



# COMPARING WEALTH IN RETIREMENT: STATE-LOCAL VERSUS PRIVATE SECTOR WORKERS

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## INTRODUCTION

The compensation of public employees is a hot topic in the wake of the financial crisis. Funded levels of public pension plans declined sharply at the same time that state and local revenues collapsed. As a result, plan sponsors in most states are looking for ways to reduce pension costs. The assumption – either explicit or implied – is that pensions are too generous. Pensions, of course, are just one part of compensation, so any comparison must also consider wages and other benefits. The question of comparability of compensation in the state-local and private sectors was the focus of a recent *Issue in Brief*.<sup>1</sup> The conclusion was that wages for workers with similar characteristics, education, and experience were higher in the private sector than the public, but benefits for state-local workers roughly offset the wage penalty. Taken as a whole, compensation in the two sectors is roughly comparable.

This *brief* takes a somewhat different approach to the question of compensation using household data from the *Health and Retirement Study*. It asks whether, at the end of the day, state-local employees end up with more wealth at retirement than their private sector counterparts. That is, it looks at the wealth of couples where the head is age 65 and tests, controlling for many other factors that could affect the outcome, whether state-local employment has a positive or negative effect on wealth and how that effect is related to tenure in the state-local sector.

The discussion proceeds as follows. The first section presents the data and methodology to estimate the impact of state-local employment on wealth at age 65. The second section presents the results. They show that those with state-local employment who spent more than half their career as a public worker – about one-third of the total group – had 11 percent to

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18 percent more wealth at age 65 than similar private sector couples. The other two-thirds of those with state-local employment who spent less than half their career as a public worker ended up with *less wealth* than private sector employees. The third section discusses issues raised by the analysis – the possibility that state-local workers retire early, the role of defined benefit plans, and recent developments that might limit the applicability of the results to today’s environment. The final section concludes that, despite some limitations, the results refute the notion that state-local workers as a group end up a lot richer than their private sector counterparts.

## THE RELATIONSHIP BETWEEN STATE-LOCAL EMPLOYMENT AND WEALTH

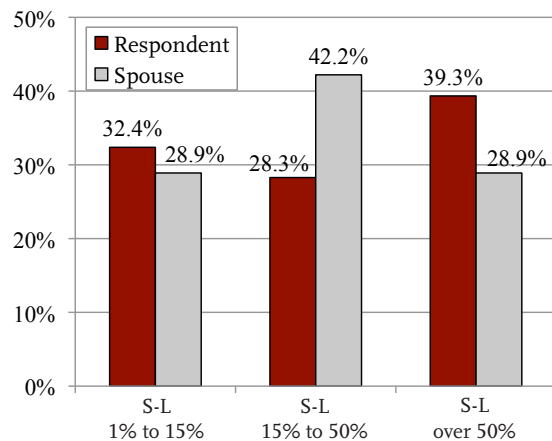
The purpose of this *brief* is to assess the “economic status” of state-local and private sector workers at the “end of the day.” Economic status is measured by wealth, which includes financial, business, and residential assets, as well as the present value of Social Security, defined benefit pension benefits, and retiree health insurance. “End of the day” is defined as age 65. Age 65 was selected as a point at which many households would be retired and also would be eligible for Medicare, so all would have some basic health insurance. The goal is to determine the extent to which household wealth at 65 is affected by state-local employment, controlling for other variables that could affect the outcome.

The analysis uses data from the *Health and Retirement Study* (HRS), a nationally representative panel of older American households.<sup>2</sup> This study began in 1992 by interviewing about 12,650 individuals from about 7,600 households ages 51-61 and their spouses (regardless of age), and the survey has been re-administered every two years since 1992. Over time other cohorts have been added to the survey, substantially increasing the sample size. The strategy here is to focus on the original 1992 cohort and limit the analysis to retired married couples. Given the age range of the original sample, the first group reaches 65 in 1996 and the last group in 2006. The final sample includes 1,100 households, roughly 37 percent of which had spent some time in the state-local sector.

The estimated equation relates total household wealth when the respondent is 65 to the percent of the respondent’s and the spouse’s careers spent as a state-local worker. (By construction, all the respondents are men and all the spouses are women.) Because defined benefit plans are back-loaded – delayed vesting, increasing benefit factors, and benefits based

on final earnings – the relationship between state-local tenure and wealth would not be expected to be linear. Thus, tenure is broken into three periods: 1 percent to 15 percent of career spent as a state-local employee; 15 percent to 50 percent; and more than 50 percent.<sup>3</sup> Figure 1 shows that roughly equal shares of state-local workers fall in each of these categories.<sup>4</sup>

FIGURE 1. DISTRIBUTION OF STATE-LOCAL WORKERS BY PERCENT OF CAREER SPENT IN THE STATE-LOCAL SECTOR, 1996-2006

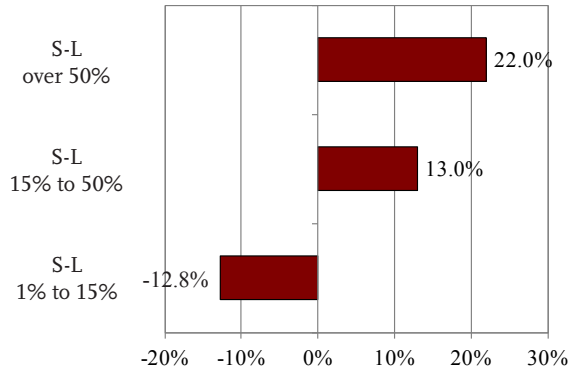


Source: Authors’ calculations from University of Michigan, *Health and Retirement Study* (HRS) (1992-2008).

Before proceeding with the analysis, it is interesting to see how the wealth of households with a state-local worker compares to that of households with a history of private sector employment. Figure 2 (on the next page) shows that the relationship clearly varies with how long the individual worked in state-local employment. Couples with a long-tenured state-local worker have 22 percent more wealth, while those with a short-tenured worker have 13 percent less. The question is how much of these differences can be explained by the nature of the individuals and the nature of the jobs.

In order to isolate the impact of working in the state-local sector, it is necessary to control for personal and job characteristics that could affect wealth accumulation. The focus is on married couples at 65, so no controls are required for marital status or age of the respondent. The control variables included in the equation fall into four groups: demographics; personality factors; other sources of wealth; and job characteristics.

FIGURE 2. DIFFERENCE IN AGE-65 WEALTH FOR HOUSEHOLDS WITH STATE-LOCAL VS. PRIVATE SECTOR EMPLOYMENT, BY STATE-LOCAL TENURE, 1996-2006



Source: Authors' calculations from HRS (1992-2008).

Demographic variables include:

- *Life expectancy.* This variable is the self-reported probability of living to age 75. A higher probability would be expected to be correlated with more wealth.
- *Education.* This variable measures educational attainment for both the husband and wife in terms of years of schooling. More education should be associated with more wealth.
- *Race.* A dummy variable equal to 1 if the respondent is black and zero otherwise. A dummy variable equal to 1 if the respondent is Hispanic and zero otherwise. Non-whites would be expected to have less wealth.
- *Age of spouse.* Although the respondent is 65, the spouse can be any age. The hypothesis is that older spouses would have had more time to accumulate wealth, so the relationship between age of spouse and wealth should be positive.

The nature of the individuals could also have an impact on wealth accumulation.

- *Stocks %.* The percent of the household's financial assets invested in equities at age 65 is designed to measure taste for risk. The greater the taste for high-risk/high-return investments, the greater the wealth.<sup>5</sup>

- *Risk aversion.* The HRS asks participants to choose between pairs of jobs where the pay is more or less risky. Based on their responses, they are assigned levels of risk preference ranging from 1 being least risk averse to 6 being most risk averse. Risk aversion is defined as being in level 5 or 6. Risk aversion and wealth would be expected to be positively related.
- *Long horizon.* The financial planning horizon for the respondent and the spouse is an attempt to measure taste for saving. A long horizon is defined here as greater than five years. The longer the horizon, the more likely the household is to save, and the greater the wealth.

Other factors that could affect wealth accumulation include whether the household consists of one or two earners and whether the household has received or expects to receive an inheritance.

- *Career spouse.* Two-earner households, especially at high education levels, would be expected to have more wealth than a single earner. Thus, the equation includes a variable equal to one if the spouse worked at least 10 years and retired no earlier than age 50 and a variable that interacts education and career spouse to reflect the hypothesis that the impact on wealth of a second earner will vary with education.
- *Expect inheritance.* The HRS asks about the probability of receiving an inheritance and the likely amount. All else equal, households expecting to receive an inheritance would have lower wealth. However, if taste for saving is correlated among generations, and not fully accounted for in the regression, then households expecting to receive an inheritance could have higher wealth.
- *Received inheritance.* The HRS includes the date and amount of past inheritances. These amounts are adjusted to 2006 based on inflation and an assumed real return of 3 percent. Households having already received an inheritance would have higher wealth.

Job characteristics include occupation, firm size, and region.

- *Occupation.* The 10 job categories include: management, professional, service, sales, administrative support, agriculture and forestry, construction and extraction, maintenance and repair, production, and transportation occupations.<sup>6</sup>
- *Firm size.* Firm size consists of five groups: 24 employees or less; 25 to 99; 100 to 499; 500 to 999; and 1,000 or greater.<sup>7</sup>
- *Census region.* The nation is divided into five regions: Northeast, Midwest, South, West, and Other.

Note that the list of control variables does not contain any measure of lifetime earnings. The reason is that we are *not* asking: “For a given level of earnings, what is the impact on wealth of being a state-local worker?” It is generally acknowledged that equivalent individuals would have different lifetime earnings depending on whether they worked in the public or private sector.<sup>8</sup> The question of interest here is “Given personal characteristics, occupation, enterprise size, and region of the country, does it matter in terms of household wealth at 65 whether an individual spends his/her career in the private or public sector?” This broader question does not require controlling for earnings.

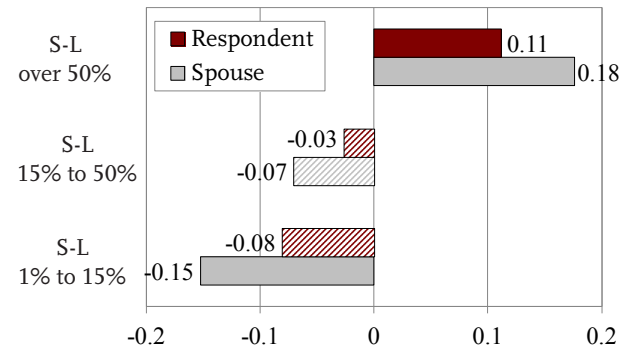
## RESULTS

Detailed regression results are presented in the Appendix. Before discussing the impact of state-local employment, it is worth noting that the coefficients of all the control variables come in with the expected signs and are statistically significant.<sup>9</sup>

The impact of state-local employment is presented in Figure 3. The results show that spending more than 50 percent of one’s career as a state-local worker is associated with 11 percent to 18 percent more wealth at age 65, and the coefficients are statistically significant. About one-third of those with some state-local employment fall into this category.

The relationships between shorter periods of state-local tenure and wealth are consistent with expectations, although most of the coefficients are not statistically significant. Those who spend only a brief time in state-local employment appear to end up with less wealth than those who never work as a public employee. About one-third of those with public sector employment fall into this group. This finding is not surprising, given that many leave without vesting in the pension and receive only a refund of their con-

FIGURE 3. IMPACT OF PERCENT OF CAREER AS A STATE-LOCAL WORKER ON WEALTH OF COUPLES WITH HUSBAND AGE 65, 1996-2006



Note: Solid bars indicate the coefficient is statistically significant at least at the 10-percent level. The bars represent the relationship between the characteristic and total wealth. Full regression results are presented in the Appendix.  
 Source: Authors’ calculations from HRS (1992-2008).

tributions and some small interest payment. And those who work for employers without Social Security leave with much less than they would have accrued in the private sector. Those who spend an intermediate portion of their career (15 percent to 50 percent) in state-local employment look very similar to private sector employees in terms of wealth at 65.

## QUESTIONS RAISED BY THE ANALYSIS

The results presented above raise a number of questions. How do we account for possible early retirement of state-local workers? Does simply being covered by a defined benefit plan force people to save more? Are 1996-2006 results applicable in 2011?

### EARLY RETIREMENT

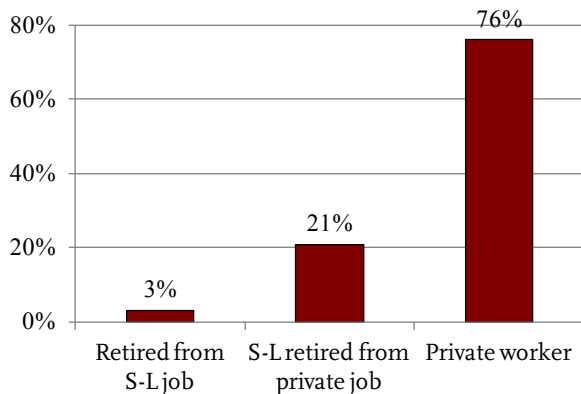
The analysis implicitly assumes that state-local and private sector workers retire at the same time. But what if state-local workers had been retired for a significant period before they were observed at age 65? To take an extreme example, suppose they had retired from a state-local job and had received a pension and retiree health insurance for 15 years, from 50 to 65. Such a pattern requires addressing two issues: 1) the value of pensions and health insurance received during that period; and 2) the value of the leisure enjoyed. The financial aspect of such a situation is

actually captured in the analysis. The pension can be viewed as equivalent to a wage, and to the extent that it is saved or avoids the drawdown of accumulated assets, it will be reflected in the final wealth figure. Similarly, savings from not having to purchase retiree health insurance will show up in the wealth at 65. The really troublesome issue would be the fact that someone had 15 years of leisure. Valuing such leisure would be important in any final assessment of comparability of public versus private compensation.

As it turned out, the leisure issue was not a major problem. As shown in Figure 4, most of the respondents who had spent time in the state-local sector ended up retiring from a private sector job. In terms of retirement age, those public sector employees who moved to the private sector retired at roughly the same age as workers who had spent their entire career in the private sector (see Figure 5).<sup>10</sup> Those who retired directly from their state-local job did retire early, but they accounted for only a small fraction of those with state-local employment. In short, an issue that could have complicated the analysis turned out to not be that important.

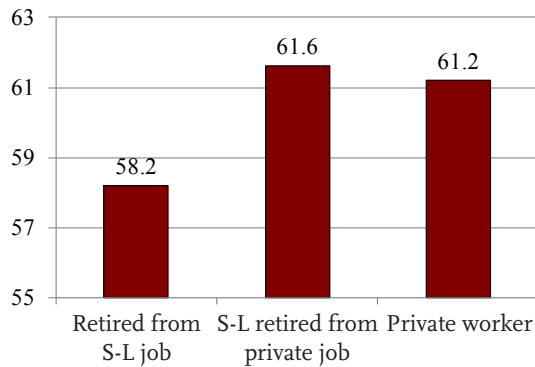
A related issue is the treatment of the income received by state-local employees who leave their public sector job and move to the private sector. These individuals would be earning wages from their private employer and (if eligible) could be simultaneously receiving a pension from their former state-local employer. Again, to the extent that any of this income is saved, it will be reflected in the final wealth figure.

FIGURE 4. DISTRIBUTION OF RESPONDENTS BY JOB AT RETIREMENT, 1996-2006



Source: Authors' calculations from HRS (1992-2008).

FIGURE 5. AVERAGE RETIREMENT AGE OF MEN WHO HAVE RETIRED BY AGE 65, BY SECTOR



Source: Authors' calculations from HRS (1992-2008).

### THE ROLE OF DEFINED BENEFIT PLANS

That households with a long-tenured state-local worker end up with greater wealth than households with a history of private sector employment could reflect either that 1) they received more in total compensation; or 2) they worked in a defined benefit environment where they were forced to save. Indeed, 78 percent of state-local households in the sample receive a defined benefit pension compared to 59 percent of private sector households.

To test the importance of being covered by a defined benefit plan, we re-estimated the equation, including a variable indicating the receipt of a defined benefit pension. The results show that the advantage of being a long-tenured state-local worker disappears totally for men, as the coefficient is not significantly different from zero (see Figure 6, on the next page).<sup>11</sup> In the case of women, the effect remains, but is reduced. This finding is not surprising given that women's relative wages are higher in the public sector than in the private sector.<sup>12</sup> In any event, the results suggest that wealth comparisons between state-local and private sector workers are influenced by the discipline imposed by the pension structure.



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# APPENDIX

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## APPENDIX. TOTAL WEALTH REGRESSION IN THE HRS

### DEFINING THE SAMPLE

The sample is retired married couples where the husband is 65 from the original cohort (born between 1931 and 1941) of the *Health and Retirement Study* (HRS).

Retirement is based on a RAND variable that asks whether the respondent considers him/herself to be retired. The respondent must claim to be completely retired, as those who claim to be partly retired are frequently working either full- or part-time. Spouses are treated similarly.

### TOTAL WEALTH

RAND sums total household assets – including financial and business assets, property and transportation assets, and IRA holdings – and nets out total debt. RAND does not explicitly include 401(k) assets in the wealth measure, since the HRS asks questions about these plans only when respondents change jobs or retire. However, a recent study found that 80 percent of 401(k) assets are rolled over into IRA accounts within five years of the employee leaving work.<sup>14</sup> For this reason, we assume that the IRA variable captures the majority of 401(k) assets. If it does not, our wealth estimates will be biased in favor of public sector workers.

On top of the basic wealth measure, the analysis adds wealth from pensions, Social Security, and retiree health insurance. Lastly, wealth is recalculated in 2006 dollars using historical CPI.

*Pension wealth.* As all the members of the sample are retired, we are able to observe their annual income from defined benefit pensions. Pension amounts are often not reported until a full wave after the respondent claims to have retired. For this reason, we take the pension amount that is reported one wave after the respondent turns 65. If not available, we use a reported age 65 or age 69 pension rather than a RAND cross-sectional imputation.

The basic formulae for calculating the net present value of pension wealth are:

$$Annual\ Pension_{i,t} = Annual\ Pension_{i,t-1} * Survival\ Probability\ Respondent_{i,t} * (1 + COLA_{i,t}) / (1 + Discount\ Rate_t)$$

$$NPV_{pension} = \sum_{i=1}^{100-age} Annual\ Pension_{i,t}$$

Where *Survival Probability* equals the compound probability of living to another year given the respondent's starting age, and is based on Social Security life tables. COLA is the cost-of-living adjustment. The HRS asks whether pensions at the current job receive a COLA. If the variable is missing, we assume that state and local workers receive a COLA, and that private sector workers do not. We are also obliged to make an assumption about the level of the COLA; we chose 1.5 percent based on the average COLA in the *Public Plans Database* (PPD).<sup>15</sup> The discount rate is set to 6 percent – 3 percent real return on assets and 3 percent inflation.

The basic equation is complicated by the fact that some pensions are straight life annuity whereas others are joint survivor. If the pension continues unreduced through the spouse's death, we calculate the net present value (NPV) as the greater of 1) the NPV calculated based on the male mortality table; or 2) the NPV calculated based on the female mortality table. If the pension continues reduced after the spouse's death, the surviving spouse's benefit is assumed to be 50 percent of the worker's.

*Social Security.* The exercise for calculating Social Security wealth is similar to that for pensions. The calculations use the *Respondent Cross-Year Summary Earnings* data. The COLA is equal to 3 percent, and the discount rate is equal to 6 percent.

Both men and women are eligible to receive survivor benefits, but will elect to do so only if the survivor benefit is greater than the individual benefit. The Social Security Administration gives a formula for calculating survivor benefits based on the Full Retirement Age, the actual claiming age, a reduction multiplier, and the spouse's benefit.



Wealth from survivor benefits is equal to:

*Retiree Health Insurance.* The RAND data contain a measure of whether the respondent and spouse are covered by retiree health insurance. The individual wave data indicate whether the employer covers all, part, or none of the premiums. Partial coverage is coded at 50 percent of the total premium. Thus, households where the employer covers the entire premium are awarded the full NPV of the lifetime stream of premiums, while households where the employer only covers half are awarded half that amount.

$$\text{Survivor Benefit}_{i,t} = \text{Survivor Benefit}_{i,t-1} * \text{Mortality Probability Spouse}_{i,t} * \text{Survival Probability Respondent}_{i,t} * (1 + \text{COLA}_t) / (1 + \text{Discount}_t)$$

The premium itself comes from a 2006 Kaiser/Hewitt survey of retiree health benefits.<sup>16</sup> According to the study, the annual average retiree-only premium for new retirees age 65 or older was \$3,240 in 2006.<sup>17</sup> We double this individual premium for those households where both the husband and wife are covered.

Premium wealth equals:

$$\text{Premium}_{i,t} = \text{Premium}_{i,t-1} * \text{Survival Probability Male}_{i,t} * (1 + \text{COLA}_t) / (1 + \text{Discount}_t)$$

For simplicity, we run this model using only the male mortality table. COLA is equal to historical and projected *real* medical cost inflation, as reported by the Congressional Budget Office (2008). Similarly, the discount rate is set to 3 percent.

## INDEPENDENT VARIABLES

*S-L tenure.* This variable reflects the percent of career spent as a state-local worker. The number of years spent as a state or local worker is recorded in the individual wave data and total career tenure can be found in the RAND data. The percent state-local variable simply divides the two, and then categorizes the results as either high (over 50 percent), medium (over 15 percent but no greater than 50 percent), and low (less than or equal to 15 percent).

*Age of spouse.* This variable is the spouse's age when the respondent is age 65. It is calculated by subtracting the spouse's birth year, as observed in the RAND data, from the year that the respondent turns 65.

*Life expectancy.* This variable is the self-reported probability of living to age 75 as reported in the RAND data.

*Education.* This variable measures years of education and comes from RAND.

*Career spouse.* This variable is equal to 1 if the spouse worked at least 10 years and retired no earlier than age 50. Retirement age is determined by subtracting birth year from retirement year as reported in the RAND data.

*Career spouse\* ed.* This variable interacts education and career spouse to reflect the hypothesis that the impact on wealth of a second earner will vary with education.

*Stocks %.* This variable measures stocks as a percent of total assets (both of which are reported in RAND).

*Risk aversion.* The HRS asks participants to choose between pairs of jobs where the pay is more or less risky. Based on their responses, they are assigned levels of risk preference ranging from 1 being least risk averse to 6 being most risk averse. Risk aversion is defined as being in level 5 or 6.

*Long horizon.* A dummy variable from the RAND data equal to 1 if the financial planning horizon is greater than five years and zero otherwise.

*Received inheritance.* A continuous variable equal to the value of past inheritances for the couple as reported in the wave data. The HRS gives information on up to three past inheritances, including the year in which each inheritance was received. The inheritances are increased by a 6-percent nominal rate from the years they were received until the respondent turns 65.

*Expect inheritance.* A continuous variable equal to the expected value of future inheritances as reported in the wave data. The HRS asks households the probability of either the respondent or spouse receiving an inheritance in the future, along with the expected amount. For this exercise, the expected amount is multiplied by the probability of receipt.

*Black.* A dummy variable from the 2008 tracker file equal to 1 if the respondent is black and zero otherwise.

*Hispanic.* A dummy variable from the 2008 tracker file equal to 1 if the respondent is Hispanic and zero otherwise.

*Occupation.* RAND sorts occupation of longest held job into 17 categories, which we reduce to 10 for comparability with Munnell et al. (2011). The reduced categories are: management, professional, service, sales, administrative support, agriculture and forestry, construction and extraction, maintenance and repair, production, and transportation occupations. Like Munnell et al., we exclude members of the armed forces.

*Census region.* A vector of five dichotomous variables from the RAND data.

*Firm size.* This variable is the number of employees at the respondent's location from the individual wave data. However, a large number of missing values forces us to impute based on occupational averages from the *Current Population Survey* for the public and private sector workers separately. Lastly, firm size is broken down into five dummy variables: 24 employees or less; 25 to 99; 100 to 499; 500 to 999; and 1,000 or greater.

TABLE B1. SUMMARY STATISTICS FOR REGRESSION ON TOTAL HOUSEHOLD WEALTH, 1996-2006

Variable	Mean	Standard deviation	Minimum	Maximum
Total wealth	1,129,183	1,645,503	17,160	3.79e+07
S-L 1 to 15 [R]	0.0745	0.2627	0	1
S-L 15 to 50 [R]	0.0658	0.2481	0	1
S-L over 50 [R]	0.0918	0.2889	0	1
S-L 1 to 15 [S]	0.0711	0.2571	0	1
S-L 15 to 50 [S]	0.1024	0.3034	0	1
S-L over 50 [S]	0.0720	0.2586	0	1
Has a DB [R]	0.5881	0.4924	0	1
Has a DB [S]	0.3253	0.4687	0	1
Age [S]	61.7344	4.7255	50	83
Life expectancy [R]	66.6254	22.7207	2	100
Life expectancy [S]	69.8529	22.3376	3	100
Education [R]	12.6974	3.0112	0	17
Education [S]	12.5176	2.5164	0	17
Career spouse	0.7072	0.4552	0	1
Stocks %	23.5235	33.2906	0	100
Risk aversion [R]	0.2096	0.4072	0	1
Risk aversion [S]	0.3719	0.4835	0	1
Long horizon [R]	0.5130	0.5001	0	1
Long horizon [S]	0.4692	0.4993	0	1
Received inheritance [H]	22,947	92,321	0	1,302,586
Expect inheritance [H]	21,119	161,750	0	4,486,213
Black	0.0639	0.2446	0	1
Hispanic	0.0573	0.2326	0	1

Note: [R] denotes the respondent, [S] denotes the spouse, and [H] denotes the household.

Source: Authors' calculations from *Health and Retirement Study* (1992-2008).

TABLE B2. REGRESSION RESULTS ON TOTAL HOUSEHOLD WEALTH, 1996-2006

Variable	Excluding DB control	Including DB control
S-L 1 to 15 [R]	-0.0810 (0.067)	-0.0927 (0.063)
S-L 15 to 50 [R]	-0.0266 (0.077)	-0.0762 (0.073)
S-L over 50 [R]	0.1118 * (0.067)	0.0561 (0.065)
S-L 1 to 15 [S]	-0.1526 ** (0.078)	-0.1539 ** (0.076)
S-L 15 to 50 [S]	-0.0708 (0.064)	-0.0923 (0.063)
S-L over 50 [S]	0.1764 *** (0.067)	0.1393 ** (0.066)
Has a DB [R]	—	0.2632 *** (0.042)
Has a DB [S]	—	0.0689 (0.044)
Age [S]	0.0185 *** (0.004)	0.0177 *** (0.004)
Life expectancy [R]	0.0016 * (0.001)	0.0014 * (0.001)
Life expectancy [S]	0.0011 (0.001)	0.0011 (0.001)
Education [R]	0.0490 *** (0.010)	0.0450 *** (0.009)
Education [S]	0.0733 *** (0.016)	0.0670 *** (0.016)
Career spouse	0.4902 ** (0.205)	0.4652 ** (0.203)
Career * ed [S]	-0.0414 ** (0.017)	-0.0399 ** (0.017)
Stocks %	0.0048 *** (0.001)	0.0045 *** (0.001)
Risk aversion [R]	-0.1290 *** (0.045)	-0.1207 *** (0.044)
Risk aversion [S]	0.1791 *** (0.043)	0.1695 *** (0.042)
Long horizon [R]	0.1947 *** (0.041)	0.1761 *** (0.040)

TABLE B2. REGRESSION RESULTS ON TOTAL HOUSEHOLD WEALTH, 1996-2006 (CONTINUED)

Variable	Excluding DB control	Including DB control
Long horizon [S]	0.0401 (0.040)	0.0410 (0.039)
Received inheritance [H]	8.37e-07 *** (1.99e-07)	8.41e-07 *** (2.07e-07)
Expect inheritance [H]	2.35e-07 ** (1.01e-07)	2.05e-07 ** (9.30e-08)
Black	-0.3778 *** (0.070)	-0.3579 *** (0.066)
Hispanic	-0.2431 *** (0.074)	-0.2195 *** (0.072)
Constant	10.3775 *** (0.384)	10.4726 *** (0.383)
R-squared	0.4716	0.4988
Number of observations	1,100	1,100

Note: Additional controls not depicted include vectors of occupation, firm size, and regional dummy variables. [R] denotes the respondent, [S] denotes the spouse, and [H] denotes the household. Coefficients are significant at the 10-percent level (\*), 5-percent level (\*\*), or 1-percent level (\*\*\*).

Source: Authors' calculations from *Health and Retirement Study* (1992-2008).

## ENDNOTES

- 1 Munnell et al. (2011).
- 2 The HRS is conducted by the Institute for Social Research (ISR) at the University of Michigan and is made possible by funding from the National Institute on Aging. More information is available at the ISR website: <http://hrsonline.isr.umich.edu/>.
- 3 These categories imply average tenure of 3 years, 14 years, and 28 years for men and 2 years, 9 years, and 20 years for women. Thus, percent of career is strongly correlated with length of tenure.
- 4 As one would expect, those with less tenure tend to have left state-local employment early in their careers while those with longer tenure left at older ages. The average age of departure for short-tenured workers was about 37; the average age of departure for the long-tenured workers was 54.
- 5 Percent of assets in equities could also be related to the type of pension coverage. Households with defined benefit pensions already have a guaranteed source of retirement income, and may therefore invest more heavily in equities. Thus, the variable is not a perfect measure of taste for risk.
- 6 Members of the armed forces are excluded.
- 7 This variable is the number of employees at the respondent's location from the individual wave data. However, a large number of missing values forces us to impute based on occupational averages from the *Current Population Survey* for the public and private sector workers separately.
- 8 See Munnell et al. (2011) and citations therein.
- 9 The coefficient of expected inheritances, whose expected sign was ambiguous, turned out to be positive, suggesting that it captures an inherited taste for saving. We also tried various specifications of an additional measure of risk aversion and found no impact on the results.
- 10 The difference between 61.6 for state-local workers and 61.2 for private sector workers was not statistically significant.
- 11 The addition of the defined benefit control had virtually no impact on the magnitude or significance of the other coefficients.
- 12 Borjas (2002).
- 13 See Munnell et al. (2011) and citations therein.
- 14 Utkus and Young (2010).
- 15 *Public Plans Database* (2009).
- 16 McArdle et al. (2006).
- 17 A survey of limited data in the PPD showed that the average retiree-only individual premium was \$300 to \$400 monthly between 2006 and 2010. Meanwhile, the private sector premium was \$270 monthly, according to McArdle et al. (2006).

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