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An Empirical Analysis of Gift-Giving in Later Life

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Abstract

We use data from waves 1 and 2 of the AHEAD dataset to investigate the influence of economic and health status on gift-giving among the elderly. We divide households into groups according to the overall health status of the head and his or her partner (if present) and specify models in which both the average and marginal effects of income and wealth on gift-giving are allowed to vary among groups. Our preliminary results indicate significant differences across groups in their giving behavior. The findings suggest that giving at lower income and wealth levels declines as health deteriorates, but the marginal effects of additional income and wealth – and therefore giving at higher values of income and wealth – increase. We also investigate factors influencing mortality between waves 1 and 2, especially the effect of household wealth; we find that traditional specifications greatly overestimate the reductions in mortality associated with increases in wealth for wealthy households, and correct for this problem by specifying and estimating spline models that allow for different marginal effects of wealth for low and high wealth households. Finally, we specify a panel model that allows for correlations between gift-giving in waves 1 and 2, and between gift-giving in wave 1 and mortality.

I. Introduction

In this paper we investigate the influence of economic and health status on gift-giving among the elderly. A large economic and sociologic literature has developed exploring patterns of family transfers, especially integenerational transfers, including inter vivos monetary transfers, helping activities, and bequests. It is a well-established empirical fact and intuitive that wealthier households give more monetary gifts to their children than poorer households. It is also the case, as we document in this paper, that controlling for wealth households of higher current income give more than those of lower income. However, the relationship of the health status of parents to their gift-giving behavior, including especially how this impacts the relationship of wealth and income to giving, is less obvious. The joint effect of health and wealth on giving is our focus in this paper. In addition to our main interest in the relationship of health and wealth to giving, we are also interested in the relationship of health and economic status to estate planning and estate and gift taxation. We therefore specify two sets of models – one set in which the dependent variable refers to all gifts made in the previous year and a second set in which the dependent variable refers only to gifts the value of which lies above the gift tax-filing threshold.

We study the joint relationship of health and economic status with gift-giving using waves 1 and 2 of the Asset and Health Dynamics Among the Oldest Old (AHEAD) dataset. We first divide households into groups based on a variety of health indicators from the rich information provided by the AHEAD health module. Then we specify models in which we allow both the average (intercept) and marginal (slope) effects of wealth and income on gift-giving to vary across health groups. In this first draft we report results from estimating models for gift-giving reported in wave 1 of AHEAD only. Imputed wealth variables needed to extend these results to wave 2 are expected to available beginning in the summer of 1999, at which time we intend to extend our results to wave 2.

Gift-giving across time periods is likely to be correlated, and gift-giving is likely to be related to expected mortality. To account for these effects, we specify and estimate a panel model that integrates gift-giving in wave 1 with mortality between waves 1 and 2 and, for those households in which at least one of head and partner (if present in wave 1) remains alive, gift-giving in wave 2, specifically allowing for correlations between gift-giving in waves 1 and 2 and between gift-giving in wave 1 and mortality.

Our results for wave 1 indicate significant differences across groups with respect to

both the average and marginal effects. In particular, the vast majority of our model results exhibit the same basic pattern – average giving at lower income and wealth levels falls is lower for the households in worse health (lower intercepts) but at higher income and wealth levels is higher for these households, reflecting a larger marginal effect (slope). Consistent with earlier work by Hurd, we find that overall health self-assessment is the health variable that exerts the greatest impact on our results. We also find that we are better able to explain giving of gifts in general than the giving of large gifts above the gift tax threshold. We are not sure at present whether this is largely a statistical issue due to the fact that there are many fewer large gifts reported in the AHEAD dataset, or a true behavioral effect indicating that the factors associated with the making of large gifts are different and more difficult to identify than those for smaller gifts.

We do not at present offer a definitive interpretation of our results, but suggest a number of hypotheses about the elderly and gift-giving that are consistent with these results. One possibility is that elderly in worse health expect to incur high medical costs in the future and therefore are less willing to give. Those with greater economic resources are likely to realize that they will not exhaust their resources and therefore reduce their giving less. Since the income effect on giving is also steeper for those in worse health, this explanation must be supplemented with the hypothesis that elderly are in general unwilling to spend down their assets. An alternative possibility concerns vulnerability and risk aversion. If elderly who are in worse health feel more vulnerable or risk averse they will be less inclined to give gifts. But if in addition wealth is protective against vulnerability – perhaps because the increase in risk aversion is less at higher wealth and income values – households with greater wealth and higher income will reduce their giving by less when they fall into ill health.

We also present results in this preliminary version of our paper of mortality equations we have estimated investigating the influence of wealth, age, and marital status on mortality between waves 1 and 2. Because gift-giving is more common and of larger magnitude for households of high wealth, and gift-giving must be thought of in terms of an integrated estate-gift household resource transfer model, it is important to try to develop careful estimates of mortality for high wealth households. We have explored the relationship between wealth and mortality in some detail, and have found that conventional models of this relationship, for example those that posit linear, quadratic, and cubic effects of wealth, are highly misleading for predicting mortality of high wealth households. Therefore we

have developed spline models that control more carefully for differences in the relationship between wealth and mortality at low and high wealth levels.

The remainder of the (incomplete) paper is organized as follows. In section two we briefly review the various theories of gift-giving behavior, then discuss our own modeling strategy and interests. In section three we discuss the AHEAD dataset and the variables we construct using this dataset. In section four we present and discuss results from estimating models of gift-giving. In section five we present our mortality estimates. In section six we present the likelihood for the panel model integrating waves 1 and 2 and mortality information.

II. Theories and models of gift-giving behavior

We briefly discuss some of the better known economic, sociologic, and psychologic models of gift-giving in order to explore the predictions they make about the inter-relationship among economic status, health status and gift-giving amongst the elderly.

The standard economic theory of the life-cycle does not by itself provide a motivation for parents to give gifts – instead it suggests they will simply accrue assets and bequeath those assets to their children when they die. However, extensions of the theory, which introduce additional specifications, do provide a motivation for gift-giving. One important extension is the idea that parents feel altruistic towards their children and desire to help them, and they offer some of this help as monetary gifts. If one assumes that the altruism that parents feel occurs through them incorporating the utilities of their children into their own utility functions, this model generates implications about how the status and situation of children, including the relative status and situation of different children, should impact gift-giving. However, for altruism to lead to gift-giving it must be the case that it is better for the elderly to give gifts rather than for the elderly to continue to accrue savings while their children borrow and repay loans. Credit restrictions may provide such a reason, or a kind of "warm-glow" effect in which parents gain utility directly from the act of giving.

Once gift-giving is introduced into the life-cycle framework there are additional implications about the effect of health and wealth on giving. First, risk aversion may vary with wealth or health. If those in poorer health feel more risk averse they may be less willing to give their wealth away and this effect may be stronger the more uncertain they are about how much longer they will live. Second, expected future medical costs may affect

the willingness to give and for those who are risk averse uncertainty about these future costs may also affect giving. For example, elders with terminal illness may recognize that their death is near and feel inclined to give, while those with functional disabilities but no illness may feel themselves likely to live many more years and face great uncertainty about future medical costs and therefore may be less inclined to give.

The economics literature has suggested two additional reasons for gift-giving. First, gift-giving may be part of a larger system of exchange in which parents use the promise of gifts as a reward to provide incentive for their children to help them. This theory suggests that parents should promise more gifts and presumably give more gifts when they need more help and when their children live close by (and therefore can be induced to help them). Second, as Poterba (1997) has recently emphasized, from the perspective of tax-planning gift-giving while alive is an effective strategy for reducing estate taxes for high-wealth households, and in general gift-giving should be undertaken as part of an integrated estate tax planning framework. If tax avoidance is an important part of gift-giving we would expect to see many gifts made right at the gift tax threshold.

Sociologic theories of gift-giving emphasize that gifts are given as a form of reciprocal exchange in return for children helping parents. Broader sociologic arguments about norms suggest that gift-giving may be sensitive to cultural circumstances and societal or group pressures.

We are not familiar with the full range of psychological theories that relate to gift-giving. However, a predominant theme of the psychological gerontologic literature is that the elderly often feel vulnerable. Typically, ill-health may be expected to be associated with an increased sense of vulnerability. We suggest two implications of the theory of vulnerability. One is that elderly gift-giving may be dependent on perceived feelings of vulnerability and that elderly who feel more vulnerable may give less, hoarding their assets and feeling less generous towards others. Another opposite possibility is that those who feel most vulnerable may undertake gift-giving as a way to feel empowerment or to improve their sense of connection with their children. Functional limitations, which tend to increase isolation, may accentuate feelings of vulnerability and therefore may also be expected to impact gift-giving.

Models

We are interested in investigating the joint effect of health and economic status on

gift-giving. We therefore specify models in which we allow the marginal effect or slope relating increases in wealth or income to increases in gift-giving behavior to vary with health status. In the next section we describe how we construct a set of health indicators for a household that combine information from health measures for both the head and, if present, his or her partner. The health measures we use are of two types – self-reports of health status and reports of limitations of activities and instrumental activities of daily living. We use the constructed health measures to sort households into five groups. At one extreme are those households that report being overall not in poor or worse health and report no limitations in daily living, and at the other extreme are households that report being in poor and worse health and having some limitations; in between are households with varying levels of reported health status and limitations. Finally, we specify models which allow for a rich variety of interactions between wealth and health and income and health. We allow the intercepts in our regression models to be different for each health group. More interestingly, we also allow the slopes measuring the effects of wealth and income on gift-giving are each allowed to be different for each group, so there are 10 separate wealth-income slope coefficients estimated in all. In work that is still ongoing we are estimating spline models in which we allow one knot in each wealth-healt group and income-health group relationship, so that there will 20 slope coefficients estimated.

These models allow us to investigate in some details how patterns of inter vivos intergenerational transfers vary not only with wealth and income, but how that variation differs across households in which the head and partner are in relatively good, as opposed to relatively poor health.

III. Data

The data for this study is drawn from waves 1 and 2 of the AHEAD dataset. The AHEAD study collects information about a carefully selected stratified random sample of households for which the head of the household was age 70 or above in 1993. AHEAD is a longitudinal study which began in 1993 and is interviewing members of participating households every second year. The study collects extensive information about family composition and structure, living arrangements, economic status of the household and family members – including both income and wealth variables, work history of the head and (if present) his or her partner, and a wide range of health measures pertaining to the head

and his or her partner. See Soldo, Hurd, Rodgers and Wallace (1997) for details about the construction of the sample and design of the survey. Wave 1 contains information about 6,052 households and approximately 8,200 heads and their partners. Wave 2 contains information about 5,020 households, 7,000 heads and their partners, and exit information about 750 individuals who died between waves 1 and 2.

As a first step in our analysis we distinguish between households that have children and households that do not and focus primarily on households with children and on the gifts they make to children. We have two reasons for doing this. First, many of the theories of gift-giving we have reviewed in section two imply different motivations for giving gifts to children than to other persons and suggest stronger motives for giving to children. Second, most households in AHEAD report having children and most gifts are made to children. In wave one more than five thousand households, approximately 85% of the sample, report having at least one child of their own.[1] Of these, 1277 (25%) report having made at least one gift to a child, 213 (4%) report having made at least one gift to another person (and may also have made a gift to a child), and 3700 report no gifts (73%). Of the 15% of the sample that do not report having any children of their own, 159 (17%) report having made gifts and 799 report no gifts. While we focus on households with children and the gifts they make to children, we also report results from estimating models of gifts to other persons that are estimated over the entire sample.

We also choose to distinguish between households in which the head has a partner and those in which he or she does not, estimating models separately for these two groups. Our primary reason for separating these groups is that the utility levels associated with a unit of wealth are presumably different in households with one adult head as opposed to two, and this may be expected to influence gift-giving behavior.[2] Among households with children, there are 2168 households in which the head has a partner and 2921 in which he or she does not report having a partner.

A few of our variables come directly from the AHEAD variable list, but most we construct through data manipulations. The variables we use that are either on the AHEAD list or are based with minimal adjustment on a variable from that list are the following: NONWHITE, a dummy set equal to one if the head is non-white; MARRIED, a dummy

[1] Our definition of what it means for a household to have a child of its own is broad and includes biologic children of either the head or partner as well as step-children of either the head or partner; see below for further information about how we constructed this variable.

[2] Alternatively, it might be possible to define an equivalence scale for different household members in terms there resource needs or entitlements, but we have not pursued that possibility in this work.

set equal to one if the head has a partner; SOUTH, a dummy set equal to one if the household is in the south; URBAN – a dummy set equal to one if the household lives in an urban area; OWNHOME – a dummy set equal to one if the household owns the home they live in; COG, overall measure of individual cognitive functioning (COG), coded separately for the head and partner; and TIMEH, the total time that all children are reported to have spent caring for the head and partner. We construct with minimal manipulations a series of four dummy variables based on the questions in AHEAD that are asked about educational attainment of the head and partner: (i) possessing a high school degree but not having attended college (HSCHOOL); (ii) attended college but did not earn a college degree (EDU1315); (iii) college degree but no post-graduate degree (COLLEGE); (iv) a post-graduate degree (POST); the fifth category, no high school degree, is the omitted group. We also construct with minimal manipulations our dependent variables. For most of our models the dependent variable is GIFT, which is equal to the total of all gifts reported to have been made to children in the preceding twelve months. In certain other models the dependent variable is based on BIGGIFT, which is equal to one when the value of a single gift exceeds the gift tax filing threshold for the household and otherwise is zero. Finally, we are planning also to fit simple models of gifts made to persons other than children and the dependent variable for these models again comes directly from the AHEAD variable list.

Our construction of variables measuring numbers of children, assets, income, and health status are more complex. The AHEAD survey asks the respondent to list separately resident and nonresident children, and for each child asks about the relationship of the child with the respondent and the respondent's partner. We use the responses to determine for each child whether that child is a biologic child of the respondent or the partner (or both), a step-child of the respondent or partner, or falls in some other category (for example a step-child of a partner from a previous relationship). We define NUMCHILD to be the sum of their resident and nonresident biologic and step-children of the head and partner. As discussed above, for most of the models we report later we include only households for which NUMCHILD is greater than zero. These questions were asked in detail in wave 1. In wave 2, follow-up questions were asked about changes in relations, and we use these to adjust the wave 1 variables accordingly.

The AHEAD survey also asks a series of questions about different kinds of household assets. It reports values for these individual classes of assets and for wave 1 also reports

an imputed total value of all assets. Previously, in investigating the asset variables in wave 1 we discovered a possible error in the way in which trust assets were calculated. We exchanged several emails with the AHEAD support staff about the problem in the spring of 1997. Our conclusion, which the staff did not refute, is that for wave 1 there was an ambiguous question asked as part of the series of questions asked respondents about their trust assets, which we believe most respondents interpreted one way and the AHEAD staff and data entry personnel interpreted in a different way.[3] In our earlier work we investigated various ways of computing trust assets and eventually settled on a method which we believe is consistent with the most plausible interpretation of the respondents' answers to the series of questions about trust assets; we continue to use that method in the present work, and modify the AHEAD measure of total assets accordingly. [4] We denote our measure of total household assets, inclusive of trust assets, by ASSET. We also define two supplemental asset variables: TRUSTD, a dummy variable set equal to one if the household reports having established at least one trust fund; and LIQUID, a measure of liquid wealth, equal to ASSET minus the following kinds of assets – real estate, automobiles, and own business. For wave 2, the trust asset questions are no longer ambiguous. However, at the present time an imputed value for total assets has not been made available for public use (it is expected to be made available soon). Thus to construct a measure of total household assets for wave 2 we sum the value of different kinds of assets, specifically first and second house values (net of mortgages and other loan debts), other real estate, automobiles, business assets, stocks, bonds, bank accounts – checking, saving and CD accounts, IRA and other retirement accounts, and other assets – including trust assets. In addition, for each type of asset we impute a value for those households that report having assets of that type but do not know the value of their assets and have been asked a series of follow-up questions.

[3] The ambiguous question is v1779, in which the respondent was asked whether he had included trust assets in his previous answers; we believe that a "yes" to this question simply meant the respondent had listed all trust assets in his answer to the previous question, v1778, which asks about trust assets, whereas the AHEAD staff appears to have interpreted a yes as meaning that the assets reported in v1778 had been included in earlier asset figures provided in response to slightly earlier questions in the series.

[4] Our method is as follows. If the respondent answered "no" to v1779 we use the AHEAD total asset measure. If the respondent answered "yes" we apply the following algorithm. First we compute the difference between the answer to v1778, which asks specifically about trust assets, and the AHEAD total asset measure. If this difference is negative, trust assets cannot have been included in the earlier figures and we then add the number reported in v1778 to the total asset measure. If the difference is positive we compute the ratio of the number reported in v1778 to the AHEAD total asset measure. If the ratio is greater than .75, indicating trust assets are a very large proportion of the total assets, we assume trust assets were not included in the total asset number and add the number reported in v1778 to the AHEAD measure of total assets. Conversely, if the ratio is less than .50 we assume trust assets were included and do not modify the AHEAD total asset measure. If the ratio is between .5 and .75 we linearly interpolate, adding to the AHEAD total asset measure a fraction of the number reported in v1778, with the fraction being zero at .5 and one at .75.

In wave 1 the AHEAD provides an imputed measure of total household income and we use this measure directly. At the present time such a measure has not been made available to the public for wave 2. We are still working on constructed a valid measure of total household income by summing income over household members. In doing this for each member we must sum over that individual's sources of income that are reported, and must make imputations for the cases in which the respondent indicated the member had income from that source but did not know the value of the income and answered a series of follow-up questions.

The AHEAD survey provides information about a rich array of health indicators. These include information about overall health status, about functional limitations – ADL's and IADL's, and about specific diseases, for both the head and the head's partner (if present). We develop measures of household health in three steps. First, for each of these kinds of health indicators we develop summary measures, separately for the head and partner. Second, for households in which a partner is present we combine information about the head and partner to develop a measure of the health of the household. Third, we place households in health groups based on combinations of health indicators. We follow a similar procedure for waves 1 and 2.

In previous work Hurd has reported that self-reports elders provide concerning their overall health status is informative about their life expectancy. If elders recognize their ability to predict their own future health status, it is like that their evaluations of their own health status will influence their decision-making about gifts. We therefore have used in our analysis their self-reports in AHEAD concerning both their overall status and recent changes in their status. The AHEAD survey asks elders to evaluate their current health as being one of excellent, very good, good, fair or poor, and asks them to state whether recently their health has improved, remained about the same, or worsened. We are primarily interested in investigating the effect of ill health on gift-giving and therefore focus on those in poor health or whose health has recently worsened. In particular, we define POOR to be a dummy variable equal to one if the elder reports being in poor health, and define WORSE to be a dummy variable equal to one if the elder reports his health has worsened recently. We construct separate measures of each for the head and partner. If there is no partner we use these variables directly the third stage of our health variable construction. If there is a partner, we redefine these variables at the household level as follows: the household as a whole is defined to be in POOR health if either (i) both head

and partner are in poor health or (ii) one is in fair and the other in poor health; the household as a whole is defined to be in WORSE health if either (i) both head and partner are in worse health or (ii) one is in worse health and the other's health is the same as it was.

We also use the information in AHEAD about ADL's and IADL's. For each of the head and partner we define two dummy variables: ADLH, which is equal to one if the individual is reported to have more than one ADL limitation; and IADLH, which is equal to one if the individual is reported to have more than one IADL limitation. If there is no partner we again use these variables directly in our subsequent variable construction. If there is a partner we redefine these variables at the household level as follows: the household as a whole is defined to have ADLH equal to one if either the head or partner has ADLH equal to one; and the household as a whole is defined to have IADLH equal to one if either the head or partner has IADLH equal to one.

Combining all four dummy variables – POOR, WORSE, ADLH and IADLH, there are 16 possible cells and each household falls in one and only one cell. Table 1 shows the number of households in each cell for wave 1, separately for married and not married households, only for those household for which the head and partner have at least one child (either from current or previous marriages). There are too few observations in certain cells for us to be able to estimate wealth and income effects separately for each cell. Thus we have chosen to group certain cells together, creating five distinct groups. The first group includes households for which all four dummies are zero – these are households in which the head and partner (if present) report no ill health or health-related limitations. This group includes the majority of households for both the married and not married groups. The second group includes households for which the WORSE dummy is one, so that health has deteriorated for at least one of head and partner, but all other dummies are zero, so that there are no limitations reported and neither head nor partner is reported to be in poor health. One might expect these households to behave similarly to the first group, but it is possible that the psychological effects of feeling in worse health may influence giving. The third group includes households for which POOR is zero, but at least one of ADLH and IADLH are one (WORSE can be either zero or one). These households have made relatively optimistic self-reports about their health, but do suffer from limitations in daily living. The fourth group includes households for which POOR is equal to one and both ADLH and IADLH are zero; these are households for which at least one of the head or partner is in

poor health, but there are no limitations reported (WORSE can be either zero or one). The fifth group includes households for which POOR is one and at least one of ADLH and IADLH is one (WORSE can be either zero or one). These are households for which at least one of the head or partner is in poor health and at least one has limitations of daily living. In general, our grouping emphasizes overall self-reported health status, measured by the variable POOR, and deemphasizes reported deteriorations in health measured by WORSE. In terms of life expectancy and expected future medical costs POOR seems more fundamental than WORSE. We have made some distinctions based on functional limitations because these are likely to affect both medical costs and psychological feelings of helplessness that may influence gift-giving. For married households, 57% fall in group 1, 11% in group 2, 18% in group 3, 4% in group 4 and 10% in group 5. For not married, 58% fall in group 1, 10% in group 2, 17% in group 3, 6% in group 4 and 9% in group 5.

Thinking that five is a large number of groups we have also estimated models with a simpler specification in which we divide households into two groups, those with POOR equal to zero – combining groups 1, 2 and 3 above, and those with POOR equal to one – combining groups 4 and 5.

We have also investigated the affect of specific diseases on gift-giving, in particular cancer and a recent heart attack, but do not report results including variables representing these disease states below.

The dependent variable in our models is based on the total value of all gifts reported to have been made to children in the preceding 12 months. In certain models we focus on households which made at least one gift above their gift tax filing threshold, which in 1993-94 was $10,000 for unmarried and $20,000 for married households. In wave 1 of AHEAD 27% of households report having made gifts and 1.5% report having made gifts above their gift tax threshold. Table 2 shows the distribution of the value of total gifts to children for those households reporting such gifts – the average value is above $4,000 and most households report making gifts greater than $1,000.

IV. Empirical results

Tables 3 and 4 report results for wave 1 of estimation of probit models in which the dependent variable is a dummy that equals one if GIFT, the total of all gifts made to children in the previous 12 months, is greater than zero. The models are estimated only

over households that have at least one child and is estimated separately for households in which the head has a partner and for those in which he or she does not report having a partner. Table 3 reports results for the 5 groups defined above, table 4 for the simpler 2 group specification.

The results are broadly consistent across all 4 models for which estimates are reported. In all models each of wealth and income is postively and significantly related to gift-giving for all health groups. In addition, in all models there is a general tendency for the coefficients measuring the slopes relating wealth and income to gift-giving to increase as health deteriorates. For example, for married households and the five group model, the coefficient relating wealth to gift-giving is 3.6E-7 for group 1 and rises to 2.2E-6 for group 5, and the coefficient relating income to gift-giving is 2.4E-6 for group 1 and rises to 1.7E-5 for group 5. For the two group simplified model these coefficents are 4.1E-7 for the encompassing group 1 1.9E-6 for the encompassing group 2 for wealth, and 2.2E-6 and 2.2E-5 for income. Results are similar for the unmarried households. We have examined average values of wealth and income in the various health groups for each of married and not married households and found that the averages are quite similar, so this is not driving these results. Interestingly, the trend for the intercept terms across the health groups moves in the opposite direction. Thus for married households for the give group model the overall intercept (associated with group 1) is -1.34 and this is incremented by -.009 for group 2, -.29 for group 3, -1.33 for group 4 and -.83 for group 5. For the two group model, the intercept is -1.45 and is incremented by -.88 for the second encompassing group. The combined findings for slope and intercept indicate that giving falls for lower wealth and income levels as health deteriorates, but rises at a faster rate as wealth and income increase. It is interesting to note that income has as large an impact on gift-giving at wealth. The median income reported for married households is $23,475 and for unmarried is 13,000, while median wealth is $132,850 and 47,000. Evaluated at these median values and for representative values of the control variables, the elasticities measuring the extent to which a 10% increase of either income or wealth increases the likelihood of giving a gift are presented in Appendix A for groups 1 through 5.

The control variables also have expected signs and are generally very significant. Thus the propensity to give a gift rises with educational attainment, is less for households in which the head is non-white, is greater for those that own their own home, and is greater for households that have report having established at least one trust fund.

Table 5 reports results for wave 1 of probit models in which the dependent variable is a dummy that equals one if the household reports having made at least one gift above the gift tax filing threshold. In the specification we report we pool married and not married households and include a dummy for marital status, and work with only the two health group model. In general, we found these models more difficult to estimate, most likely because there are not that many households reporting making such gifts. In terms of results, we have found that in many specifications the coefficient relating wealth to gift-giving is negative, which is certainly counter-intuitive, particularly for such large gifts. The coefficients relating income to gift-giving are positive and increase with deteriorating health, as for the general gift model. In addition, the intercepts do rise with deteriorating health, again similar to the general gift model, but rise only a very slight amount. It is possible that characteristics of the recipient are more important in determining the making of large gifts and this is something we need to explore further. This also may reflect the fact that outliers – very large gifts – are driving the probit large gift estimations.

Tables 6 and 7 report results of estimating tobit models of gift-giving in which the dependent variable is the total value of all gifts to children. Again, we estimate separate models for married and not married households and for the 5 health groups and simpler 2 health groups specifications. The results for these models are similar to those for the probit for gift-giving. In any event, again the Tobit coefficients relating income and wealth to gift-giving are always positive and typically become larger as health deteriorates.

V. Mortality Estimates

There is a voluminous literature on the relationship between socioeconomic status and mortality – for a review see Feinstein (1993). Much of this literature measures economic status in terms of income and occupation; the literature that explicitly considers the influence of wealth on mortality is much smaller. Gift-giving must be considered part of an integrated resource transfer planning strategy for an elderly household that includes plans for estate transfer at death. It therefore can be expected that expected mortality will influence gift-giving in later life. Estimates of the relationship between wealth and mortality are important for controlling for the influence of mortality on gift-giving, and are also important for policy debates about estate and gift taxes. In this section we report results of estimating mortality models using household information from wave 1 of

AHEAD and information recorded in wave 2 about deaths of respondents that occurred between waves 1 and 2. In the next section we present a model that jointly specifies equations for mortality and gift-giving, allowing us to explore and control for correlations between the stochastic disturbances in these equations, in particular representing mortality risk that is known to household members in wave 1 but not recorded in the AHEAD wave 1 data.

We have investigated numerous alternative specifications of mortality, focusing on various models of the relationship between household wealth and mortality. We have found that traditional specfications do a poor job of estimating the influence of wealth on mortality, especially among wealthy households. This seems to be because there are relatively few of these households, and therefore models that simply allow for a linear effect of wealth on mortality risk, or even more flexible models that include linear, quadratic, and cubic powers of wealth in mortality models, tend to overpredict the protective effects of wealth at high wealth values, generally predicting near-zero mortality risk above high, but not excessive wealth values. This is important, especially for studies of gift-giving and estate transfer, since it is wealthy households that tend to make the largest gifts and leave – obviously – the largest estates at death.

To address the difficulties of traditional parametric specifications of the effect of wealth on mortality we have developed spline models in which the effect of wealth on mortality is allowed to differ between low and high wealth households. We have found these models to be much more successful at generating realistic predictions about the effect of increases in wealth on reduction in mortality risk at higher wealth values.

We estimate models separately for males and females. The relatively small number of deaths in AHEAD between waves 1 and 2 – slightly less than 800 – forces us to group married and not married individuals of each sex together, though we do specify a relatively risk specification allowing for a variety of interactions among age, marital status, wealth, and race. There are a significant number of individuals with negative wealth; we include them, but specify separate dummy variables for negative wealth (NEGW) and for the interaction of having negative wealth with age, and with being married. We specify a spline by setting a knot at $200,000, defining WLOW to be equal to household wealth if wealth is above zero but below the knot, and defining WHIGH to be equal to household wealth if wealth is above the knot. We fit three separate knots – one for wealth by itself, one for wealth interacted with age, and the last for wealth interacted with marital status;

for each, we insure that the effect of the variable on mortality is continuous at the knot, but allow a discontinuity in the derivative at this point.

Results for our models are presented in tables 8a for females and 8b for males.

VI. Panel Model

Most theories of gift-giving are likely to predict that gift-giving is likely to be correlated across time periods; at least some, for example those based on the tax advantages of giving, predict that gift-giving should be correlated with the probability of mortality, for upon death assets are transferred to children and, for estates above a tax threshold, tax is owed. In this section we present a model that allows joint estimation of gift-giving across two time periods and the mortality risk between the two periods. The model involves a considerable number of different cases – each corresponding to a given likelihood – and therefore we introduce some notation to simplify the exposition. Let $BCDF(X_1, X_2, \rho)$ refer to the bivariate standard normal cumulative distribution function with correlation ρ, and let $TCDF(X_1, X_2, X_3, \rho_{12}, \rho_{13}), \rho_{23})$ refer to the trivariate standard normal cumulative distribution function with pairwise correlations ρ_{12}, ρ_{13}, and ρ_{23}.

Consider first the simpler case of a household with a head who does not have a partner. Let G_1 be an indicator variable for whether or not the household reports making a gift in period 1, X_1 be independent variables for period 1, β_1 a parameter vector, G_2 be an indicator variable for whether the household makes a gift in period 2, X_2 independent variables for period 2, and β_2 a parameter vector; let D be an indicator variable for whether the head dies between periods 1 and 2, Z be independent variables associated with risk of mortality, and γ be the associated parameter vector. Assume that for each of these three dependent variables a probit model is specified and let the stochastic disturbances be denoted ϵ_1, ϵ_2, and δ. We assume that ϵ_1 and *delta* have correlation ρ_1 and that ϵ_1 and ϵ_2 have correlation ρ_2; we assume that δ and ϵ_2 are not correlated, which is valid if a person who lives to period 2 considers only current variables in making his decision about whether or not to make a gift, not his past mortality risk. There are six separate possible cases, each with an associated likelihood.

1. $G_1 = 1$, $D = 0$, $G_2 = 1$. The associated likelihood is $TCDF(X_1\beta_1, -Z\gamma, X_2\beta_2, -\rho_{12}, \rho_{13})$.
2. $G_1 = 1$, $D = 0$, $G_2 = 0$. The likelihood is $TCDF(X_1\beta_1, -Z\gamma, -X_2\beta_2, -\rho_{12}, -\rho_{13})$.
3. $G_1 = 0$, $D = 0$, $G_2 = 1$. The likelihood is $TCDF(-X_1\beta_1, -Z\gamma, X_2\beta_2, \rho_{12}, -\rho_{13})$.
4. $G_1 = 0$, $D = 0$, $G_2 = 0$. The likelihood is $TCDF(-X_1\beta_1, -Z\gamma, -X_2\beta_2, \rho_{12}, -\rho_{13})$.
5. $G_1 = 1$, $D = 1$. The likelihood is $BCDF(X_1\beta_1, Z\gamma, \rho_1)$.
6. $G_1 = 0$, $D = 0$. The likelihood is $BCDF(-X_1\beta_1, Z\gamma, -\rho_1)$.

Households in which the head has a partner are more complex, because we must consider possible mortality of each of the head and partner between the two periods. There turn out to be 14 separate cases to consider in this situation. We let ρ_1 refer to the correlation between gift-giving in wave 1 and mortality of the head, ρ_2 refer to the correlation between gift-giving in wave 1 and mortality of the head's partner, ρ_3 refer to the correlation between mortality of head and partner, and ρ_4 refer to correlation between gift-giving in waves 1 and 2; the correlations between mortality and gift-giving in wave 2 are assumed to be zero. In addition, we let Z_H refer to variables influencing mortality risk for the head, with γ_H the associated parameter vector, and Z_P refer to variables influencing mortality risk for the head's partner, with γ_P the associated parameter vector.

We will describe four representative cases, leaving the reader to work out the remainder. The first case is $G_1 = 0$, $D_H = 1$ and $D_P = 0$ – the household does not make a gift in wave 1, and both head and partner die between waves 1 and 2; the likelihood in this case is $TCDF(X_1\beta_1, Z_H\gamma_H, Z_P\gamma_P, \rho_1, \rho_2, \rho_3)$. The second case is $G_1 = 1$, $D_H = 0$, $D_P = 0$, and $G_2 = 1$. Define

$$\lambda = \frac{\phi(-X_1\beta_1)}{\Phi(X_1\beta_1)}$$

$$ARG_2 = \frac{X_2\beta_2 + \rho_4\lambda}{\sqrt{1-\rho_4^2}}$$

$$\hat{\rho_1} = \sqrt{1-\rho_1^2}$$

$$\hat{\rho_2} = \sqrt{1-\rho_2^2}$$

$$\hat{\rho_3} = \frac{\rho_3 - \rho_1\rho_2}{\hat{\rho_1}\hat{\rho_2}}$$

The likelihood for the second case is

$$\Phi(X_1\beta_1)\Phi(ARG_2)BCDF(-Z_H\gamma_H + \rho_1\lambda, -Z_P\gamma_P + \rho_2\lambda, \hat{\rho_1}, \hat{\rho_2}, \hat{\rho_3})$$

The third case is $G_1 = 0$, $D_H = 0$, $D_P = 0$ and $G_2 = 0$. Define λ the same as for the second case, and define ARG_2 as

$$ARG_2 = \frac{X_2\beta_2 - \rho_4\lambda}{\sqrt{1-\rho_4^2}}$$

The likelihood for the third case is

$$\Phi(-X_1\beta_1)(1-\Phi(ARG_2))BCDF(-Z_H\gamma_H - \rho_1\lambda, -Z_P\gamma_P - \rho_2\lambda, \hat{\rho_1}, \hat{\rho_2}, \hat{\rho_3})$$

The fourth case is $G_1 = 0$, $D_H = 1$, $D_P = 0$ and $G_2 = 1$. Note that in this case the marital status of the household changes between the two waves, from married to not married, widowed. Define λ the same as for the second case, and define ARG_2 the same as for the third case. The likelihood for the fourth case is

$$\Phi(-X_1\beta_1)(\Phi(ARG_2))BCDF(Z_H\gamma_H + \rho_1\lambda, -Z_P\gamma_P - \rho_2\lambda, \hat{\rho_1}, \hat{\rho_2}, \hat{\rho_3})$$

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TABLE 1A
THE NUMBER OF MARRIED HOUSEHOLDS
IN 16 POOR-WORSE-ADLH-IADLH CELLS

		POOR=0		POOR=1	
		IADLH=0	IADLH=1	IADLH=0	IADLH=1
WORSE=0	ADLH=0	1,240	72	36	12
	ADLH=1	91	90	15	47
WORSE=1	ADLH=0	244	37	44	17
	ADLH=1	44	61	32	86

TABLE 1B
THE NUMBER OF NOT MARRIED HOUSEHOLDS
IN 16 POOR-WORSE-ADLH-IADLH CELLS

		POOR=0		POOR=1	
		IADLH=0	IADLH=1	IADLH=0	IADLH=1
WORSE=0	ADLH=0	1,709	91	78	17
	ADLH=1	117	115	35	41
WORSE=1	ADLH=0	294	19	85	26
	ADLH=1	70	76	53	95

TABLE 1AX
THE NUMBER OF MARRIED HOUSEHOLDS
IN 5 HEALTH GROUPS

		POOR=0		POOR=1	
		IADLH=0	IADLH=1	IADLH=0	IADLH=1
WORSE=0	ADLH=0	GROUP1 1,240	GROUP3 395	GROUP4 36	GROUP5 209
	ADLH=1				
WORSE=1	ADLH=0	GROUP2 244		GROUP4 44	
	ADLH=1				

TABLE 1BX
THE NUMBER OF NOT MARRIED HOUSEHOLDS
IN 5 HEALTH GROUPS

		POOR=0		POOR=1	
		IADLH=0	IADLH=1	IADLH=0	IADLH=1
WORSE=0	ADLH=0	GROUP1 1,709	GROUP3 488	GROUP4 78	GROUP5 267
	ADLH=1				
WORSE=1	ADLH=0	GROUP2 294		GROUP4 85	
	ADLH=1				

TABLE 2A
THE PATTERN OF GIVING GIFTS TO CHILDREN
BY HOUSEHOLD TYPE
AMONG HOSEHOLDS HAVING AT LEAST ONE CHILD

	TOTAL	NO GIFT	AT LEAST ONE GIFT	AT LEAST ONE EXACT GIFT	AT LEAST ONE BIG GIFT
MARRIED HOUSEHOLD	2,186	1,477	691	14	24
UNMARRIED HOUSEHOLD	2,921	2,335	586	47	39
ALL HOUSEHOLD	5,089	3,812	1,277	61	63

TABLE 2B
THE DISTRIBUTION OF THE VALUE OF TOTAL GIFTS
BY HOUSEHOLD TYPE
AMONG HOUSEHOLDS REPORTING SUCH GIFTS

	ALL HOUSEHOLD	MARRIED HOUSEHOLD	NOT MARRIED HOUSEHOLD
GIFT <=$100	4	3	1
$100<GIFT<=$500	199	95	104
$500<GIFT<=$1,000	280	153	127
$1,000<GIFT<=$2,000	257	144	113
$2,000<GIFT<=$5,000	258	135	123
$5,000<GIFT<=$8,000	76	49	27
$8,000<GIFT<=$10,000	83	44	39
$10,000<GIFT<=$20,000	68	35	33
$20,000<GIFT<=$50,000	44	30	14
GIFT >$50,000	8	3	5
All Values	1,277	691	586

TABLE 3
AHEAD WAVE 1 FIVE-GROUP PROBIT MODEL ESTIMATES
OF GENERAL GIFT GIVING

	Married Household	Not Married Household
INTERCEPT	-1.3459719 (0.002774)*	-1.5198266 (0.002047)*
SOUTH	0.05713016 (0.001217)*	-0.0715058 (0.001211)*
URBAN	0.07566674 (0.001244)*	0.08206852 (0.001239)*
OWNHOME	0.17485846 (0.001311)*	0.17592728 (0.001148)*
NONWHITE	-0.0849513 (0.002574)*	-0.0573724 (0.001869)*
TRUSTD	0.03350263 (0.001928)*	0.19990911 (0.00214)*
HSCHOOL	0.17089231 (0.001394)*	0.15461288 (0.00135)*
EDU13_15	0.2120216 (0.001737)*	0.46485735 (0.001601)*
COLLEGE	0.33859404 (0.00222)*	0.43491717 (0.002432)*
POST	0.38275684 (0.002563)*	0.47659095 (0.002708)*
COG	0.01847266 (0.000104)*	0.01440286 (0.00007)*
TIMEH	0.00195736 (0.000041)*	-0.0029825 (0.000036)*
GROUP2	-0.0091757 (0.002586)*	-0.0740685 (0.002633)*
GROUP3	-0.2935958 (0.002088)*	-0.284859 (0.002553)*
GROUP4	-1.3278709 (0.008639)*	-0.3613601 (0.004053)*
GROUP5	-0.8298493 (0.004217)*	-0.3143845 (0.003517)*
WEALTH*GROUP1	3.6726E-7 (1.65E-9)*	4.30371E-7 (2.787E-9)*
WEALTH*GROUP2	3.8267E-7 (4.306E-9)*	7.33327E-7 (7.675E-9)*
WEALTH*GROUP3	8.14648E-7 (4.849E-9)*	1.42789E-6 (7.678E-9)*
WEALTH*GROUP4	1.59838E-6 (1.977E-8)*	1.56566E-6 (2.23E-8)*
WEALTH*GROUP5	2.18072E-6 (1.436E-8)*	1.75662E-6 (2.299E-8)*
INCOME*GROUP1	2.38607E-6 (2.317E-8)*	5.87622E-6 (3.086E-8)*
INCOME*GROUP2	3.31198E-6 (5.935E-8)*	0.0000103 (8.461E-8)*
INCOME*GROUP3	1.09503E-6 (3.029E-8)*	3.00466E-6 (7.766E-8)*
INCOME*GROUP4	0.00003952 (3.417E-7)*	0.00001609 (1.619E-7)*
INCOME*GROUP5	0.00001663 (1.568E-7)*	0.00001866 (1.33E-7)*
Number of Observations	2,168	2,921
Log Likelihood for Normal	-3642595.883	-3578442.173

TABLE 4
AHEAD WAVE 1 TWO-GROUP PROBIT MODEL ESTIMATES
OF GENERAL GIFT GIVING

	Married Household	Not Married Household
INTERCEPT	-1.4488909 (0.002652)*	-1.6015597 (0.001911)*
SOUTH	0.05550133 (0.001211)*	-0.0743102 (0.001206)*
URBAN	0.07481116 (0.001237)*	0.07675222 (0.001233)*
OWNHOME	0.18609106 (0.001304)*	0.19507447 (0.001139)*
NONWHITE	-0.095173 (0.00256)*	-0.0630308 (0.001862)*
TRUSTD	0.04306478 (0.001901)*	0.19103953 (0.002121)*
HSCHOOL	0.18210196 (0.001386)*	0.15878473 (0.001341)*
EDU13_15	0.23362562 (0.00172)*	0.4750974 (0.001589)*
COLLEGE	0.35074877 (0.002201)*	0.43850921 (0.002398)*
POST	0.4042489 (0.002532)*	0.48891859 (0.002694)*
COG	0.02024008 (0.000102)*	0.01604435 (0.000068)*
TIMEH	0.00120042 (0.000042)*	-0.0038737 (0.000034)*
GROUP2	-0.8750186 (0.003649)*	-0.2721707 (0.002662)*
WEALTH*GROUP1	4.13836E-7 (1.557E-9)*	5.62054E-7 (2.605E-9)*
WEALTH*GROUP2	1.90932E-6 (1.126E-8)*	1.45445E-6 (1.563E-8)*
INCOME*GROUP1	2.1886E-6 (1.732E-8)*	5.84569E-6 (2.678E-8)*
INCOME*GROUP2	0.00002196 (1.343E-7)*	0.00001826 (1.016E-7)*
Number of Observations	2,168	2,921
Log Likelihood for Normal	-3660443.108	-3600072.684

TABLE 5 AHEAD WAVE 1 TWO-GROUP PROBIT MODEL ESTIMATES OF GIVING TAXABLE GIFTS	
INTERCEPT	-2.844799 (0.00412)*
MARRIED	-0.3783876 (0.00215)*
SOUTH	0.10831892 (0.002124)*
URBAN	0.1513063 (0.002455)*
OWNHOME	0.0889617 (0.002242)*
NONWHITE	-0.2381824 (0.00215)*
TRUSTD	0.42095873 (0.002667)*
HSCHOOL	0.29869321 (0.002846)*
EDU13_15	0.43199518 (0.003136)*
COLLEGE	0.55316422 (0.003752)*
POST	0.65566731 (0.00385)*
COG	0.0058688 (0.000145)*
TIMEH	-0.0112936 (0.000216)*
GROUP2	-0.026301 (0.00415)*
WEALTH*GROUP1	-6.3116E-8 (1.85E-9)*
WEALTH*GROUP2	-3.7785E-7 (1.522E-8)*
INCOME*GROUP1	3.17645E-6 (2.108E-8)*
INCOME*GROUP2	0.00001404 (1.137E-7)*
Number of Observations	5,089
Log Likelihood for Normal	-886598.8562

TABLE 5X AHEAD WAVE 1 ALTERNATIVE TWO-GROUP PROBIT MODEL ESTIMATES OF GIVING TAXABLE GIFTS	
INTERCEPT	-4.983697 (0.013434)*
MARRIED	-0.4044636 (0.002126)*
SOUTH	0.09292044 (0.002142)*
URBAN	0.13613071 (0.002492)*
OWNHOME	0.03314039 (0.002494)*
NONWHITE	-0.1746689 (0.002126)*
TRUSTD	0.30127656 (0.002683)*
HSCHOOL	0.25151686 (0.002863)*
EDU13_15	0.36825874 (0.003133)*
COLLEGE	0.46477399 (0.003823)*
POST	0.58025276 (0.003815)*
GROUP2	-3.2716547 (0.04136)*
LN(WEALTH)*GROUP1	0.00301671 (0.000792)*
LN(WEALTH)*GROUP2	0.08510265 (0.00216)*
LN(INCOME)*GROUP1	0.24359177 (0.001475)*
LN(INCOME)*GROUP2	0.49837244 (0.00435)*
Number of Observations	4,620
Log Likelihood for Normal	-875640.4517

TABLE 6
AHEAD WAVE 1 FIVE-GROUP TOBIT MODEL ESTIMATES
OF GENERAL GIFT GIVING

	Married Household	Not Married Household
INTERCEPT	-14906.402 (29.4132)*	-17716.452 (24.59652)*
SOUTH	337.407567 (12.21575)*	-527.74101 (13.13706)*
URBAN	864.345976 (12.71676)*	1124.9355 (13.60822)*
OWNHOME	1705.87894 (13.49383)*	2262.50391 (12.47657)*
NONWHITE	-1435.0017 (26.94221)*	-960.8765 (20.66679)*
TRUSTD	1796.21974 (17.49802)*	3217.0445 (20.72502)*
HSCHOOL	1782.8057 (14.35926)*	2024.47524 (14.87567)*
EDU13_15	2352.8353 (17.6051)*	4382.55431 (17.43872)*
COLLEGE	3937.13456 (21.84324)*	5288.59093 (25.52953)*
POST	3906.2132 (24.68492)*	7031.31935 (27.62022)*
COG	126.10867 (1.057704)*	164.683648 (0.770712)*
TIMEH	14.9947472 (0.424897)*	-38.255856 (0.412713)*
GROUP2	-912.73139 (25.6302)*	-1395.5791 (26.37506)*
GROUP3	-1774.9607 (20.16016)*	-3272.476 (27.28148)*
GROUP4	-6332.5038 (52.28083)*	-5768.6403 (45.05446)*
GROUP5	-5705.6304 (33.78489)*	-2818.8938 (34.76552)*
WEALTH*GROUP1	0.00170038 (9.705E-6)*	0.00064998 (0.000019)*
WEALTH*GROUP2	0.00191423 (0.000027)*	0.00574062 (0.000074)*
WEALTH*GROUP3	0.00503724 (0.000039)*	0.01230325 (0.000056)*
WEALTH*GROUP4	0.00176598 (0.000134)*	0.00404685 (0.000244)*
WEALTH*GROUP5	0.01424952 (0.00011)*	0.00551518 (0.000169)*
INCOME*GROUP1	0.06231513 (0.000212)*	0.03888853 (0.000286)*
INCOME*GROUP2	0.0775112 (0.000556)*	0.11374434 (0.000733)*
INCOME*GROUP3	0.03351092 (0.000271)*	0.03471011 (0.000862)*
INCOME*GROUP4	0.23217212 (0.001585)*	0.32719749 (0.001698)*
INCOME*GROUP5	0.13217212 (0.000948)*	0.17203234 (0.001258)*
Number of Observations	2,168	2,921
Log Likelihood for Normal	-24366560.19	-20183085.31

TABLE 7 AHEAD WAVE 1 TWO-GROUP TOBIT MODEL ESTIMATES OF GENERAL GIFT GIVING		
	Married Household	Unmarried Household
INTERCEPT	-15759.23 (28.48882)*	-18767.098 (23.85843)*
SOUTH	368.306983 (12.1957)*	-574.01109 (13.23991)*
URBAN	913.293781 (12.67036)*	1170.58518 (13.74676)*
OWNHOME	1774.66653 (13.46363)*	2575.17198 (12.53579)*
NONWHITE	-1530.9336 (26.89071)*	-1161.9547 (20.84079)*
TRUSTD	1902.46813 (17.29341)*	3779.24512 (20.761)*
HSCHOOL	1863.3915 (14.35961)*	2053.26786 (14.96043)*
EDU13_15	2577.44347 (17.51577)*	4615.37776 (17.55106)*
COLLEGE	4186.86872 (21.76297)*	5636.03252 (25.40838)*
POST	4142.83998 (24.44845)*	6938.90112 (27.92058)*
COG	145.107027 (1.04999)*	184.613912 (0.755854)*
TIMEH	8.03856511 (0.428375)*	-50.509227 (0.403454)*
GROUP2	-5391.5809 (28.38964)*	-3400.1309 (28.04923)*
WEALTH*GROUP1	0.00199364 (9.051E-6)*	0.00114918 (0.000018)*
WEALTH*GROUP2	0.0089573 (0.000086)*	0.00368268 (0.000141)*
INCOME*GROUP1	0.05433935 (0.000156)*	0.04191318 (0.000256)*
INCOME*GROUP2	0.16292305 (0.000806)*	0.23575823 (0.001026)*
Number of Observations	2,168	2,921
Log Likelihood for Normal	-24381767.04	-20225508.39

TABLE 8A AHEAD WAVE 1 – WAVE 2 MORTALITY PROBIT ESTIMATES OF MALE RESPONDENTS	
INTERCEPT	-0.839460 (0.0053)*
AGE	0.069526 (0.0006)*
AGESQ	-0.000652 (0.0001)*
NONWHITE	-0.028110 (0.0029)*
MARRIED	-0.342240 (0.0044)*
WIDOWED	-0.286620 (0.0028)*
NEGW	-0.629590 (0.0336)*
WLOW	-0.000122 (0.0001)*
WLOWSQ	0.000004 (0.0000)*
WHIGH	-0.000668 (0.0000)*
AGE*WLOW	-0.000001 (0.0000)*
AGE*WHIGH	-0.000002 (0.0000)*
AGE*MARRIED	0.000721 (0.0002)*
MARRIED*WLOW	-0.000542 (0.0000)*
MARRIED*WHIGH	0.000696 (0.0001)*
NONWHITE*AGE	-0.000118 (0.0001)*
NONWHITE*NEGW	0.000071 (0.0000)*
MARRIED*NEGW	-0.399290 (0.0212)*
AGE*NEGW	0.008383 (0.0017)*
Number of Observations	2,812
Mean Log-Likelihood	-505.070

TABLE 8B AHEAD WAVE 1 – WAVE 2 MORTALITY PROBIT ESTIMATES OF FEMALE RESPONDENTS	
INTERCEPT	-1.114310 (0.0039)*
AGE	0.037399 (0.0004)*
AGESQ	-0.000068 (0.0001)*
NONWHITE	0.015953 (0.0022)*
MARRIED	0.092547 (0.0038)*
WIDOWED	0.108211 (0.0023)*
NEGW	-0.166110 (0.0116)*
WLOW	-0.001540 (0.0000)*
WLOWSQ	0.000004 (0.0000)*
WHIGH	-0.001151 (0.0000)*
AGE*WLOW	-0.000011 (0.0000)*
AGE*WHIGH	0.000057 (0.0000)*
AGE*MARRIED	0.000332 (0.0002)*
MARRIED*WLOW	-0.000773 (0.0000)*
MARRIED*WHIGH	0.000049 (0.0000)*
NONWHITE*AGE	0.001685 (0.0000)*
NONWHITE*NEGW	-0.000048 (0.0000)*
MARRIED*NEGW	0.514630 (0.0094)*
AGE*NEGW	-0.002461 (0.0007)*
Number of Observations	4,704
Mean Log-Likelihood	-391.568