

Life Insurance and Household Consumption

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Web Appendix

A Construction of Marital Status Transition Matrix

We now describe briefly how we constructed the transition matrix π and which criteria we used to ensure that the number of married men and women are the same.

1. We calculate from the PSID the following:

- Probability of remarrying: $q_{i,g}$ - couples who change spouses over couples who reported being married in both interviews
- Transitions from singles: $\hat{\pi}_{i,g}(j|s), \hat{\pi}_{i,g}(s_o|s), \hat{\pi}_{i,g}(s_w|s)$
- Transitions from married: $\hat{\pi}_{i,g}(M|M), \hat{\pi}_{i,g}(s_o|M), \hat{\pi}_{i,g}(s_w|M)$
- Switching between two dependents status: $p_{i,g}(d'|d)$

2. We use the fact that transition from one spouse to another involves a spell of being single. We construct transitions from married to married distinguishing by age, by using information on transitions from single to married. Specifically, we construct the following statistics:

$$\pi_{i,g}^*(\ell|j) = q_{i,g} \hat{\pi}_{i,g}(M|M) \left(\frac{\hat{\pi}_{i,g}(s_o|M) \hat{\pi}_{i,g}(\ell|s_o)}{\hat{\pi}_{i,g}(S|M) \hat{\pi}_{i,g}(M|s_o)} + \frac{\hat{\pi}_{i,g}(s_w|M) \hat{\pi}_{i,g}(\ell|s_w)}{\hat{\pi}_{i,g}(S|M) \hat{\pi}_{i,g}(M|s_w)} \right), \quad (1)$$

for $k = j + 1$, and then add the probability of not remarrying:

$$\pi_{i,g}^*(k|j) = \pi_{i,g}^*(j+1|j) + (1 - q_{i,g}) \hat{\pi}_{i,g}(M|M). \quad (2)$$

To account for change in couples' dependent status:

$$\pi_{i,g}^*(\ell_{d'}|j_d) = p_{i,g}(d'|d) \pi_{i,g}^*(\ell|j). \quad (3)$$

3. We have to account for mortality, and the PSID does not allow us to do so, since we cannot disentangle those who died from those who left the sample. To properly account for mortality, we use the following steps:

(a) We compute the complement of those who stay married to the same spouse, $\hat{\chi}_{i,g}(j)$:

$$\hat{\chi}_{i,g}(j) = 1 - (1 - q_{i,g}) \pi_{i,g}^*(M|j). \quad (4)$$

- (b) We define the probability of marital dissolution as the maximum value of $\widehat{x}_{i,g}(j)$ and the probability of spousal death:

$$x_{i,g}(j) = \max \{ \widehat{x}_{i,g}(j), (1 - \gamma_{j,g^*}) \}. \quad (5)$$

- (c) Then we redefine the transition probabilities and account for the agent's own probability of death as follows:

$$\frac{\pi_{i,g}(z|j)}{\gamma_{i,g}} = \begin{cases} \frac{\widehat{\pi}_{i,g}(z|M)}{\widehat{x}_{i,g}(j)} x_{i,g}(j) & \text{for } z \in S \\ \frac{\pi_{i,g}^*(z|j)}{\widehat{x}_{i,g}(j)} x_{i,g}(j) & \text{for } z \in M \text{ and } z \neq j+1 \\ (1 - x_{i,g}(j)) + \frac{\pi_{i,g}^*(z|j)}{\widehat{x}_{i,g}(j)} x_{i,g}(j) - \\ \quad (1 - q_{i,g}) \frac{\pi_{i,g}^*(M|j)}{\widehat{x}_{i,g}(j)} x_{i,g}(j) & \text{for } z \in M \text{ and } z = j+1. \end{cases} \quad (6)$$

4. We make the transitions of males and females consistent with each other. (Recall that $\mu_{i,m,j} = \mu_{j,f,i}$ for all $i, j \in \mathcal{I}$.) We impose that the male's transition has to adjust to match the number of females of each type. We do this by scaling the rows of $\pi_{i,m,j}$ appropriately while conserving the ratios generated by the original matrix between single males with and without dependents, and between the transition from and to marriage across the different age groups of the wives. The transformation also requires that the new matrix be a Markov matrix; that is, 1) no element is either negative or above 1; and 2) each row has to sum to 1. This requires some additional rules when this property is violated. The rules are designed so that the new male transition matrix inherits as many properties as possible from the original.

5. We partition singles into three different groups $\{n, d, w\}$. We use the following facts:¹

- $\pi_{i,g}(n|j) = 0$
- $\pi_{i,g}(S|j) = \pi_{i,g}(d|j) + \pi_{i,g}(w|j)$
- $\pi_{i,g}(w|j) = \min\{\pi_{i,g}(S|j), (1 - \gamma_{j,g^*})\}$

B Computational Details

1. Determine the set of parameters, Θ .

¹We abstract from the fact that the probability of remarriage, controlling for age and sex, is slightly higher after divorce than after the death of a spouse and we assume that they are equal to each other.

2. Guess prices r, w , transfers $T_{i,g,j,R}, L_{i,g,j}$.
3. Guess the asset distribution of prospective spouses ($y_{i,g}$).
4. Guess the derivative of the function for the well-being of dependents after death ($\Omega_{i,g,z}$).
5. Given these guesses, solve the agents' problem to obtain decision rules for consumption, saving, and LI purchases: $g_c(i, g, z, a), g_y(i, g, z, a), g_b(i, g, z, a), g_{b^*}(i, g, z, a)$. These decisions rules solve generalized euler equations in the sense of Klein et al. (2008) that require the explicit use of the derivatives of functions $\Omega_{i,g,z}$.
6. Check if the guess for the derivatives of $\Omega_{i,g,z}$ is consistent with the obtained optimal decision rules. If not, update the derivatives of $\Omega_{i,g,z}$ using the new decision rules and go back to step 4.
7. Run a simulation with a large number of agents. (We use $N = 112,000$: a sample of 4,000 individuals for each age and sex, that is, 14 age groups and 2 sexes.)
 - (a) In each period, 8,000 agents (men and women) are born with no asset. Their marital/dependent status is randomly generated. If married, they share the asset of spouses, which is drawn from the distribution $y_{i,g}$ specified in step 3.
 - (b) For each agent, simulate consumption, saving, and insurance purchases using the optimal decision rules and update the state variables for the next period. This can be done by generating two random numbers: one for mortality risk and the other for change in marital status.
 - (c) Iterate this simulation for at least I periods until the aggregate measure converges. (We use the first two moments of the age-specific asset profile.)
8. Check if the guess for the assets distribution of prospective spouses is consistent with the simulated assets distribution. If not, update $y_{i,g}$ and go back to step 3.
9. Check if prices are consistent and the government budget balance is satisfied. If not, use the aggregate variables to update prices (r, w) and transfers ($T_{i,g,j,R}, L_{i,g,j}$), and go back to step 2.
10. Compare LI holdings generated in the model with those from data. Update the set of parameters and go back to 1. We use the Nelder-Mead simplex algorithm to minimize the distance between the empirical and the simulated average face value of LI for each age-sex-marital status group.

C Wealth holdings of different groups in model and data

Figure C-7 shows the wealth holdings of households by marital status and age in both the model and the data (SRI 1990). In the data there are not many single men 50 and older. While we

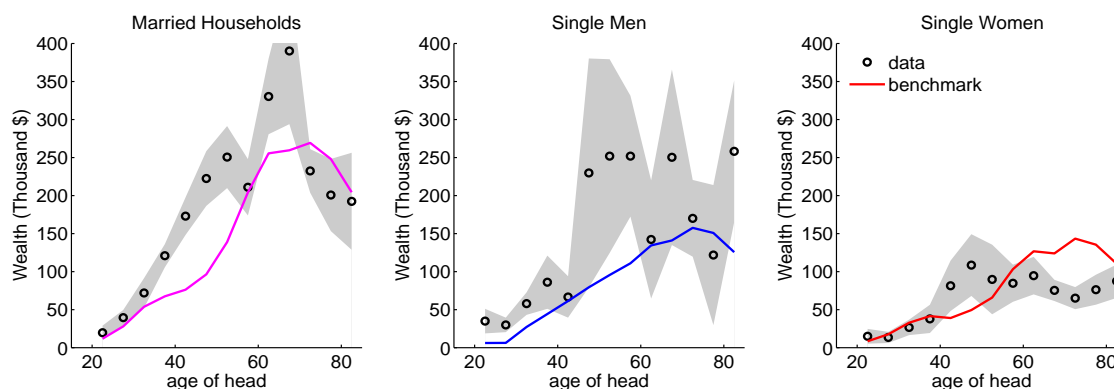


Figure C-7: Wealth holdings by age, sex, and marital status

do not match the wealth holdings by household types and age (we match the earnings to wealth ratio in the aggregate), the model matches the pattern of household wealth holdings quite well. The model overpredicts the wealth holdings of single women age 55 and older. This high wealth accumulation of older single women can be mainly accounted for by widows who receive a large LI benefit payment when their husbands die. In the model we assume for simplicity that the entire value of the LI is paid to the surviving spouse if one member of the married couple dies. Perhaps our model misses some realistic features such as that some of LI is paid to a trustee (to benefit children, grandchildren, or other relatives).

D Tables of Interest

In this section, we include a few tables that are useful but not essential for following the paper. They involve a detailed description of LI holdings in Tables D-1–D-6, the number of children in each household type in Table D-7, the number of adult dependents in Table D-8, earnings by age, sex, and marital status in Table D-9, and alimony and child support in Table D-10.

E Sensitivity Analysis

In this section, we document the sensitivity of our results with respect to our selection of risk aversion, the wealth to earnings ratio we try to match, and the weighting matrix that we use in the estimation.

Lower risk aversion. Our results for the benchmark model were based on a value of 3 for the risk aversion parameter. We investigate whether our findings are robust by setting the risk aversion parameter to 2. With a smaller risk aversion, other things being equal, agents require less insurance. In the benchmark model, married women are the most risky group due to high habits from marriage. Married men have the risk of disadvantage of home production upon marital dissolution. With lower risk aversion, they do not need to hold as much insurance as in the benchmark. A smaller coefficient of risk aversion also relatively strengthens the bequest motive. The model tries to account for the patterns of LI holdings observed in the United States by increasing the decision weight of wives, which increases demands for LI in case husbands die, and by increasing both habits for women and men's disadvantage at home production (which is now more precisely estimated), and by weakening the bequest motive, all of which are reported in Table E-12.

Higher target of wealth to earnings ratio. We now target 4.5 instead of the benchmark value of 3.2. The model accounts for the higher level of wealth by bumping up the bequest level parameter and the discount rate without altering the other parameters very much.

Optimal weighting matrix. In the benchmark model, we estimate the parameters to match the average LI profile from the data and the model by solving $\min_{\Theta} g(\Theta)' W g(\Theta)$ with $W = I_J$. We also estimate the model with an optimal weighting matrix $W = \Omega^{-1}$, where Ω is the variance matrix of the empirical average LI holding by age, sex, and marital status. Consequently, this specification puts more weight on married couples than on singles, and on women than on men, because the standard deviation of average LI face values is larger for singles (especially for single men) due to the smaller sample size of singles, as shown in Figure 1.

The estimates from different weighting matrices are generally similar with the exception of the parameter for bequest intensity (χ_a) as reported in Table E-12. The left panel of Figure E-8 compares predictions from both models. The model with an optimal weight matrix predicts way too little insurance for singles due to its low bequest intensity. This is because the model puts a very high weight on older single women whose average LI holdings are very small (and with small variance). The benchmark model was overpredicting LI purchases for older single women, and the model with an optimal weight tries to match the prediction for these groups by decreasing the bequest intensity. A lower bequest motive also decreases the insurance holdings of married

couples, but this is partially accommodated by putting a higher decision weight on men (requiring more insurance of married women) and by bumping up the habits for women (which increases the insurance holdings for older married men).

The optimal weight estimates disregard a lot of the information embodied in the holdings of singles due to their small sample size and larger variance. We want to use the information embodied in those data; consequently, we believe that the benchmark weighting is more suitable for obtaining informative estimates.

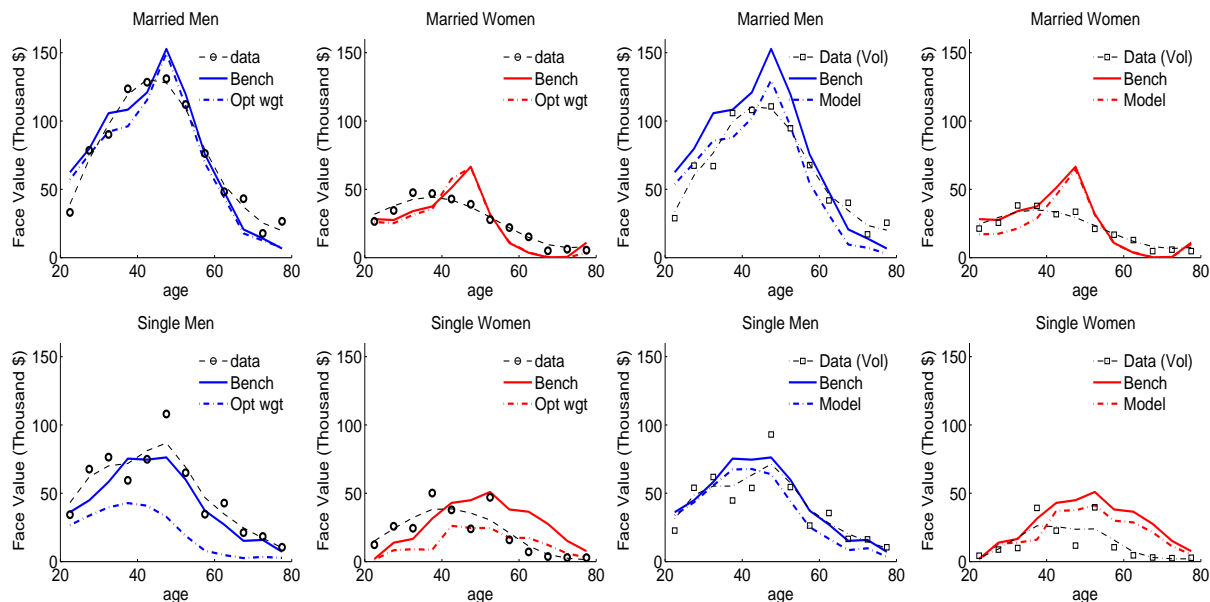


Figure E-8: LI holdings by age, sex, and marital status.
(Left panel: with an optimal weight; Right panel: voluntary life insurance)

F Implications of the Model for Consumption

Upon widowhood. As an additional assessment of the model, we investigate the implications of the model for consumption. Figure F-9 shows the implied (average) consumption paths of married households with dependents where one of the spouses dies and compares them with the path where no death occurs. The drop of consumption is substantial, especially when the wife is the survivor. This occurs in the model because children are especially costly for men. As the children age, consumption of the widower keeps dropping until it eventually becomes lower than that of the widow.

At age 40, the sudden death of the husband implies a drastic drop in household labor income: \$46,000 to \$8,700: a drop of more than 75 percent of what couples would have made. The widow collects the life insurance benefits of about \$130,000, which is equivalent to 4-5 years of the husband's earnings, and slowly decumulates it.

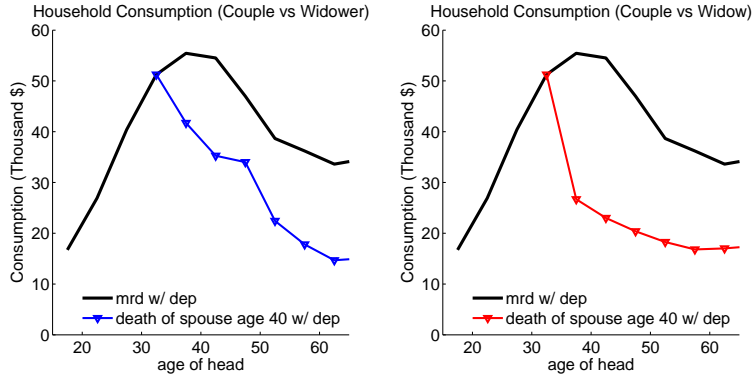


Figure F-9: Implied consumption path: married vs. widow/widower

Holden and Zick (1998) construct a measure of well-being, defined by the ratio of current income to the poverty line for married couples or singles. Such a ratio drops 30 percent upon becoming a widow, going from 3.9 to 2.7. We perform exactly the same calculation in our model using the 1990 U.S. Poverty Table² where poverty is defined as \$13,254 for a married couple with two children and \$10,530 for single with two children. In the model the drop is more than 40 percent, going from 4.36 (for a married couple of age 40) to 2.46 when the husband dies at 40.

When the children leave the home. According to the CPS 1989-1991 (reported in Table D-8 in the Appendix, a married couple has 2.1 children on average (conditional on having dependents in the household) at age 40. In Figure F-10 we show how much household consumption expenditure would drop when dependents leave the households at each age of the head of household. The model predicts that couples' consumption expenditure would decrease by \$26,614 from \$55,433 (with 2.1 children) to \$28,819 (without dependents) at age 40. At age 45 the change is from \$54,513 to \$31,795. This implies that for an average married household, each child accounts for an additional \$13,000 to \$15,000 expenditure per year.

References

- Holden, Karen and Cathleen Zick, "Insuring Against the Consequences of Widowhood in a Reformed Social Security System," in R. Douglas Arnold, Michael J. Graetz, and Alicia H. Munnell, eds., *Framing the Social Security Debate: Values, Politics and Economics*, pp. 157-70, Washington D.C. Brookings Institution Press, 1998.
- Klein, Paul, Per Krusell, and José-Víctor Ríos-Rull, "Time-Consistent Public Policy," *Review of Economic Studies*, 2008, 75 (3), 789–808.

²<http://www.census.gov/hhes/www/poverty/data/threshld/thresh90.html>

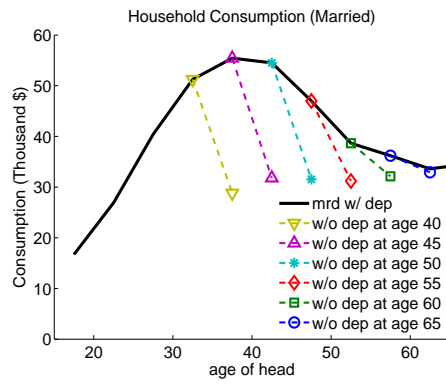


Figure F-10: Implied consumption path: Married with dependents vs. without dependents

Table D-1: Percentages of the Population by Age, Sex, and Marital Status of People with Positive LI Holdings

Age	< 25	25-34	35-44	45-54	55-64	65-74	> 74	All
Men	49.8	72.1	83.1	81.4	83.1	71.6	60.2	76.3
Group	40.5	51.2	65.1	60.8	54.2	40.2	31.6	53.5
Individual	28.5	45.2	58.4	59.4	63.7	59.0	56.6	55.5
Married	47.8	72.1	84.1	83.3	83.3	71.9	58.0	77.4
Group	31.8	51.8	65.4	63.3	55.2	41.4	29.6	54.5
Individual	34.0	44.3	60.4	61.0	64.2	60.0	53.7	56.9
Married w/ dep	42.7	69.6	83.8	88.2	90.6	65.2	61.0	78.9
Group	32.0	47.1	65.3	70.7	57.1	44.4	54.8	59.0
Individual	32.0	45.6	60.9	64.4	67.0	54.7	43.0	56.3
Married w/o dep	75.8	79.9	86.3	76.6	81.6	72.3	57.0	75.4
Group	30.7	67.0	66.0	53.0	54.5	41.6	27.4	49.1
Individual	45.1	38.0	57.8	56.8	64.0	60.1	53.5	57.7
Single	52.6	72.2	76.2	65.5	81.7	70.0	73.1	71.1
Group	52.6	49.4	62.7	39.7	47.1	34.0	43.3	48.5
Individual	20.7	47.8	45.0	45.7	59.5	54.1	73.1	47.9
Single /w dep	100.0	71.8	91.1	67.3	58.5	74.4	73.7	75.1
Group	100.0	32.9	60.2	52.7	40.3	31.3	0.0	45.0
Individual	70.0	53.3	60.1	37.7	49.8	65.4	73.7	54.4
Single w/o dep	47.0	72.3	70.9	64.5	89.9	69.0	73.0	69.9
Group	47.0	54.0	63.6	32.8	49.5	34.6	51.7	49.6
Individual	14.8	46.3	39.6	49.9	62.9	51.6	73.0	46.0
Women	41.0	62.4	70.8	72.4	64.9	55.5	45.5	62.9
Group	21.1	43.2	47.5	41.3	32.4	14.6	9.2	34.7
Individual	23.9	32.3	47.2	54.2	51.1	49.2	41.8	44.4
Married	42.4	65.4	71.1	74.4	65.8	53.6	54.0	65.7
Group	21.5	41.7	45.3	42.0	31.5	14.2	15.3	36.3
Individual	26.8	38.3	50.0	56.0	54.8	48.9	49.4	47.8
Married w/ dep	32.9	63.1	71.0	78.5	84.2	48.5	65.3	67.1
Group	16.2	36.9	44.6	47.1	56.5	13.3	56.5	40.8
Individual	17.6	41.0	49.2	57.0	58.6	48.5	62.4	45.8
Married w/o dep	65.7	75.3	71.4	71.3	64.7	53.7	51.5	64.3
Group	29.8	62.7	48.5	37.9	29.7	14.4	6.1	31.1
Individual	47.6	26.8	53.9	55.3	55.0	48.8	46.5	50.2
Single	37.8	53.7	70.1	64.3	62.2	57.7	41.0	56.5
Group	20.4	47.4	54.6	38.5	35.1	15.1	6.0	31.2
Individual	17.4	15.0	37.9	46.9	40.0	49.7	37.9	36.4
Single /w dep	28.9	48.2	70.0	72.0	69.8	64.5	25.3	58.4
Group	21.7	39.1	55.6	39.1	51.1	4.8	0.0	39.7
Individual	7.1	14.7	41.8	57.6	28.0	59.7	25.3	32.9
Single w/o dep	71.7	61.2	70.2	53.2	58.7	56.9	42.6	55.4
Group	15.3	58.6	52.7	37.6	27.8	16.3	6.6	25.7
Individual	56.4	15.4	30.3	31.4	45.5	48.5	39.2	38.7

Table D-2: Amounts of Insurance (in Terms of Face Values) Held Per Capita by Age, Sex, and Marital Status (in 1990 U.S. Dollars)

Age	< 25	25-34	35-44	45-54	55-64	65-74	> 74	All
Men (G+I-CV)*	31,817	82,485	118,092	117,960	58,643	30,031	16,599	80,374
Group (G)	13,057	34,203	47,963	51,573	25,371	8,381	5,905	33,152
Individual (I)	18,820	48,781	71,431	68,487	35,842	23,919	12,305	48,793
Married	33,117	85,363	125,856	121,102	61,363	32,087	18,296	85,350
Group	9,626	33,286	49,413	53,246	26,260	8,329	6,476	34,220
Individual	23,491	52,552	77,850	69,956	37,895	26,003	13,449	52,805
Married /w dep	34,142	83,798	128,640	156,334	80,822	48,062	186,072	113,839
Group	7,469	31,774	51,431	67,695	34,071	8,742	73,331	45,749
Individual	26,674	52,501	78,616	91,178	48,570	40,483	115,549	69,437
Married w/o dep	27,485	86,610	107,358	73,969	56,933	31,235	7,367	52,748
Group	21,474	38,356	35,171	33,868	24,411	8,376	2,102	21,046
Individual	6,011	48,746	73,608	41,618	35,547	25,196	6,722	33,743
Single	29,996	73,061	66,424	92,143	39,004	19,703	7,046	54,930
Group	17,864	37,204	38,320	37,821	18,953	8,641	2,696	27,692
Individual	12,275	36,433	28,719	56,406	21,023	13,450	5,864	28,282
Single /w dep	46,882	62,931	96,804	74,412	72,247	18,822	2,046	65,826
Group	27,147	10,816	50,830	54,548	20,761	8,464	0	28,615
Individual	20,268	52,872	47,500	20,827	52,602	11,158	3,924	38,260
Single w/o dep	27,983	75,903	55,556	101,558	27,332	19,897	8,016	51,728
Group	16,757	44,606	33,844	28,939	18,318	8,679	3,219	27,420
Individual	11,322	31,822	22,001	75,299	9,935	13,953	6,241	25,349
Women	21,104	38,129	44,890	34,249	16,555	4,543	4,876	28,110
Group	7,386	15,928	20,508	17,162	7,455	1,196	1,935	12,494
Individual	13,747	22,389	25,044	17,710	9,817	3,863	3,361	16,107
Married	25,833	42,677	44,966	34,101	18,454	5,569	10,052	32,197
Group	7,656	14,685	19,370	16,604	7,897	1,137	4,843	13,078
Individual	18,209	28,225	26,301	18,178	11,404	5,159	5,577	19,688
Married /w dep	16,486	40,606	46,026	35,422	35,779	19,989	43,019	40,237
Group	5,388	11,807	19,303	17,315	18,790	6,638	23,957	15,441
Individual	11,111	29,061	27,484	18,680	18,375	16,196	19,677	25,321
Married w/o dep	35,547	51,617	40,357	32,962	16,998	5,306	2,684	22,650
Group	13,850	26,858	19,553	16,037	6,981	1,057	571	10,340
Individual	21,793	24,868	21,262	17,693	10,826	4,940	2,426	12,934
Single	10,447	25,080	44,637	34,856	10,972	3,327	2,137	18,718
Group	6,777	19,496	24,310	19,444	6,156	1,267	396	11,151
Individual	3,692	5,644	20,846	15,795	5,153	2,326	2,187	7,877
Single /w dep	9,979	20,723	43,207	39,006	12,320	2,373	726	26,527
Group	8,009	14,650	18,154	18,274	7,158	477	0	13,552
Individual	1,971	6,107	25,412	21,301	5,567	2,033	806	13,224
Single w/o dep	12,209	30,992	47,412	28,804	10,350	3,441	2,282	13,691
Group	2,135	26,072	36,257	21,149	5,694	1,361	436	9,605
Individual	10,180	5,017	11,986	7,768	4,962	2,361	2,330	4,435

* Net face value may not add up due to cash value.10

Table D-3: Total Amounts of LI, a (Conservative) Measure of Voluntary Insurance and Their Ratio for Males (in 1990 U.S. Dollars)

"Voluntary" and total LI for men

Age			< 25	25-34	35-44	45-54	55-64	65-74	> 74	All
Men	Total	A	31,817	82,485	118,092	117,960	58,643	30,031	16,599	80,374
	Voluntary	B	25,123	65,189	99,319	99,808	51,213	27,809	16,006	67,535
	ratio	B/A	79.0	79.0	84.1	84.6	87.3	92.6	96.4	84.0
Married	Total	A	33,117	85,363	125,856	121,102	61,363	32,087	18,296	85,350
	Voluntary	B	28,906	67,127	106,904	102,364	53,975	30,078	17,598	72,218
	ratio	B/A	87.3	78.6	84.9	84.5	88.0	93.7	96.2	84.6
Married /w dep	Total	A	34,142	83,798	128,640	156,334	80,822	48,062	186,072	113,839
	Voluntary	B	33,075	66,953	109,407	133,330	65,707	42,571	177,077	95,859
	ratio	B/A	96.9	79.9	85.0	85.3	81.3	88.6	95.2	84.2
Married w/o dep	Total	A	27,485	86,610	107,358	73,969	56,933	31,235	7,367	52,748
	Voluntary	B	6,011	63,225	91,460	60,865	51,469	29,438	7,203	45,193
	ratio	B/A	21.9	73.0	85.2	82.3	90.4	94.2	97.8	85.7
Single	Total	A	29,996	73,061	66,424	92,143	39,004	19,703	7,046	54,930
	Voluntary	B	19,821	58,843	48,842	78,800	31,273	16,412	7,046	43,588
	ratio	B/A	66.1	80.5	73.5	85.5	80.2	83.3	100.0	79.4
Single /w dep	Total	A	46,882	62,931	96,804	74,412	72,247	18,822	2,046	65,826
	Voluntary	B	33,368	56,914	84,423	51,246	67,894	18,369	2,046	56,095
	ratio	B/A	71.2	90.4	87.2	68.9	94.0	97.6	100.0	85.2
Single w/o dep	Total	A	27,983	75,903	55,556	101,558	27,332	19,897	8,016	51,728
	Voluntary	B	18,207	59,383	36,114	93,432	18,414	15,983	8,016	39,912
	ratio	B/A	65.1	78.2	65.0	92.0	67.4	80.3	100.0	77.2

Table D-4: Total Amounts of LI, a (Conservative) Measure of Voluntary Insurance and Their Ratio for Females (in 1990 U.S. Dollars)

"Voluntary" and total LI for women

Age			< 25	25-34	35-44	45-54	55-64	65-74	> 74	All
Women	Total	A	21,104	38,129	44,890	34,249	16,555	4,543	4,876	28,110
	Voluntary	B	15,506	27,250	34,146	27,410	12,802	4,116	4,540	21,379
	ratio	B/A	73.5	71.5	76.1	80.0	77.3	90.6	93.1	76.1
Married	Total	A	25,833	42,677	44,966	34,101	18,454	5,569	10,052	32,197
	Voluntary	B	20,758	33,457	34,836	28,019	14,719	5,223	9,334	25,585
	ratio	B/A	80.4	78.4	77.5	82.2	79.8	93.8	92.9	79.5
Married /w dep	Total	A	16,486	40,606	46,026	35,422	35,779	19,989	43,019	40,237
	Voluntary	B	11,189	33,857	36,103	27,911	21,580	19,989	41,570	32,164
	ratio	B/A	67.9	83.4	78.4	78.8	60.3	100.0	96.6	79.9
Married w/o dep	Total	A	35,547	51,617	40,357	32,962	16,998	5,306	2,684	22,650
	Voluntary	B	30,645	32,188	29,443	27,966	14,219	4,950	2,130	17,761
	ratio	B/A	86.2	62.4	73.0	84.8	83.7	93.3	79.4	78.4
Single	Total	A	10,447	25,080	44,637	34,856	10,972	3,327	2,137	18,718
	Voluntary	B	3,670	9,439	31,841	24,916	7,164	2,805	2,002	11,713
	ratio	B/A	35.1	37.6	71.3	71.5	65.3	84.3	93.7	62.6
Single /w dep	Total	A	9,979	20,723	43,207	39,006	12,320	2,373	726	26,527
	Voluntary	B	1,971	8,109	37,644	31,388	7,528	1,896	726	19,071
	ratio	B/A	19.8	39.1	87.1	80.5	61.1	79.9	100.0	71.9
Single w/o dep	Total	A	12,209	30,992	47,412	28,804	10,350	3,441	2,282	13,691
	Voluntary	B	10,074	11,245	20,580	15,480	6,996	2,914	2,134	6,976
	ratio	B/A	82.5	36.3	43.4	53.7	67.6	84.7	93.5	51.0

Table D-5: Percentages of Married People with Positive LI Holdings by Age, Sex, and Employment Status

Age	< 25	25-34	35-44	45-54	55-64	65-74	> 74	All
Married Men								
No Insurance	52.2	27.9	15.9	16.7	16.7	28.1	42.0	22.6
Group only	13.8	27.8	23.7	22.3	19.1	11.9	4.3	20.5
Some Individual	34.0	44.3	60.4	61.0	64.2	60.0	53.7	56.9
Full-time Employed	(80.3)	(92.3)	(94.6)	(89.0)	(62.2)	(15.7)	(6.7)	(71.8)
No Insurance	49.1	25.1	14.1	15.1	12.7	24.1	47.2	18.3
Group only	17.2	29.3	25.0	23.5	19.9	3.7	16.3	24.1
Some Individual	33.7	45.6	60.9	61.4	67.4	72.2	36.5	57.6
Part-time Employed	(6.9)	(3.5)	(1.3)	(3.8)	(4.5)	(8.9)	(0.4)	(3.8)
No Insurance	0.0	76.3	38.4	27.9	14.4	16.6	0.0	29.4
Group only	0.0	17.2	8.3	0.0	44.1	12.9	100.0	17.2
Individual	100.0	6.5	53.3	72.1	41.5	70.5	0.0	53.4
Non-Employed	(12.8)	(4.2)	(4.1)	(7.2)	(33.3)	(75.4)	(92.9)	(24.4)
No Insurance	100.0	50.1	48.8	31.1	24.6	30.3	41.8	34.3
Group only	0.0	2.6	0.0	17.8	14.0	13.5	3.1	10.2
Some Individual	0.0	47.3	51.2	51.1	61.4	56.2	55.1	55.5
Married Women								
No Insurance	57.6	34.6	28.9	25.6	34.2	46.4	46.0	34.3
Group only	15.6	27.1	21.1	18.4	11.0	4.7	4.6	17.9
Some Individual	26.8	38.3	50.0	56.0	54.8	48.9	49.4	47.8
Full-time Employed	(44.6)	(48.4)	(54.1)	(56.2)	(34.1)	(7.3)	(10.5)	(43.1)
No Insurance	58.9	21.6	21.4	16.4	25.1	57.4	3.3	22.9
Group only	12.7	38.5	25.4	25.4	23.4	9.4	10.0	27.6
Some Individual	28.4	39.9	53.2	58.2	51.5	33.2	86.7	49.5
Part-time Employed	(12.3)	(22.1)	(25.6)	(18.4)	(16.2)	(7.4)	(16.1)	(19.2)
No Insurance	38.3	32.1	33.1	28.0	27.2	24.1	85.4	32.7
Group only	23.8	22.7	18.3	7.4	4.5	0.0	3.3	14.9
Some Individual	37.9	45.2	48.6	64.6	68.3	75.9	11.3	52.4
Non-Employed	(43.1)	(29.5)	(20.3)	(25.4)	(49.7)	(85.3)	(73.4)	(37.7)
No Insurance	61.7	57.8	43.7	44.3	42.8	47.3	43.5	48.0
Group only	16.3	11.6	13.0	10.9	4.5	4.8	4.1	8.4
Some Individual	22.0	30.6	43.3	44.8	52.7	47.9	52.4	43.6

* Relative size of group shown in parentheses.

Table D-6: Amounts and Types of Insurance held by Employment Status for Married Men and Women

Age		< 25	25-34	35-44	45-54	55-64	65-74	> 74	All
Married Men									
Facevalue	A	33,117	85,363	125,856	121,102	61,363	32,087	18,296	85,350
Voluntary	B	28,906	67,127	106,904	102,364	53,975	30,078	17,598	72,218
ratio	B/A	87.3	78.6	84.9	84.5	88.0	93.7	96.2	84.6
Full-time Employed		(80.3)	(92.3)	(94.6)	(89.0)	(62.2)	(15.7)	(6.7)	(71.8)
Facevalue	A	40,103	91,529	130,300	130,813	79,889	64,294	166,116	109,328
Voluntary	B	34,857	71,805	110,296	111,095	70,771	61,736	157,953	92,059
ratio	B/A	86.9	78.5	84.6	84.9	88.6	96.0	95.1	84.2
Part-time		(6.9)	(3.5)	(1.3)	(3.8)	(4.5)	(8.9)	(0.4)	(3.8)
Facevalue	A	13,330	13,316	80,401	35,709	41,249	46,490	20,000	38,700
Voluntary	B	13,330	12,822	78,746	35,709	32,375	45,076	0	36,106
ratio	B/A	100.0	96.3	97.9	100.0	78.5	97.0	0.0	93.3
Non-employed		(12.8)	(4.2)	(4.1)	(7.2)	(33.3)	(75.4)	(92.9)	(24.4)
Facevalue	A	0	10,138	36,815	46,043	29,461	23,678	7,631	22,028
Voluntary	B	0	9,768	36,815	29,600	25,512	21,713	7,553	19,438
ratio	B/A	-	96.4	100.0	64.3	86.6	91.7	99.0	88.2
Married Women									
Facevalue	A	25,833	42,677	44,966	34,101	18,454	5,569	10,052	32,197
Voluntary	B	20,758	33,457	34,836	28,019	14,719	5,223	9,334	25,585
ratio	B/A	80.4	78.4	77.5	82.2	79.8	93.8	92.9	79.5
Full-time		(44.6)	(48.4)	(54.1)	(56.2)	(34.1)	(7.3)	(10.5)	(43.1)
Facevalue	A	39,092	61,516	57,175	51,458	28,481	11,366	58,943	52,157
Voluntary	B	36,367	46,496	42,737	41,593	19,358	9,237	56,373	40,137
ratio	B/A	93.0	75.6	74.7	80.8	68.0	81.3	95.6	77.0
Part-time		(12.3)	(22.1)	(25.6)	(18.4)	(16.2)	(7.4)	(16.1)	(19.2)
Facevalue	A	23,729	29,058	30,006	14,993	22,544	4,862	3,351	24,096
Voluntary	B	16,610	24,367	23,974	13,295	19,925	4,862	1,703	19,955
ratio	B/A	70.0	83.9	79.9	88.7	88.4	100.0	50.8	82.8
Nonemployed		(43.1)	(29.5)	(20.3)	(25.4)	(49.7)	(85.3)	(73.4)	(37.7)
Facevalue	A	12,708	21,916	31,338	9,603	10,251	5,132	4,553	13,531
Voluntary	B	5,784	18,836	27,505	8,705	9,846	4,909	4,302	11,837
ratio	B/A	45.5	85.9	87.8	90.6	96.0	95.7	94.5	87.5

* Relative size of group shown in parentheses.

Table D-7: Number of Children (CPS 1989-1991)

Age	Married (Wife's Age) (M_w)	Single Men			Single Women		
		Never Married (n_w)	Divorced (d_w)	Widowed (w_w)	Never Married (n_w)	Divorced (d_w)	Widowed (w_w)
15-20	1.177	0.236			1.105		
20-25	1.538	0.399	0.869	0.333	1.400	1.691	1.846
25-30	1.850	0.544	1.094	1.538	1.670	1.895	2.037
30-35	2.112	0.686	1.401	2.000	1.800	2.001	2.222
35-40	2.087	0.631	1.367	1.689	1.494	1.733	1.841
40-45	1.515	0.476	1.099	1.529	0.949	1.158	1.212
45-50	0.826	0.323	0.680	0.979	0.559	0.680	0.729
50-55	0.381	0.092	0.444	0.358	0.313	0.374	0.354
55-60	0.170	0.123	0.282	0.250	0.140	0.177	0.135
60-65	0.053	0.043	0.198	0.106	0.036	0.075	0.057
65-70	0.037	0.038	0.135	0.083	0.039	0.033	0.040
70-75	0.028	0.030	0.153	0.047	0.007	0.025	0.043
75-80	0.026	0.000	0.111	0.043	0.000	0.071	0.021
80-85	0.022	0.000	0.120	0.022	0.000	0.027	0.014

Table D-8: Number of Adult Dependents (CPS 1989-1991)

Age	Married (Wife's Age) (M_w)	Single Men			Single Women		
		Never Married (n_w)	Divorced (d_w)	Widowed (w_w)	Never Married (n_w)	Divorced (d_w)	Widowed (w_w)
20-25	0.087	1.019	0.535	0.667	0.259	0.077	0.077
25-30	0.060	0.970	0.401	0.231	0.239	0.075	0.122
30-35	0.058	0.919	0.267	0.143	0.268	0.084	0.125
35-40	0.188	0.977	0.279	0.419	0.501	0.296	0.397
40-45	0.612	1.112	0.512	0.538	0.799	0.672	0.792
45-50	1.052	1.103	0.857	1.055	1.097	1.000	1.181
50-55	1.242	1.491	1.019	1.246	1.238	1.180	1.320
55-60	1.300	1.322	1.115	1.377	1.213	1.295	1.415
60-65	1.312	1.277	1.149	1.375	1.235	1.283	1.397
65-70	1.249	1.315	1.236	1.337	1.227	1.270	1.335
70-75	1.217	1.141	1.165	1.363	1.301	1.253	1.274
75-80	1.208	1.246	1.095	1.349	1.291	1.141	1.265
80-85	1.185	1.243	1.240	1.294	1.250	1.270	1.283

Table D-9: Earnings by Age, Sex, and Marital Status in 1990 Dollars (CPS March 1989-1991)

Age	<i>M</i>	<i>n_o</i>	<i>n_w</i>	<i>d_o</i>	<i>d_w</i>	<i>w_o</i>	<i>w_w</i>
Men							
15-20	8,582	1,746	4,936	1,751	4,936	1,751	4,936
20-25	13,919	8,350	11,033	10,994	12,436	8,416	11,138
25-30	21,012	16,124	16,542	15,757	16,586	16,087	16,554
30-35	26,570	17,823	17,806	18,630	19,777	18,035	18,842
35-40	31,021	19,713	22,149	21,296	24,278	20,344	23,693
40-45	33,389	19,335	20,708	24,055	26,766	20,652	21,807
45-50	33,412	18,286	18,376	23,904	30,654	16,829	28,911
50-55	31,379	13,421	19,130	21,634	26,242	18,375	21,331
55-60	27,127	13,449	20,373	18,277	22,059	18,558	14,767
60-65	18,533	8,236	13,751	2,537	18,686	10,796	12,970
65-70	7,061	3,908	5,192	4,621	5,467	2,988	4,117
70-75	3,072	1,387	368	1,541	3,341	1,475	2,125
75-80	2,132	917	1,023	1,631	1,023	1,045	950
80-85	794	269	818	1,030	818	608	787
Women							
15-20	3,070	1,373	1,908	1,801	3,070	3,070	3,070
20-25	6,668	6,890	4,580	6,644	4,359	6,668	6,668
25-30	10,133	14,515	7,308	11,602	8,096	10,133	7,751
30-35	10,880	17,516	9,185	13,809	10,840	8,050	7,934
35-40	11,824	19,510	11,557	15,630	13,300	12,671	8,665
40-45	12,821	20,139	13,608	17,139	16,170	12,185	8,706
45-50	12,359	18,434	14,606	16,518	16,314	10,656	11,034
50-55	10,238	17,776	14,125	15,159	14,892	12,314	10,796
55-60	7,823	13,925	12,051	12,173	12,931	8,516	8,504
60-65	4,734	8,783	8,892	9,141	8,992	5,293	5,995
65-70	1,620	3,624	3,304	3,913	2,988	2,115	2,500
70-75	676	1,459	2,202	1,326	854	830	1,016
75-80	256	1,013	1,151	404	256	376	404
80-85	166	697	0	580	166	189	312

Table D-10: Alimony and Child Support in 1990 Dollars (CPS March 1989-1991)

age	Women, Divorced No Child		Women, Divorced with Child(ren)		Women, Divorced		Women, All	
15-20	1,302	(8.5%)	1,991	(8.1%)	1,437	(8.5%)	1,493	(1.0%)
20-25	1,460	(11.5%)	1,466	(27.2%)	1,464	(18.4%)	1,410	(2.8%)
25-30	2,065	(15.1%)	2,212	(39.7%)	2,171	(27.3%)	2,043	(6.1%)
30-35	2,454	(15.4%)	3,063	(40.7%)	2,941	(30.6%)	2,642	(8.0%)
35-40	3,368	(11.4%)	3,846	(43.6%)	3,780	(31.5%)	3,360	(9.5%)
40-45	3,719	(8.8%)	4,755	(36.6%)	4,607	(25.3%)	4,064	(7.6%)
45-50	4,162	(5.0%)	5,857	(27.1%)	5,621	(16.7%)	4,983	(4.5%)
50-55	6,592	(3.8%)	7,669	(14.0%)	7,371	(8.0%)	6,995	(1.8%)
55-60	6,671	(6.2%)	7,465	(7.8%)	6,976	(6.7%)	6,129	(1.2%)
60-65	11,387	(4.3%)	6,990	(3.7%)	10,373	(4.1%)	9,281	(0.5%)
65-70	5,804	(4.5%)	3,000	(0.7%)	5,725	(3.9%)	4,925	(0.5%)
70-75	4,080	(2.3%)	-	(0.0%)	4,080	(2.1%)	5,272	(0.2%)
75-80	4,373	(3.2%)	-	(0.0%)	4,373	(2.8%)	4,631	(0.1%)
80-85	8,366	(1.7%)	-	(0.0%)	8,366	(1.6%)	5,484	(0.1%)
Total	3,696	(8.3%)	3,969	(32.5%)	3,911	(20.0%)	3,275	(4.1%)

* Average Amounts (Fraction who Receives Alimony and Child Support Payment)

Table D-11: Number of observations in the SRI (1990)

Age	Men					Women				
	Married		Single		Total	Married		Single		Total
	M_o	M_w	S_o	S_w		M_o	M_w	S_o	S_w	
< 20	-	-	1	-	1	-	1	-	2	3
20-24	4	13	16	3	36	14	29	5	10	58
25-29	31	92	33	10	166	35	111	27	24	197
30-34	51	173	60	13	297	62	262	39	37	400
35-39	41	297	33	13	384	43	322	28	34	427
40-44	47	308	29	13	397	69	334	24	30	457
45-49	71	243	29	13	356	122	209	28	34	393
50-54	149	158	12	12	331	154	83	18	25	280
55-59	145	59	20	9	233	149	25	34	16	224
60-64	203	32	20	9	264	175	11	39	20	245
65-69	160	10	16	6	192	151	4	70	10	235
70-74	123	9	25	5	162	103	2	65	5	175
75-79	77	6	8	2	93	50	4	61	4	119
80+	39	4	8	3	54	14	7	53	6	80
Total	1,141	1,404	310	111	2,966	1,141	1,404	491	257	3,293

Table E-12: Parameter Estimates of Various Models: Sensitivity Analysis

	Benchmark	Low Risk aversion	Higher Wealth/Earnings	Optimal Weight
θ	0.330 (0.123)	0.278 (0.136)	0.286 (0.170)	0.203 (0.056)
θ_c	2.502 (0.685)	3.976 (0.509)	3.232 (0.576)	2.228 (0.388)
θ_{dw}^f	3.756 (0.047)	4.305 (0.785)	3.596 (1.023)	4.350 (0.314)
θ^m	1.295 (0.177)	1.910 (0.380)	1.474 (0.011)	1.132 (0.078)
χ_a	1.296 (0.689)	0.476 (0.133)	3.128 (4.207)	0.017 (0.013)
χ_b	4.744 (0.011)	4.491 (0.113)	5.218 (0.951)	5.870 (0.238)
κ	1.000 (0.129)	1.000 (0.156)	1.000 (0.107)	1.000 (0.035)
ξ_m	0.932 (0.001)	0.782 (0.032)	0.910 (0.024)	0.958 (0.007)
β	0.981 (0.010)	0.978 (0.005)	0.998 (0.001)	0.990 (0.006)
SSE	18.47	20.68	17.45	41.34
J stat	236.42	242.90	229.87	184.53