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SAVING AND LIFE INSURANCE HOLDINGS AT BOSTON UNIVERSITY – A UNIQUE CASE STUDY

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Resumen

Este artículo analiza la correspondencia de la decisiones efectivas de ahorro y seguro de vida de los hogares, con respecto a las recomendaciones generadas por un programa de planificación financiera, ESPlanner (Economic Security Planner). Este programa calcula el nivel de vida sostenible más alto para un hogar, basado en un complejo modelo de ciclo de vida. ESPlanner fue utilizado en sesiones de planificación financiera con 386 empleados de la Universidad de Boston. En estas sesiones se recolectó información detallada y muy confiable sobre la situación financiera y planes futuros de los encuestados. Los resultados fueron alarmantes. La correlación entre las recomendaciones de ESPlanner y las decisiones tomadas por los entrevistados es muy débil en el caso de ahorros y prácticamente cero en el caso de seguros de vida. Muchos empleados están gastando mucho más de lo recomendado y ahorrando mucho menos que lo que deberían de acuerdo a las recomendaciones de ESPlanner, mientras otros están sub-gastando y sobre-ahorrando en forma significativa.

Abstract

This paper studies savings and life insurance adequacy using a financial planning software package, ESPlanner. This program computes the highest sustainable living standard for the household based on an elaborated life cycle planning model. ESPlanner was used in financial planning sessions with 386 Boston University employees. The sessions solicited highly detailed and very reliable information about respondents' financial circumstances and financial plans. The findings are striking. The correlation between ESPlanner's saving and insurance prescriptions and the actual decisions being made by BU employees is very weak in the case of saving and essentially zero in the case of life insurance. Many employees are spending far more and saving far less than they should, while others are under-spending and over-saving.

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I. Introduction

This study examines the saving and insurance behavior of 268 married and 118 single Boston University employees who volunteered to receive financial planning based on *ESPlanner*^{TM} (Economic Security Planner) – an elaborate life-cycle financial planning program developed by Economic Security Planning, Inc. Study participants received their financial plan for free. They also were given the choice of receiving either a free copy of ESPlanner, together with their input file, or a cash payment that ranged from $25 to $100. Because the employees knew they were helping to generate their own financial plan, they had a strong incentive to provide full and accurate financial information. Hence, the data collected from the planning sessions appear to be of particularly high quality for studying saving and life insurance decisions.

ESPlanner determines annual levels of consumption, saving, and life insurance holdings that smooth a household's living standard through time subject to the household not exceeding its self-declared borrowing limit. The program treats housing and special expenditures as "off-the-top," adjusts for economies in shared living and the relative costs of raising children, makes highly detailed tax and Social Security benefit calculations, and permits users who don't want a stable living standard to specify how they'd like their living standard to change through time.

The demographic and financial data solicited by ESPlanner are extensive and detailed. In the case of married couples, they include ages of the household head and spouse, maximum ages of life of the household head and spouse, the ages of children under 19, current market values of regular and retirement account assets, current and future levels of wage and self-employment earnings, current and future special expenditures, current and future special receipts, current housing and future housing plans, current and future receipt of pension benefits, desired bequests, expected funeral costs, borrowing limits, desired future living standard changes, desired changes in survivors' living standards, actual current saving, actual current life insurance holdings, intended dates of withdrawal from retirement accounts, current and projected contributions to retirement accounts, expected nominal rates of return on regular and retirement account assets, the expected rate of inflation, current Social Security benefits, past and future Social Security-covered earnings, the degree of economies in shared living, projected future cuts in Social Security benefits, and the costs of supporting children relative to adults.

We take ESPlanner's consumption, saving, and life insurance recommendations as a reference point from which to consider actual choices of these variables. Large and widespread

deviations of ESPlanner's recommended levels of consumption, saving, and life insurance from actual levels would suggest that BU employees are making significant financial planning mistakes. This, unfortunately, is exactly what we find. Indeed, the correlation between ESPlanner's saving and insurance prescriptions and the actual decisions being made by BU employees is very low in the case of consumption and saving and essentially zero in the case of life insurance. Many employees are spending much more and saving much less than they should, while others are under-spending and over-saving.

The same holds for life insurance. The degree of under-insurance is particularly worrisome. Almost 13 percent of those BU spouses who are secondary earners would experience a 40 percent or greater drop in their living standards were their partners to pass away in the near future. Another 13 percent would experience a 20 to 40 percent drop.

While one might expect that those BU employees who appear to be making financial mistakes would be less well educated or have less financial knowledge, this is not the case. Highly compensated professors with substantial knowledge of financial matters are just as likely as staff members with little financial acumen to make what appear to be inappropriate saving and insurance decisions.

In addition to studying saving and insurance behavior, our study addresses a range of questions about household financial behavior that have previously been hard to investigate. One example is the degree to which households face liquidity constraints. In our sample, 66.4 percent of married couples and 67.8 percent of singles are unable to perfectly smooth their living standards. Younger households with lower incomes and levels of regular assets are much more likely to be borrowing constrained. But borrowing constraints also limit the consumption smoothing of one third of older households with high incomes and large amounts of assets.

A second example is the degree to which BU's generous 403(b) retirement saving plan limits consumption smoothing. We considered a) eliminating the plan, but b) having the University increase each employee's direct pay by the amount it would otherwise have contributed to their 403(b) account. According to ESPlanner, this policy would increase the current consumption of married employees by 9.0 percent and that of single employees by 20.4 percent. Retirement consumption of married employees would decline by 8.0 percent and that of single employees by 10.4 percent.

A third example is the degree to which households differ with respect to the rates of return they expect to earn on their investments. Just over 80 percent of BU employees used the program's 3 percent real return default assumption. Another 8 percent set their real returns below 3 percent, and the remainder set their real returns above 3 percent, with only 1 percent setting their real returns at 8 percent or higher.

The paper proceeds with a review of the literature, an overview of ESPlanner, a description of the survey protocol and data collection, and a presentation of findings. The final section concludes with suggestions for future research.

II. Literature Review

This is the third in a series of studies that use ESPlanner to examine household financial decisions. Bernheim, Carman, Gokhale, and Kotlikoff (2001) and Bernheim, Forni, Gokhale, and Kotlikoff (2001) examined life insurance holdings of respondents in the Survey of Consumer Finances (SCF) and the Health and Retirement Study (HRS), respectively. Both studies document a startling mismatch between the amounts of life insurance that individuals hold and the underlying insurance needs of their potential survivors. In particular, they find virtually no correlation between these two variables regardless of age, income, or other demographic or financial characteristics.

For those in need of insurance, these findings are troubling. Consider secondary earners in the SCF, which is a nation-wide survey. In the absence of life insurance, 56 percent of secondary earners would have experienced a 20 percent or greater decline in living standard upon the death of a spouse. Actual life insurance holdings reduced the fraction of secondary earners exposed to such a severe decline in their living standard to 42 percent. Thus, the overall impact of life insurance holdings on financial vulnerabilities among at-risk SCF households is modest. Roughly two-thirds of poverty among widows women and more than one-third of poverty among widowers appears to reflect inadequate life insurance. While younger households are likely to have acquired/updated their life insurance holdings more recently than older ones, the evidence suggests that younger households are less adequately insured than older ones.

The results based on the Health and Retirement Study, which covers Americans approaching retirement, are much the same. Ignoring life insurance, 53 percent of secondary

earners would have experienced a 20 percent or greater decline in their living standards had their spouses died at the time of the survey. Actual life insurance holdings reduced this figure to 36 percent.

These findings resonate with those of Holden, Burkhauser, and Myers [1986] and Hurd and Wise [1989], who document sharp declines in living standards and increases in poverty rates (from 9 to 35 percent) among women whose husbands actually passed away. The findings also accord with those of Auerbach and Kotlikoff [1987, 1991a, 1991b], who analyzed Retirement History Survey data gathered during the late 1960s. Auerbach and Kotlikoff report that roughly one-third of wives and secondary earners would have seen their living standards decline by 25 percent or more had their spouses died at the time of the survey.

III. ESPlanner

ESPlanner uses dynamic programming to smooth a household's living standard over its life cycle to the extent possible without allowing the household to exceed its self-assessed debt limit. Formally, the program's algorithm is equivalent to maximizing the limit, as the coefficient of risk aversion goes to infinity, of a time-separable isoelastic utility function with period-specific weights. This maximization is taken with respect to annual consumption levels and annual term life insurance holdings of the household head and, if married, his or her spouse. Non-negativity constraints on life insurance and debt limits constrain these decisions.

The period-specific weights incorporate two elements. The first is the number of equivalent adults projected to be living in the household in a given year adjusted for economies in shared living. The second is the program's *Standard of Living Index*. The number of equivalent adults adjusted for economies in shared living is given by $(N+dK)^{\sigma}$, where N is 1 in the case of singles and 2 in the case of married couples, σ determines the degree of economies in shared living, d is the child-adult equivalency factor, and K is the number of children.[1] A value of σ equal to 1 implies no economies in shared living. A value of σ equal to 0 implies perfect economies in shared living. Our default value for σ of .678072 implies that raising the number of equivalent adults from 1 to 2 raises the value of the formula from 1 to 1.6.

[1] This formula is a simplification of the one actually used in the program, which permits child-adult equivalency factors to vary with the age of the child.

The standard of living index can be specified at a different value for each future year. The index permits the household to tell the program whether it wants to have the same living standard in all future years, in which case the index is left at 100 for all future years, or whether it wants its living standard to vary through time, in which case the index values are set above or below 100. The index value for the current year is fixed at 100, so the user is actually specifying the desired living standard in a particular year relative to its living standard in the current year.

In making its calculations, ESPlanner takes into account the non-fungible nature of housing, bequest plans, economies of shared living, the presence of children under age 19, and the desire of households to make "off-the-top" expenditures on college tuition, weddings, and other special expenses. In addition, ESPlanner simultaneously calculates the amounts of life insurance needed by each spouse to guarantee that potential survivors suffer no decline in their living standards compared with what would otherwise be the case.

Life insurance amounts are calculated subject to non-negativity constraints. When the program recommends zero life insurance, survivors will have the same or higher living standard than they enjoyed prior to the decedent's death. Life insurance recommendations at each age are also made for surviving spouses.[2] In this regard, the partner's life insurance recommendation takes into account the need for his (her) widow (widower) to pay insurance premium on her (his) own insurance policies.

ESPlanner's formulates its recommended time-paths of consumption expenditures, taxable saving, and term life insurance holdings in constant dollars of the current year. Consumption, in this context, is everything the household gets to spend after paying for its "off-the-top" expenditures – its housing expenses, special expenditures, life insurance premiums, special bequests, taxes, and contributions, net of withdrawals, to tax-favored accounts. Given the household's demographic information, preferences, and borrowing constraints, ESPlanner calculates the highest sustainable and smoothest possible living standard over time, leaving the household with zero terminal assets apart from the equity in homes that the household chooses not to sell.

The amount of recommended consumption expenditures needed to achieve a given living standard varies from year to year in response to changes in the household's composition. It also

[2] The life insurance recommendations for survivors are determined separately depending on when the survivor first

rises when the household moves from a situation of being liquidity constrained to one of being unconstrained. Finally, recommended household consumption will change over time if users intentionally specify that they want their living standard to change, which, to repeat, they can do via the standard of living index.

ESPlanner's algorithm is complicated. But users can check ESPlanner's reports to see that, given their data inputs, preferences, and borrowing constraints, the program recommends the highest and smoothest possible living standard over time. They can also readily verify that the recommended life insurance amounts will preserve the living standards of survivors and that zero life insurance is recommended only if survivors will enjoy higher living standards if the potential decedent in question passes away.

Because taxes and Social Security benefits make a critical difference to how much a household should consume, save, and insure, calculating these variables accurately is very important.[3] ESPlanner has highly detailed federal income tax, state income tax, Social Security's payroll tax, and Social Security benefit calculators. Its federal and state income-tax calculators determine whether the household should itemize its deductions, computes deductions and exemptions, deducts from taxable income contributions to tax-deferred retirement accounts, includes in taxable income withdrawals from such accounts as well as the taxable component of Social Security benefits, and calculates total tax liabilities after all applicable refundable and non refundable tax credits. These calculations are made separately for each year that the couple is alive as well as for each year a survivor may be alive. Moreover, tax and benefit calculations for surviving wives (husbands) are made separately for each possible date of death of the husband (wife). I.e., ESPlanner considers each date the husband (wife) might die and calculates the taxes and benefits a surviving wife (husband) would pay and receive in each of her (his) remaining years of life were she (he) to continue to survive. In calculating Social Security retirement benefits, survivor benefits, mother and father benefits, children benefits, spousal benefits, and divorcee benefits, ESPlanner takes into account the system's eligibility requirements, wage indexation of earnings histories, inflation indexation of benefits, early retirement benefit reduction factors, recomputation of benefits, the delayed retirement credit, family benefit maximums, and the recently modified earnings test.

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becomes widowed.

2. A Strategy for Measuring Financial Vulnerabilities

A. Concepts

We clarify our strategy for measuring financial vulnerabilities through an example. Imagine that a husband and wife each live for at most two years (equivalently, they are within two years of maximum lifespan). Both are alive initially, but either may die before the second year. The household's well-being depends on consumption in the current year and in the following year in each survival contingency. As discussed further below, we allow for the possibility that certain expenditures (e.g., special expenditures and housing) are either exogenous or determined early in life by "sticky" choices. We refer to these expenditures as "fixed consumption," and to residual spending as "variable consumption."

Let y_1 denote initial assets plus first period earnings net of fixed consumption, and let y_{2s} denote second period earnings net of fixed consumption in state $s = W, H, B,$ where the state identifies survivors (wife, W, husband, H, or both, B). The couple divides first period resources between variable consumption, c_1, saving, A, and insurance premiums, p_iL_i, $i = H, W,$ where L_i represents the second-period payment to i if his or her spouse dies, and p_i denotes the associated price per dollar of coverage. Assets A earn the rate of return r.

The couple faces the following constraints: $c_1 = y_1 - A - p_WL_W - p_HL_H$, $c_{2B} = y_{2B} + A(1+r)$, and $c_{2i} = y_{2i} + A(1+r) + L_i$ for $i = W, H$, where c_{2i} denotes second period variable consumption in state i (for the moment, we ignore non-negativity restrictions on life insurance and assets) Defining $P_B = (1+r)^{-1} - P_W - P_H$, these equations imply:

$$(1) \qquad c_1 + p_Bc_B + p_Wc_W + p_Hc_H = y_1 + p_By_B + p_Wy_W + p_Hy_H \equiv Y$$

We equate living standard with per capita variable consumption adjusted for family composition. To determine each individual's living standard when both are alive, we divide variable consumption by 2^{σ} because there are no children in this example. To maintain a living standard c^* for each person that is constant across time and states of nature (in this case,

[3] See Gokhale, Kotlikoff, and Warshawsky (2001).

survivorship), the couple must spend $2^{\sigma}c^{*}$ whenever both spouses are alive and c^{*} when only one spouse is alive. From (1), we have

$$(2) \qquad c^{*} = \frac{Y}{2^{\sigma}(1+p_B)+(p_W+p_H)}$$

The couple can guarantee that spouse j's death will not diminish i's living standard by purchasing a life insurance policy with a face value of $L_i = (c^{*} - y_{2i}) + (y_{2B} - 2^{\sigma}c^{*})$.[4]

We measure underlying financial vulnerabilities by comparing an individual's highest sustainable living standard, c^{*}, with $c_i^n = y_{2i} + A(1+r)$, which represents the living standard he or she would enjoy if widowed, ignoring life insurance. We define the variable POTENTIAL IMPACT as $[(c_i^n / c_i^{*}) - 1]$ x 100, for $i = W, H$. This is a measure of the percent by which the survivor's living standard would fall short of or exceed the couple's highest sustainable living standard *absent any insurance protection*.

Similarly, we measure uninsured financial vulnerabilities by comparing c^{*} with $c_i^a = y_{2i} + A(1+r) + L_i^a$, which represents the living standard the widow(er) would actually enjoy given actual life insurance coverage, L_i^a. We define the variable ACTUAL IMPACT as $[(c_i^a / c_i^{*}) - 1]$ x 100, for $i = W, H$. This is a measure of the percent by which the survivor's living standard would fall short of or exceed the couple's highest sustainable living standard, *given actual levels of coverage* .[5]

For the preceding example, we implicitly assumed that individuals could borrow at the rate r and issue survival contingent claims at the prices p_H and p_W. As a practical matter, households encounter liquidity constraints. They are also typically unable or at least very reluctant to purchase negative quantities of life insurance (buy annuities).[6] In solving for each

[4] This is the utility-maximizing outcome in the case that the household has Loentief preferences defined over per capital expenditures adjusted for economies in shared living.

[5] Note that when actual life insurance is below the benchmark, the intact couple saves on life insurance premiums, so the actual living standard per spouse exceeds c^{*}. Hence the difference between the two impact variables understates somewhat the change in living standard that an individual experiences upon a spouse's death.

[6] A non-negativity constraint for life insurance purchases is equivalent to the restriction that life annuities are not available for purchase at the margin. For further discussion, see Yaari (1965), Kotlikoff and Spivak (1981), and Bernheim (1987).

household's highest sustainable living standard, we take these restrictions into account, smoothing consumption to the greatest extent possible.[7]

When the life insurance constraint binds, the recommended living standard for a survivor, c_i^* (where $i = H$ or W), may be greater than the recommended living standard for the couple while both spouses are still alive, c_B^*. This observation raises the following practical issue: when calculating IMPACT, should we set $c=c_i^*$ or $c=c_B^*$? Were we to use c_B^*, ACTUAL IMPACT would be positive not only for households that depart from the recommendation by purchasing additional insurance ($L_i^a>L_i^*$), but also for constrained households that conform to the recommendation by purchasing no insurance ($L_i^a=L_i^*=0$). In contrast, the use of c_i^* implies that ACTUAL IMPACT is positive when $L_i^a>L_i^*$ and zero when $0=L_i^a=L_i^*$. Since we wish to use ACTUAL IMPACT as a measure of the extent to which a household deviates from the consumption-smoothed (recommended) level, we select c_i^* rather than c_B^*. As a result, the value of POTENTIAL IMPACT is always non-positive (even though, absent insurance, the survivor's material living standard might actually increase upon his or her spouse's death), and it equals zero whenever the corresponding recommended insurance level, L_i^*, is zero.

One noteworthy difference between this and earlier studies of insurance adequacy is that key parameters such as maximum ages of life, planned retirement ages, future expected inflation, expected interest rates, the child-adult equivalency factors, planned future expenditures, funeral expenses, bequests, and, in particular, desired living standards of survivors are provided by the survey participants rather than assumed by the researcher. Hence, ESPlanner's calculated sustainable living standards of joint and survivor households is based on a much larger set of user-defined parameters than is usually the case in similar studies. The same remark applies to the program's recommended profiles of life insurance, consumption, and saving designed to deliver the maximum sustainable living standards for intact and surviving households.

Findings

A. Characteristics of the BU Sample:

[7] Formally, one can think of the outcome that we identify as the limit of the solutions to a series of utility maximization problems in which the intertemporal elasticity of substitution approaches zero. In the limit (the Leontief case), the household is actually indifferent with respect to the distribution of consumption across any years in which its living standard exceeds the minimum level.

Tables 1 and 2 report general characteristics of our sample for married and single households, respectively. Consider first non-housing wealth. For married households the mean and median values of this variable equal $306,184 and $74,970, respectively. These figures exceed the corresponding national values of $256,570 and $18,060 calculated from the 1998 Survey of Consumer Finances.[8] For single households, mean non-housing wealth is $76,124, which is less than the national average of $94,101. However median non-housing wealth level for singles is $14,172 compared to a national median of $5,620. The smaller differences between means and medians in the BU sample suggests that less dispersion in our sample than in the overall population.

The generally higher non-housing wealth levels in the BU sample is consistent with the fact that well over 80 percent of our sample respondents and their spouses hold college degrees compared to the national averages of 36 percent for married males, 29 percent for married females, and 33 percent for single household heads. As would be expected, married households have a much greater rate of home-ownership--83 percent--compared to that for single individuals--44 percent. The national rates of home-ownership for married and single households are 79 percent and 49 percent, respectively. A small fraction of BU sample households are covered under defined benefit pensions (14 percent for married males and 9 percent for single households). Finally, about 13 percent of married households and 26 percent of single households are non-white. The corresponding national percentages are 19 percent and 27 percent.

Panel 2 of Table 1 indicates that for married households, average actual insurance ($304,712) falls just short of the average recommended level ($320,336) for husbands. BU automatically provides its employees with a minimum of one-year's salary in life insurance coverage. This reduces the amount of insurance purchases required to achieve a given living standard for surviving household members. Purchased insurance averaged $249,226 for husbands and $112,091 for wives. Husbands' median total insurance is larger than median recommended insurance. For wives, both mean and median total insurance exceed the respective mean and median recommended insurance levels. For singles, mean and median recommended

[8] All national statistics reported in this section are computed from the 1998 Survey of Consumer Finances. In our computations, we define non-housing wealth as financial plus non- financial assets minus equity in residential property.

insurance amounts are $32,654 and $0, while the mean and median of actual insurance are $109,317 and $52,000.

On average, husbands would face an 8.78 percent living standard decline and wives a 26.34 percent decline were their spouses to die completely uninsured. But, as indicated in the second from last row in Table 1, given actual life insurance holdings, the husbands would, on average, be better off to the tune of 2.32 percent, while the wives would, on average, be worse off by only 4.94 percent. As a comparison of the husband and wife means in the last two rows indicates, BU's provision of life insurance appears to play a small role in reducing the financial risk of widowhood among our sample. Note also that the mean percentage change in living standard results for primary and secondary earners are quite similar to those for husbands and wives since most husbands are primary earners.

The median results on living standard changes indicate that, absent insurance, at least half the husbands would experience no drop on their living standards were they to become widowed. For wives, the story is different. Here half the wives would experience an 17.94 percent or greater living standard decline in the absence of any insurance proceeds. The availability of life insurance changes this picture dramatically in the case of wives. Their median change in living standard from widowhood rises from negative 17.94 percent to positive 1.61 percent when we move from the potential change in their living standard to the actual change they'd experience. For husbands, actual life insurance moves the median from a zero percent change to a positive 1.67 percent change.

Thus, the impression one gets from these initial summary statistics is that life insurance protection is very important for most sample wives, but that they are, in general, receiving that protection. As we'll show below, this overall assessment masks a significant degree of underinsurance among a sizable minority of secondary earners, most of whom are wives.

B. ESPlanner's User Inputs

Tables 3 and 4 show summary statistics of married and single households' choices of key ESPlanner parameters. In general the choices seem to span a reasonable range of alternatives. On the other hand, the default values may have influenced some of these choices. With the exception of the maximum age of life, each of the median values in the tables equals the default

input value for the variable in question. The default value for the maximum age of life is 95. But the medians for both husbands and single respondents is 90.

For married households, mean funeral expenses average $5,428. For singles, they average $4,187. Most married households prefer to have survivors enjoy the same living standard as the joint household. Mean desired bequests for husbands and wives are $40,723 and $28,458 respectively. They are $28,123 for singles. Husbands', wives', and singles' entered maximum ages of life that averaged 90, 92, and 90, respectively. Singles and husbands expect, on average, to retire at age 66, while for wives the mean retirement age is 64. The youngest retirement age specified by the subjects is 45 (set by a wife) and the oldest is 87 (set by a husband).

All of these inputs seem to conform with demographic and behavioral norms of the U.S. population. Other economic inputs also seem reasonable. On average, expected inflation is about 3 percent per year, expected nominal rates of return on tax-favored saving average just north of 6 percent and, on average, households expect modest cuts in future Social Security benefits. On the other hand, based on their reported maximum indebtedness estimates, married households' estimates of their ability to borrow appear to be lower than prevailing debt levels in the United States, especially among a population as well educated and economically secure as the BU sample of married households. This estimate is higher for single households--as shown in Table 4.

Again, these findings may be influenced by the default values for the economic inputs. They are 3 percent for inflation, 6 percent nominal rates of return on both regular assets and retirement account assets, and zero with respect to the maximum level of indebtedness. Table 5 shows that the fraction of those selecting extremely large or extremely small values for the different parameters is relatively small. For example, Tables 5 and 6 show the distributions of nominal and real interest rates and the inflation rate selected by married and single households. More than three-fourths of the households selected the default values of these parameters.

C. Borrowing Constraints

The first panel of Table 7 shows the fraction of married borrowing-constrained households by age. A household is deemed to be borrowing constrained if its consumption

cannot follow the household's desired growth path without infringing the user-specified borrowing limit at least once during the household's remaining lifetime. The fraction of borrowing constrained households is very high for young households and declines with age. All but one of the under-30 households is borrowing constrained. Even for those over age 70, the fraction of borrowing constrained households is quite large—over 40 percent. Overall, two-thirds of the sample is borrowing constrained.

The second panel of Table 7 suggests, as expected, that the incidence of borrowing constraints is more frequent among relatively low earning households. The third panel of Table 7 suggests, again as expected, that low-net worth households are more likely to face borrowing constraints. The three panels of Table 8 repeat those of Table 7 for single headed households. They show that the patterns of borrowing constraints by age, earnings, and net worth are similar to those of married households.

Table 9 re-organizes the information of Table 7. It shows the percent of married households that are borrowing constrained and the average number of years for which borrowing constraints bind by age, earnings, and wealth. Households that are young, have low net wealth, and earn relatively little are almost certain to be borrowing constrained for a large number of years. A smaller, but still quite high fraction of older, richer, and high-earning households are borrowing constrained, although their constraints bind for fewer years.

These points are illustrated by comparing a) married households less than 40 year's old, with earnings below $80,000, who hold less than $10 in regular (non housing and non retirement account) assets with b) married households older than 50, with earnings in excess of $180,000, and with regular assets of $200,000 or more. In the former group 77 percent are liquidity constrained for an average of 12 years. Among the latter group 35 percent are liquidity constrained for an average of only 1 year. Table 10 repeats Table 9, but for singles. The results are roughly similar to those in Table 10.

D. Insurance Adequacy

Table 11 considers life insurance adequacy. It shows that about two-thirds of wives and one-third of husbands would suffer some reduction in their living standard were their spouses to die immediately. More than a quarter of all wives would, in the absence of insurance, experience

a 40 percent or greater reduction in their living standards. Another 21 percent of wives experience a 20 to 40 percent reduction. In contrast, only 6 percent of husbands face a reduction in living standards in excess of 40 percent, and only 11 percent face a reduction of 20 to 40 percent.

Figures 1a and 1b present scatter plots of ACTUAL and POTENTIAL IMPACT for husbands and wives respectively. Because we use c_i^* rather than c_B^* as our recommended level of consumption, POTENTIAL IMPACT is always negative or zero. Moreover, ACTUAL IMPACT cannot be less than POTENTIAL IMPACT. The cluster of points on the right vertical axis of the figures indicate represent cases in which the surviving spouse would face either no impact from the death or his/her partner or a rise in his/her living standard.

The figures indicate that the vast majority of households have negative POTENTIAL IMPACT. Of these, about half have significant levels of POTENTIAL IMPACT (< –20 percent) and about a quarter have severe POTENTIAL IMPACT (<–40 percent). Second, the plot shows that very few of those with severe POTENTIAL IMPACT have positive ACTUAL IMPACT. Thus, insurance inadequacy seems to be greater among households where spouses are highly vulnerable. Third, the plots show that very few household purchase the "correct" amount of insurance relative to our recommended level--that is, very few households are able to purchase life insurance to make ACTUAL IMPACT equal or close to zero.

Table 11 shows that, for both wives and husbands, the share of those with severe ACTUAL IMPACT is only half as large as the share of those with severe POTENTIAL IMPACT (13 percent rather than 26 percent for wives, and 3 percent rather than 6 percent for husbands). It also shows that BU-provided insurance contributes relatively little toward ameliorating financial vulnerability of surviving households. For example, the share of husbands facing severe vulnerability would decline by only 2.6 percentage points, and the share of those facing moderate vulnerability would be reduced by less than half a percentage point. The same conclusion applies to wives facing severe and moderate financial vulnerability.

With actual insurance, only 13 percent of wives and 7 percent of husbands remain moderately financially vulnerable. Actual exposure to severe and moderate financial vulnerability is similar if we ignore BU insurance. About 52 percent of surviving wives would

enjoy higher living standards compared to their current living standard. The corresponding percentage for surviving husbands is 56 percent.

The bottom panel of Table 11 shows that almost half percent of secondary earners would suffer living standard declines of 20 percent or more in the absence of insurance covered. Insurance coverage lowers this figure from 50 percent to 28 percent. Non-BU insurance coverage accounts for the lion's share of this improvement.

Table 12 shows the mean value of IMPACT with no insurance, actual insurance, and actual less BU insurance. The first row shows that those wives with a POTENTIAL IMPACT of 40 percent or greater would, on average, suffer a roughly 70 percent reduction in their living standards absent any insurance on their husbands' lives. Mean ACTUAL IMPACT for these wives indicates that they remain exposed to a 38 percent reduction in living standards despite the coverage on their husbands' lives. According to ESPlanner, these husbands should, on average, purchase more than $800,000 in coverage. But their actual coverage averages less than half that amount.

POTENTIAL IMPACT averages 60 percent for husbands facing a potential living standard reduction of 40 percent or more. After accounting for the insurance coverage on their wives' lives, they remain exposed to a 28 percent reduction in living standards. Again, these wives' insurance coverage averages less than half the recommended amount of $348,000.

Among wives with moderate POTENTIAL IMPACT, insurance on husbands' lives cuts the reduction in their living standards as survivors from 31 percent to 7 percent. For husbands with moderate POTENTIAL IMPACT, the reduction in living standards as survivors falls from 30 percent to 14 percent.

Table 12 also shows that BU-provided insurance also makes little difference with respect to lowering actual vulnerability. For example, BU insurance reduces average IMPACT by just 5 percentage points for wives with severe POTENTIAL IMPACT and by just 4 percentage points for wives with severe POTENTIAL IMPACT. The reduction in IMPACT by BU-provided insurance on husbands with severe vulnerability is much greater (13 percentage points), but this is still only about one-fifth as large as their POTENTIAL IMPACT.

The last two panels of Table 12 divide the sample according to primary and secondary earners. It shows that spouses of primary earners in the POTENTIAL-IMPACT<-40-percent

category seem to be especially underinsured. Notwithstanding the insurance purchases on their spouses, these primary earners remain exposed to a 50 percent reduction in living standards if their spouses die. Average insurance coverage for the secondary earners in such households is less than half of the average recommend amount.

Table 13 reports the fraction of households that deal with their financial vulnerability through the purchase of insurance for the full sample and several sub samples. It shows the fraction of households falling under two IMPACT thresholds: 40 percent or greater (severe) and 20 percent or greater (significant). For the entire sample, 28 percent of secondary earners face POTENTIAL IMPACT greater than 40 percent. Actual insurance purchases reduces this fraction to 12.6 percent. Hence, as reported under the "Frac. Addr" column, 55.2 percent of secondary earners' severe POTENTIAL IMPACT is mitigated via holdings of life insurance. The corresponding figure for secondary earnings facing a significant impact is 45.2 percent. For primary earners facing a severe POTENTIAL IMPACT, the extent of mitigation is only 20 percent. It is 50 percent for households with a 20-percent-or-greater IMPACT.

The mitigation of POTENTIAL IMPACT via insurance purchases exhibit no significant pattern across earning groups. Spouses in low earning households are about as likely as those in high earning ones to mitigate secondary earners' POTENTIAL IMPACT. However, high income households where primary earners' face moderate levels of POTENTIAL IMPACT are generally more likely to mitigate this exposure, although sample sizes for such households are small. Dual-earning households are about as likely as single-earning ones to mitigate the POTENTIAL IMPACT of secondary earners. However, single-earning households are much less likely to mitigate the POTENTIAL IMPACT facing the primary earner.

The likelihood of secondary earners' POTENTIAL IMPACT being mitigated via insurance purchases is greater for households with a larger differential between primary and secondary earnings. The opposite holds in regard to mitigation of primary earners' POTENTIAL IMPACT: The likelihood of mitigation is greater the smaller the earnings differential between spouses.

The results suggest that secondary survivors' age is highly correlated with the likelihood of POTENTIAL IMPACT being mitigated. Young secondary earners have just over a 20-percent likelihood of being protected via insurance coverage on the spouse's life. However,

secondary earners closer to retirement age have a greater-than-two-thirds chance of being so protected. Secondary earners with children also have a higher likelihood of being protected, but only if their POTENTIAL IMPACT is severe. For secondary earners, the rates of mitigation of POTENTIAL IMPACT through life insurance purchases are similar for white and non-white households. However, primary earners' POTENTIAL IMPACT is mitigated at a much higher rate among white households compared to non-white.

E. Saving Behavior

A. Actual versus Recommended

Saving is a means of transferring resources from youth to old-age. It also serves to smooth out fluctuations in consumption due to unforeseen declines in income or unanticipated increases in expenditures (such as out-of-pocket medical costs). In the current context, given information on a household's current net-worth, projected earnings, projected off-the-top expenses (housing, planned vacations, etc.) and maximum borrowing ability, ESPlanner computes a saving trajectory that is implied by (required to achieve) the smoothest possible consumption path throughout the household's remaining lifetime. In order to remain on this consumption trajectory, the household's actual saving should match the "recommended" level in the first year. If actual saving is less than that recommended, the household is consuming more than is consistent with smoothing consumption over its lifetime. If actual saving is great than that recommended, the household is consuming less than it could without jeopardizing its ability to consume in the future at the recommended level.

Table 14 shows that most married BU-employee households are over-savers. The primary exception is low-income married households under 30 who under-save. Table 15 shows a similar pattern for single employees, although the degree of over-saving is generally smaller. Figures 2 and 3, which graph actual against recommended saving rates, indicate that very few sample households save very close to the amount needed to maintain a smooth consumption path over time. Indeed, the majority of households tend to over-save. This seems to contrast sharply with Bernheim (1991) and other studies that document pervasive under-saving on the part of U.S. households. However, it should be noted that the BU employees analyzed here are much better educated and economically much better-off than the average U.S. household. In addition,

the overwhelming majority (98 percent) participate in a very generous employer-provided retirement plan.

The excess of average actual saving rates over average recommended rates in Tables 14 and 15, however, hides considerable within-cell variation. Figures 2 and 3 indicate that a non-trivial fraction of households save less than the recommended amount: 80 out of 268 married households (30 percent) and 45 out of 118 single households (38 percent). Conditional on under-saving, the difference between actual and recommended households is quite large. For example, Table 16 shows that married households earning less than $80,000 per year should be saving, on average, 17 percent of their annual earnings to maintain their living standards through time. However, these households dissave at an average rate of 1 percent per year. And Table 17 shows that among single households that dissave, those earning between $60,000 and $80,000 should save about 9 percent of earnings each year to afford their sustainable living standard in the future. However, these households' save nothing, on average.

Tables 18A and 18B indicate changes in recommended saving rates for married and single households respectively if Social Security benefits are cut in the future. The experiment assumes that benefits are permanently reduced by 25 percent in 2011. Lower future income implies a lower sustainable living standard over the households remaining lifetime. For young households, the decline in future benefits triggers a decline in recommended spending across both earning and non-earning years. As a result, the living standard decline during non-earning years is smaller than the decline in annual Social Security benefits during these years. Therefore, recommended saving when young increases to finance the shortfall of income over recommended spending when retired. However, young households have several additional earning years over which to make up the shortfall. Hence, as Tables 18A and 18B indicate, increases in current-year recommended saving rates for such households are not very large. For households that are borrowing constrained when young and remain so despite the future benefit cut, changes in recommended saving rates are zero as expected (see Table 18B). Some of the changes in recommended saving rates in Tables 18A and 18B are negative. The explanation: Some households specified larger or earlier anticipated Social Security benefit cuts compared to the one implemented here. For these households, a benefit cut of 25 percent beginning in 2011 represents an improvement in their retirement resources relative to their baseline case.

Note that, as expected, changes in recommended saving rates are larger for middle-aged and older households. These households have relatively fewer earning years left prior to retirement but will face benefit cuts throughout retirement. Households aged 60 and over--those close to retirement or already retired--face smaller benefit cuts as much of their retirement years occur prior to the onset of the cuts in this experiment. The increase in recommended saving for such households is correspondingly smaller compared to households that are in their 50s.

B. The Impact of Tax-Favored Saving Plans:

Tax-favored saving plans such as 401(k)s and IRAs deliver a higher rate of return by eliminating capital income taxes on interest accruals. These retirement plans are intended to boost saving for the future as Social Security and Medicare programs face increasing financial pressure due to an aging population. However, as Gokhale and Kotlikoff (2001) demonstrate, these plans can represent a tax-trap for low earning households, especially if they contribute up to the statutory maximum levels during their careers. There are three reasons for this: First, such households may be subject to higher marginal tax rates upon retirement since withdrawals from these plans (which are mandatory after a certain age) are taxable. Second, high withdrawals may subject a greater amount of the household's Social Security benefits to taxation upon retirement. Finally, contributions to these plans when working may shift households to lower marginal rate brackets, reducing the value of mortgage interest and other deductions. Households for whom some or all of these factors become operative may enjoy lower lifetime consumption as a result of participating in tax-favored retirement plans.

How would BU-employees fare on a lifetime basis if tax-favored retirement plans were unavailable? This section examines the impact of eliminating future contributions to tax-favored accounts on households' lifetime spending. Table 19 shows the results for married households cross-tabulated by age and income. Eliminating tax-favored contributions (and receiving higher wages in lieu of the employer match) would hurt households of all ages and at all income levels. However, the increase in lifetime tax liabilities (and, hence, the benefits from the availability of tax favored retirement plans) are quite unevenly distributed across the age-income cells in Table 19. For example, for households between 30 and 40 years old and earning less than $80,000 per year the availability of tax-favored saving plans reduces lifetime taxes by about 4.7 percent.

However, the reduction for similar aged households earning in excess of $160,000 is more than twice as large—almost 10 percent.

Older households have fewer years left to accrue interest income on their savings in tax-favored retirement plans. Hence, as expected, tax savings over the remaining lifetime fall with age at all earnings levels. Table 20 suggests that similar conclusions apply to single employees, although the increase in tax liability with earnings is not as sharp.

Both Tables 19 and 20 confirm the aforementioned finding by Gokhale and Kotlikoff (2001): Some households would experience reductions in lifetime taxes, as indicated by the rows labeled "Min" for each earnings category, if their participation in tax-favored retirement plans were eliminated. Gokhale and Kotlikoff suggest that eliminating tax-favored plans can reduce lifetime taxes for low earning households (at earnings<$50,000). However, in the BU-employee sample, negative values occur at very high earning levels as well. This indicates that, depending upon a household's earning, spending, and other projections and upon its demographic configuration, this result may be relevant for high-earning households as well.

The effect of having higher lifetime taxes from eliminating tax-favored contributions is lower lifetime spending. Tables 21 and 22 report the impact on average lifetime spending for the same classification of households as Tables 19 and 20. In general, most household categories would experience a decline in lifetime spending, on average, were tax-favored retirement plans unavailable. The decline in spending ranges from a .25 percent to almost 5 percent, and average lifetime spending declines are larger, in general, for higher earning households. Again, as reported under the rows labeled "Max," some high-earning households would enjoy increases in lifetime spending if they terminated their participation in tax-favored retirement plans.

The impact of eliminating tax-favored contributions on households' recommended consumption in the current year provides further insight into the extent to which they are borrowing constrained. Table 23 and 24 show mean increases in recommended current consumption for married and single households, respectively. Eliminating tax-favored contributions unlocks resources for current use, but reduces income in the future. Were a household's borrowing constraint never binding despite participation in a tax-favored retirement plan, the funds released by eliminating tax-favored contributions would be devoted to non-tax-favored saving and current consumption would be no higher. Indeed, if this household's lifetime

net taxes increase from eliminating tax-favored contributions, its sustainable consumption level would be lower and would be reflected in lower recommended current consumption. However, when the borrowing constraint is binding, participation in a tax favored plan makes the constraint more stringent. And participation may itself cause the constraint to bind. In such cases, eliminating tax-favored contributions enables the household to increase current consumption at the expense of future consumption, making the lifetime consumption profile flatter.

Tables 23 and 24 show that most BU-employee households are borrowing constrained since recommended current consumption increases when tax-favored retirement plans are eliminated. In all but one of the age-earnings cells, the mean change in recommended current consumption is positive and that during the first retirement years is negative. The increase in mean recommended current consumption is higher for younger households. The increase is higher at the middle earnings levels shown ($80,000-$120,000 and $120,000-$160,000) than for low (<$80,000) and very high earners (>$160,000). Similar remarks apply to single households although for some, especially older households, recommended current consumption and recommended consumption in the first retirement year would both increase, on average, after eliminating tax-favored contributions. Thus borrowing constraints remain binding until after retirement for certain older single households, specifically those who defer withdrawing retirement account assets until later in retirement and those who intend to make large special expenditures in the year they retire.

Table 25 explores the distribution of changes in recommended current consumption from terminating tax-favored contributions. The change in recommended current consumption would be positive for about 60 percent of married households. For about half of these households, the increase would exceed 20 percent. As Table 26 shows, about 36 percent of single households would experience increases of 20 percent or greater in recommended current consumption. The mean increase for these households is in excess of 50 percent indicating very strongly binding borrowing constraints.

Tables 27 and 28 show the impact on recommended consumption in the first retirement year of terminating contributions to tax-favored retirement plans. As expected, post-retirement consumption falls for the vast majority of households (86 percent for both married and single

households). For some of these households, the decline in post-retirement consumption reflects their lowered lifetime sustainable consumption level from eliminating tax-favored contributions.

F. Dependence on Social Security Benefits

To what extent do BU-employees depend on Social Security benefits? The answers are contained in Tables 29 and 30. Overall, spending would decline by about 17.3 (18.0) percent in present value were married (single) households' future Social Security benefits eliminated. Considerable variation exists, however, across age-earnings cells. The impact is smaller for younger households because these benefits are farther out into the future and comprise a smaller share of their present value of spending. Some older households are almost entirely dependent on Social Security for spending during retirement. As expected, higher earning households are less dependent on Social Security benefits because of both the ceiling on taxable earnings and the progressive nature of the Social Security benefit formula.

The above experiment was meant only to examine the extent of BU-households' dependence on Social Security. An immediate and full abrogation of Social Security benefits is, of course, out of the question. However, given that the program is in deep financial trouble, it is not inconceivable that Social Security benefits will be non-trivially cut in the future. To illustrate the consequences of one such policy, we repeat the experiment of Table 30 by reducing Social Security benefits permanently by 25 percent beginning in 2011. The results for married (single) BU households are shown in Tables 31 (32). Note, that these tables report the percentage change in households' present values of spending relative to their own inputs. Those households who specified an earlier or larger anticipated cut in Social Security benefits will experience an *increase* in the present value of their spending under the cut assumed in this experiment.

Table 31 shows that married households that are about a decade away from retirement, experience the largest percentage decline in the present value of their spending. The decline is smaller for younger households (the benefits are further away in time) and older households (a substantial fraction of their retirement occurs prior to 2011). Again, households at the lower end of the wage distribution experience the largest spending declines since their dependence on Social Security benefits is greater relative to high earners. The mean decline in the present value

of spending from such a Social Security policy is 2.5 percent and the median is 2.9 percent. However, some households would suffer a close to 10 percent decline in their lifetime spending.

G. Regression Analysis of Insurance Adequacy

It is useful to recall that Figures 1a and 1b indicated a rather weak correlation between recommended and actual insurance. In those figures, if everyone purchased recommended insurance, the dots would lie on the horizontal axis implying that those faced with the greatest vulnerabilities would purchase the most insurance. No such pattern is perceptible in the figures.

To assess the relationship between recommended and actual insurance, we first arrange households in ascending order of recommended insurance and group them into 4 categories with an equal number of households in each. For each category, we compute average levels of recommended and actual insurance. We also show group-specific averages of non-asset income (earnings) and age. It is evident from Table 33A that both median and mean insurance levels are positively correlated across the household groupings. It is also clear that both recommended and actual insurance levels decline with age because younger households have more human capital to protect and older households have savings that can help them to self-insure. The table also shows that those with zero vulnerability (zero recommended insurance) also purchase substantial amounts of insurance, on average suggesting that actual purchases may not be based on a careful evaluation of insurance needs.

In addition, table 33A suggests that both recommended and actual insurance purchases are also positively correlated with earnings. To investigate whether recommended and actual insurance are positively correlated after controlling for earnings, we repeat the exercise of Table 33A in Table 33B, but use recommended insurance per dollar of earnings as the sorting variable before dividing the observations into 4 groups. Table 33B shows group-specific average ratios of recommended and actual insurance coverage per dollar of earnings. After controlling for the influence of earnings in this manner, recommended and actual insurance levels are no longer positively correlated.

The recommended level of insurance incorporates all demographic (spouses ages, number of children, children's ages etc.) and economic (earnings, wealth, spending plans, division of earnings between spouses etc.) information on a household. Hence, actual insurance

should be fully explained by recommended insurance in a regression of the former on the latter. Stated differently, the coefficient on recommended insurance should equal unity.

The first panel of Table 34 shows the results for three regression models--OLS, Tobit (to account for the fact that some households have zero recommended insurance), and median regression (to eliminate outlier effects). The null hypothesis is rejected decisively in all three cases. In each of these regressions, the coefficient on recommended insurance is significantly different from zero and suggests that actual insurance purchases increase by about 15 cents for each additional dollar of recommended insurance. The coefficient value is slightly smaller than earlier findings based on the Survey of Consumer Finances (Bernheim et. al., 2001).

The finding of a positive response of actual insurance to larger recommended insurance may simply arise as a result of the joint response of both to greater earnings. Higher earnings may (is likely to) have a positive impact on recommended insurance. If households mechanically increase insurance purchases because of an income effect, actual insurance may rise with income leading to the apparent positive response reported in the regressions in Panel A. To control for earnings, the second panel Table 34 reports regressions where both actual and recommended insurance levels are divided by household earnings. These regressions show that recommended insurance has little, if any, influence on actual insurance--suggesting that life insurance purchases do not result from a careful evaluation of the need for such insurance.[9]

Although the univariate regressions reported above suffice for examining the null hypothesis that households' life insurance purchases correspond to their needs for life insurance, they are not sufficient to explore alternative hypotheses. For example, if households initially purchase life insurance according to their needs but fail to update their coverage through life, one may expect to find a better match of actual to recommended insurance for young individuals but not for older ones. Moreover, both recommended and actual insurance levels decline with age because younger households have more human capital to protect and older households have savings that can help them self-insure. These considerations imply the need to control for age as well as income when executing the regressions. Other systematic effects may also exist--for example, the level of education, professional assistance in financial planning, households' net

9 We conducted similar regressions separately on husbands' and wives' insurance purchases and found essentially similar results.

worth, and the rate of time preference (as proxied by the rate of over - or under-saving) may influence how well actual purchases match recommended insurance levels.

Table 35 presents a regression of the ratio of actual insurance to household earnings on the recommended ratio and several additional variables. The age variable is included in alternative ways--as "average age of couple" and as dummies for 3 age categories. The age variable(s) are also interacted with the recommended ratio. In the first set of three regressions (OLS, Tobit, and Median) in Table 35, introducing additional regressors renders the coefficient on recommended ratio negative--pushing it further from the null hypothesis of unity. The coefficient on "average age of couple" is marginally significant and positive--the opposite of the prediction that the actual ratio would decline with age. Similarly, coefficients on age interacted with the recommended ratio are marginally significant but positive. This suggests that the response of the actual ratio to increases in the recommended ratio rises with age. This suggests that older individuals' actual purchases are more in line with the recommended levels--contradicting the conjecture advanced above.

When the regression specification includes age dummies and age dummies interacted with the recommended ratio (the last three columns in Table 35), the coefficients on the dummies for age are not significantly different from zero. The same is true for the coefficients on the interaction term. Under this specification the coefficients on an index of self-reported financial knowledge and net worth are positive and marginally significant. The positive sign on net worth is, again, the opposite to theoretical prediction: Households able to self-insure should purchase less life insurance.

The large standard errors on many of the coefficients in Table 35 suggest co-linearity among the regressors. For example, education, financial knowledge, and rate of over-saving may be highly correlated. We re-estimated the regressions after eliminating all variables except age, age interacted with the recommended ratio, net worth, and the index of financial knowledge. The results are shown in Table 36. Under the first specification (the first three columns of Table 36), coefficients on the retained regressors are not much different from those in Table 36 except for net worth--for which the coefficient is larger and more significant. Under the second specification (using age dummies), the coefficient on the interaction of age dummies with the

recommended ratio remain indistinguishable from zero whereas their theoretically expected value is unity.

If none of the households possessed any insurance, their POTENTIAL and ACTUAL IMPACT would be identical. In that case, a regression of ACTUAL against POTENTIAL IMPACT would yield a zero intercept and a coefficient of unity on the regressor. However, measures of POTENTIAL impact are negative numbers and most ACTUAL IMPACT values are also negative. Hence, a positive intercept implies that households with low POTENTIAL impact possess more than the requisite insurance to fully offset a spouse's vulnerability. An estimated slope coefficient of less than unity implies that those with greater POTENTIAL IMPACT purchase more insurance, but also that the gap between ACTUAL and POTENTIAL IMPACT grows with POTENTIAL IMPACT. In other words, those with the greatest vulnerability remain most vulnerable.

The (OLS, Tobit, and Median) regressions reported in Table 37 suggest that wives' actual purchases reduce impact on husbands by between 18 and 39 percent for each additional percentage point of POTENTIAL IMPACT (one minus the estimated coefficient in percent). Insurance purchases by husbands reduce the impact on wives by somewhat less--between 17 and 23 percent. As Table 38 shows, introduction of additional regressors reverses the conclusion that mitigation of impact is stronger for husbands than for wives: The point estimates on vulnerability in Table 38 suggest that between 58 and 65 percent of husbands' impact is mitigated at the margin via insurance purchases in households. However, these coefficients are no longer significant. The rate of mitigation of wives' impact is much lower--between 35 and 42 percent. Point estimates of the effects of consulting a financial planner and thinking frequently about saving and insurance on the rate of mitigation are negative on impact on husbands and positive on wives' impact. (Remember that the rate of mitigation is one minus the coefficient estimated on vulnerability.) Again, however, these coefficients are significant only for the impact on wives. Table 38 also shows that the extent to which a spouse's POTENTIAL IMPACT is mitigated depends positively upon the extent of mitigation of the other spouse's impact.

Table 39 repeats Table 37 except that IMPACT ignoring BU insurance is used as the dependent variable to isolate the extent to which the household's own insurance purchases mitigate impact for each spouse at the margin. Mitigation, at the margin, of husband's

POTENTIAL IMPACT is now somewhat smaller (between 12 and 25 percent for each additional percentage point of POTENTIAL IMPACT) and similar to the rate of mitigation of wives' impact (between 13 and 20 percent for each additional percentage point of POTENTIAL IMPACT).

As Table 40 shows, introducing additional regressors to the experiments of Table 39 makes only a slight difference to the results. Now, the median regression suggests that the impact on husbands is mitigated at the margin by wives' insurance purchases--to the extent of 59 percent for each additional percentage point of POTENTIAL IMPACT. Similar to the case of impact ignoring BU insurance on wives, impact ignoring BU insurance on husbands is now positively influenced in households that visit financial planners. Impact ignoring BU insurance on husbands is negatively influenced in households who report thinking frequently about saving and insurance. This should not be surprising since husbands are the ones that are generally over protected via insurance on wives' lives.

Next we perform a regression to examine whether husbands purchase more insurance than wives if wives are more vulnerable than husbands and vice versa. We know that both husbands and wives already have BU insurance. Hence, their purchases of additional insurance should be based upon a consideration of their respective vulnerabilities including BU insurance, but excluding their own insurance purchases. To accomplish this we first calculate the difference between ACTUAL IMPACT and IMPACT ignoring purchased insurance for each spouse. This difference is the same as the difference between IMPACT ignoring BU insurance and POTENTIAL IMPACT and it can be interpreted as the amount of insurance coverage purchased by the household on the *other spouse's* life. Call this variable A_x, where x=h or w and note that $A_x \geq 0$. We calculate the difference $A_w - A_h$ (husband's coverage minus wife's coverage) as an indicator of which spouse purchases more coverage. A negative value indicates that the husband's vulnerability declines by more than the wife's because of insurance purchases--that is, the wife purchases more insurance. Next, we calculate the difference between the spouses' IMPACTs *ignoring purchased insurance* (husband's minus wife's). This variable (call it B) indicates the relative vulnerability of the two spouses' (negative values imply that the husband is more vulnerable). Regressing $A_w - A_h$ on B should yield a positive coefficient on B.

Table 41 shows the results for OLS, Tobit, and Median regression. The coefficient is positive as expected under all three specifications and is significantly different from zero, suggesting that households make the correct basic decision about which spouse needs greater coverage. It's size indicates that when the wife's vulnerability with just BU insurance relative to the husband's is 1 percentage point greater, it corresponds to a larger insurance purchase on the husband's life relative to that on the wife's life. However, the larger insurance purchase by the husband is only sufficient to reduce the difference in their vulnerabilities by between 15 to 25 basis points.

In Table 42 we extend the regressions of Table 41 by including additional variables, in particular the interaction of difference in vulnerability with dummy variables for visiting a financial planner, thinking frequently about saving and insurance, and whether paid for participating in the current study. The coefficient on 'Difference in Vulnerability" under the OLS and Tobit specifications remains positive and significant. It is, indeed, larger than the value obtained in Table 41--about 45 basis points. Under these two specifications, none of the interacted variables are significant. On the other hand, the median regression produces a non-significant coefficient on the difference in vulnerability, but a significant coefficient on the same variable interacted with the dummy for visiting a financial planner. This indicates, that much of the action originates from outliers with respect to difference in vulnerability: Households where this difference is extreme do not need assistance in figuring out which spouse requires greater insurance coverage. The median regression shows that when the influence of outlier households is reduced, the remainder are unable to make the correct decision unless they visit a financial planner. In addition, the results show that households that were paid to participate in the current study tended to make the incorrect decision in their actual insurance purchases.

H. Comparing Actual and Recommended Consumption

Rational forward looking households would take account of all relevant information -- such as their current assets, projected earnings, asset and other income, current and future planned/off-the-top expenditures when deciding on current expenditure on consumption. In most studies, the analyst does not have a clear idea about households' preferred consumption growth rates (that it, their rates of time preference) or the extent of to which borrowing constraints are

binding. In this study, however, households are asked about their rates of desired growth in their standard of living and the information is used to calculate their lifetime profile of consumption subject to the user-specified borrowing constraint. Hence, even if households are borrowing constrained, their actual and recommended consumption should match closely. In other words, their actual-consumption to income ratio should be identical to their recommended-consumption to income ratio and a regression of the former against the latter should produce a coefficient of unity. However, the current study does not incorporate any information about households' perceived riskiness of future income and other projections. To the extent these projections are viewed as risky, households may engage in precautionary saving that the model does not capture. Hence their actual consumption-to-income ratios may be somewhat smaller than their recommended ratios. Tables 43 and 44 report results from univariate regressions of actual consumption-to-income ratio against the recommended ratio for married and single households respectively.

The coefficient for married households is very small--between 0.16 and 0.23 across the three regression specifications shown in the tables. That on singles is closer to a value one might expect based on the earlier discussion--between 0.58 to 0.85. That the coefficient for married households is so low is surprising because, other things equal, one would expect married households to face lower household earnings uncertainty given that there are (potentially) two earning members.

Tables 45 and 46 show results from including additional regressors for singles and married households respectively. We add controls for age and interactions of age dummies with the recommended consumption-to-income ratio to observe if the coefficient on recommended consumption changes with age. We also include interactions with the recommended ratio of dummies for visiting a financial planner, thinking often about saving and insurance, and whether paid for participating in this study. In addition, we add a proxy for the amount of uncertainty faced by the household based on its initial net worth. Households that face higher uncertainty about future income would presumably have larger precautionary savings. However, using net worth alone for this purpose is probably inadequate because it would also be affected by the stage of the life-cycle and by the amount of future planned special expenditures. Hence, we use the ratio of initial net worth minus the present value of future special expenditures to the present

value of household spending to capture the degree of uncertainty. We include this variable interacted with the recommended consumption-to-income ratio.

Table 45 shows results for married households. It is clear that the coefficient on the recommended consumption-to-income ratio is much smaller than one. This coefficient applies to households younger than age 40. The regressions suggest that the coefficient may be larger for older households, but the estimates on the interacted age dummies are not significantly different from zero. The coefficient on the proxy variable for uncertainty interacted with the recommended ratio has the expected sign (greater uncertainty should reduce the coefficient on the recommended ratio), but it is not significantly different from zero. This suggests, that the variable we constructed to represent uncertainty faced by the household is not a good proxy for such uncertainty. The fact that we are not adequately controlling for uncertainty may explain why the coefficient on the recommended ratio is so small. Interestingly, the coefficient on the interaction with visiting a financial planner is insignificant in the OLS and Tobit regressions but not so in the median regression. The median regression, elevates the relative weights on households with moderate values of the recommended ratio, indicating that such households tend increase saving if they visit financial planners.

As Table 46 shows, the results for single households are much more in line with theoretical expectations. The regressions do not reject the null hypothesis that the coefficient on the recommended consumption-to-income ratio equals one. Moreover, the coefficient of the interaction with the constructed proxy for uncertainty is negative and significantly different from zero. Together, these two results suggest that the constructed variable is a good proxy for such uncertainty. The coefficient on the interactions with age dummies suggest that the coefficient falls with age until retirement. This is consistent with the possibility that young individuals face binding borrowing constraints and, given an adequate control for uncertainty, actual consumption approximates recommended consumption very well for these individuals. Moreover, these individuals are as yet far in time from their peak earning years--the phase in their lifecycle where uncertain income realizations will exert the greatest impact on their lifetime income. Households that are near their peak earning years face earnings uncertainty much more immediately and therefore consume significantly less than their recommended level. In contrast, most earnings uncertainty is already resolved for households that are close to retirement. The

coefficient on the interacted age dummy for such households is also negative, but is not significantly different from zero. As is the case for married households, visiting a financial planner is associated with greater saving out of current income for single households as well. In the case of singles, however, the coefficient under the median regression specification is not significant, suggesting that the sizable negative impact on saving from visiting a financial planner is being driven by outlier observations.

Conclusion

This study compiles a unique data set of BU-employee households and uses it to conduct a detailed analysis of life insurance adequacy and saving behavior. To do so, the study makes use of ESPlanner--a detailed financial planning software package developed by three of the paper's authors. The data set constructed here contains detailed responses to several variables that analysts would like to observe, but usually cannot. These include expected maximum age of life, planned retirement ages, future expected inflation and expected interest rates, child-adult equivalency factors, planned future special expenditures, desired funeral expenses, desired bequests, and, in particular, desired growth in living standards and desired (relative) levels of survivors' living standards. Moreover, because the participants received their own financial plan in exchange for participation, they had strong incentive to provide accurate information.

Participation in the study was voluntary. Hence, the sample of households is not necessarily representative of the U.S. population. Indeed, it seems to differ from the U.S. population along several dimensions: the BU sample of households earn more, are wealthier, and are better educated than American adults on average. Hence, the results may at most be taken as roughly describing the situation of the upper middle class of the U.S. population.

The study compares recommended levels of insurance, saving, and consumption generated by ESPlanner with actual levels of these variables as reported by participants. The recommended levels are based on a calculation of the maximum sustainable level of consumption that a household can achieve given its inputs for family composition, initial assets, earnings, retirement ages, special expenditures, housing plans etc. The life-cycle profile of maximum sustainable consumption is also influenced by whether a user-specified borrowing constraint binds in a particular period.

As might be expected for such a sample, a very high fraction of young households is borrowing constrained and, although this fraction declines with age it is still quite high for the oldest households. In particular the results suggest that low-earning and low-net-worth households are more frequently borrowing constrained.

The results on insurance (in)adequacy are quite striking: On the whole, about two-thirds of wives and one-third of husbands would suffer some loss in their living standards were their spouses to die immediately. About a quarter of wives would experience a severe decline in their living standards--by 40 percent or more. Another 21 percent of wives would suffer a moderate--between 20 and 40 percent--decline in their living standards. In contrast, only 6 percent of husbands would suffer a severe loss and only 11 percent would suffer a moderate loss of living standards if their wives died immediately. Tabulations of the results by primary and secondary earners shows that 28 percent of secondary earners face severe financial vulnerability. Actual insurance holdings by their spouses removes only about half of such secondary earners from the category of severe financial vulnerability. The results on insurance inadequacy among BU households are consistent with findings of other studies by the authors.

In contrast, the findings on savings adequacy do not confirm those of other studies—notably. This study finds that BU households tend to over-save, in general, relative to the recommended saving based on ESPlanner's consumption smoothing approach. However, a non-trivial fraction of households--30 percent of among married households and 38 percent among single ones--save less than their recommended levels. Conditional on undersaving, the difference between actual and recommended saving is quite large--especially among the low earning households. Whereas these households should be saving about 10 percent or more of their earnings, their actual saving rates are zero or negative.

As shown by earlier studies, tax-favored saving plans could constitute tax traps for low-earning households, especially if contributions into these plans is close to the plans' maximum allowable levels. This study shows that some BU households may reap lower lifetime spending levels if they continue contributing into these plans as planned. The reductions in lifetime spending range from about 5 to 10 percent and extend to high income households as well.

A simple cross-tabulation of recommended and actual insurance as shares of household earnings reveals that recommended and actual insurance do not correlate very well. This

conclusion is confirmed by regression results suggesting that, after controlling for earnings and age, actual insurance holdings do not, in general, seem to vary with recommended levels in accordance with theoretical expectation. Despite this result, a test of whether husbands purchase more insurance when wives face greater potential vulnerability (and vice versa) is confirmed by regression tests. However, the tests indicate that most households, especially those with a moderate differential between spouses' vulnerabilities, are unable to make the correct decision without professional financial planning assistance.

Regression analysis of BU employees' consumption behavior suggests that married households consume much less than recommended levels, possibly because they perceive greater future uncertainties in the projected economic and demographic situations. Attempts to control for differences in such perceptions were not successful for married households. Single headed households, in contrast, seem to consume about the correct amount--in conformity with their recommended levels. Finally, other things equal, households that seek financial planning assistance seem to save more than others.

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Table 1

Descriptive Statistics for Married Households

Variable	Mean	Median
Non-housing net wealth	306,184	74,970
Primary home ownership	0.83	1.00
Primary home value	447,507	400,000
Household non-asset income	133,861	122,900
Number of children	1.05	1.00

Variable	Husband		Wife		Primary Earner		Secondary Earner	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Age	51	51	48	49	50	50	49	49
Non-white	0.131	0.000	0.135	0.000	0.135	0.000	0.131	0.000
College degree	0.878	1.000	0.861	1.000	0.906	1.000	0.833	1.000
Pension coverage	0.144	0.000	0.118	0.000	0.137	0.000	0.125	0.000
Non-asset income	90,169	77,500	43,692	39,000	98,170	84,869	35,692	31,250
Actual life ins.	304,712	191,668	128,823	69,374	317,367	211,209	116,168	46,748
Actual minus BU ins.	249,226	144,078	112,091	46,748	258,994	143,985	102,323	44,878
Benchmark life ins.	320,336	181,816	77,282	0	331,288	204,430	66,330	0
% Change in living standard ignoring ins	-8.78	0.00	-26.34	-17.94	-6.97	0.00	-28.14	-19.82
Actual % Change in Living Standard	2.32	1.67	-4.94	1.61	1.33	1.79	-3.95	0.96
% Change in Living Standard Ignoring BU Insurance	0.26	0.39	-8.64	0.00	0.30	0.57	-8.68	0.00

Note: Actual and benchmark life insurance refer to insurance on the life of the individual listed at the top of the column. Changes in living standard for the spouse listed at the top of each column depend on insurance on the life of the other spouse.

Table 2

Descriptive Statistics for Single Employees

	Mean	Median
Non-housing net wealth	76,124	14,172
Primary home ownership	0.44	0
Primary home value	214,880	200,000
Non-asset income	59,389	48,851
Age	44	45
Non-white	0.258	0
College degree	0.875	1
Pension coverage	0.085	0
Number of children	0.3	0
Recommended Insurance	32,654	0
Actual Insurance	109,317	52,000
BU Insurance	56,495	500

Table 3

Inputs of Married Households

Variable	Wife				Husband			
	Mean	Median	Max	Min	Mean	Median	Max	Min
Funeral Expenses	5,428	5,000	20,000	0	5,343	5,000	20,000	0
Survivor Living Standard (%)	99.87	100.00	110.00	80.00	100.09	100.00	125.00	75.00
Special Bequest	40,723	0	2,000,000	0	28,458	0	1,200,000	0
Maximum Age	92	95	105	70	90	90	105	65
Retirement Age	64	65	88	45	66	65	87	53
Tax-favored Interest Rate	6.50	6.00	20.00	3.80	6.61	6.00	20.00%	3.80

Variable	Mean	Median	Max	Min
Child-Adult Equivalence	0.7	0.7	1	0
Maximum Indebtedness	1,318	0	150,000	0
Inflation	3.08	3.00	5.00	2.00
Interest Rate	6.37	6.00	20.00	3.00
Percentage of SS Cut	8.63	0.00	100.00	0.00
Economy of Joint Living	1.6	1.6	2	1.6

Table 4

Inputs of Single Households

Variable	Mean	Median	Max	Min
Child-Adult Equivalence	0.69	0.7	0.7	0.4
Maximum Indebtedness*	2,146	0	100,000	0
Nominal Interest Rate	6.33	6	12	3
Tax-favored Interest Rate	6.46	6	10	6
Inflation Rate	3.04	3	5	2.5
Maximum Age	90	90	112	70
Retirement Age	66	65	80	56
Percentage of SS Cut	11	0	100	0
Special Bequest	28,123	0	1,000,000	0
Funeral Expenses	4,187	5,000	12,000	0

Table 5

Distributions of Nominal Interest, Real Interest, and Inflation Rates Specified by Married Employees

Nominal Interest Rate	Distribution Among those Specifying a Non-Default Value			Overall Distribution		
	Number	Percent	Cumulative Percent	Number	Percent	Cumulative Percent
<4%	3	5.08	5.08	3	1.12	1.12
4-5%	17	28.81	33.90	17	6.34	7.46
5-6%	0	0.00	0.00	209	77.99	85.45
6-7%	6	10.17	44.07	6	2.24	87.69
7-8%	15	25.42	69.49	15	5.6	93.28
8-9%	3	5.08	74.58	3	1.12	94.4
9-10%	10	16.95	91.53	10	3.73	98.13
10-11%	2	3.39	94.92	2	0.75	98.88
>11%	3	5.08	100	3	1.12	100
Total	**59**	**100.00**	**100.00**	**268**	**100.00**	**100.00**

Note: Default value is 6 percent.

Real Interest Rate	Distribution Among those Specifying a Non-Default Value			Overall Distribution		
	Number	Percent	Cumulative Percent	Number	Percent	Cumulative Percent
<1 %	2	3.28	3.28	2	0.75	0.75
1-2 %	9	14.75	18.03	9	3.36	4.1
2-3 %	13	21.31	39.34	13	4.85	8.96
3-4 %	7	11.48	50.82	214	79.85	88.81
4-5 %	2	3.28	54.1	2	0.75	89.55
5-6 %	13	21.31	75.41	13	4.85	94.4
6-7 %	3	4.92	80.33	3	1.12	95.52
7-8 %	9	14.75	95.08	9	3.36	98.88
>8 %	3	4.92	100	3	1.12	100
Total	**61**	**100.00**	**100.00**	**268**	**100.00**	**100.00**

Note: Default value is 3 percent.

Inflation Rate	Distribution Among those Specifying a Non-Default Value			Overall Distribution		
	Number	Percent	Cumulative Percent	Number	Percent	Cumulative Percent
<2 %	1	5.00	5.00	1	0.37	0.37
2-3 %	1	5.00	10.00	249	92.99	93.36
3-4 %	12	60.00	70.00	12	4.43	97.79
4-5 %	2	10.00	80.00	2	0.74	98.52
>5 %	4	20.00	100.00	4	1.48	100.00
Total	**20**	**100.00**	**100.00**	**268**	**100.00**	**100.00**

Note: Default value is 3 percent.

Table 6
Distributions of Nominal Interest, Real Interest, and Inflation Rates Specified by Single Employees

Nominal Interest Rate	Distribution Among those Specifying a Non-Default Value			Overall Distribution		
	Number	Percent	Cumulative Percent	Number	Percent	Cumulative Percent
<3%	1	5.26	5.26	1	0.85	0.85
3-4%						
4-5%	4	21.05	26.32	4	3.39	4.24
5-6%				99	83.9	88.14
6-7%						
7-8%	6	31.58	57.89	6	5.08	93.22
8-9%						
9-10%	7	36.84	94.74	7	5.93	99.15
10-11%						
>11%	1	5.26	100	1	0.85	100
Total	**19**	**100**	**100**	**118**	**100**	**100**

Note: Default is 6 percent.

Real Interest Rate	Distribution Among those Specifying a Non-Default Value			Overall Distribution		
	Number	Percent	Cumulative Percent	Number	Percent	Cumulative Percent
<1 %	2	10	10	2	1.69	1.69
1-2 %	4	20	30	4	3.39	5.08
2-3 %	1	5	35	99	83.9	88.98
3-4 %						
4-5 %	5	25	60	5	4.24	93.22
5-6 %						
6-7 %	7	35	95	7	5.93	99.15
7-8 %						
>8 %	1	5	100	1	0.85	100
Total	**20**	**100**	**100**	**118**	**100**	**100**

Note: Default value is 3 percent.

Inflation Rate	Distribution Among those Specifying a Non-Default Value			Overall Distribution		
	Number	Percent	Cumulative Percent	Number	Percent	Cumulative Percent
<3 %	1	25	25	115	97.46	97.46
3-4 %	1	25	50	1	0.85	98.31
>4 %	2	50	100	2	1.69	100
Total	**4**	**100**	**100.00**	**118**	**100**	**100.00**

Note: Default value is 3 percent.

Table 7

Number of Married Households that are Liquidity Constraint at least Once by Age, Income, and Net Worth

Age	Total Households	Constrained Households	Percent
<30	24	23	95.83
30-40	49	45	91.84
40-50	88	62	70.45
50-60	76	35	46.05
>70	31	13	41.94
Total	**268**	**178**	**66**

Household Earnings	Total Households	Constrained Households	Percent
<$80K	60	40	66.67
$80-$120K	70	54	77.14
$120-$180K	85	55	64.71
>$180K	53	29	54.72
Total	**268**	**178**	**66**

Net Worth	Total Households	Constrained Households	Percent
<$10K	52	42	80.77
$10-$50K	59	51	86.44
$50-$100K	37	26	70.27
$100-$200K	32	23	71.88
>$200K	88	36	40.91
Total	**268**	**178**	**66**

Table 8

Number of Single Households that are Liquidity Constraint at least Once by Age, Income, and Net Worth

Age	Total	Number Constrained	Percentage
<30	22	21	95.45
30-40	28	25	89.29
40-50	24	11	45.83
50-60	35	21	60.00
>70	9	2	22.22
Total	118	80	67.80

Earnings	Total	Number Constrained	Percentage
<$40K	46	37	80.43
$40-$60K	30	19	63.33
$60-$80K	21	11	52.38
>$80K	21	13	61.90
Total	118	80	67.80

Net Worth	Total	Number Constrained	Percentage
<$10K	55	42	76.36
$10-$50K	27	23	85.19
$50-$100K	9	5	55.56
$100-$200K	14	5	35.71
>$200K	13	5	38.46
Total	118	80	67.80

Table 9

Percentage of Married Households that are Liquidity Constrained and Average Number of Years Constrained by Age, Earnings, and Net Worth

Age	Earnings	Net Worth					Total
		<$10K	$10-$50K	$50-$100K	$100-$200K	>$200K	
<40	<$80K	77	100	0	100	0	88
		12	11	0	4	0	12
	$80-$120K	100	100	67	0	100	95
		10	13	2	0	2	10
	$120-$180	100	100	100	100	100	100
		5	4	6	2	4	4
	>$180K	100	0	100	0	75	88
		6	0	2	0	5	5
	Total	**88**	**100**	**91**	**100**	**88**	**93**
		11	**10**	**4**	**3**	**4**	**9**
40-50	<$80K	67	75	75	0	0	61
		3	4	4	0	0	3
	$80-$120K	75	89	100	40	100	81
		8	6	5	1	8	5
	$120-$180	80	67	100	100	64	77
		2	3	8	8	3	4
	>$180K	0	0	100	100	36	56
		0	0	1	7	3	4
	Total	**75**	**76**	**90**	**76**	**54**	**70**
		4	**4**	**4**	**5**	**4**	**4**
>50	<$80K	57	100	50	0	0	38
		8	5	1	0	0	4
	$80-$120K	80	100	25	67	38	55
		2	7	0	2	4	3
	$120-$180	100	57	57	60	24	43
		12	2	3	3	1	2
	>$180K	0	100	33	60	35	44
		0	1	1	3	1	2
	Total	**71**	**75**	**44**	**62**	**27**	**45**
		6	**3**	**1**	**3**	**1**	**2**

Table 10

Percentage of Single Households that are Liquidity Constrained and Average Number of Years Constrained by Age, Earnings, and Net Worth

Age	Earnings	Net Worth					Total
		<$10K	$10-$50K	$50-$100K	$100-$200K	>$200K	
<40	<$40K	92	100	100	0	0	94
		8	19	57	0	0	11
	$40-$60K	100	100	0	0	0	92
		18	7	0	0	0	9
	$60-$80	100	100	0	0	100	100
		5	15	0	0	12	9
	>$80K	100	0	0	100	0	67
		47	0	0	3	0	17
	Total	94	93	100	50	100	92
		10	11	57	2	12	11
40-50	<$40K	50	0	0	0	0	29
		2	0	0	0	0	1
	$40-$60K	60	100	100	0	0	63
		5	9	1	0	0	5
	$60-$80	50	0	0	0	0	33
		1	0	0	0	0	0
	>$80K	0	0	0	100	50	50
		0	0	0	14	3	5
	Total	50	33	50	50	33	46
		3	3	1	7	2	3
>50	<$40K	50	100	100	0	0	75
		3	3	1	0	0	2
	$40-$60K	33	100	0	33	0	30
		2	1	0	0	0	1
	$60-$80	67	75	0	0	100	43
		3	3	0	0	14	3
	>$80K	100	100	100	50	40	67
		16	2	1	1	1	4
	Total	58	89	50	25	33	52
		5	2	1	0	2	2

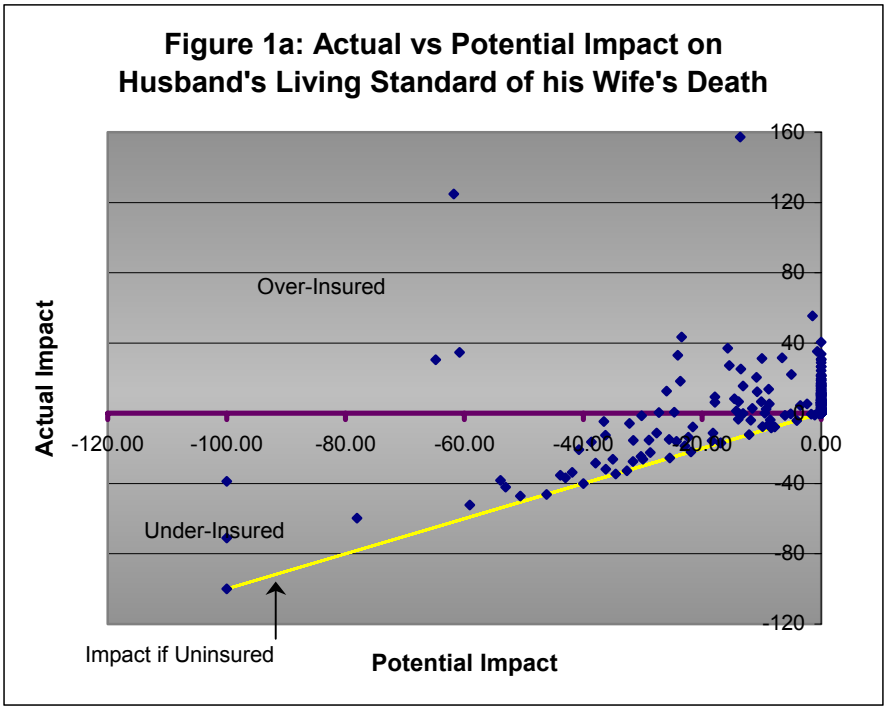


Figure 1a: Actual vs Potential Impact on Husband's Living Standard of his Wife's Death
Actual Impact
160
120
80
40
0
-40
-80
-120
-120.00
-100.00
-80.00
-60.00
-40.00
-20.00
0.00
Over-Insured
Under-Insured
Impact if Uninsured
Potential Impact

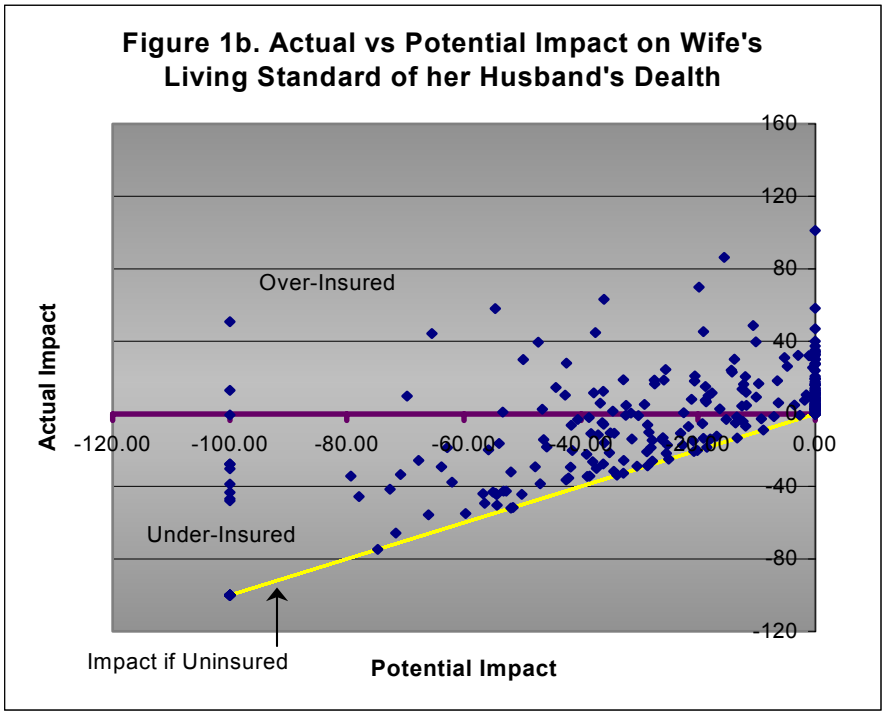


Figure 1b. Actual vs Potential Impact on Wife's Living Standard of her Husband's Dealth
Actual Impact
160
120
80
40
0
-40
-80
-120
-120.00
-100.00
-80.00
-60.00
-40.00
-20.00
0.00
Over-Insured
Under-Insured
Impact if Uninsured
Potential Impact

Table 11

Distribution of Changes in Living Standard for Surviving Spouses (percent of observations)

IMPACT	Surviving Wives			SurvivingHusbands		
	Ignoring Insurance	With Actual Insurance	Ignoring BU Insurance	Ignoring Insurance	With Actual Insurance	Ignoring BU Insurance
<-40%	25.83	12.55	15.13	5.90	2.95	4.06
-40% to -20%	21.40	12.92	12.55	11.44	7.01	6.64
-20% to 0%	18.45	16.61	18.08	17.71	11.81	12.18
0%	34.32	5.54	11.07	64.94	22.51	25.83
0% to 20%		36.90	30.63		45.76	43.17
20% to 40%		11.07	9.59		8.12	6.27
>40%		4.43	2.95		1.85	1.85

IMPACT	Surviving Secondary earners			Surviving Primary earners		
	Ignoring Insurance	With Actual Insurance	Ignoring BU Insurance	Ignoring Insurance	With Actual Insurance	Ignoring BU Insurance
<-40%	28.04	12.55	16.24	3.69	2.95	2.95
-40% to -20%	21.77	15.13	14.39	11.07	4.80	4.80
-20% to 0%	20.66	16.61	17.34	15.50	11.81	12.92
0%	29.52	5.17	10.33	69.74	22.88	26.57
0% to 20%		32.10	26.57		50.55	47.23
20% to 40%		12.55	10.70		6.64	5.17
>40%		5.90	4.43		0.37	0.37

Table 12

Effect of Life Insurance on Living Standards of Surviving Spouses by Level of Vulnerability

Survivors	Impact Range Ignoring Insurance	Mean Impact (percent)			Insurance Holdings			
		Ignoring Insurance	Actual Insurance	Ignoring BU Insurance	Percent Uninsured	Mean Recommended	Mean Actual	Mean Actual Less BU Insurance
Wives	<-40%	-68.7	-38.4	-43.5	14.3	822,387	371,476	302,869
	-40% to –20%	-30.6	-7.3	-11.3	24.1	373,790	296,700	242,891
	-20% to 0%	-11.0	12.4	8.6	12.0	143,805	300,292	248,592
	0%	0.0	12.4	9.9	28.0	0	261,452	213,142
Husbands	<-40%	-60.9	-27.9	-40.7	12.5	348,379	121,218	88,497
	-40% to –20%	-29.5	-13.9	-15.9	45.2	328,063	170,954	151,655
	-20% to 0%	-10.2	8.4	6.3	33.3	108,323	179,295	158,749
	0%	0.0	6.3	5.2	65.9	0	108,329	94,542
Secondary Earners	<-40%	-67.4	-34.7	-41.7	13.2	762,363	353,808	286,355
	-40% to –20%	-31.6	-7.4	-11.3	27.1	394,037	308,104	262,914
	-20% to 0%	-11.4	16.5	11.9	17.9	130,382	308,105	255,525
	0%	0.0	13.5	10.1	27.5	0	284,689	228,029
Primary Earners	<-40%	-65.9	-49.5	-52.7	40.0	487,061	89,635	69,678
	-40% to –20%	-27.5	-14.0	-16.2	60.0	243,485	116,466	97,610
	-20% to 0%	-9.6	2.3	1.6	42.9	113,361	138,992	125,183
	0%	0.0	6.2	5.4	64.6	0	108,327	96,022

Table 13

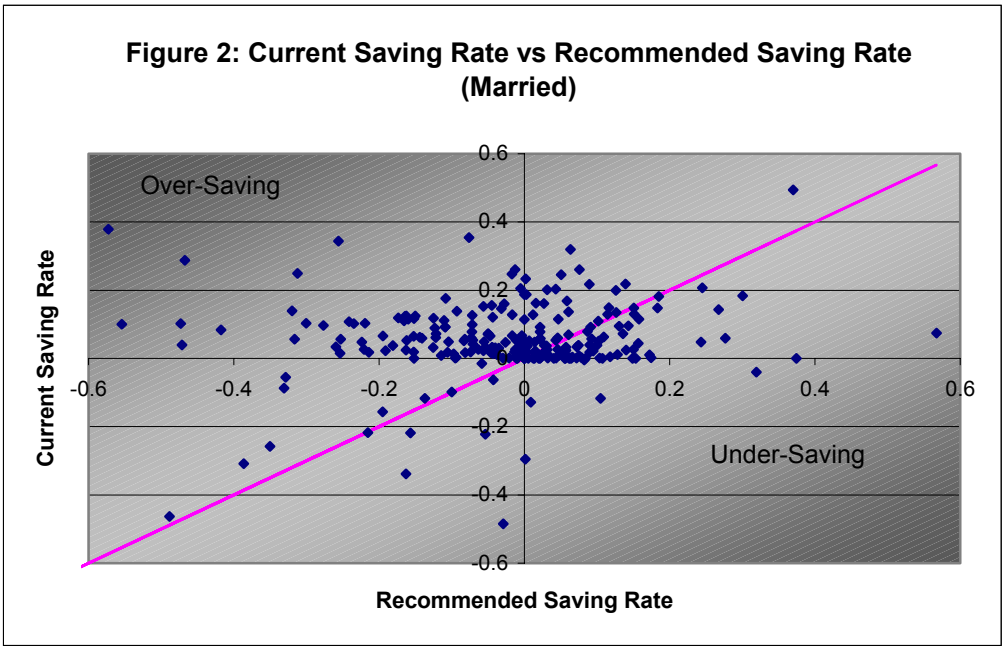
Frequency of Severe and Significant Living Standard Reductions for Different Types of Surviving Spouses

Characteristics of Surviving Spouses	Consequences for Secondary Earners						Consequences for Primary Earners					
	Severe (>40%)			Significant (>20%)			Severe (>40%)			Significant (>20%)		
	Freq. Actual	Freq. Ins.=0	Frac. Addr.	Freq. Actual	Freq. Ins.=0	Frac. Addr.	Freq. Actual	Freq. Ins.=0	Frac. Addr.	Freq. Actual	Freq. Ins.=0	Frac. Addr.
Full Sample	12.6	28.0	0.552	27.3	49.8	0.452	3.0	3.7	0.201	7.4	14.8	0.500
HH earnings <$60K	16.0	40.0	0.600	36.0	64.0	0.438	12.0	12.0	0.000	28.0	36.0	0.222
HH earnings $60-$120K	17.9	33.0	0.457	37.7	50.9	0.259	3.8	5.7	0.334	10.4	18.9	0.450
HH earnings $120-$180K	7.0	22.1	0.684	16.3	48.8	0.667	1.2	1.2	0.000	1.2	10.5	0.889
HH earnings >$180K	9.3	22.2	0.583	20.4	42.6	0.522	0.0	0.0	0.000	1.9	3.7	0.500
Dual earners	12.2	26.5	0.540	29.1	52.9	0.450	4.2	5.3	0.200	9.5	20.1	0.526
Single earners	13.4	31.7	0.577	23.2	42.7	0.457	0.0	0.0	0.000	2.4	2.4	0.000
Earning diff. 1-1 to 2-1	10.4	18.3	0.429	27.8	41.7	0.333	6.1	7.8	0.222	14.8	29.6	0.500
Earning diff over 4-1	14.4	37.5	0.615	25.0	50.0	0.500	0.0	0.0	0.000	1.9	1.9	0.000
Age survivor:20-29	33.3	42.9	0.222	66.7	81.0	0.177	16.7	16.7	0.000	33.3	33.3	0.000
Age survivor: 30-39	32.6	63.0	0.483	63.0	87.0	0.275	8.9	11.1	0.200	17.8	35.6	0.500
Age survivor: 40-49	10.1	29.1	0.652	25.3	55.7	0.545	1.3	0.0	0.000	5.3	18.4	0.714
Age survivor:50-59	4.7	14.1	0.666	10.6	32.9	0.679	0.0	1.2	1.000	1.2	2.4	0.500
Age survivor:60-69	0.0	6.5	1.000	3.2	16.1	0.800	0.0	2.7	1.000	2.7	5.4	0.500
No children	15.5	28.5	0.457	28.5	53.7	0.470	1.6	1.6	0.000	6.5	13.0	0.500
One or more children	10.1	27.7	0.634	26.4	46.6	0.435	4.1	5.4	0.251	8.1	16.2	0.501
Whites	11.3	25.9	0.564	25	46.7	0.465	3.3	4.3	0.224	6.6	14.15	0.534
Non-whites	18.8	43.8	0.571	50	78.12	0.360	3.1	3.1	0.000	15.62	18.75	0.167

Table 14

Comparing Current and Recommended Rates of Saving for Married Households
(percent)

Household Total Income		Age of BU Employee					Total
		<30	30-40	40-50	50-60	>60	
<$80K	**Current Rate**						
	Mean	4	5	9	-62	57	2
	Median	2	5	5	0	2	2
	Recommended Saving Rate						
	Mean	11	-2	-7	-81	-17	-18
	Median	9	0	1	0	-3	0
	Observations	10	13	16	11	10	60
$80-$120K	**Current Saving Rate**						
	Mean	3	2	-4	5	13	3
	Median	3	2	3	2	8	3
	Recommended Rate						
	Mean	9	5	-10	-6	-25	-6
	Median	10	5	-1	1	-21	0
	Observations	8	11	23	18	10	70
$120-$160	**Current Rate**						
	Mean	5	3	7	-2	10	3
	Median	5	5	5	6	9	6
	Recommended Rate						
	Mean	-24	-3	-9	-27	-20	-17
	Median	-24	-2	-9	-1	-20	-5
	Observations	1	10	17	27	11	66
>$160K	**Current Rate**						
	Mean	0	-22	-7	7	-112	-24
	Median	0	7	5	4	6	5
	Recommended Rate						
	Mean	0	-27	-11	-7	-119	-33
	Median	0	0	2	0	-6	-2
	Observations	0	10	19	29	14	72
Total	**Current Rate**						
	Mean	4	-2	1	-5	-17	-4
	Median	4	5	4	4	7	4
	Recommended Rate						
	Mean	8	-6	-9	-23	-51	-19
	Median	9	0	-1	0	-9	-1
	Observations	19	44	75	85	45	268



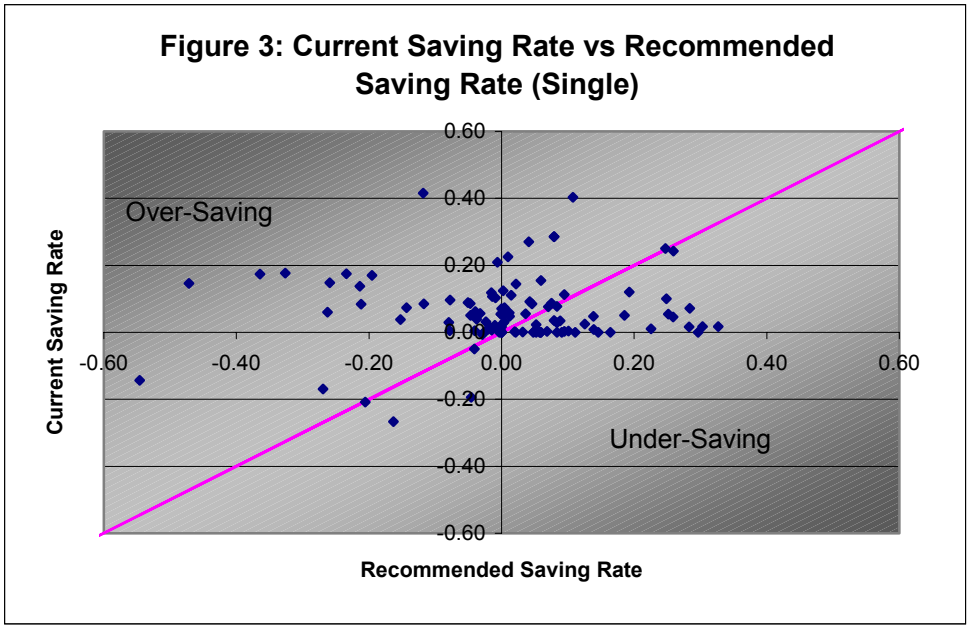
- There are a few observations with saving rates above 0.6 or below –0.6, which the graph doesn´t show.

Table 15

Comparing Current and Recommended Rates of Saving for Single Households

(percent)

Household Total Income		Age of BU Employee					
		<30	30-40	40-50	50-60	>60	Total
<$40K	**Current Rate**						
	Mean	-13	4	13	6	0	-1
	Median	0	1	9	3	0	1
	Recommended Rate						
	Mean	-7	12	5	5	0	2
	Median	0	9	5	1	0	4
	Observations	19	12	7	8	0	46
$40-$60K	**Current Rate**						
	Mean	18	6	3	-33	7	-4
	Median	18	9	3	3	7	6
	Recommended Rate						
	Mean	8	1	0	-48	-11	-13
	Median	8	4	1	-12	-11	1
	Observations	2	10	8	8	2	30
$60-$80	**Current Rate**						
	Mean	9	8	1	7	7	6
	Median	9	0	0	6	7	6
	Recommended Rate						
	Mean	4	11	-2	-3	-6	-1
	Median	4	5	2	-2	0	0
	Observations	1	3	3	9	5	21
>80K	**Current Rate**						
	Mean	0	5	10	5	7	7
	Median	0	1	7	4	7	4
	Recommended Rate						
	Mean	0	9	-1	-7	0	-2
	Median	0	6	1	-4	0	-1
	Observations	0	3	6	10	2	21
Total	**Current Rate**						
	Mean	-9	5	7	-3	7	1
	Median	1	3	4	5	7	3
	Recommended Rate						
	Mean	-5	8	1	-13	-6	-3
	Median	2	6	2	-2	0	0
	Observations	22	28	24	35	9	118



- There are a few observations with saving rates above 0.6 or below –0.6, which the graph doesn´t show.

Table 16

Comparing Current and Recommended Rates of Saving for Married Households
Sub-sample that Undersave
(Percent)

Household Total Income		Age of BU Employee					Total
		<30	30-40	40-50	50-60	>60	
<$80K	**Current Rate**						
	Mean	-1	2	3	-10	-2	-1
	Median	0	0	2	1	2	0
	Recommended Saving Rate						
	Mean	9	8	60	-4	16	17
	Median	12	4	19	4	13	7
	Observations	5	5	4	4	4	22
$80-$120K	**Current Saving Rate**						
	Mean	6	2	-7	1	20	1
	Median	4	2	1	0	20	1
	Recommended Rate						
	Mean	12	10	5	5	22	9
	Median	13	8	5	3	22	8
	Observations	4	9	6	7	1	27
$120-$160	**Current Rate**						
	Mean	0	-7	4	-4	-1	-2
	Median	0	0	0	2	0	0
	Recommended Rate						
	Mean	0	3	8	3	15	8
	Median	0	15	6	6	11	6
	Observations	0	3	4	5	5	17
>$160K	**Current Rate**						
	Mean	0	-66	6	2	-325	-88
	Median	0	0	6	2	6	2
	Recommended Rate						
	Mean	0	-53	33	8	-272	-67
	Median	0	1	33	9	29	9
	Observations	0	5	2	10	5	22
Total	**Current Rate**						
	Mean	2	-15	0	-1	-108	-22
	Median	0	0	2	1	0	1
	Recommended Rate						
	Mean	11	-5	23	4	-80	-8
	Median	12	7	10	6	16	8
	Observations	9	22	16	26	15	88

Table 17

Comparing Current and Recommended Rates of Saving for Single Households
Sub-sample that Undersave

Household Total Income		Age of BU Employee					
		<30	30-40	40-50	50-60	>60	Total
<$40K	**Current Rate**						
	Mean	-1	1	13	0	0	1
	Median	2	0	13	0	0	0
	Recommended Rate						
	Mean	15	19	16	15	0	17
	Median	17	10	16	15	0	14
	Observations	10	7	2	3	0	22
$40-$60K	**Current Rate**						
	Mean	8	2	7	-240	0	-52
	Median	8	4	4	-21	0	2
	Recommended Rate						
	Mean	8	14	10	-228	0	-43
	Median	8	16	8	-21	0	8
	Observations	1	6	3	3	0	13
$60-$80	**Current Rate**						
	Mean	0	0	0	2	0	0
	Median	0	0	0	2	0	0
	Recommended Rate						
	Mean	0	5	4	30	5	9
	Median	0	5	4	30	5	5
	Observations	0	2	2	1	1	6
>80K	**Current Rate**						
	Mean	0	1	2	0	0	1
	Median	0	1	2	0	0	1
	Recommended Rate						
	Mean	0	23	8	6	0	11
	Median	0	23	8	6	0	8
	Observations	0	1	2	1	0	4
Total	**Current Rate**						
	Mean	0	1	6	-90	0	-14
	Median	2	0	2	0	0	0
	Recommended Rate						
	Mean	14	16	9	-75	5	-2
	Median	15	11	7	8	5	9
	Observations	11	16	9	8	1	45

Table 18A
Changes in Recommended Saving Rates Assuming Social Security Benefits Are Cut by 25% in year 2011 (Married Households)

		Age of BU Employee					
Household Total Income	**Change in Recommended Saving Rate**	**<30**	**30-40**	**40-50**	**50-60**	**>60**	**Total**
<$80K	Mean Change	0.06%	0.03%	0.49%	2.23%	2.64%	1.00%
	Median Change	0.06%	0.02%	-0.01%	0.57%	1.90%	0.02%
	# of Households	10	13	16	11	10	60
$80-$120K	Mean Change	0.01%	0.34%	0.05%	0.92%	1.64%	0.54%
	Median Change	0.02%	0.01%	0.01%	0.18%	2.05%	0.02%
	# of Households	8	11	23	18	10	70
$120-$160K	Mean Change	0.44%	-0.07%	0.30%	1.34%	1.09%	0.80%
	Median Change	0.44%	0.00%	0.00%	1.55%	1.02%	0.12%
	# of Households	1	10	17	27	11	66
>$160	Mean Change		0.03%	0.03%	0.75%	-1.90%	-0.05%
	Median Change		0.01%	0.08%	0.72%	0.65%	0.21%
	# of Households		10	19	29	14	72
Total	Mean Change	0.06%	0.09%	0.20%	1.17%	0.63%	0.55%
	Median Change	0.03%	0.01%	0.01%	0.70%	0.98%	0.04%
	# of Households	19	44	75	85	45	268

Table 18B:
Changes in Recommended Saving Rates Assuming Social Security Benefits Are Cut by 25% in year 2011 (Single Households)

		Age of BU Employee					
Household Total Income	**Change in Recommended Saving Rate**	**<30**	**30-40**	**40-50**	**50-60**	**>60**	**Total**
<$40K	**Mean Change**	0.00%	-0.15%	2.21%	1.15%		0.50%
	Median Change	0.00%	0.00%	2.07%	0.52%		0.00%
	# of Households	19	12	7	8		46
$40-$60K	**Mean Change**	0.00%	-0.32%	1.05%	1.67%	1.39%	0.71%
	Median Change	0.00%	0.00%	0.00%	2.47%	1.39%	0.00%
	# of Households	2	10	8	8	2	30
$60-$80K	**Mean Change**	0.00%	0.00%	0.00%	0.99%	1.44%	0.77%
	Median Change	0.00%	0.00%	0.00%	0.00%	1.18%	0.00%
	# of Households	1	3	3	9	5	21
>$80	**Mean Change**		0.00%	0.20%	0.76%	0.00%	0.42%
	Median Change		0.00%	0.44%	0.00%	0.00%	0.00%
	# of Households		3	6	10	2	21
Total	**Mean Change**	0.00%	-0.18%	1.05%	1.11%	1.11%	0.59%
	Median Change	0.00%	0.00%	0.00%	0.95%	0.91%	0.00%
	# of Households	22	28	24	35	9	118

Table 19

Percent Change in Present Value of Taxes of Married Couples if Defined Contribution Plans Are Eliminated

(percent)

Household Total Income		Age of BU Employee					Total
		<30	30-40	40-50	50-60	>60	
<$80K	Mean	3.75	4.67	4.32	5.19	1.88	4.05
	Median	3.74	4.05	4.26	3.31	0.86	3.40
	Min	1.12	-3.49	-6.17	-0.52	0.00	-6.17
	Max	6.55	18.46	15.43	14.48	7.58	18.46
	# Obs	10	13	16	11	10	60
$80-$120K	Mean	6.65	5.13	4.96	3.48	0.28	4.13
	Median	6.39	4.83	4.20	2.57	0.82	3.75
	Min	2.72	0.21	-2.85	-1.95	-12.09	-12.09
	Max	12.33	14.58	15.85	10.88	5.70	15.85
	# Obs	8	11	23	18	10	70
$120-$160K	Mean	2.52	8.25	4.94	4.48	0.62	4.50
	Median	2.52	7.38	5.06	3.59	0.27	3.57
	Min	2.52	1.16	-1.15	-0.39	-0.06	-1.15
	Max	2.52	18.46	12.48	10.40	2.38	18.46
	# Obs	1	10	17	27	11	66
>$160	Mean	0.00	9.97	7.53	3.33	2.44	5.19
	Median	0.00	10.13	7.31	2.86	2.50	4.60
	Min	0.00	1.57	0.64	-0.70	-0.18	-0.70
	Max	0.00	17.83	22.68	8.70	6.32	22.68
	# Obs	0	10	19	29	14	72
Total	Mean	4.91	6.80	5.47	3.97	1.39	4.49
	Median	4.18	5.47	5.76	3.29	1.00	3.85
	Min	1.12	-3.49	-6.17	-1.95	-12.09	-12.09
	Max	12.33	18.46	22.68	14.48	7.58	22.68
	# Obs	19	44	75	85	45	268

Table 20

Percent Change in Present Value of Taxes of Singles if Defined Contribution Plans Are Eliminated

Household Total Income		Age of BU Employee					Total
		<30	30-40	40-50	50-60	>60	
<$40K	Mean	7.8	8.23	9.28	3.59	0.00	7.4
	Median	7.12	9.46	10.06	2.48	0.00	7.03
	Min	1.38	-5.66	0	-1.02	0.00	-5.66
	Max	15.3	17.23	15.02	12.85	0.00	17.23
	# Obs	19	12	7	8	0	46
$40-$60K	Mean	7.28	6.6	2.08	6.22	5.01	5.23
	Median	7.28	5.76	3.45	6.53	5.01	5.58
	Min	1.11	0.14	-14.26	0.91	3.83	-14.26
	Max	13.44	14.26	12.97	13.1	6.19	14.26
	# Obs	2	10	8	8	2	30
$60-$80K	Mean	3.88	2.33	10.24	5.58	2.54	4.98
	Median	3.88	2.62	11.53	4.61	1.91	3.88
	Min	3.88	-3.49	0.88	-0.81	0.49	-3.49
	Max	3.88	7.87	18.32	23.2	5.16	23.2
	# Obs	1	3	3	9	5	21
>$80	Mean	0.00	8.7	6.42	4.63	0.08	5.29
	Median	0.00	8.18	7.55	4.76	0.08	5.81
	Min	0.00	8.08	-1.42	0.06	0.08	-1.42
	Max	0.00	9.85	14.02	9.92	0.09	14.02
	# Obs	0	3	6	10	2	21
Total	Mean	7.58	7.07	6.28	5	2.54	6.04
	Median	7.09	6.9	6.88	4.58	1.91	5.87
	Min	1.11	-5.66	-14.26	-1.02	0.08	-14.26
	Max	15.3	17.23	18.32	23.2	6.19	23.2
	# Obs	22	28	24	35	9	118

Table 21

Percentage Change in Present Value of Spending of Married Couples if Defined Contribution Plans Are Eliminated

Household Total Income		Age of BU Employee					Total
		<30	30-40	40-50	50-60	>60	
<$80K	Mean	-1.08	-1.54	-1.28	-0.94	-0.36	-1.09
	Median	-0.97	-1.20	-0.92	-0.69	-0.17	-0.81
	Min	-2.55	-7.45	-5.98	-3.11	-1.14	-7.45
	Max	-0.26	1.03	1.20	0.29	0.00	1.20
	# Obs	10	13	16	11	10	60
$80-$120K	Mean	-2.86	-1.96	-1.72	-1.01	-0.29	-1.50
	Median	-2.91	-1.66	-1.31	-0.75	-0.19	-1.11
	Min	-4.59	-6.82	-5.40	-3.74	-1.39	-6.82
	Max	-1.07	-0.06	0.81	0.59	0.94	0.94
	# Obs	8	11	23	18	10	70
$120-$160K	Mean	-0.71	-3.95	-1.80	-1.54	-0.24	-1.74
	Median	-0.71	-3.36	-1.49	-1.19	-0.13	-1.16
	Min	-0.71	-8.64	-5.52	-3.14	-0.81	-8.64
	Max	-0.71	-0.49	0.48	0.21	0.00	0.48
	# Obs	1	10	17	27	11	66
>$160	Mean	0.00	-4.94	-3.64	-1.48	-1.04	-2.45
	Median	0.00	-4.18	-3.36	-1.19	-0.80	-1.88
	Min	0.00	-10.66	-13.65	-4.82	-3.01	-13.65
	Max	0.00	-0.76	-0.24	0.23	0.03	0.23
	# Obs	0	10	19	29	14	72
Total	Mean	-1.81	-2.96	-2.13	-1.33	-0.53	-1.72
	Median	-1.10	-2.04	-1.61	-1.02	-0.22	-1.15
	Min	-4.59	-10.66	-13.65	-4.82	-3.01	-13.65
	Max	-0.26	1.03	1.20	0.59	0.94	1.20
	# Obs	19	44	75	85	45	268

Table 22

Percentage Change in Present Value of Spending of Singles if Defined Contribution Plans Are Eliminated

Household Total Income		Age of BU Employee					Total
		<30	30-40	40-50	50-60	>60	
<$40K	Mean	-2.88	-2.41	-2.76	-0.94	0.00	-2.4
	Median	-2.54	-2.14	-3.05	-0.5	0.00	-2.29
	Min	-7.05	-6.62	-4.53	-3.73	0.00	-7.05
	Max	-0.44	2.09	0	0.1	0.00	2.09
	# Obs	19	12	7	8	0	46
$40-$60K	Mean	-3.81	-2.92	-0.97	-1.49	-1.8	-2
	Median	-3.81	-2.64	-1.04	-1.37	-1.8	-1.54
	Min	-7.18	-7.56	-3.94	-3.72	-3.03	-7.56
	Max	-0.45	-0.04	2.58	-0.16	-0.57	2.58
	# Obs	2	10	8	8	2	30
$60-$80K	Mean	-2.52	-1.12	-3.64	-1.8	-0.68	-1.73
	Median	-2.52	-1.13	-4.21	-1.43	-0.31	-1.23
	Min	-2.52	-3.56	-6.38	-6.82	-1.55	-6.82
	Max	-2.52	1.32	-0.32	0.17	-0.11	1.32
	# Obs	1	3	3	9	5	21
>$80	Mean	0.00	-4.23	-2.64	-1.97	-0.05	-2.31
	Median	0.00	-4.01	-1.53	-1.98	-0.05	-2.13
	Min	0.00	-4.91	-8.04	-4.64	-0.05	-8.04
	Max	0.00	-3.77	1.25	-0.06	-0.05	1.25
	# Obs	0	3	6	10	2	21
Total	Mean	-2.95	-2.65	-2.24	-1.58	-0.79	-2.16
	Median	-2.53	-2.64	-2.07	-1.39	-0.31	-1.92
	Min	-7.18	-7.56	-8.04	-6.82	-3.03	-8.04
	Max	-0.44	2.09	2.58	0.17	-0.05	2.58
	# Obs	22	28	24	35	9	118

Table 23

Percentage Change in Married Household's Living Standards in Current Year and First Retirement Year Were Defined Contribution Plans Are Eliminated

Household Total Income	Percentage Change in Living Standard In	Age of BU Employee					Total
		<30	30-40	40-50	50-60	>60	
<$80K	Current Year (Mean)	15.30	9.94	14.38	4.81	0.57	9.51
	Current Year (Median)	10.91	10.51	16.71	0.24	-0.03	6.71
	First Retirement Year (Mean)	-12.51	-15.20	-8.94	-3.61	0.22	-8.39
	First Retirement Year (Median)	-11.20	-16.47	-8.40	-3.53	-0.16	-5.33
	Observations	10	13	16	11	10	60
$80-$120K	Current Year (Mean)	20.93	18.61	13.84	9.38	2.65	12.66
	Current Year (Median)	19.58	19.33	15.58	5.44	-0.26	14.15
	First Retirement Year (Mean)	-19.60	-19.21	-10.69	-2.53	-0.81	-9.54
	First Retirement Year (Median)	-21.15	-15.32	-10.01	-2.31	-0.39	-7.42
	Observations	8	11	23	18	10	70
$120-$160K	Current Year (Mean)	12.34	17.88	12.99	4.17	5.86	8.92
	Current Year (Median)	12.34	13.71	11.29	-0.74	0.00	3.14
	First Retirement Year (Mean)	-2.15	-26.89	-5.85	-3.76	-0.93	-7.31
	First Retirement Year (Median)	-2.15	-27.47	-4.07	-1.37	-0.71	-2.62
	Observations	1	10	17	27	11	66
>$160	Current Year (Mean)		9.53	5.56	3.65	3.77	4.99
	Current Year (Median)		8.37	4.12	-0.69	-0.26	-0.30
	First Retirement Year (Mean)		-18.33	-9.31	-3.50	-1.19	-6.65
	First Retirement Year (Median)		-16.04	-6.09	-3.01	-0.98	-4.11
	Observations		10	19	29	14	72
Total	Current Year (Mean)	17.51	13.82	11.66	5.18	3.32	8.97
	Current Year (Median)	13.21	12.83	12.84	-0.28	-0.16	4.19
	First Retirement Year (Mean)	-14.95	-19.57	-8.87	-3.39	-0.73	-7.95
	First Retirement Year (Median)	-12.34	-16.93	-6.94	-2.78	-0.50	-4.62
	Observations	19	44	75	85	45	268

Table 24

Percentage Change in Single Household's Living Standards in Current Year and First Retirement Year Were Defined Contribution Plans Are Eliminated

Household Total Income	Percentage Change in Living Standard In	Age of BU Employee					Total
		<30	30-40	40-50	50-60	>60	
<$40K	Current Year (Mean)	12.35	16.02	20.2	12.16	0.00	14.47
	Current Year (Median)	10.28	16.24	-4.37	11.19	0.00	10.38
	First Retirement Year (Mean)	-19.58	-19.4	-8.84	7.47	0.00	-13.19
	First Retirement Year (Median)	-17.55	-19.13	-6.23	0.66	0.00	-11.48
	Observations	19	12	7	8	0	46
$40-$60K	Current Year (Mean)	9.83	16.17	114.93	3.25	10.25	38.24
	Current Year (Median)	9.83	14.68	18.71	-0.98	10.25	10.27
	First Retirement Year (Mean)	-16.21	-18.65	-8.19	-2.83	-4.28	-10.52
	First Retirement Year (Median)	-16.21	-18.94	-4.74	-1.85	-4.28	-6.94
	Observations	2	10	8	8	2	30
$60-$80K	Current Year (Mean)	28.37	27.59	21.24	15.31	-1.06	14.64
	Current Year (Median)	28.37	39.41	5.05	3.63	-0.37	3.63
	First Retirement Year (Mean)	-29.85	-28.97	-3.85	5.95	-1.06	-3.81
	First Retirement Year (Median)	-29.85	-22.06	-6.93	-1.51	-0.37	-1.69
	Observations	1	3	3	9	5	21
>$80	Current Year (Mean)	0.00	13.61	9.81	17.15	7.25	13.61
	Current Year (Median)	0.00	11.03	3.88	8.29	7.25	8.4
	First Retirement Year (Mean)	0.00	-34.74	-11.14	-6.38	7.25	-10.49
	First Retirement Year (Median)	0.00	-31.71	-11.14	-4.62	7.25	-7.28
	Observations	0	3	6	10	2	21
Total	Current Year (Mean)	12.85	17.05	49.31	12.36	3.3	20.39
	Current Year (Median)	10.38	16.24	7.99	1.32	-0.23	7.92
	First Retirement Year (Mean)	-19.74	-21.8	-8.58	0.77	0.07	-10.37
	First Retirement Year (Median)	-17.96	-19.33	-6.34	-1.86	-0.37	-7.17
	Observations	22	28	24	35	9	118

Table 25

Distribution of Percentage Changes in Living Standards of Married Households in Current Year Were Defined Contribution Plans Are Eliminated

Percentage Change in Living Standard	Average	Observations	Percentage of All Observations
<-10	-10.94	3	1.12
-10 – 5	-6.18	13	4.85
-5 – 0	-1.76	82	30.60
0	0.00	9	3.36
5 – 10	2.20	29	10.82
10 – 15	7.50	18	6.72
15 – 20	12.76	35	13.06
>20	25.53	79	29.48
Total	8.97	268	100.00

Table 26

Distribution of Percentage Changes in Living Standards of Single Households in Current Year Where Defined Contribution Plans Are Eliminated

Percentage Change in Living Standard	Average	Observations	Percentage of All Observations
<-10	-14.44	4	3.39
-10 – 5	-6.85	10	8.47
-5 – 0	-2.08	24	20.34
0	0.00	8	6.78
5 – 10	3.36	6	5.08
10 – 15	6.83	9	7.63
15 – 20	11.93	14	11.86
>20	54.26	43	36.44
Total	20.39	118	100.00

Table 27

Distribution of Percentage Changes in Living Standards of Married Households in First Retirement Year Were Defined Contribution Plans Are Eliminated

Percentage Change in Living Standard	Average	Observations	Percentage of All Observations
<-10	-21.64	83	30.97
-10 – 5	-7.30	44	16.42
-5 – 0	-2.14	104	38.81
0	0.00	9	3.36
5 – 10	1.59	12	4.48
10 – 15	6.43	5	1.87
15 – 20	12.06	7	2.61
>20	18.09	4	1.49
Total	-7.95	268	100.00

Table 28

Distribution of Percentage Changes in Living Standards of Single Households in First Retirement Year Were Defined Contribution Plans Are Eliminated

Percentage Change in Living Standard	Average	Observations	Percentage of All Observations
<-10	-24.76	50	42.37
-10 – 5	-7.29	19	16.10
-5 – 0	-2.33	32	27.12
0	0.00	3	2.54
5 – 10	3.14	4	3.39
10 – 15	7.76	3	2.54
15 – 20	10.56	2	1.69
>20	34.21	5	4.24
Total	-10.37	118	100.00

Table 29

Percentage Change in the Present Value of Spending of Married Households from a 100 Percent Cut in Social Security Benefits

Household Total Income	Change in PV of Spending	Age of BU Employee					Total
		<30	30-40	40-50	50-60	>60	
<$80K	Mean Change	-11.9	-16.2	-28.6	-39.7	-21.4	-24.0
	Median Change	-11.5	-19.0	-25.8	-46.1	-20.9	-19.7
	Minimum	-18.6	-24.3	-56.6	-95.2	-60.6	-95.2
	Maximum	-5.0	-0.2	-10.9	0.0	0.0	0.0
	Observations	10	13	16	11	10	60
$80-$120K	Mean Change	-9.9	-13.3	-16.0	-24.4	-28.9	-18.9
	Median Change	-9.8	-12.5	-15.6	-21.0	-21.2	-16.5
	Minimum	-16.4	-28.1	-30.5	-43.4	-55.4	-55.4
	Maximum	-4.1	0.0	0.0	-10.4	-8.4	0.0
	Observations	8	11	23	18	10	70
$120-$160K	Mean Change	-10.1	-5.3	-15.5	-17.9	-19.6	-15.5
	Median Change	-10.1	-3.5	-15.2	-18.9	-16.4	-14.9
	Minimum	-10.1	-13.3	-32.5	-44.7	-50.2	-50.2
	Maximum	-10.1	0.0	-2.2	-3.7	-5.8	0.0
	Observations	1	10	17	27	11	66
>$160	Mean Change	0.0	-7.4	-10.0	-13.6	-14.3	-11.9
	Median Change	0.0	-6.6	-10.4	-11.6	-14.4	-10.3
	Minimum	0.0	-17.1	-24.8	-32.1	-24.5	-32.1
	Maximum	0.0	0.0	0.0	-3.8	-7.3	0.0
	Observations	0	10	19	29	14	72
Total	Mean Change	-10.9	-11.0	-17.1	-20.7	-20.4	-17.3
	Median Change	-10.7	-9.9	-15.6	-17.9	-17.8	-15.4
	Minimum	-18.6	-28.1	-56.6	-95.2	-60.6	-95.2
	Maximum	-4.1	0.0	0.0	0.0	0.0	0.0
	Observations	19	44	75	85	45	268

Table 30

Percentage Change in the Present Value of Spending of Single Households from a 100 Percent Cut in Social Security Benefits

Household Total Income	Change in PV of Spending	Age of BU Employee					Total
		<30	30-40	40-50	50-60	>60	
<$40K	Mean Change	-10.3	-13.4	-29.7	-51.5	0.0	-21.3
	Median Change	-7.3	-13.8	-22.4	-43.4	0.0	-15.5
	Minimum	-26.7	-23.7	-51.8	-87.7	0.0	-87.7
	Maximum	0.0	0.0	-11.2	-27.7	0.0	0.0
	Observations	19	12	7	8	0	46
$40-$60K	Mean Change	-1.3	-7.8	-26.6	-23.4	-35.0	-18.3
	Median Change	-1.3	-8.7	-25.9	-19.4	-35.0	-16.4
	Minimum	-2.6	-14.9	-37.5	-57.8	-44.7	-57.8
	Maximum	0.0	0.0	-17.8	-6.3	-25.4	0.0
	Observations	2	10	8	8	2	30
$60-$80K	Mean Change	-1.5	-9.7	-13.0	-23.8	-19.0	-18.1
	Median Change	-1.5	-12.0	-12.7	-24.0	-21.6	-18.1
	Minimum	-1.5	-14.4	-18.1	-31.4	-34.3	-34.3
	Maximum	-1.5	-2.6	-8.2	-13.8	-0.5	-0.5
	Observations	1	3	3	9	5	21
>$80	Mean Change	0.0	-4.9	-9.4	-12.8	-6.7	-10.1
	Median Change	0.0	-5.9	-9.8	-13.3	-6.7	-10.1
	Minimum	0.0	-7.0	-16.5	-17.9	-7.4	-17.9
	Maximum	0.0	-1.8	0.0	-5.3	-6.0	0.0
	Observations	0	3	6	10	2	21
Total	Mean Change	-9.1	-10.1	-21.5	-26.9	-19.8	-18.0
	Median Change	-6.1	-10.8	-19.2	-20.6	-21.6	-14.6
	Minimum	-26.7	-23.7	-51.8	-87.7	-44.7	-87.7
	Maximum	0.0	0.0	0.0	-5.3	-0.5	0.0
	Observations	22	28	24	35	9	118

Table 31

Percent Change in Present Value of Spending of Married Households From A 25% Cut in Social Security Benefits Beginning in 2011

		Age of BU Employee					
Household Total Income	**Change in PV of Spending**	**<30**	**30-40**	**40-50**	**50-60**	**>60**	**Total**
<$80K	**Mean Change**	-2.6	-2.8	-4.6	-5.7	-2.5	-3.7
	Median Change	-2.6	-3.7	-5.4	-5.9	-2.7	-3.6
	Minimum	-3.9	-5.1	-9.2	-9.7	-5.0	-9.7
	Maximum	-1.2	3.7	5.6	0.0	0.0	5.6
	# of Households	10	13	16	11	10	60
$80-$120K	**Mean Change**	-1.2	-1.8	-1.9	-4.2	-3.2	-2.6
	Median Change	-1.8	-2.8	-3.4	-3.8	-2.5	-3.3
	Minimum	-3.6	-6.1	-5.5	-8.3	-6.2	-8.3
	Maximum	2.2	8.2	6.4	-0.1	-1.2	8.2
	# of Households	8	11	23	18	10	70
$120-$160K	**Mean Change**	-2.4	1.0	-2.3	-2.8	-2.4	-2.0
	Median Change	-2.4	1.5	-3.0	-3.4	-2.4	-2.6
	Minimum	-2.4	-2.9	-6.4	-8.0	-4.2	-8.0
	Maximum	-2.4	3.5	3.0	4.5	-0.1	4.5
	# of Households	1	10	17	27	11	66
>$160	**Mean Change**		-0.4	-1.0	-2.4	-2.3	-1.7
	Median Change		-0.4	-1.8	-2.1	-2.0	-1.9
	Minimum		-3.4	-4.9	-6.3	-5.0	-6.3
	Maximum		2.4	7.3	2.1	-0.4	7.3
	# of Households		10	19	29	14	72
Total	**Mean Change**	-2.0	-1.1	-2.3	-3.3	-2.6	-2.5
	Median Change	-2.5	-2.0	-3.2	-3.4	-2.4	-2.9
	Minimum	-3.9	-6.1	-9.2	-9.7	-6.2	-9.7
	Maximum	2.2	8.2	7.3	4.5	0.0	8.2
	# of Households	19	44	75	85	45	268

Table 32

Percentage Change in the Present Value of Spending of Single Households from a 25 Percent Cut in Social Security Benefits

Household Total Income	Change in PV of Spending	Age of BU Employee					Total
		<30	30-40	40-50	50-60	>60	
<$40K	Mean Change	-0.9	-0.2	-5.8	-7.3		-2.6
	Median Change	-1.6	-2.6	-4.8	-6.6		-3.3
	Minimum	-6.1	-4.8	-8.5	-9.8		-9.8
	Maximum	8.3	15.3	-2.6	-5.9		15.3
	Observations	19	12	7	8		46
$40-$60K	Mean Change	4.0	0.1	-5.3	-3.3	-3.7	-2.3
	Median Change	4.0	-1.7	-5.3	-4.1	-3.7	-3.2
	Minimum	-0.6	-3.0	-7.4	-9.4	-4.0	-9.4
	Maximum	8.5	8.2	-3.8	6.0	-3.3	8.5
	Observations	2	10	8	8	2	30
$60-$80K	Mean Change	-0.4	-1.8	0.6	-3.7	-1.9	-2.2
	Median Change	-0.4	-2.2	0.0	-3.9	-1.7	-2.7
	Minimum	-0.4	-3.0	-3.9	-6.3	-3.1	-6.3
	Maximum	-0.4	-0.2	5.6	-0.6	0.1	5.6
	Observations	1	3	3	9	5	21
>$80	Mean Change		-1.0	-1.4	-2.9	-1.1	-2.0
	Median Change		-1.4	-2.3	-3.0	-1.1	-2.5
	Minimum		-1.6	-3.7	-3.9	-1.4	-3.9
	Maximum		0.1	3.9	-1.3	-0.8	3.9
	Observations		3	6	10	2	21
Total	Mean Change	-0.4	-0.4	-3.8	-4.2	-2.1	-2.3
	Median Change	-0.9	-1.7	-4.2	-3.9	-1.7	-2.8
	Minimum	-6.1	-4.8	-8.5	-9.8	-4.0	-9.8
	Maximum	8.5	15.3	5.6	6.0	0.1	15.3
	Observations	22	28	24	35	9	118

Table 33A: Average Benchmark Insurance, Actual Insurance, and Earnings, and Age for Equal Groupings of Married Households in the BU Sample Arranged in Ascending Order of Benchmark Insurance

Benchmark Insurance Range		Benchmark	Actual	Earnings	Age
0	mean	0	417,103	154,914	58
	median	0	237,014	135,600	58
0-$300K	mean	157,590	382,122	114,578	52
	median	170,102	315,083	105,172	52
$300-$600K	mean	438,726	444,964	125,633	46
	median	429,577	325,369	99,000	47
>$600K	mean	1,012,724	497,975	135,624	39
	median	889,575	373,987	124,000	39
Total	mean	417,146	437,339	133,052	49
	median	318,895	321,629	122,000	50

Table 33B: Average Benchmark and Actual Insurance Per Dollar of Earnings, Average Earnings, and Average Age for Equal Groupings of Married Households in Ascending Order of Benchmark Insurance Per Dollar of Earnings.

Ratio of Benchmark Insurance to Earnings Range		Benchmark/ Earnings	Actual/ Earnings	Earnings	Age
0	mean	0.00	2.63	154,914	58
	median	0.00	1.75	135,600	58
0-2.5	mean	1.35	3.04	145,055	53
	median	1.44	3.01	131,250	53
2.5-6	mean	4.20	4.12	132,122	46
	median	4.09	3.19	128,216	47
>6	mean	9.82	3.07	99,578	37
	median	7.99	2.25	91,000	37
Total	mean	3.82	3.21	133,052	49
	median	2.45	2.56	122,000	50

Each range has approximatly 25% of the sample.

Table 34

Simple Regression Analysis for Married Households

Panel A: Dependent Variable: Level of Actual Total Household Life Insurance Holdings		
	Constant	**Recommended Amount**
OLS	376777.1 (34249.3)	0.1427 (.0572)
Tobit	363618.1 (35436.1)	0.1518 (.0590)
Median Regression	266209 (28238.2)	0.1353 (.0450)

Note: Standard errors in parenthesis

Panel B: Dependent Variable: Ratio of Actual Total Household Life Insurance Holdings to Household Earnings		
	Constant	**Recommended Amount**
OLS	3.1048 (.2269)	0.0187 (.0408)
Tobit	3.0497 (.2351)	0.0172 (.0425)
Median Regression	2.3770 (.2544)	0.0459 (.0445)

Note: Standard errors in parenthesis

Table 35 Detailed Regression Analysis for Married Households

Dep. Var.: Ratio Act. Life Ins. to Inc.	OLS	Tobit	Med. Reg	OLS	Tobit	Med. Reg
Recommended Ratio	-0.4063 (0.2391)	-0.4726 (0.2444)	-0.1806 (0.2121)			
Average Age of Couple	0.2933 (0.1539)	0.3060 (0.1556)	0.3472* (0.1360)			
Average Age of Couple Squared	-0.0035 (0.0014)	-0.0037 (0.0015)	-0.0038* (0.0013)			
Recommended Ratio Times Age	0.0110 (0.0056)	0.0124* (0.0057)	0.0048 (0.0050)			
Age < 40				0.6281 (1.2989)	0.5605 (1.3070)	-0.4538 (1.5588)
Age 40- 55				0.9376 (1.1109)	0.8329 (1.1125)	0.7921 (1.3262)
Age > 55				-0.7006 (1.0707)	-0.8923 (1.0756)	-0.7719 (1.2841)
Rec. Ratio Times Dummy Age < 40				-0.0448 (0.0783)	-0.0605 (0.0794)	-0.0041 (0.0953)
Rec. Ratio Times Dummy Age 40 – 55				0.1327 (0.0976)	0.1333 (0.0974)	0.0106 (0.1139)
Rec. Ratio Times Dummy Age > 55				0.1333 (0.1378)	0.1411 (0.1375)	0.0968 (0.0921)
Dummy for Visiting Financial Planner	0.6120 (0.3699)	0.6717 (0.3707)	0.5619 (0.3323)	0.6645 (0.3772)	0.7205 (0.3774)	0.4980 (0.4531)
Index of Financial Knowledge	0.1538 (0.1319)	0.1510 (0.1320)	-0.1093 (0.1199)	0.2703* (0.1335)	0.2771* (0.1335)	0.1224 (0.1622)
Index of Household Education	0.0075 (0.0224)	0.0067 (0.0225)	0.0086 (0.0200)	0.0075 (0.0226)	0.0072 (0.0226)	0.0294 (0.0269)
Net Worth	0.8052* (0.3302)	0.8936* (0.3427)	0.1033 (0.2820)	0.9408* (0.3316)	1.0134* (0.3409)	0.1613 (0.2932)
Dummy for Frequent Planning	0.7356 (0.4714)	0.8248 (0.4742)	0.2840 (0.4088)	0.8642 (0.4787)	0.9572 (0.4810)	0.6778 (0.5846)
Rate of Oversaving	-0.1141 (0.5260)	-0.4649 (0.6144)	0.1102 (0.3276)	-0.5607 (0.5194)	-0.8905 (0.5892)	-0.4800 (0.3631)
Dummy for Participation Payment	-0.0050 (0.3900)	0.0427 (0.3913)	0.1162 (0.3493)	-0.1197 (0.3937)	-0.0895 (0.3944)	0.0025 (0.4760)
Constant	-4.5973 (4.1517)	-4.7814 (4.2048)	-5.2601 (3.6482)			

Table 36: Alternative Detailed Regression Analysis For Married Households --Eliminating Non-significant Coefficients

Dependent Variable: Ratio Life Insurance to Household Income	OLS	Tobit	Median Reg	OLS	Tobit	Median Reg
Recommended Ratio	-0.3746 (0.2260)	-0.4803 (0.2361)	-0.2074 (0.2665)			
Average age of Couple	0.3134* (0.1547)	0.3126 (0.1587)	0.3631 (0.1839)			
Average age of Couple Squared	-0.0037 (0.0015)	-0.0038 (0.0015)	-0.0040 (0.0017)			
Recommended Ratio of Insurance to Income times Age	0.0103 (0.0053)	0.0127* (0.0055)	0.0058 (0.0063)			
Age < 40				2.2823* (0.7962)	2.3048* (0.8148)	2.0125* (1.0554)
Age 40- 55				2.4890* (0.5571)	2.3941* (0.5693)	3.0849* (0.7377)
Age > 55				0.9193 (0.5677)	0.7510 (0.5799)	2.0125 (1.0554)
Rec. Ratio Times Dummy Age < 40				-0.0355 (0.0708)	-0.0556 (0.0732)	-0.0415 (0.0945)
Rec. Ratio Times Dummy Age 40 – 55				0.1195 (0.0952)	0.1242 (0.0969)	-0.0018 (0.1254)
Rec. Ratio Times Dummy Age > 55				0.1540 (0.1357)	0.1678 (0.1379)	0.1188 (0.1073)
Index of Financial Knowledge	0.1560 (0.0905)	0.1732 (0.0927)	-0.0869 (0.1093)	0.2011* (0.0928)	0.2182* (0.0949)	0.0058 (0.1231)
Net Worth	0.9001* (0.2600)	0.8601* (0.2666)	0.2832 (0.3122)	0.8757 (0.2634)	0.8252 (0.2701)	0.1051 (0.2974)
Constant	-3.8712 (4.0421)	-3.7117 (4.1490)	-5.0053 (4.8129)			

Note: Standard errors in parentheses

Table 37

Actual Impact on Husbands of Wife's Death

	Constant	Potential Impact
OLS	7.3942 (1.2099)	0.6124** (.0587)
Tobit	7.4273 (1.2099)	0.6180** (.0589)
Median Regression	4.6500 (1.0382)	0.8196** (.0504)

Note: Standard errors in parentheses

Actual Impact on Wives of Husband's Death

	Constant	Potential Impact
OLS	16.1321 (2.0736)	0.7832** (.0496)
Tobit	16.8498 (2.1796)	0.8331** (.0534)
Median Regression	10.3955 (2.1569)	0.7737** (.0515)

** Indicates coefficient significantly different from unity.
Note: Standard errors in parentheses

Table 38

Actual Impact Regressions with Additional Regressors

Variable	Impact on Husband			Impact on Wife		
	OLS	Tobit	Median Reg	OLS	Tobit	Median Reg
Potential Impact	0.4102 (0.5260)	0.4161 (0.5162)	0.3486 (0.2481)	0.6102** (0.1420)	0.6327** (0.1453)	0.6813** (0.1232)
Change in spouse's impact due to Insurance	-0.1253* (0.0471)	-0.1245* (0.0462)	-0.0682* (0.0234)	-0.1623* (0.0823)	-0.1644* (0.0839)	-0.3884* (0.0734)
Average age of couple	2.0417* (0.7411)	2.0745* (0.7279)	1.0200* (0.3633)	3.9194* (0.9746)	4.2207* (1.0034)	2.2789* (0.8437)
Average age of couple squared	-0.0184* (0.0076)	-0.0187* (0.0074)	-0.0104* (0.0037)	-0.0365* (0.0099)	-0.0397* (0.0102)	-0.0214* (0.0086)
Dummy for visiting financial Planner* Vulnerbility	0.0442 (0.1459)	0.0380 (0.1433)	-0.0517 (0.0727)	-0.2379* (0.0741)	-0.2695* (0.0775)	-0.2870* (0.0666)
Index for financial knowledge	-0.5539 (0.8217)	-0.5533 (0.8063)	0.4745 (0.4160)	2.3214 (1.0866)	2.3594 (1.1131)	0.5458 (0.9713)
Index for household education	-0.1681 (0.1428)	-0.1734 (0.1402)	-0.0479 (0.0713)	-0.2147 (0.1885)	-0.2230 (0.1929)	-0.0817 (0.1684)
Dummy for thinking about saving and insurance frequently* Vulnerability	0.1361 (0.5239)	0.1387 (0.5141)	0.4775 (0.2470)	0.1928 (0.1320)	0.2287 (0.1349)	0.1522 (0.1137)
Dummy for payment to participate in the study*Vulnerability	-0.0967 (0.1353)	-0.1027 (0.1329)	-0.0976 (0.0681)	-0.0555 (0.0779)	-0.0467 (0.0822)	0.0336 (0.0699)
Constant	-40.5135 (18.0753)	-41.0471 (17.7446)	-20.8189 (8.9162)	-90.6426 (23.6204)	-96.7678 (24.2661)	-51.4668 (20.3855)

* Indicates significance at the 5 percent level.

** Indicates coefficient significantly different from unity.

Note: Standard errors in parentheses

Table 39

Actual Impact on Husband of Wife's Death Ignoring BU Insurance

	Constant	Potential Impact
OLS	6.6241 (1.0838)	0.7519** (.0526)
Tobit	6.7052 (1.0927)	0.7668** (.0536)
Median Regression	3.1000 (.9440)	0.8753** (.0456)

Note: Standard errors in parentheses

Actual Impact on Wife of Husband's Death Ignoring BU Insurance

	Constant	Vulnerability
OLS	13.0699 (1.9335)	0.8040** (.0462)
Tobit	13.7669 (2.0313)	0.8525** (.0498)
Median Regression	9.5556 (2.3976)	0.8718** (.0575)

Note: Standard errors in parentheses

Table 40

Impact Ignoring BU Insurance Regressions with additional Information

Variable	Impact on Husband			Impact on Wife		
	OLS	Tobit	Median Reg	OLS	Tobit	Median Reg
Vulnerability	0.5287	0.5388	0.4130**	0.6508**	0.6730**	0.7124**
	(0.4706)	(0.4657)	(0.1979)	(0.1357)	(0.1387)	(0.1241)
Change in spouse's impact due to Insurance	-0.1402*	-0.1400*	-0.0808*	-0.1902*	-0.1924*	-0.4405*
	(0.0421)	(0.0417)	(0.0194)	(0.0786)	(0.0801)	(0.0695)
Average age of couple	1.7769*	1.7986*	0.6699*	3.4629*	3.7624*	1.8698*
	(0.6631)	(0.6572)	(0.3037)	(0.9309)	(0.9581)	(0.8333)
Average age of couple squared	-0.0167*	-0.0169*	-0.0072*	-0.0327*	-0.0358*	-0.0177*
	(0.0068)	(0.0067)	(0.0031)	(0.0095)	(0.0098)	(0.0085)
Dummy for visiting financial Planner*Vulnerbility	-0.0902	-0.1070	-0.2478*	-0.2031*	-0.2342*	-0.2476*
	(0.1305)	(0.1295)	(0.0605)	(0.0708)	(0.0741)	(0.0646)
Index for financial knowledge	-0.3912	-0.4174	0.5254	1.8160	1.8550	-0.1087
	(0.7352)	(0.7277)	(0.3434)	(1.0379)	(1.0628)	(0.9460)
Index for household education	-0.1261	-0.1335	-0.0577	-0.1904	-0.1986	0.0677
	(0.1278)	(0.1266)	(0.0595)	(0.1800)	(0.1841)	(0.1636)
Dummy for thinking about saving and insurance frequently* Vulnerability	0.1685	0.1773	0.5840*	0.1669	0.2030	0.1933
	(0.4688)	(0.4638)	(0.1968)	(0.1261)	(0.1288)	(0.1150)
Dummy for payment to participate in the study*Vulnerability	0.0359	0.0361	-0.0564	-0.0384	-0.0290	-0.0692
	(0.1211)	(0.1206)	(0.0553)	(0.0744)	(0.0787)	(0.0677)
Constant	-35.1801	-35.1751	-12.5401	-79.6315	-85.7116	-45.9188
	(16.1722)	(16.0227)	(7.4547)	(22.5605)	(23.1712)	(20.1624)

* Indicates significance at the 5 percent level.

** Indicates coefficient significantly different from unity.

Note: Standard errors in parentheses

Table 41

Regression of Difference in Spousal Coverage Against Difference in Vulnerability Ignoring Purchased Insurance

	Constant	Difference in Vulnerability
OLS	5.3561	0.2493
	(1.7257)	(.0463)
Tobit	5.3416	0.2492
	(1.7256)	(.0463)
Median Regression	1.8169	0.1510
	(.7736)	(.0207)

Note: Standard errors in parentheses.

Table 42: Regression of Difference in Spousal Coverage Against Difference in Vulnerability Ignoring Purchased Insurance Introducing Additional Variables

	OLS	Tobit	Median Reg
Difference in Vulnerability	0.4251	0.4246	0.1467
	(0.1704)	(0.1677)	(0.1111)
Average age of couple	1.5636	1.5709	1.0594
	(1.0309)	(1.0144)	(0.6800)
Average age of couple squared	-0.0143	-0.0144	-0.0097
	(0.0106)	(0.0104)	(0.0069)
Dummy for visiting financial Planner*Vulnerability	0.1382	0.1387	0.1704
	(0.0909)	(0.0895)	(0.0599)
Index for financial knowledge	2.1516	2.1548	0.1366
	(1.1638)	(1.1452)	(0.7656)
Index for household education	-0.0425	-0.0406	-0.0097
	(0.2016)	(0.1983)	(0.1310)
Dummy for thinking about saving and insurance frequently*Vulenrability	-0.1789	-0.1791	0.0319
	(0.1658)	(0.1631)	(0.1076)
Dummy for payment to participate in the study*Vulnerability	-0.0719	-0.0716	-0.1606
	(0.0956)	(0.0940)	(0.0619)
Constant	-44.2075	-44.4204	-25.8257
	(24.7048)	(24.3104)	(16.3299)

Note: Standard errors are in the parentheses.

Table 43

Consumption-Income Ratio Regressions for Married Couples

Analysis	Constant	Recommended
OLS	0.2623 (.0168)	0.2282 (.0275)
Tobit	0.2621 (.0168)	0.2282 (.0275)
Median Regression	0.2979 (.0198)	0.1567 (.0324)

Note: Standard errors in parentheses

Table 44

Consumption-Income Ratio Regressions for Singles

Analysis	Constant	Recommended
OLS	0.0470 (.0285)	0.8505 (.0524)
Tobit	0.0403 (.0285)	0.8499 (.0524)
Median Regression	0.1502 (.0230)	0.5827 (.0425)

Note: Standard errors in parentheses

Table 45 Detailed Consumption Regressions For Married Households

Variable	OLS	Tobit	Median Reg
Recommended Consumption	0.2504 (0.1245)	0.2471 (0.1213)	0.3898 (0.1177)
Average age of couple	0.0159 (0.0083)	0.0167 (0.0082)	0.0208 (0.0077)
Average age of cuople squared	-0.0002 (0.0001)	-0.0002 (0.0001)	-0.0002 (0.0001)
Dummy for 40<Average Age<50* Recommended Consupmtion	0.1172 (0.0937)	0.1169 (0.0913)	-0.0363 (0.0880)
Dummy for 50<Average Age<60* Recommended Consupmtion	0.0774 (0.1043)	0.0800 (0.1016)	0.0292 (0.0983)
Dummy for Average Age>60* Recommended Consupmtion	0.1184 (0.1167)	0.1243 (0.1138)	0.0306 (0.1100)
Dummy for visiting financial Planner* Recommended Consumption	-0.0319 (0.0373)	-0.0330 (0.0364)	-0.0874 (0.0343)
Index for financial knowledge	-0.0095 (0.0072)	-0.0096 (0.0070)	-0.0173 (0.0067)
Index for household education	-0.0001 (0.0012)	0.0000 (0.0012)	0.0002 (0.0011)
Dummy for thinking about saving and insurance frequently*Recommended Consumption	-0.1162 (0.0399)	-0.1136 (0.0390)	-0.1654 (0.0374)
Dummy for payment to participate in the study*Recommended Consumption	0.0247 (0.0349)	0.0247 (0.0340)	-0.0263 (0.0331)
Uncertainty ((Networth-PV Spc. Exp.) /PV Spending)	-0.0919 (0.0770)	-0.0943 (0.0750)	-0.0506 (0.0705)
Constant	0.0036 (0.2080)	-0.0160 (0.2034)	-0.0811 (0.1944)

Note: Standard errors in parentheses

Table 46
Detailed Consumption Regressions For Single Households

Variable	OLS	Tobit	Median Reg
Recommended Consumption	1.0756 (0.1047)	1.0756 (0.0988)	1.0551 (0.1245)
Average age of couple	-0.0021 (0.0112)	-0.0021 (0.0106)	0.0134 (0.0126)
Average age of cuople squared	0.0001 (0.0001)	0.0001 (0.0001)	-0.0001 (0.0001)
Dummy for 40<Average Age<50* Recommended Consupmtion	-0.3260 (0.1256)	-0.3244 (0.1185)	-0.3474 (0.1450)
Dummy for 50<Average Age<60* Recommended Consupmtion	-0.4096 (0.1370)	-0.4095 (0.1293)	-0.4603 (0.1646)
Dummy for Average Age>60* Recommended Consupmtion	-0.3018 (0.2166)	-0.2973 (0.2044)	-0.3250 (0.2494)
Dummy for visiting financial Planner* Recommended Consumption	-0.1520 (0.0769)	-0.1506 (0.0726)	-0.1479 (0.0949)
Index for financial knowledge	-0.0021 (0.0123)	-0.0024 (0.0116)	-0.0190 (0.0145)
Index for household education	-0.0046 (0.0030)	-0.0046 (0.0029)	-0.0022 (0.0037)
Dummy for thinking about saving and insurance frequently*Recommended Consumption	-0.0985 (0.0696)	-0.0999 (0.0657)	-0.0020 (0.0822)
Dummy for payment to participate in the study*Recommended Consumption	-0.0069 (0.0636)	-0.0058 (0.0600)	-0.0505 (0.0762)
Uncertainty ((Networth-PV Spc. Exp.) /PV Spending)	-0.3139 (0.1170)	-0.3110 (0.1104)	-0.3206 (0.1384)
Constant	0.0789 (0.2364)	0.0816 (0.2231)	-0.2435 (0.2652)

Note: Standard errors in parentheses

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