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5 Determinants of Pension Benefits

Paul Taubman

The life-cycle consumption-saving model of Modigliani, Brumberg, and Ando (MBA) has long been recognized as a major strand in the postwar developments on consumption and saving behavior. Recently its use or misuse in the public finance literature has given this model even more attention than the related permanent income hypothesis (Kotlikoff and Summers (1981). The essence of the life-cycle model is that individuals save primarily to maintain a smooth (or smoother) consumption than earnings path. Earnings received during a person's lifetime fluctuate greatly because of business cycles, systematic variations in earnings with age and work experience, and retirement or reduced labor force participation. A major emphasis in this model is that individuals will acquire assets while working and dissave while retired when earnings will be low or zero.[1]

The MBA model was developed in the early and mid-1950s to help explain consumption data drawn from earlier periods. In those earlier periods, however, retirement, the driving force in this model, was rare and relatively short lived. Table 5.1 contains data on life expectancy and labor force participation of men of various ages for the period 1950–80. In 1950, 70% of the men who were 65 participated in the labor market and had a remaining life expectancy of only 13 years. The corresponding participation rate and remaining life expectancy for a 70-year-old was 50% and 10 years. In 1980 only 35% and 21% of the men who were 65 and 70 years old were in the labor force and the remaining life expectancy was 14 and 11 years. Since pension plans are made at earlier ages, it is useful to note that the remaining life expectancy of a 50-year-old male has risen

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Table 5.1 **Participation Rates and Life Expectancy at Selected Dates for Men**

	Age 60		Age 65		Age 70	
Year	LFPR*	Remaining Life Expectancy†	LFPR	Remaining Life Expectancy	LFPR	Remaining Life Expectancy
1950	84.7	15	71.7	13	50.0	10
1960	85.9	16	56.8	13	37.3	10
1970	83.9	16	49.9	13	30.2	11
1980	74.0	17	35.2	14	21.3	11

Sources: Participation rates from Burkhauser and Turner (1982), p. 305. Life expectancy from various Vital Statistics.
*Labor force participation rate.
†Remaining life expectancy.

from 23 years in 1950 to 25 years in 1980. Life expectancy of women has risen even more than that of men during this time interval.[2]

Several major factors that contribute to the increase in nonparticipation of the elderly are the size of the benefits paid by social security relative to wages from working (Parsons), the actuarial fairness in social security and private pension (Lazear), and mandatory retirement ages set in private pension plans whose use has grown over time.

Whatever the reason for retirement, the increase in the expected length of time in retirement should influence both the volume of savings and its composition.

In this paper, I will use The Retirement History Survey (RHS) to determine how the non-social security pensions (hereafter, private pensions) vary across sociodemographic groups and how the present discounted value of pensions taken over expected remaining life span correlate with expected retirement years. Public and private pensions should be good substitutes for the individual. But as Samuelson has pointed out, the pay-as-you-go feature of social security can reduce total savings. Thus I will also study the interrelationship of the two pensions to get at a set of issues initially examined by Feldstein. In addition I examine the relationship with number of children, who are often thought of as an alternative source of funds during retirement.[3] Finally I will examine the relationship of pensions to total financial wealth and income derived thereon. The results obtained on some of these hypotheses at times may be affected by my desire to study the socioeconomic differences. For example, it is of some interest to learn that those without pensions are more likely to be working after age 65. It is not really possible to distinguish, however, if the lack of a pension caused these people to continue to work or if they selected an occupation which they knew would let them work until they died and thus did not require a pension.

The RHS has been used by Blinder, Gordon, and Wise (BGW) to study a number of issues related to pensions. Our data set and analyses differ in

several important ways from theirs. They used primarily the 1971 survey and restricted themselves to white males. BGW also estimated dollar amounts of pensions for people not yet receiving or reporting amounts and social security wealth based on four reported wage figures.

I use the 1977 survey and include women and nonwhites. By 1977 every head of household is at least 66 and almost everyone eligible for a pension is receiving it. We calculate social security wealth from benefits received or from the social security earnings records, which have been matched to the file.[4] I also allow for differential life expectancies for different groups. All these differences contribute to substantial differences between averages shown in the two studies.

BGW started off with a tightly specified life-cycle savings model in which an intertemporal utility function was maximized. As their paper indicates, during their study they sustained doubts about the validity or usefulness of this model. (See also Blinder 1982.) My model is more loosely structured in part because we wish to examine demographic and other socioeconomic differences. It reaches conclusions more favorable to the life-cycle model.

5.1 The Model

One can, of course, treat the question raised above as being descriptive in nature and obtain the answers without recourse to economic theory. In "Pensions and Mortality" (Taubman 1981), however, I demonstrate how it is possible to have a worker demand for pensions and a firm supply of pension funds that can be solved to obtain a reduced-form equation that depends on the sociodemographic variables I am studying here that does not have to include the price or after-tax rate of return on pensions. Thus the following model can be thought of as an approximation to such a system:

$$PB = F(SSB, \mathbf{X}, W), \tag{1}$$

PB = dollar amount of pension benefits, SSB = present discounted value of the dollar amount of social security benefits calculated over remaining expected lifetime, $\mathbf{X}$ = a vector of sociodemographic characteristics, W = financial wealth.

5.2 Data

In 1969 the Retirement History Survey (RHS) was established. At that time a random sample of heads of households 58–63 years old was surveyed. The same group of people or their surviving spouses were scheduled to be reinterviewed every second year through 1977, though there was attrition because of death and other reasons. Two valuable features of the RHS are that the sample has been linked to social security records and

there is a breakdown of previous year's income by source. Unfortunately, because the man is automatically designated as the head of the household, the only women who are respondents in 1969 are widowed, divorced, separated, or never married.

By 1977, the youngest respondent is 67 years old and most pensions are being drawn. Because the pension amounts for the previous year are reported, I do not make use of the 1975 reinterview. The mean and variance of some important variables in that year are given in table 5.2 separately for men and women. In 1977 the men are about 68 years old; they have financial net worth exclusive of pensions of about $28,000; their average family income is about $10,000; about 28% were in the labor force; 83% received social security benefits; half received or expected to receive a pension; the average amount of the pension for all men was $1675 but for those with a pension was $3793; and their pension and social security wealth was $20,676 and $40,377, respectively. The numbers for women heads of households are similar except that wealth, family income, and pensions are about one- to three-quarters the size of men's.[5]

The data for 1977 have the advantage that everyone is at least 66 and likely to have retired and thus able to provide accurate dollar amounts for pensions. However, there has been sample attrition that may not be random and 216 people with pensions did not report the amount in 1977. Moreover, in 1977 about 7% of the men and women who expect to receive a pension still do not have one.

5.3 Methodology

Because most people in the sample do not receive a pension, the use of the OLS on the whole sample causes statistical problems. To surmount this difficulty, I estimate probit equations on the probability of having a pension (or having and expecting to have a pension) and OLS regressions on pension amount for those with positive pensions. While this is not the only method for handling the issue,[6] it is appropriate and lets me look at two issues of concern, that is, who has pensions and how big are the pensions of recipients. The two estimates can be combined to obtain estimates of the effect of various variables and differences in pension holdings for various groups in the total sample.

5.4 Results

Probit equations for the probability of receiving a pension are given in tables 5.3A and 5.4A for males and females. Corresponding equations for the sum of respondents receiving or expecting to receive a pension are given in tables 5.3B and 5.4B.

Table 5.2 Means of Selected Variables in 1977 RHS Survey

Variable	Males	Females
Financial wealth*	$27,889	$12,608
Age 77	68.3	67.2
Family income†	8,266	3,890
Nonwhite	.10	.14
Receives or expects to receive pension 77‡	.51	.42
Receives pension	.44	.26
Receives social security 77	.83	.70
Social security amount	2,460	1,681
Social security wealth	40,377	17,266
Pension amount	1,675	737
Pension amount, recipients	3,794	2,879
Pension wealth	20,676	5,467
Labor force participation	.28	.20
Married 77	.82	
Widowed 77	.06	.57
Div/sep 77	.04	.12
Number§	4,997	2,996

Definition of Variables

Nonwhite	0 = white	1 = otherwise
LFP	1 = participating in labor force	0 = otherwise
Prof	1 = professional worker	0 = otherwise
Clerk	1 = clerk	0 = otherwise
Skill	1 = skilled worker	0 = otherwise
Manager	1 = manager	0 = otherwise
Self	1 = self-employed	0 = otherwise
FEarn 77	Family earnings—pension income	
SS 77	Social security income	
Rec SSN	1 = receive social security income	0 = otherwise
Widowed	1 = widowed	0 = otherwise
Div/sep	1 = divorced or separated	0 = otherwise
Educ 69	Education (in years) in 1969	
Wea 77	Wealth	
Kids	Number of children	
LifePen	Lifetime value of pension income	
Life SS	Lifetime value of social security income	
Married	1 = married	0 = otherwise
Assup	Expected years of retirement from 1977 (0 = still in labor force)	
PEN 77	Pension income in 1977	
ERecPen	Receiving *or* expecting to receive a pension	
RecPen	Receiving a pension	

*Excludes pensions and social security benefits.
†Includes social security benefits.
‡Some recipients expect to receive another pension in the future.
§If information is not reported, missing data are set equal to mean.

Table 5.3.A **Dependent Variable: Currently Receiving Pension, Males**

Variable	Maximum Likelihood Estimate	t-Value	Maximum Likelihood Estimate	t-Value	Maximum Likelihood Estimate	t-Value	Maximum Likelihood Estimate	t-Value
Constant	−.40	−5.08	−.57	−6.94	−.82	−8.85	−.24	−2.92
Widowed	.20	1.93	.20	1.87	.25	2.30	.15	1.41
Div/sep	.036	.30	.023	.19	.048	.39	.0059	.05
Nonwhite	−.28	−4.49	−.30	−4.81	−.09	−1.36	−.30	−4.76
Married	.31	3.83	.33	4.05	.30	3.67	.36	4.25
Educ 69					.042	8.82		
FEarn 77			.000070	−3.43				
SS 77								
Prof								
Clerk								
Skill								
Manager								
Self								
LFP							−.74	−17.37
Rec SSN								
Log likelihood function	−3399.94		−3341.46		−3360.30		−3242.21	

Constant	−.74	−8.25	−.81	−9.57	−.16	−1.97	−.88	−7.88
Widowed	.19	1.83	.14	1.33	.18	1.64	.20	1.81
Div/sep	.22	.18	.14	0.11	.18	0.01	−.03	−0.21
Nonwhite	−.27	−4.29	−.17	−2.65	−.40	.0020	−.030	−0.10
Married	.30	3.68	.24	2.88	.36	4.40	.38	4.25
Educ 69							.07	11.68
FEarn 77							.000002500	−1.02
SS 77			.00019	15.67			.00019	10.39
Prof					−.71	−12.13	−.66	−9.89
Clerk					−.28	−3.63	−.31	−3.77
Skill					−.20	−4.53	−.18	−3.85
Manager					−.62	−10.01	−.67	−9.96
Self					−1.25	−8.96	−1.30	−9.27
LFP							−.61	−12.89
Rec SSN	.41	8.35					−.23	−3.04
Wea 77							.00000078	1.52
Kids							−.03	−3.84
Log likelihood function	−3364.28		−3274.00		−3252.52		−2968.39	

Table 5.3.B **Dependent Variable: Currently Receiving or Expecting to Receive Pension, Males**

Variable	Maximum Likelihood Estimate	t-Value	Maximum Likelihood Estimate	t-Value	Maximum Likelihood Estimate	t-Value	Maximum Likelihood Estimate	t-Value
Constant	−.07	−1.03	−5.45	−5.97	−.05	−.61	−.37	−4.53
Widowed	.12	1.13	.16	1.56	.11	1.10	.067	.63
Div/sep	.11	−.93	−.10	−1.83	−.12	−.99	−.14	−1.18
Nonwhite	−.25	−4.09	−.04	−.57	−.27	−4.33	−.17	−2.70
Married	.33	3.84	.32	3.69	.27	3.14	.27	3.08
Educ 69		2.05	.05	9.81				
FEarn 77					.00000500	−2.42	.00013	11.24
SS 77								
Prof								
Clerk								
Skill								
Manager								
Self								
LFP								
Rec SSN								
Log likelihood function	−3399.88		−3300.82		−3346.93		−3285.85	

Constant	−.17	−2.10	−.10	−1.21	−.17	−1.97	−.23	−2.11
Widowed	.08	.74	.06	.55	.11	1.08	.14	1.24
Div/sep	−.16	−1.30	−.15	1.22	.12	−.99	−.13	−1.00
Nonwhite	−.37	−5.97	−.27	−4.37	−.25	−4.03	.04	.34
Married	.21	2.62	.08	2.47	.16	1.99	.26	2.96
Educ 69							.069	12.44
FEarn 77							−.0000013	−.53
SS 77							.00017	−9.43
Prof	−.76	−12.99					−.72	−10.86
Clerk	−.23	−2.88					−.28	−3.34
Skill	−.19	−4.07					−.15	−3.15
Manager	−.61	−10.01					−.69	−10.37
Self	−1.21	−9.62					−1.28	−9.72
LFP			−.72	−17.27			−.65	−13.88
Rec SSN					.11	2.25	−.56	−7.12
Wea 77							.00000090	
Kids							−.04	−4.91
Log likelihood function	−3199.41		−3196.29		−3347.35	−2917.96		

Table 5.4.A **Dependent Variable: Recipient—Currently Receiving, Females**

Variable	Maximum Likelihood Estimate	t-Value	Maximum Likelihood Estimate	t-Value	Maximum Likelihood Estimate	t-Value	Maximum Likelihood Estimate	t-Value
Constant	−.30	−4.65	−.36	−4.80	−1.35	−11.02	−.19	−2.86
Widowed	−.31	−4.21	−.30	−4.05	−.20	−2.56	−.33	−4.39
Div/sep	−.33	−3.30	−.32	−3.18	−.28	−2.74	−.32	−3.20
Nonwhite	−.54	−5.56	−.52	−3.63	−.30	−2.93	−.54	−5.54
Educ 69					.093	10.30		
FEarn 77			.000012	1.56				
SS 77								
Prof								
Clerk								
Skill								
Manager								
Self								
LFP							−.66	−7.31
Rec SSN								
Log likelihood function	−1190.74		−1099.51		−1132.37		−1161.27	

Constant	−.56	−6.39	−.89	−10.47	−.40	−5.42	−1.23	−8.31
Widowed	−.32	−4.27	−.29	−3.76	−.25	−3.32	−.03	−.29
Div/sep	−.34	−3.43	−.31	−3.03	−.27	−2.64	−.07	−.65
Nonwhite	−.52	−5.35	−.35	−3.46	−.43	−4.33	−.06	−.58
Educ 69							.07	6.46
FEarn 77							−.00002	−2.06
SS 77		.00028	11.46				.0005	10.55
Prof					.61	5.62	.41	3.31
Clerk					.20	2.50	.10	1.17
Skill					−.25	−2.76	−.17	−1.71
Manager					−.22	−1.37	−.51	−2.87
Self					−.30	−.96	.02	.07
LFP							−.69	−6.80
Rec SSN	.33	4.46					−.82	−6.20
Wea 77							.0000030	2.46
Kids							−.07	−3.93
Log likelihood function	−1180.51		−1121.93		−1163.29		−1002.57	

Table 5.4.B **Dependent Variable: Currently Receiving Pension or Expecting to Receive Pension, Females**

Variable	Maximum Likelihood Estimate	t-Value	Maximum Likelihood Estimate	t-Value	Maximum Likelihood Estimate	t-Value	Maximum Likelihood Estimate	t-Value
Constant	−.17	−2.68	−1.17	−9.94	−.25	−3.30	−.64	−7.68
Widowed	−.23	−3.13	−.12	−1.60	−.22	−2.92	−.21	−2.77
Div/sep	−.33	−3.39	−.29	−2.90	−.32	−3.28	−.32	−3.13
Nonwhite	−.52	−5.72	−.28	−3.00	−.50	−5.42	−.37	−3.92
Educ 69			−.089	10.33				
FEarn 77(000)				.000015	1.96			
SS 77(000)						.00022	9.23	
Prof								
Clerk								
Skill								
Manager								
Self								
LFP								
Rec SSN								
Log likelihood function	−1258.54		−1200.48		−1256.68		−1214.89	

Constant	−.27	−3.66	−.08	−1.15	−.31	−3.53	−.96	−6.81
Widowed	−.17	−2.26	−.25	−3.32	−.23	−3.16	.02	.23
Div/sep	−.27	−2.75	−.33	−3.34	−.39	−3.43	−.126	−1.15
Nonwhite	−.43	−4.53	−.53	−5.77	−.51	−5.59	−.11	−1.05
Educ 69							.068	.73
FEarn 77							−.000010	−1.14
SS 77							−.00037	9.03
Prof	.66	5.92					.44	3.54
Clerk	.16	2.01					.06	.68
Skill	−.22	−2.63					−.125	−1.37
Manager	−.11	−8.02					−.32	−2.00
Self	−.48	−1.52					−.23	−.73
LFP			−.54	−6.40			−.58	−6.27
Rec SSN					.17	2.31	−.78	−6.27
Wea 77							.00000200	1.78
Kids							.05	−3.33
Log likelihood function	−1130.69		−1236.91		−1255.84		−1106.77	

The first equation contains only marital status and race variables. As shown in the first column in table 5.3A, married and white men are significantly more likely to have pensions than single or nonwhite men. The last column in the table contains my most comprehensive equation. The coefficients that have a positive and significant effect on the probability of having a pension are social security benefits, years of schooling, and being married. The negative and significant impacts flow from receiving social security benefits, being a labor force participant in 1977, and being self-employed and in any (longest) occupation versus an unskilled or blue-collar laborer.[7]

These results, while often subject to several interpretations, bear on a number of important issues. First, it is well known that married men have higher earnings.[8] In this equation I have controlled for financial wealth and for education, current earnings, social security benefits, and longest occupation, all of which are proxies for permanent earnings. Yet married men continue to be more likely to have a pension. This suggests that married men have a lower rate of time preference than single men.[9]

Second, the nonwhite coefficient is no longer significant. The inclusion of earnings and education has reduced the significance of this variable. Thus nonwhites are not discriminated against directly in the provision of pensions though this can hardly be a comfort if they are discriminated against with respect to wages and other determinants of pensions.

Third, the labor force participation rate variable has the largest t statistic. Presumably this coefficient reflects two forces. Some people (e.g., college professors) will not draw their pension until they retire at some later age. In addition, those people who plan to work without retiring are less likely to acquire pensions. However, when the same set of variables is used in a probit function for "expect to receive pension in the future and not currently have one," the labor force participation variable is significant at about the 1% level and has a negative coefficient. That is, they are less likely to expect a future pension. Thus this finding is more consistent with the life-cycle model.

Fourth, a person who receives social security is significantly less likely to receive a pension. This is consistent with Feldstein's substitution hypotheses.[10] But the higher his social security wealth, the more likely he is to receive a pension. This result can be explained in terms of social security benefits' being a proxy for permanent earnings.

Family income net of private pension benefits is negatively related to the probability of having a pension, but the results are not significant. Of course, at this point in the life cycle, current income should be a poor proxy for permanent income.

Table 5.4A contains the corresponding results for the women heads of household. While they are qualitatively similar, there are some important differences. For example, in equation 1, never-married women are much

more likely than widows to receive a pension even though some widows receive payments from their husband's pension plans. This is probably due to the greater labor force participation of single women, the incomplete use of joint and survivor pensions, and a spouse's dying before vesting occurs. These coefficients become statistically insignificant in the more complete equations, which have various proxies for work experience.

In my most recent equation, I obtain results qualitatively similar to those for men except that professionals and net worth have positive and significant coefficients, the family income variable has a significant negative coefficient, and some occupations are not significant.

In tables 5.5 and 5.6 I present OLS regressions for males and females who receive one or more pensions in 1977.[11] Because some of the signs change as I move from less to more inclusive equations, I show some of the less inclusive versions. In my discussion I concentrate on the most inclusive equations. For women, the equation explains over 60% of the variance in the amount of pensions received. Clerks receive smaller pensions than unskilled workers who may be more likely to unionize. Widows and divorced and separated women receive noticeably smaller amounts than single (never-married) women who were more likely to be in the labor force and not dependent on a husband's choosing joint and survivors' insurance or on alimony provisions.

Various proxies for family permanent income and wealth reveal a mixed picture for women. Pension amounts increase significantly with family income and education. However, both the receipt of and dollar amount of social security benefits lead to reduced pensions. This may reflect Feldstein's substitution argument; however, many private pensions contain provisions that reduce pension payments by a portion of social security benefits. While this mechanism is also one of substitution, it is not the mechanism Feldstein speaks of. Moreover, some of these provisions are designed to concentrate pensions among high-income individuals who are in the higher marginal tax brackets while letting the plan qualify as a deductible expense in the IRS code (see Munnell 1982).

Men continuing in the labor force have much lower pensions. Professional and skilled workers are receiving smaller pensions than the unskilled. Divorced and separated men did not sign away their pensions. Family income and respondent's education have large positive effects. Finally, dollar amounts of social security benefits are negatively related to amount of pension received. (See above for a discussion of why.) While there are some differences between the male and female equations, there is substantial agreement.

I am often more interested in the present discounted wealth than in the dollar amount of pensions. I have converted the pension benefits into a wealth measure in which the benefits are drawn during the person's ex-

Table 5.5 **Males with Positive Pensions (*t*-Statistics below Coefficients)**

SBPR. NO.	NWHITE 1	LFP 2	PROF 3	CLERK 4	SKILLED 5	MANAG 6	SELF 7	MARR 8	WIDOW 9	DIV/SEP 10
1.	−770.2847							567.50007	262.8037	346.2207
	−2.2101							1.2236	.4482	.4942
2.	−770.3345	9.9386						567.1951	263.0195	146.6331
	−2.2097	.0392						1.2225	.4484	.4964
3.	−901.0171							671.1428	233.6219	326.2542
	−2.6222							1.4688	.4045	.4729
4.	−609.336							469.8147	375.4016	641.898
	1.7620							1.0229	.6465	.9328
5.	−1119.9470							725.7759	310.9895	258.7063
	−3.2432							1.5893	.5390	.3753
6.	495.3103							546.8975	425.7163	520.6323
	1.4055							1.2191	.7504	.7681
7.	−629.3474		1629.0618	403.7642	−1114.7139	1897.9219	338.8010	540.2017	305.3132	360.9309
	−1.8439		4.9855	1.0620	−5.2566	5.7106	0.3310	1.1917	.5334	.5274
8.	107.377	−1143.33	370.617	−187.333	−720.463	986.04	305.55	550.210	497.202	286.073
	.3126	−3.689	1.110	−.508	−3.508	−2.957	.311	1.254	.905	1.194

SBPR. NO.	RECSS 11	FEMPEN 12	SS77 13	EDUC69 14	WEA77 15	INTRCEPT 16	KIDS 17	*R*-SQUARE 18	*F*-STATS 19
1.						3333.2886 7.4962		.0034	1.8524
2.						3331.9675 7.4704		.0034	1.4816
3.	−2334.3254 −8.3096					5314.6641 10.6587		.0338	15.3379
4.		.0840 6.7937				−2721.88 6.0586		.0239	10.7432
5.			−0.5200 −8.5784			4714.6016 10.1135		.0358	16.2491
6.				296.4890 12.3264		194.1917 0.3885		.0680	31.9722
7.						326.1150 7.5301		.0529	13.5650
8.	−888.75 −2.336	.034 2.601	−.3922 −4.828	214.729 8.305	.0185 5.979	2516.776 4.533	−35.839 −.84	.143	22.5258

Table 5.6 **Pensions of Women with Positive Pensions (*t*-Statistics below Coefficients)**

SBPR. NO.	NWHITE 1	LFP 2	PROF 3	CLERK 4	SKILLED 5	MANAG 6	SELF 7	WIDOW 8	DIV/SEP 9	RECSS 10
1.	−601.4692							−2156.0823	−2205.6345	
	−1.3280							−7.9522	−5.7758	
2.	−616.5217	743.2588						−2162.5237	−2207.0276	
	−1.3635	1.7455						−7.9898	−5.7900	
3.	−889.3832							−2212.5000	−2054.4351	−1989.0146
	−2.8231							−8.4468	−5.5607	−6.4617
4.	−505.69							−2109.7	−2155.4	
	−1.10							−7.7268	−5.6225	
5.	−982.6653							−2342.1174	−2259.4697	
	−2.1873							−8.7492	−6.0462	
6.	55.7803							−1683.7561	−1983.0435	
	0.1276							−6.3835	−5.4607	
7.	−563.7683		1658.1133	−599.1079	−1288.5254	−1008.7683	3011.5210	−1977.8240	−1958.0813	
	−1.2871		4.9551	−2.0798	−3.5067	−1.5837	2.2832	−7.5570	−5.3283	
8.	−405.566	283.554	1053.223	−408.633	−459.983	−822.263	3315.526	−1461.858	−1400.647	−1824.149
	−.9760	.720	3.223	−1.523	−1.301	−1.336	2.683	−5.481	−3.949	−3.887

SBPR. NO.	FENPEN 11	SS77 12	EDUC69 13	WEA77 14	INTRCEPT 15	KIDS 16	*R*-SQUARE 17	*F*-STATS 18
1.					4512.6117 23.4508		.1147	24.2265
2.					4458.4062 22.9154		.1195	18.9980
3.					6217.4805 19.2667		.1761	29.9284
4.	.048 1.36				4264.4		.1176	18.6624
5.		−.4403 −5.1245			5731.4883 18.8946		.1543	25.5531
6.			243.2953 8.0008		1387.2935 3.2179		.2055	36.2143
7.					4410.9648 19.3356		.2043	17.8480
8.	.0369 1.0720	−.129 −.956	185.577 5.959	.0092 3.233	3629.749 7.126	−172.718 −2.838	.3372	18.5208

pected lifetime and discounted at a rate of 1%. The expected lifetime, whose derivation is given in the appendix, varies by characteristics. Because I have changed the dependent variable in the OLS equation nonproportionality and because I have also converted social security benefits to a lifetime wealth measure, I have reestimated my most inclusive equations, which are shown in table 5.7. The coefficients are similar to those already discussed.

The total effect of any exogenous variable on dollar amount of pension received depends on the probability of receiving the pension and the impact on the pension conditional on receiving one. I have calculated these numbers evaluated at the means of the other variables. The results are given for my most inclusive constructs in tables 5.8–5.10.

The first entry in table 5.8 indicates that a married professional male has a pension with an expected present discounted value that is $6555 less if he receives social security benefits. (The footnote means that a pension in a specific occupation was used and not the actual distribution across occupations.) While the impacts of receiving social security are always negative, the amounts vary substantially by marital status and occupation. It is perhaps surprising that blue-collar workers do better than anyone else, but this is consistent with other data.

The impact of self-employment is always negative. Many of these people can continue to work longer, can often acquire large amounts of financial asset by selling their business, and generally acquire more financial

Table 5.7 **Pension Wealth Equations for Males**

	Probability of Receiving Pension		Amount of Pension Wealth If Positive	
Variable	MLE	*t*	Coefficient	*t*
Constant	−.48	−9.04	−23157.00	−3.40
Married	.079	.80	58623.00	10.37
Widowed	.033	.29	43133.00	6.62
Div/sep	−.139	−1.06	41059.00	5.33
Nonwhite	−.007	−.11	−621.76	−.16
Educ 69	.07	11.74	2991.2	9.97
FemPen	−.000005	−2.01	.356	2.37
Life SS	.000009	8.49	−.282	−5.16
Prof	−.67	−10.01	3151.00	.82
Clerk	−.30	−3.63	−1857.2	−.44
Skill	−.16	−3.36	−7783.00	−3.29
Manager	−.64	−9.45	12915.00	3.36
Self	−1.29	−9.21	−3352.0	−.30
LFP	−.65	−13.68	−10071.00	−3.52
Wea 77	.0000008	1.58	.188	5.27
Kids	−.033	−3.75	−448.14	−.911
Log likelihood	−2907.48		R^2 = .1823	

Table 5.8 **Total Marginal Effects of Various Variables on Dollar Amount of Lifetime Pensions**

	Males								
	Receives SS	Self-Employed	Nonwhite	Labor Force Participant	2-Year ΔED	Kids	Life sS Δ100	Fenmpen Δ100	Wealth Δ100
Married professionals[a]	−6554.7	−1107.4	−277.15	−10487.0	1859.94	−576.91	5.27	2.73	6.39
Widowed professionals[a]	−5242.8	−6740.1	−227.47	−7146.3	1495.61	−394.54	.655	4.96	5.67
Div/sep professionals[a]	−4249.1	−5083.5	−182.52	−5687.6	1172.38	−318.53	.656	3.88	4.54
Married clerks[a]	−8262.2	−1367.2	−364.53	−12266.0	2289.09	−650.94	1.73	7.43	8.90
Widowed clerks[a]	−6811.9	−784.5	−308.12	−8321.3	1826.87	−444.09	−3.45	9.91	8.17
Div/sep clerks[a]	−5766.0	−613.72	−258.67	−6906.5	1548.72	−374.56	−2.77	8.23	6.85
Married skill[a]	−8520.2	−1272.4	−384.12	−1165.8	2316.43	−610.08	−1.76	10.47	9.88
Widowed skill[a]	−7064.6	−643.8	−326.97	−7601.3	1851.12	−400.62	−6.98	12.97	9.04
Div/sep skill[a]	−6194.8	−5649.9	−283.48	−6778.7	1635.12	−363.04	−5.28	10.68	7.76
Married manager[a]	−7432.2	−1406.1	−310.72	−12730.0	2136.83	−698.31	8.30	1.30	6.89
Widowed manager[a]	−6085.4	−9467.4	−259.55	−9260.1	1710.57	−509.97	3.53	3.60	6.15
Div/sep manager[a]	−5012.1	−7335.7	−211.18	7541.6	1411.11	−421.62	3.24	2.67	4.97

[a]Versus unskilled workers of the same marital status and other variables at their mean.

wealth to cover widely fluctuating incomes. While most of these reasons are controlled for in this analysis, the results are obtained by evaluating the probit function at the sample mean of these variables.

The impact of race on expected pension wealth is almost zero. As noted earlier, there is little difference in payments once other variables are controlled for though substantial difference in the raw numbers.

Those still working, who have less need for a pension in the life-cycle view, expect to receive from $5600 to $12,300 smaller pensions. Each additional two-year change in education adds $1200–$2300 in pension wealth. Each child reduces expected wealth by $300–$700. Since variation in schooling is likely to be larger than in family size, the Barro explanation may not be quantitatively important. Each $100 increase in social security wealth has effects ranging from a decrease in pension wealth of $5 to an increase of $5. These are modest effects.

The impact of current family income is positive but only ranges from $1 to $13 with each $100 change. Financial wealth is positively related to pension wealth with impacts of about the same size.

The differences between marital status are given in table 5.9A, evaluated at the means. The comparisons are with never-married men. Married men do better than widows, who do better than divorced men, who do better than the never married. These results occur because of differentials both in life expectancy and in lifetime earnings.

The results for women are given in tables 5.10A and 5.10B. For the most part they are similar to those for men. However, the coefficient on self-employment has changed signs and is large; the effect of children is doubled, the effect of social security wealth is much increased, ranging between $10 and $26 per hundred-dollar change in this wealth; the impact of changes in financial wealth is muted; and marital status differences are smaller.

These results are derived from equations in which the labor force participation variable is included. As noted earlier, it is possible that pension wealth and retirement decisions are determined or planned for simultaneously. If so, it would be appropriate to eliminate the participation variable from the pension equations.

Doing so we obtain tables 5.9B, 5.9C, 5.10C, and 5.10D. The effects are somewhat different quantitatively. For example, for males the effects

Table 5.9.A **Marginal Effects of Marital Status, Single Is Comparison State**

	Males			
Marital Status	Professional	Clerk	Skilled	Manager
Div/sep	9343.52	14791.5	17338.8	9326.72
Widowed	11202.7	1689.1	19204.7	11770
Married	15925	23711.1	26795.1	16821.1

Table 5.9.B **Total Marginal Effects of Various Variables on Dollar Amount of Lifetime Pensions, Labor Force Participation Variable Excluded**

	Males							
Group	Receives SS	Self-Employed	Nonwhite	2-Year ΔED	Kids	Lifetime SS Ben Δ100	Earn Δ100	Wealth Δ100
Married professionals	−5076.1	−10477	−568.36	3497.84	−592.71	8.0585	−8.0583	5.45279
Widowed professionals	−4499.9	−7153.8	−465.65	2942.07	−439.6	2.9242	−3.028	5.36766
Div/sep professionals	−3563.6	−5295.7	−368.03	2361.3	−349.59	2.5357	−2.6117	4.19705
Married clerk	−6858.6	−13677	−727.63	4431.21	−698.74	5.3036	−5.4442	8.17088
Widowed clerk	−6160.8	−8725.5	−60.28	3760.53	−508.53	−1.0199	.75406	8.06147
Div/sep clerk	−5136.3	−6764.6	−499.75	3178	−426.29	−.5574	.34306	6.65251
Married skill	−7577.9	−13778	−768.76	4684.6	−687.67	1.4857	−1.7475	9.62166
Widowed skill	−6855.4	−8010	−635.23	3991.4	−488	−5.2339	4.7318	9.50535
Div/sep skill	−5950.4	−6967.6	−558.02	3540.67	−442.43	−3.3555	3.04167	8.0288
Married manager	−5899.1	−13791	−682.75	4133.57	−736.54	11.5937	−11.54	6.07478
Widowed manager	−5302.7	−10258	−576.05	3558.17	−577.36	6.25912	−6.3129	5.98717
Div/sep mangaer	−4285.3	−7833.2	−466.61	2920.76	−472.81	5.55211	−5.5819	4.74371

Table 5.9.C **Marginal Effects of Marital Status, Single Is Comparison State, Labor Force Participation Excluded**

	Males			
	Professional	Clerk	Skill	Manager
Div/sep	8877.39	14564.5	18089.3	9252.35
Widowed	10895.6	16878.7	20255.3	11971.7
Married	14404.8	22478	27091.7	15729.8

of receiving social security are generally substantially closer to zero and the educational effects are larger. For females the self-employment effect is reduced, presumably because many of the labor force participants are self-employed.

The amount of pension and savings required to finance retirement depends on how long the person expects to be retired. This period can differ because of variation in life expectancy and date of retirement. (The variations in life expectancy also influence the value of social security wealth.)

I have calculated average life expectancy and average retirement age in the following way. First using the RHS I have calculated probit equations for the probability of having died by a given year. The equations, which are given in the appendix, include as explanatory variables age, race, sex, education, and marital status. Let P_{jt} be the probability that a person with the j^{th} set of characteristics will die in year t. The probability of surviving through year t is $(1 - P_{jt})$. The probability of surviving through year $t + k$ is $\pi (1 - P_{j,t})(1 - P_{j,\,t+1}) \ldots (1 - P_j, t + k)$. The average life expectancy is found by dividing the π term, evaluated from age 60 to age 110, by k, or 51 years. The probit equations tell us how the P's vary as characteristics change.

The average retirement age was calculated in two ways. The first is an expectational view. I used unpublished March 1975 CPS tabulations on employment, unemployment, and nonparticipation by age, race, sex, and education to find average expected number of years of nonparticipation. The age groupings were in 10-year intervals beginning at 45. The average age of nonparticipation was subtracted from the average life expectancy. The second method uses age in 1977 and adjusts for being not retired then. I then estimate the probability of having a pension and the dollar amount of the pension on the average retirement period.

The equations include expected social security wealth and financial wealth since all three can be used to finance retirement though not bequests. Labor force participation is included because I assume that the 18% who are still working in 1977 will have an expected length of retirement of zero. This dummy variable permits me to correct any mistake in this assumption. As shown in table 5.11, the coefficient on actual retirement time (expected date of death minus current age is retired) is positive

Table 5.10.A **Total Marginal Effects of Various Variables on Dollar Amount of Lifetime Pensions**

Lifetime

	Females								
	Receives SS	Self-Employed	Nonwhite	Labor Force Participant	2-Year Δ100	Kids	Lifetime Δ100	Fenmpen Δ100	Wealth Δ100
Widowed professional[a]	−6658.0	6385.66	−2823.8	−8297.2	2341.15	−1101.4	25.85	22.78	3.47
Div/sep professional[a]	−6608.4	6444.81	−2529.2	−7333.0	2122.04	−984.8	24.71	23.61	
Widowed clerk[a]	−4904.6	4648.94	−1811.1	−5042.7	1594.70	−711.17	18.27	17.65	2.27
Div/sep clerk[a]	−4861.9	4705.74	−1552.5	−4237.9	1391.21	−607.63	17.25	18.40	1.93
Widowed skill[a]	−3207.0	2785.22	−1480.7	−4061.8	1343.68	−590.18	13.15	10.31	1.92
Div/sep skill[a]	−3174.9	2837.93	−1270.0	−3432.1	1170.14	−504.99	12.31	10.96	1.64
Widowed manager[a]	−2799.2	2462.82	−1141.5	−3062.4	1064.49	−455.3	10.96	9.56	1.48
Div/sep manager[a]	−2769.5	2509.84	−952.77	−2506.9	9060.34	−378.71	10.02	10.14	1.23

[a]Versus unskilled workers of the same marital status and other variables at their mean.

and highly significant. The labor force participation dummy is significant and has a coefficient of $11,560, which is far less than the $15,800 average in the sample. Of course, the expected date of death is used in calculating the expected pension wealth, and this can lead to spurious correlation with retirement time. However, this correlation would be negative and would bias the retirement time coefficient downward. Moreover, dollar amounts of pensions are positively related to expected number of retirement years (equation not shown).

The above results are encouraging in that they indicate people who need more assets to maintain consumption over longer retirement periods have the assets, controlling for other types of wealth. However, pension wealth is generally accumulated over long periods of time. It is quite possible that choice of lifetime occupations occurs much earlier when one's post-65 health is unknown. Thus there is some interest in redoing the equation using years of retirement expected as of age 45. Separate estimates of nonparticipation were made by race, sex, and education (0–8, 9–11, 12, 13–15, and 16 and more years of schooling). Estimated year of death was also calculated for each group. Unfortunately, when the expected retirement years were included in the equation, it had a negative, significant coefficient and yielded a higher R^2 than in the first equation.

I then decided to separate out the retirement time from the expected death date. The results are shown in column 3. The variable for expected date of death is insignificant, while the expected years of retirement variable is negative and highly significant. Much of the variation in retirement is correlated with education and low wages. (See Parsons 1980). Apparently I am picking up the early retirement of this group whose wages and earnings base were low. The lower pensions and pension wealth may not represent a large decline in consumption or utility.

Victor Fuchs has suggested that people might use disability payments as an alternative source of funds while not working. I have used the 1973 CPS-SSA Exact Match Sample to estimate for those 45–65 a probit function for the probability of receiving (in 1976) disability payments from social security. (After 65 you switch to regular old age benefits.) The equation was then evaluated for various configurations and an average probability of being on disability was calculated for each different race, sex, education, and marital status possibility. When this variable is included in

Table 5.10.B **Total Marginal Effects of Marital Status, Single Is Comparison State**

	Females			
	Professional	Clerk	Skilled	Manager
Div/sep	2086.1	1664.46	1017.87	9492.83
Widowed	3564.36	2720.51	1751.41	1569.29

Table 5.10.C **Total Marginal Effects of Various Variables on Dollar Amount of Lifetime Pensions, Labor Force Participation Variable Excluded**

	Females							
Group	Receives SS	Self	NonWhite	2-Year ΔED	Lifetime SS Ben Δ100	Δ100 Earnings	Δ100 Wealth	Δ100 Kids
Widowed professionals	−6048.1	1087.25	−2981.4	2276.67	27.2323	−.0401	3.159	−1087.4
Div/sep professionals	−5964.5	2119.29	−2659.2	2057.92	25.6793	2.937	2.819	−968.48
Widowed clerk	−4520.6	1520.14	−1926.7	1560.74	19.268	2.747	2.0855	−707.87
Div/sep clerk	−4453.2	19792.21	−1645.3	1358.7	17.8801	5.44	1.779	−602.56
Widowed skill	−2988.4	480.994	−1584.9	1320.7	14.3003	−1.9945	1.765	−591.9
Div/sep skill	−2937.8	712.166	−1351.6	1145.28	13.138	.3265	1.505	−503.62
Widowed manager	−2177.2	429.898	−1028.1	897.486	9.939	−.2295	1.164	−386.09
Div/sep manager	−2136.3	609.65	−844.5	753.668	9.005	1.6326	.955	−315.99

Table 5.10.D **Marginal Effects of Marital Status, Single Is Comparison State**

	Females			
	Professional	Clerk	Skilled	Manager
Div/sep	1673.49	1412.91	838.897	683.052
Widowed	3150.33	2408.9	1594.48	1212.65

Table 5.11 **Expected Lifetime Pension and Retirement Times**

	Coefficient	*t*-Value	Coefficient	*t*-Value
Constant	−6956.6	(3.9)	19051.6	(1.2)
Expected date death			157.8	(.8)
Expected number retirement Years before 65			−2425.4	(16.5)
Expected date death—actual age	1931.7	(10.2)		
Expected social security wealth	.097	(4.9)	.018	(.9)
Financial wealth 1977	.086	(7.5)	.058	(5.1)
Labor force participant 1977	11560.7	(5.4)	−11485	(11.3)
$\bar{R}^2$	.05			.09

the pension or pension wealth equations, it is highly signficant statistically but changes other significant coefficients by only modest amounts.

5.5 Conclusions

In this paper I have used the Retirement History Survey to study how pensions are distributed among the elderly. Combining probit estimates for having a pension and OLS regressions for dollar amount of pensions and converting to pension wealth by discounting such benefits over remaining expected life, I find that the groups that have substantially less pension wealth are those receiving social security, the self-employed males, labor force participants, and those with many offspring. Those groups having substantially more pension wealth include currently or previously married men and women, the more educated, blue-collar workers, and self-employed females. I also find that those with greater expected realized retirement years have more pension wealth (controlling for other forms of nonhuman wealth) available. This last result is not attributable just to spurious correlation.

In a sense, I find that the predictions of Barro (1976), Feldstein (1974), Ando and Modigliani (1953), and Modigliani and Brumberg (1954) are all correct. There is behavior consistent with parents choosing smaller pensions and more current consumption if there are children available to help them. Recipients of social security, per se, have much less pension wealth. Moreover, pensions rise with social security benefits but the amounts are

far less than dollar for dollar and total savings fall. The basic essence of the life-cycle model seems to be correct. People who are not retiring save less, and the amount available for retirement increases as the length of retirement grows.

Appendix

I first estimated the probit specification for 1971, 1973, 1975, and 1977 data with dead versus alive as dependent variables.

Using the estimated coefficients from above for each year, I computed the probability of dying for different configurations of individual characteristics. For each configuration I computed the probability of dying for each age within the age range of the sample for that year. Thus in 1971 I computed for a black married male the probability of dying at age 60, 61, . . . 65. This was done for 1971, 1973, 1975 and 1977 samples.

Thus, for each characteristic combination there are 24 probabilities of dying (each with a corresponding age). (For widowed black males I dropped 71 data because results are improbable.)

With the 24 probabilities derived above, I specified

$$\ln \text{prob} = \alpha + \beta \text{age} + e.$$

Using OLS (since TSCS regression [error comp] yielded almost identical results) I estimated $\hat{\alpha}$, $\hat{\beta}$. This was done for each characteristic combination. Using $\hat{\alpha}$, $\hat{\beta}$ I then computed expected life by evaluation of

$$\frac{i = \sum_{61}^{110} (1 - e^{\alpha + \hat{\beta} i}) \dot{i}}{\sum_{i=61}^{110} 1 - e^{\hat{\alpha} + \hat{\beta} i}}$$

for each combination of characteristics. If the probability of being alive $(1 - e^{\alpha + \beta \text{Age}})$ became less than zero, I stopped the iteration at the age $- 1$.

The above results were used only to measure differences between married, widowed, divorced, or separated.

From Vital Statistics (1977) I found the expected remaining years of life for white males, white females, black males, and black females in 1977.

Since I guessed that a large proportion of these people were married, I used these numbers as reflecting married white males, etc. I then adjusted these numbers for being divorced, widowed, etc., by subtracting the differences found above.

Table 5.A.1 **Probability of Dying**

Variable	1971 MLE	1973 MLE	1975 MLE	1977 MLE
Race	.38	.14	.081*	.034*
Sex	−3.06	−.36	−.16	−.044*
Educ 69	−.0025*	−.011	−.014	−.016
Widowed	3.49	.55	.60	.63
Div/sep	−.0087*	−2.45	−2.22	−2.58
Married	−.40*	−2.22	−2.07	−2.39
Age	.034*	.030	.019*	.018*
Constant	−3.21	−2.69	−2.09	−2.10

*Not significant at the 5% level.

To compute lifetime social security I combined the spouse's social security benefits with those of the husband or wife. Based on age, marital status, sex, and race, I added on the expected number of years they have to live using the numbers from above.

I then computed

$$\text{expected life} - \text{age } 77$$

$$\Sigma_t \frac{\text{SS77} + \text{SPSS77}}{(1+r)^t} = \text{lifetime SS} \quad r = .01$$

$$t = 1 \text{ for age in } 1977.$$

The identical procedure was followed for pension variable.

Notes

1. While the original model assumed zero expected terminal wealth, the model can be modified to incorporate bequests. There is an empirical issue of whether the elderly dissave.

2. These numbers probably understate the increase since the methodology used by the Census Bureau assumes everyone dies by age 85. There are more people living beyond this age now than in the past.

3. See Barro (1976); however, children's presence may induce a person to accept a job with higher current salary and lower pension if capital markets are not perfect.

4. For some purposes my treatment will cause more simultaneous equations problems.

5. The estimates of labor force participation for males are in line with those in table 5.1.

6. For a discussion of the problem and a comparison of alternative treatments, see Duan (1982), pp. 20–24. His appendix A shows that the method is consistent even if errors in the two equations are correlated.

7. A few farmers are included in the omitted category.

8. See Behrman et al. (1980). It is not known if this result occurs because they work harder, have more responsibilities, specialize more, or if higher-ability males are more attractive mates.

9. Higher earnings are subject to larger marginal tax rates; however, married and single people face different tax rate schedules, and it is not clear who faces the higher tax rate. This

is important since pensions generally allow a person to transfer income to a year with lower expected tax rates.

10. Feldstein may have revised that hypothesis, for the *New York Times* reports that he does not generally think of his pension holding as part of his wealth.

11. About 200 people, or less than 10% of the sample, received a pension in 1977 but did not report an amount. I omitted these people from the analysis.

Comment Victor R. Fuchs

This paper is an extension of Taubman's NBER Working Paper 811 (December 1981), "Pensions and Mortality." The principal objectives are (1) to describe how pensions vary across socioeconomic groups; (2) to pay special attention to relations between private pensions, social security, and total financial wealth; and (3) to explore the relation between pension wealth and length of retirement.

The paper partially succeeds on all three counts, but I have some reservations concerning the data set, omitted variables, and the interpretation of results.

The Data

Given the advanced age of the persons in the sample, some attention to possible biases introduced by selective attrition would be desirable. Consider the possibility of selective survival. For every nonwhite man in this sample in 1977 there was at least one other who died after the age of 30. (I estimate the survival rate for this cohort at about 460 from 1000 at age 30.) The estimated survival for white men is much higher—about 600 out of 1000 at age 30. The greater selectivity among the surviving nonwhite men means that these results could be giving a biased picture of the relation between race and pensions. Survival is also highly correlated with years of schooling, raising the possibility of bias for this variable as well.

The other attrition problem concerns losses from the sample for reasons other than death (e.g., change of location, illness, refusal to continue participation). My impression is that these losses were substantial between 1969 and 1977. One wonders who was lost and why. These losses from the sample may be a particular problem in the probability of death regressions. In these equations divorced and separated men have as low a probability of death as married men. This is contrary to all previous results, including earlier studies based on the Retirement History Survey.

Another question about the data concerns the size of pension wealth relative to social security wealth. For 1971, Blinder, Wise, and Gordon (1981) estimated social security wealth as 60% of the total of social secur-

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ity, pension, and financial wealth, and estimated pensions at 11%. In this paper the proportions are 45% and 23% respectively.

Also, why do so many more women than men "expect" to receive a pension, though they are not receiving it in 1977? For every hundred women receiving a pension in 1977, 69 others expect to receive one. For every hundred men receiving a pension in 1977, only 16 others expect to receive one.

Missing Variables

Although a great many variables are included in the analyses, at least two potentially important ones are missing. It is well known that unionized workers have greater pension benefits than nonunionized ones and that union status is correlated with several of the variables that are included. Which relations dominate? Also, disability payments have not been considered. Such payments could play an important role as a supplement to pension wealth for men who retire at an early age. Explicit attention to disability payments might help clarify the relation between pension wealth and years of retirement. The analysis of the relation between pensions and social security wealth would probably benefit from explicit attention to the distinction between government and private wage and salary workers.

Interpretation of Results

Are the right-hand-side variables really exogenous, as stated explicitly once and implicitly throughout? There are good reasons to believe that many of the important ones are not. The exogeneity of labor force participation is highly questionable: many papers based on the RHS data use pensions to *explain* labor force participation. Self-employment is also suspect as an exogenous variable. I used the RHS data in a longitudinal mode to study switching from wage-and-salary status to self-employment and found that the absence of a private pension was the strongest and most significant predictor of switching (Fuchs, 1982).

Problems of endogeneity aside, there is still a serious problem of how to interpret a correlation between pension benefits and various socioeconomic characteristics. Suppose one had a variable that was certified by the AEA Executive Committee as truly exogenous (e.g., height). Suppose that, ceteris paribus, this variable was highly correlated with pension benefits. Does this mean that tall men take a larger share of their compensation in the form of pensions, or do their higher pensions reflect additional compensation? The paper seems ambivalent on this question. At one point we read that the fact that married men are more likely to have a pension suggests that they have a lower rate of time preference than single men. This sounds like they are taking a larger share of their compensation in pensions. Later on, the married men are described as "doing better" than others, as evidenced by the larger pensions. This sounds like they are

getting greater compensation. I believe that Taubman leans toward the first interpretation, but a more explicit discussion of this question would be welcome.

Why would some men choose to take a larger share of their compensation in pension form? The pension literature suggests two principal reasons: to avoid taxes, and as part of an optimal labor contract that benefits both employer and employee by reducing turnover during the worker's most productive years and then inducing retirement when productivity falls. I would underscore a third reason. Some workers (and their wives) probably like the forced saving or precommitment aspect of pensions. They want to save for their old age but doubt their ability to do it on their own. Moreover, the rate of return on a group pension may be more favorable than could be obtained through individual purchase of an annuity. A fourth possibility is paternalism, or concern about reputation. This might help explain why large firms and unions are particularly eager to include pensions in the compensation package.

How do these reasons relate to the regressions reported in this paper? The connection is not clear. To make further progress, it will be necessary to develop models that permit some discrimination among alternative explanations. One possibility is to introduce variables that are closely tied to a particular explanation. For instance, it should be possible to identify men who face different tax schedules (perhaps because of marital status) to test whether tax considerations play an important role. State of residence affects taxes because some states do not have any income taxes and rates vary among the other states. If tax avoidance is an important explanation for pensions, state of residence should matter. Furthermore, it should matter more for high-income workers, that is, there should be an interaction effect.

My final comments concern the relation between social security and pension wealth. For men, the larger the social security benefit, the more likely they are to be receiving a pension. But conditional on receiving a pension, the larger the social security benefit, the smaller the size of the private pension. This is an unusual result. Most variables have the same sign in the probability of receiving a pension and the size of pension regressions, for example, education, labor force participation, occupation. What's happening? One possibility is that government workers are a much larger proportion of those with private pension than they are of the total population. The pensions of government workers are larger, on average, than those of private sector workers, but their social security benefits are probably much smaller. It is possible that social security benefits and pension benefits are positively correlated for both government workers and private sector workers, but that the inclusion of both classes in the same regression produces a negative relation. (See fig. 5.C.1.) It might be desirable to do separate analyses for government workers and for private

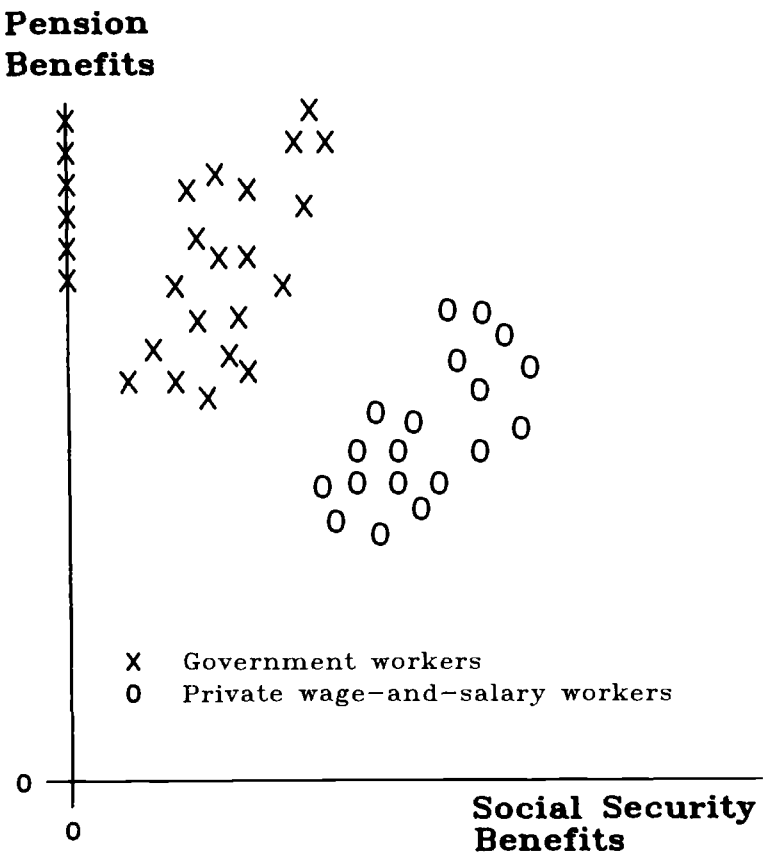

Fig. 5.C.1 Hypothetical relationship between private pensions and social security benefits.

sector employees. Similarly, it probably would be helpful to drop the self-employed, since it is highly unlikely that the other variables work the same way for self-employed as for wage-and-salary workers. The same might be done for farmers.

In general, one way to tease more out of the data might be through disaggregation. It may be possible to discriminate among competing explanations by looking at differences in the way certain variables work for some groups compared to others.

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