by class of worker at t [b] | | | |
| | 1969-71 | 1971-73 | 1969-71 | | 1979-73 | |
			W & S	SELF	W & S	SELF
58	.028 (.007)		.899 (.012)	.914 (.029)		
59	.032 (.008)		.868 (.015)	.875 (.037)		
60	.035 (.009)	.030 (.009)	.785 (.018)	.861 (.039)	.748 (.020)	.823 (.039)
61	.043 (.010)	.049 (.013)	.758 (.019)	.892 (.034)	.697 (.023)	.935 (.028)
62	.042 (.011)	.033 (.012)	.757 (.020)	.901 (.031)	.651 (.025)	.870 (.040)
63	.061 (.018)	.047 (.017)	.504 (.026)	.761 (.052)	.440 (.027)	.714 (.054)
64		.036 (.016)			.434 (.027)	.671 (.053)
65		.074 (.027			.559 (.038)	.846 (.050)

[a] Conditional on working at t and t+2.

[b] Conditional on working at t and not lost from sample t+2.

Source: Retirement History Study.

empirical section of the paper provides new estimates of the impact of class of worker, ill health, wages, social security, private pensions, mandatory retirement, and other variables on the labor force participation of older males. The analysis is longitudinal and focuses on the probability of being at work at t+2 and t+4 years conditional on working at year t. The final set of regressions tests the hypothesis that the higher propensity of the self-employed to continue to work at older ages is related to their ability to reduce their work week to less than 35 hours.

The Data

The data used in this paper come from the Retirement History Study,[4/] which began in 1969 when the subjects were ages 58 through 63. Responses to interviews conducted in 1971 and 1973, as well as 1969, are included. I have restricted the analysis to white urban males in order to eliminate complications introduced by sex and race differences in behavior, and to avoid definitional problems concerning the labor force participation of older farmers. Class of worker was determined by the response to the question "Are you (a) an employee of a private company, (b) a government employee, (c) self-employed, (d) working without pay?" Those who responded (a) or (b) were classified as "wage-and-salary." The very small number who responded (d) were treated as not working.

In 1969 there were approximately 3500 white urban males in the sample who were at work and who were retained in the sample in 1971.[5/] Approximately 2500 were working in 1971 and retained in the sample in 1973. During each transition approximately 12 percent of the men who were working

at time t were lost from the sample by t+2. Individuals were lost from the sample through death, institutionalization, refusal to respond to subsequent interviews, or unreported change in location. In general, men lost from the sample did not have significantly different characteristics from those retained. For men working at time t, the only statistically significant predictor of being lost from the sample at t+2 is the presence of a health-related work limitation.[6/] The analysis is restricted to men who were working in the initial year of each transition in order to focus on subsequent changes in status with a full set of observations for all variables.

Sources of Increase in Self-employment

One of the advantages of the longitudinal data is the opportunity they afford for decomposing the life-cycle increase in the relative importance of self-employment into the share attributable to a class of worker differential in continuing to work, and the share attributable to a net shift into self-employment.

Let

$$S_t = \text{number of self-employed workers in initial year;}$$

$$T_t = \text{total number of workers in initial year;}$$

$$S_{t+2} \text{ and } T_{t+2} = \text{the same in terminal year;}[7]$$

$$\hat{S}_{t+2} = \frac{S_t}{T_t} T_{t+2} = \text{"expected" number of self-employed if the relative importance of self-employment remained constant;}$$

$$X = \text{number of wage and salary workers in initial year who were self-employed in terminal year;}$$

$$Y = \text{number of self-employed workers in initial year who were wage and salary in terminal year;}$$

$$C = \frac{S_{t+2}}{T_{t+2}} - \frac{S_t}{T_t} = \text{change in relative importance of self-employment;}$$

$$P = \frac{X - Y}{S_{t+2} - \hat{S}_{t+2}} (100) = \text{percent of C attributable to \underline{net switching of class of worker.}}$$

This decomposition, shown in Table 3, reveals that the source of the increase in self-employment varies considerably with age. For those men who were 58 or 59 in 1969, all of the increase is attributable to switching from wage and salary to self-employed status. At age 60 (cohorts 1909 in 1969, and 1911 in 1971), shifts in class of worker and differential continuity of work are about equal in importance. Above age 60 differential work patterns become more important than shifting, accounting for at least 60 percent and sometimes all of the increase in

Table 3. Decomposition of longitudinal increase in relative importance of self-employment, 1969 to 1971 and 1971 to 1973, by birth cohort.

Age at t	t = 1969		t = 1971	
	Change in importance of self-employed (percentage points) (C)	Percent of change attributable to shift in class of worker (P)	Change in importance of self-employed (percentage points) (C)	Percent of change attributable to shift in class of worker (P)
58	1.68	107		
59	1.04	114		
60	2.08	61	1.95	58
61	3.18	28	6.37	27
62	3.36	34	4.53	15
63	8.69	25	8.44	24
64			2.44	-133
65			10.49	28

See text for definition of C and P, page 8.

the relative importance of self-employment. For the sample as a whole, it appears that both switching and differential continuity are important. The balance of the paper, therefore, is devoted to the questions: "Who switches?" and "Who continues to work?"

Regression Analysis

Model and Variables

In order to explore systematically whether those older men who continue working differ in predictable ways from those who stop, and whether those wage and salary workers who switch to self-employment late in life are different from those who do not, a series of maximum likelihood logit regressions were run based on the transitions from 1969 to 1971 and from 1971 to 1973 (and sometimes 1969 to 1973). Because results for each transition were similar, only the pooled results are reported in the paper. The independent variables used in the regressions are defined in Table 4 and mean values are shown in Table 5. YRSPRSE, which measures previous experience in self-employment, was obtained from social security records that were matched to each individual. A second group of variables describes the job at time t. There are four weekly hours dummies, four hourly wage dummies, and four dummy variables for occupation. Personal characteristics are covered by three health status dummies, a continuous variable measuring years of schooling, and a separate dummy variable for each single year of age. There are four dummy variables describing private pension expectations and mandatory retirement status, and three dummy variables for expected

Table 4. Definitions of independent variables.[a]

YRSPRSE = Number of years since 1951 with some reported self-employment income.

HRS<35 = Weekly hours less than 35 ⎫
HRS35-39 = "   "   35 to 39 ⎪
HRS41-49 = "   "   41 to 49 ⎬ All relative to 40 hours
HRS≥50 = "   "   50 or more ⎭

WAGE1 = Hourly earnings in the lowest quintile ⎫
WAGE2 = "   "   " " second   " ⎪
WAGE4 = "   "   " " fourth   " ⎬ All relative to
WAGE5 = "   "   " " highest   " ⎭ middle quintile

MGR = Manager ⎫
PROF = Professional ⎪ All relative to
SALES = Sales ⎬ blue collar workers
CLERICAL = Clerical ⎭

HLTH1 = Work limitation; health > average ⎫ All relative to work limi-
HLTH2 = No work limitation; health ≤ average ⎬ tation; health ≤ average
HLTH3 = "   "   "   "   >   " ⎭

EDUC = Years of schooling, a continuous variable.

AGE = Separate dummies for each year of age.

SS55-99 = Expects monthly social security benefit of $55-99 ⎫ All relative
SS100-124 = "   "   "   "   "   " 100-124 ⎬ to expected
SS>150 = "   "   "   "   "   " 150+ ⎭ benefit of $125-149

PN/NOR = Eligible for pension, no mandatory retirement ⎫
NOPN/R>t+2 = Not eligible for pension, mandatory retirement ⎪ All relative
             after year t+2 ⎪ to no pension
PN/R>t+2 = Eligible for pension, mandatory retirement after ⎬ and
            year t+2 ⎪ no mandatory
R≤t+2 = Mandatory retirement by year t+2 (regardless of ⎪ retirement
         pension status) ⎭

[a] A full description of the algorithms used to construct the variables is available upon request.

Table 5. Mean values of dependent and independent variables by class of worker; sample limited to those working at t and still sampled at t+2.

	t = 1969			t = 1971		
	W & S	SELF	ALL	W & S	SELF	ALL
Dependent						
Prob. of switching to SELF at t+2[a]	.04	NA	NA	.04	NA	NA
Probability of working at t+2	.78	.87	.79	.61	.81	.64
Independent						
YRSPRSE	.99	11.56	2.47	1.13	12.08	3.03
HRS<35	.04	.15	.06	.06	.17	.08
HRS35-39	.07	.06	.07	.08	.04	.07
HRS41-49	.16	.12	.16	.14	.12	.14
HRS$\geq$50	.16	.50	.21	.12	.44	.18
WAGE1	.18	.33	.20	.17	.27	.19
WAGE2	.20	.15	.19	.20	.15	.19
WAGE4	.21	.10	.20	.21	.10	.19
WAGE5	.18	.21	.19	.17	.27	.19
MGR	.16	.44	.20	.15	.47	.21
PROF	.11	.16	.12	.10	.17	.12
SALES	.06	.07	.06	.06	.08	.06
CLER	.08	.01	.07	.08	.01	.07
HLTH1	.04	.05	.04	.04	.05	.04
HLTH2	.42	.31	.41	.46	.38	.44
HLTH3	.38	.41	.39	.34	.35	.34
EDUC	10.62	11.49	10.75	10.68	11.79	10.88
Cohort 1906	.12	.14	.13	.08	.12	.09
1907	.16	.18	.16	.15	.18	.16
1908	.17	.17	.17	.16	.16	.16
1910	.17	.16	.17	.19	.17	.19
1911	.20	.19	.20	.23	.22	.23
SS55-99	.15	.23	.16	.16	.21	.16
100-124	.10	.20	.11	.11	.15	.11
$\geq$150	.37	.18	.34	.33	.24	.31
PN/NOR	.34	.17	.31	.29	.17	.27
NOPN/R t+2	.04	.00	.03	.03	.00	.02
PN/R t+2	.31	.01	.26	.32	.01	.27
R$\leq$t+2	.03	.00	.03	.09	.00	.08
Number of observations	3001	493	3494	2115	443	2558

[a] Conditional on working at t+2.

NA = not applicable.

social security income calculated from matched social security records

using an algorithm developed by Ken Cone at the NBER in Palo Alto.

Who Switches to Self-employment?

Table 6 reports the results of a regression designed to answer the

question "Who switches to self-employment?" The sample is restricted to

the men who were working as wage-and-salary workers in the initial year

(1969 or 1971) and who were also working in the terminal year (1971 or 1973)

1973).[8] The dependent variable is dichotomous, taking a value of 1 if

the subject switched to self-employment, and 0 if he continued as a

wage-and-salary worker. The marginal effect of each independent variable,

evaluated at mean probability, is shown after the regression coefficient

and its standard error.

We see that previous experience with self-employment, occupation,

and weekly hours at current job are all significant predictors of the

probability of a wage-and-salary worker switching to self-employment.

Also, wage-and-salary workers who are subject to mandatory retirement

beyond t+2 or who expect a private pension are less likely to switch.

On the other hand, expectations about the amount of social security income,

health status, education, age, and wages are not significantly related to

changes from wage and salary to self-employment status. A dummy variable

that compares the probability of switching in 1971-73 vs. 1969-71 is also

insignificant.

It is quite clear that the men who switched to self-employment

are primarily those who have had previous experience in self-employment

Table 6. Maximum likelihood logit regression results: probability of switching from wage-and-salary to self-employment.

Variable	Coefficient	Standard error	$\partial P/\partial X$ @ $\bar{P}$
Age 58	−.196	(.395)	−.007
Age 59	−.432	(.390)	−.016
Age 61	.236	(.308)	.009
Age 62	.145	(.334)	.005
Age 63	−.116	(.369)	−.004
Age 64	−.244	(.571)	−.009
Age 65	.031	(.556)	.001
YRSPRSE	.104**	(.020)	.004
MGR	1.795**	(.286)	.065
PROF	.970**	(.375)	.035
SALES	.990**	(.344)	.036
CLER	−.083	(.632)	−.003
HRS<35	1.068**	(.353)	.039
HRS35−39	−.175	(.471)	−.006
HRS41−49	.058	(.311)	.002
HRS≥50	.884**	(.250)	.032
WAGE1	−.328	(.327)	−.012
WAGE2	−.565	(.370)	−.021
WAGE4	.178	(.309)	.007
WAGE5	.417	(.300)	.015
EDUC	.009	(.032)	.000
HLTH1	.452	(.567)	.017
HLTH2	−.003	(.328)	−.000
HLTH3	.105	(.324)	.004
SS55−99	.325	(.307)	.012
SS100−124	−.608	(.398)	−.022
SS≥150	−.080	(.252)	−.003
PN/NOR	−1.115**	(.238)	−.041
NOPN/R>t+2	−2.263*	(1.042)	−.083
PN/R>t+2	−2.950**	(.487)	−.108
R≤t+2	.349	(.528)	.013
71/73 transition	−.121	(.243)	−.004
Intercept	−.383	(.564)	−.140
N			3537
$\bar{P}$			.0379
−2 Δ log likelihood (compared to intercept only)			307.25

*Significant at p = .05.

**Significant at p = .01.

or who are in wage-and-salary jobs that are similar in many respects to self-employment. Managers, professionals, and salesmen, for instance, frequently have a good deal of discretion as to how they spend their time, and their compensation is frequently closely tied to their performance. Also, the very short (< 35) or very long (≥ 50) work weeks reported by the switchers while they were in wage-and-salary employment are characteristic of the self-employed. The contrasts among wage-and-salary workers in the probability of switching is quite striking. Although the mean probability of changing to self-employment is .04, the predicted probability for a blue collar worker with a 40-hour per week job, eligible for a pension, and no previous self-employment experience, is only .003.[9] On the other hand, the predicted probability for a manager with some self-employment income in any ten years since 1951, an unusually short or long work-week, not eligible for a private pension, and not subject to mandatory retirement is .52.

Who Continues to Work?

The regression results presented in Table 7 provide some intriguing answers to the question "Who continues to work?" This formulation is used rather than "Who retires?" for two reasons. First, it is possible to determine with considerable accuracy whether a man is working or not at a given time, whereas the concept of "retirement" is ambiguous. For instance, in these data some men who state that they are "retired" are also working. Second, other investigators are using these data to study "retirement"; the results reported here provide some insight into the importance of the particular formation of the question.

Table 7. Maximum likelihood logit regression results: probability
of continuing to work.

Variable	Coefficient	Standard error	$\partial P/\partial X$ @ $\bar{P}$
Age 58	.783**	(.155)	.155
Age 59	.496**	(.148)	.098
Age 61	-.110	(.104)	-.022
Age 62	-.215*	(.106)	-.043
Age 63	-1.015**	(.112)	-.201
Age 64	-1.038**	(.143)	-.205
Age 65	-.661**	(.176)	-.131
SELF	.385**	(.117)	.076
MGR	.250*	(.101)	.049
PROF	.393**	(.130)	.078
SALES	.475**	(.158)	.094
CLER	.302*	(.129)	.060
HRS<35	-.089	(.133)	-.018
HRS35-39	-.061	(.127)	-.012
HRS41-49	.023	(.095)	.005
HRS≥50	.373**	(.106)	.074
WAGE1	.148	(.111)	.029
WAGE2	.120	(.100)	.024
WAGE4	-.095	(.096)	-.019
WAGE5	-.012	(.109)	-.002
EDUC	.042**	(.011)	.008
HLTH1	.432**	(.167)	.085
HLTH2	.812**	(.087)	.160
HLTH3	.890**	(.091)	.176
SS55-99	-.086	(.098)	-.017
SS100-124	-.041	(.115)	-.008
SS≥150	-.188*	(.085)	-.037
PN/NOR	-.390**	(.088)	-.077
NOPN/R>t+2	-.451*	(.201)	-.089
PN/R>t+2	-.596**	(.097)	-.118
R≤t+2	-2.043**	(.173)	-.404
71/73 transition	-.303**	(.077)	-.060
Intercept	.477**	(.173)	.094

N   6053

$\bar{P}$ .7289

-2 Δ log likelihood (compared to intercept only) 1058.41

*Significant at p = .05.

**Significant at p = .01.

The analysis is restricted to men working in the initial year who were sampled in the terminal year. The dependent variable is dichotomous, taking a value of 1 if the man was also working in the terminal year, and 0 if he was not. The independent variables are the same as in the switching regression, except that a dummy variable for self-employment is substituted for PRVSE. The results are discussed by groups of variables.

Class of worker and age. The regression results presented in Table 7 confirm the inferences drawn from Tables 2 and 3 that the self-employed are more likely to continue working than are wage-and-salary workers. Evaluated at mean probability, and controlling for other variables, the class of worker differential is almost 8 percentage points. In regressions based on the transition from 1969 to 1973 (not shown here) it is possible to compare the probability of continuing to work of men who had been self-employed in 1969 with that of men who switched to self-employment in 1971. The coefficients are the same to two decimal places and the coefficients for the other variables are very similar to those shown in Table 7.

This table also shows that age is significant, but there are substantial discontinuities in the effect of age, probably because of the structure of the social security law. If withdrawal from work were determined primarily by biological aging rather than institutionally imposed incentives and constraints, the age coefficients in Table 7 would tend to change at a smooth rate. They do not. Instead, we observe a significantly larger decrease for those men who reach 65 during the transition period (i.e., those who are age 63 or 64 at t), the "normal" age for retirement under social security and many private pension

plans. We also observe a discontinuity for men reaching 62 (age 60 at t), the eligibility age for "early" retirement under social security. This can be seen by the large positive coefficient for age 59, indicating that the change from 59 to 60 is almost twice as large as the change from 58 to 59. There are also some significant interactions between class of worker and age which will be discussed after the principal results for the other variables are presented.

Health status, pensions, mandatory retirement, and social security. Health status is a remarkably strong predictor of the probability of working. This result has been found before in several cross-section studies, but its validity has been questioned because of the possibility that respondents offer "poor health" as a rationalization for not working. The findings in this study are less subject to that criticism because all the men are working when their self-evaluation of health status is ascertained. Even in the 1969-73 regression (not shown), when health status at time t is used to predict work status four years later (and the sample is restricted to men at work in 1969 and 1971 and still in the sample in 1973), the health variables do very well. Men who report no health-related work limitation, but are only in average or worse-than-average health, show a marginal effect of .088 (compared to those with a work limitation and average or worse-than-average health), while men with no work limitation and above-average health show a differential probability of .141. The results of tests of possible interactions between health status and other variables are discussed below.

Table 7 also shows the strong effect of mandatory retirement within the transition period ($R \leq t+2$). Eligibility for a private pension and/or

mandatory retirement beyond t+2 also decreases the probability of continuing
to work. Expectations about social security income do not have a strong
effect. The highest benefit category, however, has a negative coefficient
which is statistically significant at $p < .05$.

Education, occupation, hours, and wages. The effects of job-
related variables--hours, wages and occupation--and the education of the
worker are mixed. Ceteris paribus, education and occupation are quite
significant; hours and wages are not. We see that each year of schooling
adds almost one percentage point to the probability of working in the
terminal year. The occupation dummies show that white-collar workers
are much more likely to continue working than are blue-collar workers.
Most of the hours dummies are not significant, but men who work 50 hours
per week or more at time t have a significantly higher probability of
being at work at t+2. This finding is contrary to the results of
Burkhauser and Turner (based on men at younger ages); they suggested that
workers substitute between longer hours and longer labor force participation.[10/]
Perhaps there are other unmeasured characteristics possessed by some men
who "like" to work. The wage variables are not statistically significant,
which is contrary to the cross-section results of Gordon and Blinder, who
estimated wages and included men not at work.

The 1971-73 dummy variable. In contrast to the insignificant
transition dummy in the switching regression, the probability of continuing
to work 1971-73 was significantly lower than in 1969-71. This is the
opposite of what would be expected for cyclical reasons. The white adult
male unemployment rate actually fell from 4.0 percent in 1971 to 2.9 percent

in 1973 after rising from 1.9 percent in 1969. The sharper decline in work during the 1971-73 transition is probably the result of a substantial increase in social security benefits during that period.

Interactions between variables. Several sets of regressions were run to test for possible interactions among age, health status, class of worker and pension status. Surprisingly few significant differences emerged. The most notable interaction is between age and class of worker (see Table 8). As previously noted (Table 2), there is little difference between self-employed and wage-and-salary workers in the probability of continuing to work for the younger men in the sample. At ages 61 (at t) or above, the class of worker effect is substantial. A similar interaction with age is observed for the PN/NOR variable. At the older ages in this sample eligibility for a private pension has a much larger negative effect on the probability of continuing to work than at the younger ages.

There have been a number of suggestions that the effects of poor health on labor force participation should vary, depending upon age, education, class of worker, occupation, and the like.[11] These hypotheses are not confirmed in this sample. For instance, when the sample is divided into three groups according to health status,[12] the coefficients for the other variables do not vary systematically and significantly with health status.

A simple summation of the principal findings of the working-not working regression is presented in Table 9 in the form of estimated probabilities of working for three hypothetical men: Mr. A, assumed to be a professional, self-employed, 17 years of schooling, hours $\geq$ 50, no work limitation and health above average, no pension or mandatory retirement; Mr. B, clerical,

Table 8. Maximum likelihood logit regression results: probability of
continuing to work, by age (standard errors in parentheses).

Age at t	Variable[a]	
	SELF	PN/NOR
58 and 59	-.047 (.326)	-.185 (.259)
60	-.092 (.274)	-.146 (.208)
61	.790 (.328)	-.381 (.212)
62	.800 (.312)	-.355 (.219)
63	.391 (.253)	-.598 (.201)
64 and 65	.545 (.276)	-.635 (.234)

[a] Controlling for all other variables.

Table 9. Predicted probability$^{a/}$ of working at t+2, by age, three
hypothetical white urban males.

Age at t	Pooled 1969-71 + 1971-73			
	Full sample	Mr. A	Mr. B	Mr. C
58 or 59	.89	.99	.97	.72
60	.78	.91	.86	.61
61	.76	.97	.80	.53
62	.74	.94	.72	.40
63	.52	.90	.57	.12
64 or 65	.53	.89	.60	.03

Mr. A = Professional, self-employed, 17 years of schooling,
hours ≥ 50, no work limitation and health > average, no
pension or mandatory retirement.$^{b/}$

Mr. B = Clerical, wage and salary, 13 years of schooling,
hours = 40, no work limitation and health ≤ average,
pension but no mandatory retirement.$^{b/}$

Mr. C = Blue collar, wage and salary, 10 years of schooling,
hours = 40, work limitation and health ≤ average,
pension and mandatory retirement at age 65.$^{b/}$

$^{a/}$Estimated from maximum likelihood logit regressions by single
year of age.

$^{b/}$Assuming omitted class values for wages and social security benefits.

wage-and-salary, 13 years of schooling, hours = 40, no work limitation and health ≤ average, pension but no mandatory retirement; and Mr. C, blue collar, wage-and-salary, 10 years of schooling, hours = 40, work limitation and health ≤ average, pension and mandatory retirement at age 65. For all three men the omitted class values are assumed for wages and social security benefits.

We observe large variation in the probability of continuing to work among these men, especially at older ages. For Mr. A the probability of continuing to work is close to unity at all ages through t=65. Mr. B has a high probability at the younger ages, but it declines with age, primarily because of the interaction between age and the class of worker and pension effects. Mr. C has a lower probability even at 58 and 59, and the probability of his continuing to work falls to virtually zero when t = 65.

A final regression was run to determine the extent to which the class of worker differential in the probability of working is related to greater opportunities for the self-employed to work short hours. These regressions omitted men who were working fewer than 35 hours per week at t and men who changed class of work, leaving 5263 observations. Three possible states at t+2 were specified: working ≥ 35 hours per week, working < 35 hours per week, and not working. A polytomous logit regression was estimated by maximum likelihood. The coefficients were then used to calculate the predicted probability of being in each state for the self-employed and wage-and-salary workers, assuming omitted class for other categorical variables and mean education (see Table 10).

This analysis suggests that differential opportunity to reduce weekly hours under 35 does contribute substantially to the class of

Table 10. Maximum likelihood polytomous logit regression results: predicted probability[a] of work status at t+2 by class of worker, non-switchers working $\geq$ 35 hours at t.

State at t+2	Class of worker		
	Self-employed	Wage-and-salary	Self-employed minus wage-and-salary
Working $\geq$ 35 hours	.729	.695	.034
Working < 35 hours	.052	.032	.020
Not working	.219	.274	-.055

[a] Assuming omitted class for other categorical independent variables and mean education. Complete regression results available upon request.

worker differential in the probability of continuing to work. Almost 40 percent of the working differential of .055 is accounted for by a differential in the predicted probability of working under 35 hours per week. The factors that make short work weeks more viable for the self-employed than for wage-and-salary workers need to be investigated.

Summary

This longitudinal analysis of the labor market behavior of older white urban males confirms some previous findings, contradicts others, and raises new questions for further study. The paper differs from most previous research in this subject by inclusion of the self-employed, by explicit attention to changes in class of work, and by focusing on the probability of continuing to work rather than on "retirement" per se.

The continuing to work regressions provide strong support for the role of ill health in the labor force decisions of older men. Those men at work who reported a health-related work limitation at time t were (ceteris paribus) much less likely to be at work two or four years later. This is a significant result because it is much less susceptible to the criticism that "poor health" simply serves as a rationalization for not working.

Age has a strong effect on the probability of continuing to work, but there are marked discontinuities in the size of the effect which seem to be associated with eligibility for social security. The probability of working at t+2 drops sharply when t is 63. This corresponds with the "normal" retirement age of 65. A smaller discontinuity is observed when t+2 is 62, the eligibility age for "early" retirement.

Eligibility for a private pension has a significant negative effect on the probability of continuing to work, and this effect increases with age. Men working long hours ($\geq$ 50) are much more likely to continue to work. Wage rates, on the other hand, do not show a significant effect.

The self-employed are much more likely to continue than are wage-and-salary workers. This class of worker differential increases with age

and seems to be about as large for those who have very recently switched
to self-employment as for those who have been in the class for some time.
A substantial portion of the class-of-worker differential in continuing to
work is accounted for by self-employed who reduce their work week from
more than to less than 35 hours.

The probability of switching regressions reveals that men who change
to self-employment late in life are primarily those who have had previous
experience in self-employment or who are in wage-and-salary occupations
such as managers and salesmen that have many characteristics similar to
self-employment. For instance, men who switch tended to have either very
short or very long work weeks even when they were in wage-and-salary jobs.
The probability of a blue-collar worker with a 40-hour-per-week job switching
to self-employment is extremely small in either of the two-year transitions.

With respect to the five possible explanations for labor force
withdrawal identified in the introduction to this paper, I conclude that
the age of eligibility for social security and poor health are the most
important, private pensions are of some importance, while biologic ageing
and wage effects are of lesser significance.

This paper provides answers to some questions about labor market
behavior, but the results also raise some new questions. Why do the
self-employed continue to work when apparently comparable wage-and-salary
workers stop? Why do they find it easier or more attractive to reduce
their weekly hours below 35 than do wage and salary workers? Why do men
who are working long hours each week have a higher probability of continuing
to work than do those with a normal work week? Why is there (ceteris paribus)
a large white collar-blue collar differential and an education differential

in the probability of continuing to work? Apparently there are factors influencing the labor market behavior of older men that are not captured by the age, health, wage, pension, and social security variables discussed by Gordon and Blinder and included in this study. Do self-employment, education, white collar, and long hours serve as proxies for the utility or disutility associated with work? Do these variables identify men who many years ago made life-cycle plans that included higher participation rates at older ages? Research that helps to clarify the role of these variables would contribute a great deal to overall understanding of the labor market behavior of older men.

FOOTNOTES

1. See, for instance, Boskin (1977), Boskin and Hurd (1978), Burkhauser (1979), Gordon and Blinder (1980), Pellechio (1979), and Quinn (1977).

2. See Carmichael (1980) and Lazear (1979).

3. The number of non-agricultural self-employed declined from 6.0 million in 1950 to 5.2 million in 1970.

4. See Irelan (1972).

5. Men who stated they were "looking for work" were included in the "not working." Fewer than one-third of those "looking" in 1969 were working in 1971, and the same is true for the 1971 to 1973 transition. Of those not working in 1969, eight percent were working in 1971; the comparable figure for 1971-73 is two percent.

6. In these data, self-evaluation of health status is a good predictor of mortality. See Taubman and Rosen (1980).

7. Counting only those who were also working in the initial year.

8. A small number of workers who were classified as wage-and-salary workers in year t but who reported only self-employment income in t-1 were excluded because of the probability that they were misclassified in year t. When they were included in the switching regressions with a dummy variable to identify their status, this variable had a very large positive coefficient, the coefficient for YRSPSE was increased, and the other coefficients were virtually unchanged.

9. Assuming omitted class for the other categorical variables and mean education.

10. See Burkhauser and Turner (1978).

11. See, for instance, Quinn (1977), who reports significant interactions between health status and financial variables in cross-section analysis.

12. (1) No work limitation, and health above average; (2) no work limitation, health equal or below average; and (3) work limitation.

REFERENCES

Boskin, Michael J. (1977). "Social Security and Retirement Decisions," *Economic Inquiry* 15, 1-25.

Boskin, Michael J., and Michael D. Hurd (1978). "The Effect of Social Security on Early Retirement," *Journal of Public Economics* 10, 361-377.

Burkhauser, Richard V. (1979). "The Pension Acceptance Decision of Older Workers," *Journal of Human Resources* XIV, 63-75.

Burkhauser, Richard V., and John A. Turner (1978). "A Time-Series Analysis on Social Security and Its Effect on the Market Work of Men at Younger Ages," *Journal of Political Economy* 86, 701-715.

Carmichael, Lorne (1980). "Seniority Rules for Layoffs," Ph.D. dissertation, Stanford University.

Gordon, Roger H., and Alan S. Blinder (1980). "Market Wages, Reservation Wages, and Retirement," NBER Working Paper 513, July.

Irelan, L. M. (1972). "Retirement History Study: Introduction," *Social Security Bulletin* 55, 3-8.

Lazear, Edward P. (1979). "Why Is There Mandatory Retirement?" *Journal of Political Economy* 87, No. 6, 1261-1284.

Pellechio, Anthony J. (1979). "Social Security Financing and Retirement Behavior," *American Economic Review* 69, No. 2, 284-287.

Quinn, Joseph F. (1980a). "Labor Force Participation Patterns of Older Self-Employed Workers," *Social Security Bulletin* 43, April, 17-28.

Quinn, Joseph F. (1980b). "The Extent and Correlates of Partial Retirement," in progress.

Quinn, Joseph F. (1977). "The Microeconomic Determinants of Early Retirements: A Cross-sectional View of White Married Men," *Journal of Human Resources* XII, 329-346.

Taubman, Paul, and Sherwin Rosen (1980). "Healthiness, Education and Marital Status," NBER Conference on *Economic Aspects of Health*, forthcoming.