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Widow Poverty and Out-of-Pocket Medical Expenditures at the End of Life

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Abstract:

Elderly widows are three times as likely to live in poverty as older married people. This study investigates this gap, as well as the gap in wealth and income more generally, using national panel data from the 1990s in the United States. It is found that 44 percent of the difference in economic status between widows (and widowers) and married elderly is due to differences in economic status that existed between the groups prior to widowhood. The remaining 56 percent is due to issues more directly related to the death of a spouse including the loss of income and expenses associated with dying. This study examines the role of out-of-pocket medical expenditures of the deceased spouse in contributing to the poor financial status of elderly widows. On average, out-of-pocket medical expenditures in the final two years of life are equal to 30 percent of the couple's annual income. For couples in the bottom quarter of the income distribution, these expenditures are 70 percent of their income. These analyses show that the purchase of health care services for a dying spouse does drive some surviving spouses into poverty. Our estimates indicate that of the 56 percent increase in poverty that is due to widowhood, one-quarter can be attributed to end of life out-of-pocket health care expenditures..

Widow Poverty and Out-of-Pocket Medical Expenditures at the End of Life

I. INTRODUCTION

There have been tremendous improvements in the poverty rate of the elderly in the United States during the last 50 years. Today, the old-age poverty rate is less than one-third of what it was in the middle of the 20th Century. While much of the change took place in the first half of this period, there has been a noticeable decline even in the last 10-20 years (Figure 1). In the late 1970s about 15 percent of people 65 and older had incomes below the poverty line; the figure dropped to roughly 12 percent by the late 1980s. The most recent estimates – from 2000 - show that the poverty rate has fallen to 10.2 percent; a decline of over 30 percent in the last 20 years.

Despite these declines in poverty, poverty rates among widows remain disproportionately high. Since at least the 1970s, the poverty rate has been roughly three times higher for elderly widows than for elderly married women (Figure 2). In 1996 nearly 20 percent of elderly widows lived in poverty compared to just over 5 percent of married women. While policy makers have repeatedly expressed concern about these high rates, successful policy prescriptions have yet to be adopted. Obviously the more that is known about the causes and characteristics of poverty among widows' the better targeted public policy can be.

One possible explanation for these high rates of poverty that has received little attention is the potential for couples to spend substantial portions of their wealth on the health care of a sick or dying spouse. When the ill spouse dies, the survivor is left with fewer assets than they had anticipated, putting them at greater risk of becoming poor. Although this hypothesis has never been examined directly, the claim is salient because of the virtual consensus that Medicare, the primary source of health insurance for most elderly, provides inadequate or outdated benefits including, most notably, the failure to cover extended hospital stays, prescription drugs, or long-term care. Although many couples have health insurance that supplements Medicare, a sizable portion is vulnerable to catastrophic expenditures.

Currently the Medicare program is under severe financial strain, and there are thus limits to the types of benefit expansions that can be undertaken. However, benefits that fill an important void and significantly improve the financial status of beneficiaries ought not to be dismissed out of hand. In this paper we study the out-of-pocket medical expenditures (OOPME) of elderly couples immediately preceding the death of one spouse. We first examine

the size of OOPME, especially in relationship to the couple's income and wealth. We then focus on the effects of these expenditures on the financial well-being of the surviving spouse.

Previous studies have concluded that the major factors responsible for the disproportionately high rate of poverty among widows are the financial status of the couple prior to widowhood and the loss of income associated with the death of a spouse. We investigate these issues using more recent data and focus much of our attention on the role of OOPME incurred by the dying spouse.

We find that OOPME per individual are substantial, averaging $11,000 over the last 2 years of life. These expenditures are 60 percent greater than the expenditures made during the same period by similarly aged people who did not die during our window of observation. For lower income elderly, OOPME are very large relative to income and wealth and potentially have a substantial effect on the finances of the surviving spouse. Simulations imply that one-quarter of the 56 percent increase in poverty that is associated with widowhood can be attributed to out-of-pocket health care expenditures that were spent on the widow's dying spouse. We therefore argue that such expenses should play a more prominent role in policy discussions.

Our study proceeds as follows. Section II provides background information on the explanations for why widow poverty is so high. This section also describes the Medicare program and its gaps in coverage. Section III describes the Asset and Health Dynamics Study and the data that we use for our analysis. The empirical analyses of OOPME and other factors affecting the finances of the surviving spouse are contained in sections IV and V. The final section summarizes the findings.

II. BACKGROUND

Several explanations for disproportionately high poverty among widows have been advanced in the literature, but much of the difference remains unaccounted for. The most widely cited explanation is that the high poverty rate derives from differential mortality by financial status. Because poor people have shorter life expectancies than rich people, poor husbands will not live as long as rich husbands. Therefore, at a given age, women who are widowed are more likely to have been poor throughout their lives than those whose spouses are still alive (Holden, Burkhauser, and Myers, 1986; Weir, Willis, and Sevak, 2000).

Another obvious explanation is the reduction in income following the death of a spouse. By law, Social Security benefits are reduced, typically by 33 percent, when one spouse dies while the poverty line falls by just over 20 percent.[1] One proposal would address this discrepancy by increasing the benefits paid to a surviving spouse from 67 percent to 75 percent (Burkhauser and Smeeding, 1994). Furthermore, some private pensions provide income only for the life of the covered worker and these payments thus cease at his death. Even pensions with joint and survivor provisions often have a reduction in payments when one spouse dies.[2] Finally, if the deceased spouse had been employed, the earnings stream from this source will obviously end. Although we know of no study that has examined the changes in the various components of *income* associated with widowhood, Hurd (1990) examines changes in the components of *wealth* including Social Security and pension wealth. His estimates suggest that 40-50 percent of the fall in wealth associated with the death of a spouse is due to reductions in Social Security, 15 percent is due to changes in pension income, and 10-15 percent is due to changes in bequeathable wealth, including housing wealth.

Our analysis of OOPME near death provides a new avenue for the fall into poverty experienced by so many widows. Previous studies have shown that *total* health care expenditures near death are large (Garber, MaCurdy, and McClellan, 1998); evidence based on Medicare records points to medical spending in the last years of life that is approximately six times larger than medical expenses at other times (Lubitz and Riley, 1993). Furthermore, although nearly all elderly in the United States are covered by Medicare, Medicare does not pay for all potential medical expenses, suggesting that OOPME near death are likely large as well. The most relevant cost-sharing components for the majority of elderly are the $100 deductible

[1] Each spouse in a married couple has the option of collecting Social Security based on their own lifetime earnings history or receiving benefits equal to one-half of those of their spouse. After the death of the first spouse, the survivor will either continue to receive benefits based on their own earnings record or can choose to collect the amount due the deceased spouse. Few women of the cohort that we study have a sufficient earnings history to collect Social Security based on their own employment. The couple's benefit is therefore likely to be equal to 150 percent of the primary insurance amount of the husband and falls to 100 percent of this amount at the death of either spouse. Thus this important source of income typically falls by one-third while the needs standard, as defined by the poverty line, falls by just 20 percent.

[2] Policy makers have long recognized the potential deleterious effects of single life pensions. Both ERISA and REACT represent legislative attempts to encourage the use joint and survivor pensions over single life pensions. We know of no study that has investigated the success of these policies.

for Part B expenses and the 20 percent coinsurance on subsequent expenditures.[3] Because Part B covers doctor visits, nearly all elderly incurred some out-of-pocket expenditure on way to meeting the deductible.[4] However, of perhaps greater importance than the $100 deductible or even the copayment is the potential for elderly Medicare beneficiaries to incur substantial out-of-pocket costs for catastrophic expenses. These extremely large expenditures can come about through several avenues. First, Medicare does not cover all hospital expenditures. Individuals are responsible for a $792 deductible (in 2001) per hospital admission. After that, Medicare pays the entire cost of the stay for stays up to 60 days. From days 61-90 individuals pay a $198 copayment, and from 91-150 a $396 copayment. Beyond day 150, Medicare pays nothing towards medical bills. Although few individuals ever face such extended stays, this lack of catastrophic insurance can leave seriously ill individuals with substantial medical bills.

Second, Medicare lacks a prescription drug benefit. At a time when drugs are being prescribed with increasing frequency, this omission can be costly. Evidence from the 1996 Medicare Current Beneficiary Survey (MCBS) shows that 45 percent of total prescription drug expenditures were paid for out of pocket while only 4 percent were covered by Medicare (Liu, et al, 2000). Furthermore, those in the top 10 percent of out-of-pocket prescription drug expenditures had costs of over $1000. Treatment with some drugs can run into the tens of thousands of dollars.

Finally, and perhaps most importantly, Medicare typically does not cover long-term nursing home stays. Nursing homes are extremely expensive with annual cost of roughly $50,000 and most of this is paid for through out-of-pocket spending or Medicaid.[5] Because of these gaps in Medicare coverage, there is a genuine risk that a severely ill Medicare beneficiary could incur substantial OOPME, perhaps of a magnitude sufficient to diminish the savings of a couple and leave the surviving spouse with few resources to finance consumption during the remaining years of her life.

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[3] The Medicare program consists of two parts, Part A covers hospital expenses and is available without charge to those who have paid into the system during their work lives and their spouses. Part B covers doctor visits. Enrollees pay a premium to purchase Part B coverage. The premium is set to equal to one-quarter of the actuarial value of the coverage.

[4] In wave 1 of AHEAD, 90 percent of respondents had at least one visit to a doctor's office (Hurd and McGarry, 1997).

[5] In 1996, 41 percent of nursing home expenses were paid for by Medicaid and 32 percent with out of pocket funds (Liu, et al, 2000).

Fortunately, not all elderly are left exposed to these potentially catastrophic expenditures. For the poor elderly additional assistance is available through the Medicaid program.[6] Medicaid provides coverage for nearly all of the gaps in Medicare benefits including coverage of long-term care. Those who are not eligible for Medicaid may purchase private insurance (medigap) to fill in these holes or may receive additional insurance through a former employer as part of a retiree benefits package.[7] While medigap plans vary in the specific coverage they provide, all provide coverage for hospital copayments for days 61-150, some subsequent coverage, and the coinsurance for doctor visits. None of the standard medigap policies covers long-term care needs. Coverage for long-term care is available through special long-term care insurance policies but few individuals purchase such policies. Thus, although numerous forms of additional insurance exist, many elderly still face the possibility of substantial uncovered health expenditures.

The 1995 National Academy of Sciences report on poverty argued that healthcare expenditures should be subtracted from income when measuring poverty (Citro and Michael, 1995). Given that OOPME is high among the elderly, this can have a substantial effect on estimates of poverty. One study has concluded that subtracting OOPME from income would lead to elderly poverty rates that are twice as high as the current approach used by the Census Bureau (Johnson and Smeeding, 2000).

III. DATA

The data requirements for this project are extensive. Analysis of the role of OOPME on the financial well-being of the surviving spouse requires information on expenditures of the deceased spouse prior to his death and information on the income and wealth of both the couple and the surviving spouse. One therefore needs a panel data set with a sufficient number of elderly decedents and detailed information on income, wealth, and health care expenditures. The Asset and Health Dynamics (AHEAD) study satisfies these requirements. AHEAD is a

[6] Individuals are eligible to enroll in Medicaid if they have sufficiently low income and assets. The exact levels can vary by state. In states with medically needy programs, individuals can become eligible for Medicaid if their OOPME are sufficiently large even if their financial resources exceed the limits set by the state.

[7] Medigap plans are costly and result in out-of-pocket expenditures not captured in our analysis. In 2000, premiums for the least comprehensive of the standard medigap plans averaged just under $800 and the most comprehensive, over $3000. These costs are not included in our measure of OOPME but should also be borne in mind when assessing the burden of OOPME on family finances.

panel survey of individuals born in 1923 or before, as well as their spouses or partners (Soldo, et al. 1997). When appropriately weighted, the sample is representative of the non-institutionalized population in this age group. AHEAD contains comprehensive information on income, wealth, and health status of respondents as well as data on OOPME. The first wave of interviews was conducted in 1993 when respondents were approximately 70 years old or older, and they are re-interviewed biennially.[8] Importantly for this paper, when a respondent dies, an "exit" interview is conducted to obtain information about the respondent's life since the most recent interview, including medical expenses up until the date of death. The person who completes this proxy interview is typically a spouse, provided the spouse is still alive. If the spouse is unavailable the proxy respondent is a knowledgeable family member or friend.

This study uses wave 1 and wave 2 of AHEAD, and the exit interview. Of particular importance are the data on OOPME. In wave 1, respondents are asked to report total expenditures on goods and services (nursing home, hospital and doctor bills, and any other medical or dental expenses) for the preceding 12 months.[9] To this we add expenditures for health insurance premiums exclusive of Medicare Part B premiums.[10] Evidence suggests that the quality of the data on OOPME is high. Specifically, reports of OOPME in wave 2 of the Health and Retirement Study, which used a very similar set of questions as the AHEAD, correspond closely with reports in the National Medical Expenditures Survey, which is the gold standard for estimates of OOPME (Hill and Mathiowetz, 2000).

For married couples the wave 1 survey does not identify which spouse incurred the costs. To estimate a per person expenditure we simply assign half of the couple's total OOPME to each spouse. Our focus is on married couples in which one spouse died between wave 1 and wave 2. Therefore, it is quite likely that the spouse who died between waves was ill and had

[8] The pattern of biennially interviews was altered in 1997 to carry out a one-time shift to even numbered years.
[9] Data on OOPME in wave 1 were collected in two questions, one focusing solely on nursing home expenses and a second comprehensive question that asked about all other expenses. These two categories were combined to form total OOPME. When the respondent did not know if there were OOPME, the amount was imputed using a two-step procedure. First, we randomly assigned a value of 0 or 1 to each of the "don't knows," with the probability of being assigned a value of 1 equal to the share of the respondents reporting positive OOPME among those who did in fact know if OOPME were incurred. The "don't knows" who were randomly assigned a value of 1 where then assigned a value of OOPME equal to the mean value of OOPME among those respondents who reported positive values. Respondents assigned a value of 0 were assigned an OOPME of zero. Given the skewness of the distribution of OOPME, we also used the median instead of the mean to impute OOPME, but the overall results were similar.
[10] The Medicare Part B premium is $45.50 in year 2000 dollars (House Ways and Means, 2000)

higher health care costs in wave 1 than their spouse who did not die. If this were the case our approach of evenly splitting costs in wave 1 would lead to an underestimate of OOPME in the last years of life.

Because there is no aggregation bias for single respondents we investigate the possible severity of this bias by comparing health care costs in wave 1 for singles who survive to the second wave and those who do not. OOPME in wave 1 were 25 percent larger for singles who died between waves than for those who survived, $2,503 compared to $1,995. For people married in wave 1, the difference in our constructed OOPME in wave 1 was again approximately 25 percent, $2,787 versus $2,211, suggesting that the equal division of wave 1 OOPME does not result in misleading conclusions.

At the exit interview, proxy respondents – typically the spouse -- were asked to report OOPME for the decedent between the time of the wave 1 interview and the time the person died. In this exit interview expenditures were reported solely for the deceased respondent and separately for each of the following categories: nursing home and hospital, hospice, doctor and dental bills, prescription drugs, special services, and all other services. The amount spent on health insurance premiums for the deceased spouse is also reported. Thus, contrary to the wave 1 measure, we have an accurate accounting of the out-of-pocket expenses associated specifically with the decedent as well as a more detailed breakdown of categories than is available in wave 1. We emphasize that these are *not total medical expenditures,* which would include amounts paid by Medicare and other payers, but rather the burden placed on the elderly individual. Here we examine only out-of-pocket costs.

Because the exit interview takes place at or near the time of death, the period of time between wave 1 and the death of the spouse necessarily varies across individuals as the date of death varies. The time elapsed since the wave 1 interview could be as little as one day (if the wave 1- respondent died the day after completing the initial interview) or as much as two years (if the respondent died just prior to the second interview). Although the survey asks the proxy respondents for the date of death of the deceased, this information is not available in the public release version of the AHEAD and we therefore cannot scale expenses by the length of time elapsed since the wave 1 interview. [11]

[11] If the length of time between the first interview and the date of death varies systematically with other characteristics of the deceased our results could be biased. For instance, suppose high-income individuals live

For individuals who die between waves (decedents), we combine total OPPME reported in wave 1 (i.e., one-half of a couple's expenditure) with OOPME reported in the exit interview and call this "OOPME in the last years of life." For people who are married in wave 1 and neither spouse dies (survivors) we combine OOPME for wave 1 and wave 2 and use this total to compare with the end of life expenditures of decedents. The time frame for our total OOPME therefore varies from one to as many as three years prior to death for decedents but always equals three years for survivors. The different length of time over which OOPME is estimated biases our results against finding greater expenditures for decedents relative to survivors. Thus the actual differences are likely *greater* than those we report below. We also look solely at wave 1 expenditures for the two groups to assess the degree to which differences in expenditures are evident well before the date of death. For this comparison the time periods covered by the data are identical and equal to 12 months.

A total of 775 people died between the two waves and had a completed exit interview. [12] Of these 775, 271 were married in wave 1 and had a spouse who survived to wave 2.[13] For many analyses we will compare these 271 decedents with the 3,550 people who were married in wave 1 and remained alive and married to the same person in wave 2.[14] Our analysis of decedents uses observations on both males and females to keep the sample as large as possible, with 74 percent of the 271 decedents being male. Although poverty rates are higher among elderly widows than elderly widowers (19 percent versus 10 percent in 1996 based on the authors' tabulations using the March Current Population Survey), poverty among elderly widowers is twice as high as among elderly married men. The number of observations used to conduct analyses is reported in each table. Finally, all dollar amounts are expressed in 2000 values using the CPI-U.

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longer than low income individuals and are therefore more likely to die towards the end of the two year window. Because those who live longer will likely incur greater OOPME ceteris paribus, we will (incorrectly) conclude that high income individuals spend more on medical care in any period. However, because the window is relatively small, and our initial respondents are in a fairly narrow age range, we do not believe our conclusions are altered by these potential biases.

[12] Sixty-nine respondents were reported to have died but had no exit interview.
Most of the remaining decedents were unmarried in wave 1 and therefore left no widow/er.

[14] We keep observations on each spouse in a surviving couple i.e, each person in a married couple contributes one observation to the analysis.

IV. OUT-OF-POCKET MEDICAL EXPENDITURES IN THE LAST YEARS OF LIFE

Table 1 reports the distribution of OOPME in the last years of life for people married in wave 1, both in total and disaggregated for the two time periods. Because the focus of the study is the effects of OOPME on widows we restrict our sample to those who were married in wave 1. We then report OOPME for two subsamples: married people whose spouse died between waves – decedents -- and married people whose spouse did not die between waves -- survivors. In addition to examining the OOPME of decedents, we will compare the relative expenditures of the two groups.

Almost all people in their last years of life have some OOPME (97.8 percent). In fact, even among survivors the fraction with some OOPME over the two waves approaches one, with 98.9 percent of the survivors having OOPME. However, the magnitude of OOPME is 60 percent higher among decedents relative to survivors. Conditional on spending a positive amount, decedents averaged $11,273 compared to $7,009 for survivors. The vast majority of this difference is driven by the gap in the last year of life as captured by the exit interview. For decedents, the conditional mean in the exit interview was $9,013 while for survivors the wave 2 conditional mean was $4,984. These calculations are an underestimate of the true difference because the wave 2 expenditures for survivors are the total amount of OOPME during the entire two years since wave 1, while OOPME for decedents is measured for the time elapsed between the wave 1 interview and the date they died. This time span is necessarily less than two years. If the date of death is uniformly distributed between the two waves (averaging one year since wave 1), and if expenditures for survivors are also uniformly distributed across the two years, then the more accurate comparison is between the $9,013 one year amount for the decedents and $2,500 (one-half the two year total of $4,984) one year approximation for survivors. Like most medical spending, OOPME is highly skewed. While the conditional mean is $11,273 for decedents, the median is $7,361, the 75th percentile is $13,280, and 10 percent had expenditures of at least $27,124, more than three times the year 2000 poverty line of $8,259 for a single elderly person. The difference between average amounts for decedents and survivors is not the result of a few outliers, but rather runs through the entire distribution; the median, 75th percentile, and 90th percentile for survivor expenditures are all substantially less than the same point in the distribution for decedents.

Table 2 reports OOPME by type of expenditure as reported in the exit interview for decedents and wave 2 for survivors; similar information was not reported in wave 1. Medicare does not cover (most) nursing home stays, prescription drugs, or all physician charges (the $100 deductible and the 20 percent copayment). Therefore, it is not surprising to see that OOPME on these categories is most common. Sixty-nine percent of decedents and 66.4 percent of survivors paid for prescription drugs, a surprisingly similar amount. However, among decedents, the average expenditures were much larger. OOPME for drugs alone among the 66.4 percent with positive expenditures was $4,210 for decedents compared to just $2,992 for survivors. After prescription drugs, the next most common OOPME was for insurance premiums, with 58.6 percent of the decedents and 64.4 percent of survivors making premium payments. The largest difference between decedents and survivors relates to long-term care. Almost one-third of decedents had some nursing home expense with an average cost of $7,723. By comparison only 11 percent of survivors incurred costs for nursing home care and even among this group expenditures were substantially lower than for the decedents averaging just $5,487. Because nursing homes average roughly $50,000 per year, individuals in both groups spent only a fraction of the year in residence, on average, or had other means of funding.

Relationship to financial resources

If medical care is a normal good, ceteris paribus, we would expect that spending would increase with income and wealth. However, because insurance coverage alters the cost of care, if people with more resources might be more likely to hold insurance, the relationship between income and wealth and actual OOPME will be less clear. Similarly, rich respondents may be healthier than poor, need less care, and therefore spend less. Alternatively, the availability of Medicaid coverage for low-income elderly means that they may face substantially lower OOPME for the same amount of care as elderly with more resources.

The tabulations in table 3 suggest a weak relationship between OOPME and income or wealth. Respondents in the bottom income or wealth quartile are somewhat less likely to have had OOPME than those in the higher quartiles, likely due to the higher probability of Medicaid coverage, but there does not appear to be a relationship between either income or wealth and the probability of an OOPME in the three upper quartiles. There is a stronger positive relationship between the amount of expenditures and financial resources. Mean OOPME for the bottom

income quartile is $8,611 compared to $14,951 in the upper quartile. Similar differences exist for the wealth quartiles. If elderly in the highest quartiles are more likely to have insurance to supplement Medicare, and if the insurer bears some of the cost of additional treatments, then the well-to-do may in fact be getting even more care (or at least more expensive care) than the means in table 3 suggest. Alternatively, those with high income or wealth may be self-insuring and therefore bearing much of the cost themselves.

In contrast to the difference in absolute amounts, as a share of income OOPME is much larger for low income and low wealth families. Among the elderly in the bottom quartile of income (at wave 1), OOPME in the last years of life equal 70.5 percent of annual income. This share declines monotonically to 50.8 percent for the second quartile and 29.8 percent for the third quartile. Even the highest income group is not immune to spending big money on prescription drugs, nursing homes, and other services, with total OOPME equal to almost one-quarter of annual income among the top quartile of elderly. This pattern is consistent with health care being a necessity.

The ratio of OOPME to wealth also declines monotonically with wealth. The least wealthy families have expenses equal to 82.8 percent of their wealth holdings. Even for the second quartile, which has average wealth of $82,598, OOPME are 13.1 percent of wealth. These differences suggest that OOPME are sufficiently large among the low-income elderly that they could have a sizable effect on the financial well-being of a surviving spouse.

This discussion of OOPME relative to income was based on figures calculated by taking the ratio of the means of these two variables. An alternative approach is to calculate the ratio of OOPME to income (or wealth) for each individual, and then calculate the average, or some other point in the distribution such as the median. This latter approach is more sensitive to outliers than the former (Goldman and Smith, 2001), but it is a more widely used statistic and has the advantage of generating an entire distribution of relative expenses.[15] Interestingly, for about one quarter of those who die, OOPME are relatively small, less than 10 percent of income (Table 4). However, one-half of the people who die have OOPME greater than 23.8 percent of their annual income, and 20 percent spend more than 62.5 percent of their annual income on

[15] The AHEAD is a relatively strong survey when it comes to income assessment, especially relative to the Medicare Current Beneficiary Survey, which was investigated by Goldman and Smith (2001). Therefore, measurement error in income is less of concern in the AHEAD.

medical expenditures in the last years of life. At the upper tail of the distribution, 11 percent of the sample had OOPME greater than one full year of income. Because income is reported on an annual basis and OOPME is the total over as many as three years before death, a ratio greater than 1.0 is possible. Even in a single year expenses can be greater than income if assets or borrowing are used to finance health care expenditures, or if the individual/couple take on debt.

V. WIDOW POVERTY

Table 5 displays the poverty rate, income, and wealth for elderly who are married and elderly who are widowed in wave 2 of the AHEAD. Some of these widows are new widows (i.e., their spouse died between waves one and two) and some were widowed well before the survey began. The gaps in income and wealth between the groups are large; widows have just 44-51 percent of the wealth and income of married elderly, and the recently widowed have much higher income and wealth than the previously widowed. Mean income for married couples is $51,378 compared to $22,841 for all widows and $29,514 and $21,977 for "recent" and "previous" widows, respectively. The means for wealth are $620,772 and $314,254 for married and widowed respondents, respectively, and again large differences exist between recent and previous widows. This difference is consistent with the differential mortality hypothesis; that is, people with lower income die at younger ages. However, it is also consistent with the idea that the length of time spent in widowhood is itself a contributing cause of poverty (Weir, Willis, and Sevak, 2000). After years of relatively low income a widow eventually spends down all available assets and has little left to support herself. However, evidence from the first two waves of the AHEAD does not support this hypothesis; that is, we find that the poverty rate is virtually unchanged between wave 1 (21.3 percent) and wave 2 (21.6 percent) among the continuously widowed. (Estimates not shown in tables.)

Although the raw differences in the resources of married and widowed respondents are large, on a per capita basis widows actually have similar income and wealth. Yet despite this similarity the poverty rate of widows, reported in the second to last row of Table 5, is over three times that of elderly couples, 21.9 versus 6.6 percent. The large difference in the poverty rate exists because of the presumption of returns to scale in consumption. The federal poverty line for singles is 79 percent that of couples, not 50 percent as a per capita analysis assumes. Thus, similar resources per capita translate into substantially higher poverty rates.

We now examine the factors accounting for the high rates of poverty among widows. Obviously widows are poor because their income is low. We examine two potential explanations for this low income. First, widows may derive from couples that were poor even prior to the death of the spouse; these widows always had low income. Second, and our primary focus here, OOPME spent on the dying spouse may reduce the assets of the couple leaving the surviving spouse with few resources available support themselves during widowhood. Declines in income for other reasons (e.g., reductions in Social Security income, pension income, and so forth) are left as a residual.

Pre-widowhood economic status and the effects of widowhood on poverty

Table 6 demonstrates the difference in poverty rates between soon-to-be widowed respondents and people in couples in which both spouses survive. The table reports poverty rates, average income, and average wealth in wave 1 and wave 2 for the two groups. The first goal of the analysis is to determine the effect of widowhood itself on poverty. One potential estimator is a simple pre-/post- comparison, i.e., a "difference" estimator. For people who were married in wave 1 and widowed in wave 2, poverty rose from 11.43 percent to 17.59 percent. Therefore, the pre-/post-estimator of the effects of widowhood on poverty would imply that widowhood causes an increase in poverty by 6.16 percentage points (17.59 minus 11.43).

However, the poverty rate among people whose spouse died may have changed during the two-year period spanned by the two waves even if the spouse had not died. In particular, the economy improved during this period (1993 to 1995), and because elderly poverty declines when the economy expands (Schoeni, 2001), a simple pre-/post estimator that ignores this fact is biased. An alternative approach is to use people whose spouses did not die during the period as a comparison group. Specifically, we compare the rise in poverty among people who were widowed between the two waves with the change in poverty among people whose spouse did not die between waves. This approach can be referred to as a "difference-in-difference" estimator. Poverty declined among married people whose spouse did not die between waves from 6.34 to 6.10 percent, or by -0.24 percentage points. Since poverty rose by 6.16 percentage points among widows, the difference-in-difference estimator implies that widowhood causes an increase in poverty by 6.40 percentage points (6.16+0.24), which is slightly higher than the

simple pre-/post-estimator. The 6.40 effect translates into a 56.0 percent increase in poverty caused by widowhood, i.e., column 9 divided by column 5, or (6.40/11.43)*100.

The difference-in-difference estimator is based on the differential change in the *level* of poverty. However, an alternative is to compare the relative *percent* change in poverty among married people who did and did not become widows during the period. This estimator is also reported in Table 6, and the estimate of 57.7 percent (column 10) is virtually identical to the estimate of the percent change in the level of poverty, i.e., 56.0 percent.

Table 6 makes clear that a large gap in the relative well-being of widowed and non-widowed elderly existed *prior* to the death of the spouse. In wave 1, the poverty rate was 11.43 for decedent-couples and just 6.34 for surviving couples, for a difference of 5.09 percentage points. One can interpret this as evidence that 44 percent of the 11.49 percentage point difference (17.59 minus 6.10) between new widows and married couples in wave 2 can be accounted for by differences in economic status before the spouse died. The remaining 56 percent of the difference is due to other factors surrounding widowhood including OOPME, other changes in wealth, and the loss of the spouse's income. A similar comparison suggests that 41.8 percent and 45.2 percent of the gaps in income and wealth in wave 2 can be attributed to pre-widowhood differences.

The role of spouse's OOPME in the last years of life

Many of the poor widows in our sample were poor in wave 1 while their husbands were still alive.[16] However, for the majority of poor widows, poverty accompanies widowhood. For those who do transit into poverty, how important are OOPME in these transitions? From the tabulations presented earlier, it certainly seems as though the out-of-pocket medical expenses can be sufficiently large relative to income, especially for lower-income families, that they could move someone from above the poverty line to well below it. Here we undertake a simulation to assess the potential for OOPME to alter poverty status. We assume that all the money that was used to pay the OOPME of the decedent between wave 1 and the exit interview would have been available to his surviving spouse. Note that we explicitly exclude OOPME in wave 1. OOPME from the exit interview are therefore assumed to be part of widow's wealth

[16] Our calculations indicate that 39 percent of those in poverty in wave 2 were also poor in wave 1.

and are amortized over the remainder of the widow's expected life. This amount is then added to her wave 2 income.[17]

The mean value of OOPME in the last year of life is approximately $9,000 and average life expectancy is roughly 9 years, yielding an annual amortized amount of $1,156 on average. Because OOPME differed greatly across decedents and is highly skewed, the additional income imputed to the surviving spouses also varies. The 25th and 75th percentiles of the distribution of amortized OOPME are $174 and $1,275, respectively. Adding the individual-specific amortized OOPME to wave 2 income of the surviving spouse reduces the poverty rate from 17.6 to 15.9 percent (Table 7). We conclude from this exercise that OOPME can account for 1.7 percentage points of the rise in poverty experienced by new widows. Our estimates imply that widowhood is associated with an increase in the probability of being poor of between 6.16 percentage points (the difference estimator) and 6.40 percentage points (the difference-in-difference estimator). Therefore, OOPME can account for roughly one-quarter of the rise in poverty.

We conducted a similar exercise for the poverty gap. The poverty gap is the sum of the difference between the poverty threshold and family income for all people who live in poverty; i.e., it is the minimum amount of income that would need to be transferred to poor families to move them all out of poverty. We calculated the poverty gap with and without adding amortized OOPME to income in wave 2 and found that the gap is reduced by 28 percent when amortized OOPME is added. Therefore, the improvement in economic status that would occur if OOPME could be avoided is not simply a movement of people from slightly below the poverty threshold to slightly above the poverty threshold.

Distribution of declines in income

As noted earlier, a substantial amount of "new poverty" among widows exist because the poverty line for singles is equal to 79 percent of that for couples, while many sources of income, in particular Social Security and pensions, fall by more than 20 percent when one spouse dies. If we compare income before and after the death of a spouse (including the amortized medical expenditures in post-widowhood income) we find that 41 percent of the sample had a decline in income of more than 33 percent (the expected change in Social Security

[17] An interest rate of 4 percent is used for the calculation of amortized OOPME.

benefits), 11 percent had a decline of between 20 and 33 percent and 18 percent had an even smaller decline. Only 29 percent of the sample had an increase. This discussion indicates that widows experience a substantial fall in income with the death of a spouse, but that the classification into poor/not poor is somewhat arbitrary. With a larger decrease in the needs level, fewer widows would be counted among the poor. Similarly, if Social Security were reduced by 21 percent rather than by one-third the risk of poverty would be substantially lessened.

Figure 3 displays the role that OOPME plays in influencing the economic well-being of both rich and poor widows. The actual distribution of income in wave 2 is shown for new widows along with the distribution if amortized OOPME are added to wave 2 income. Consistent with the effects on poverty, the distribution of income at the bottom improves, with fewer widows with income under $10,000. Improvement at the very bottom is surprisingly large given that a large share of medical expenses incurred by these low-income families was most likely covered by Medicaid. There are also improvements at the upper end of the income distribution, with the share of widows with income greater than $49,868 increasing by 20 percent (from 10 percent to 12 percent).

VI. SUMMARY AND DISCUSSION

Despite the tremendous improvements in income and poverty among the elderly, nearly one-quarter of elderly widows live in poverty. Not only must widows deal with the psychological effects of loosing their spouse, they must deal with a precarious financial situation that is often caused by widowhood. In fact, our estimates using the most recent nationally representative panel data suggest that widowhood per se causes poverty to increase by between 6.2 and 6.4 percentage points, representing a 56 percent increase.

The Medicare program has been a tremendous success and is quite popular among the elderly. However, it does not provide coverage for all types of care, most notably it does not provide complete coverage for very long hospital stays, for prescription drugs, or for most long term care needs. These gaps leave many elderly vulnerable to potentially large out of pocket expenditures. Because such expenditures are likely to be largest near death, the burden of paying for health care towards the end of life may most severely affect the financial well-being

of the surviving spouse. Thus, OOPME, and indirectly the gaps in Medicare that leave such costs to the elderly individual, may play a role in the high rates of poverty among widows.

We find that in fact OOPME are particularly large in the last years of life. Moreover, OOPME at the end of life are large relative to income, particularly among low-income elderly. For people in the lowest income quartile (i.e. income of below $12,000) OOPME during the last years of life are equal to approximately 70 percent of income.

We conclude that out-of-pocket medical expenditures cause an increase in widow poverty of 1.7 percentage points, accounting for roughly one-quarter of the rise in poverty that is caused by widowhood. Future work will focus on more finely defining the time period prior to death by attempting to obtain the specific date that the spouse died. We will also examine alternative simulations of the effect of OOPME on poverty and economic status more generally.

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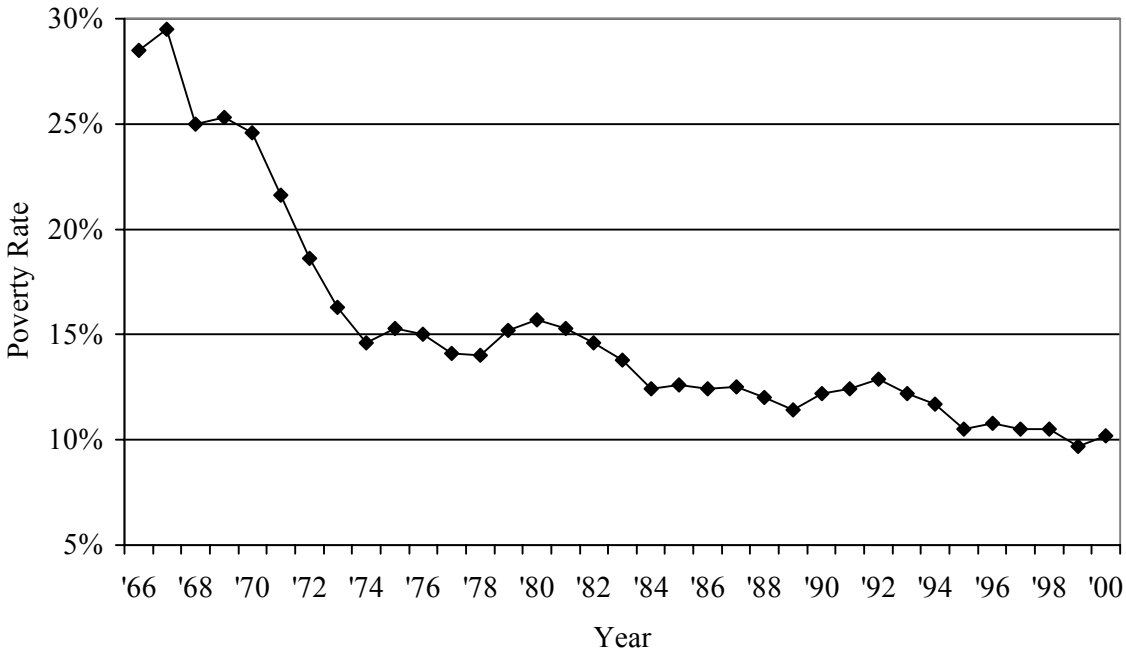
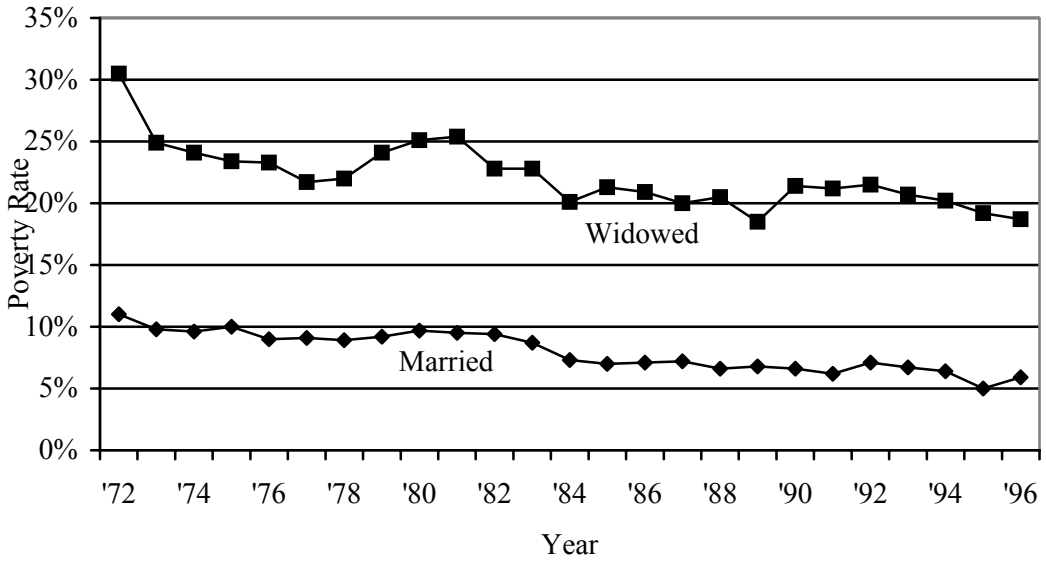
Figure 1. Poverty Rate for People 65 and Older, 1966-2000



Source: Burea of the Census.

Figure 2. Poverty Rate for Elderly Women
by Marital Status: 1969-1996



Source: Author's tabulations using March Current Population Survey.

Figure 3. Distribution of Income in Wave 2
With and Without Adjusting for OOPME

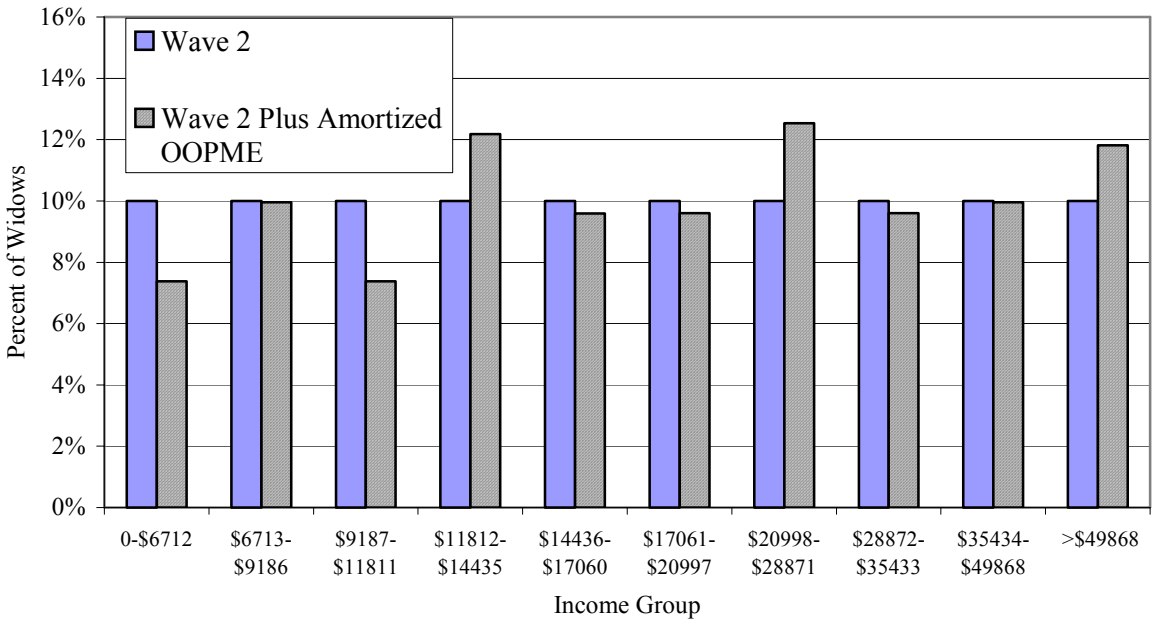


Table 1. OOPME for Decedents and Survivors

Decedents: People Married in Wave 1 and Dead by Wave 2, But Spouse Survives (N=271)

	% With OOPME	Conditional Mean ($)*	Median	75th Percentile	90th Percentile	95th Percentile
OOPME						
Wave 1	94.1	2,962	1,884	3,412	5,773	7,198
Exit interview	91.4	9,013	4,690	9,937	20,068	29,832
Wave 1 plus exit interview*	97.8	11,273	7,361	13,280	27,124	34,212
Income at wave 1		37,336	28,510	42,765	71,275	106,913
Wealth at wave 1		285,212	142,558	296,507	702,364	1,003,563

Survivors: People Married to the Same Person in Wave 1 and Wave 2 (N=3559)

	% With OOPME	Conditional Mean ($)*	Median	75th Percentile	90th Percentile	95th Percentile
OOPME						
Wave 1	96.6	2,289	1,741	2,953	4,632	5,804
Wave 2	94.7	4,984	2,618	4,971	9,446	13,577
Wave 1 plus wave 2	98.9	7,009	4,776	8,123	13,143	17,381
Income at wave 1		45,501	34,212	51,318	85,531	114,041
Wealth at wave 1		383,602	212,687	444,191	848,182	1,260,156

Wave 1 and wave 2 expenditures (except for insurance premiums) are reported for the couple as a whole; therefore, we assign half of the couple's total OOPME to each spouse.
*Mean for income and wealth is not conditional on postive values.

Table 2. Type of OOPME for Decedents and Survivors

Decedents: People Married in Wave 1 and Dead by Wave 2, But Spouse Survives (N=271)

	% With OOPME	Conditional Mean ($)	Median	75th Percentile	90th Percentile	95th Percentile
All	91.4	9,013	4,690	9,937	20,068	29,832
Prescription drugs	69.0	4,210	1,093	3,643	7,529	9,716
Insurance premiums	58.6	1,546	615	1,295	2,259	2,688
Nursing home	34.7	7,723	0	2,024	8,051	17,833
Physician	36.3	1,609	0	408	1,619	2,234
Special sevices	7.4	8,392	0	0	0	270
Other services	31.8	1,698	0	1,047	1,816	1,816

Survivors: People Married to the Same Person in Wave 1 and Wave 2 (N=3559)

	% With OOPME	Conditional Mean ($)	Median	75th Percentile	90th Percentile	95th Percentile
All	94.7	4,984	2,618	4,971	9,446	13,577
Prescription drugs	66.4	2,992	518	1,813	4,858	7,001
Insurance premiums	64.4	1,835	1,198	1,506	2,699	3,400
Nursing home	11.3	5,487	0	0	206	2,307
Physician	75.0	1,121	270	890	2,429	2,916
Special sevices	3.6	2,472	0	0	0	0
Other services	*Not asked in wave II*					

OOPME: For decedents, exit interview; for survivors, wave 2.

Table 3. OOPME Relative to Income & Wealth
Sample: People Married in Wave 1 and Dead by Wave 2, but Spouse Survived (N=271)

	% with OOP	Mean OOP	Mean Income	Mean Wealth	Income Ratio	Wealth Ratio
	[1]	[2]	[3]	[4]	[2]/[3]	[2]/[4]
All	97.8	11,025	37,336	285,212	0.295	0.039
Income quartile at wave I						
Lowest	95.9	8,611	12,206	135,328	0.705	0.064
Second	98.8	10,799	21,260	131,929	0.508	0.082
Third	96.7	9,936	33,321	245,272	0.298	0.041
Highest	100.0	14,951	81,575	616,534	0.183	0.024
Wealth quartile at wave I						
Lowest	95.2	9,260	20,440	11,189	0.453	0.828
Second	98.6	10,810	24,970	82,598	0.433	0.131
Third	98.7	10,865	37,668	195,986	0.288	0.055
Highest	97.9	12,726	62,256	789,367	0.204	0.016
Insurance status						
Medicare only	95.7	16,854	36,053	292,691	0.467	0.058
Medicare and medicaid	91.5	5,272	21,361	99,296	0.247	0.053
Medicare and medigap, basic, or other	100.0	10,663	40,049	312,783	0.266	0.034

Table 4. Distribution of the Ratio of OOPME to Income in Wave 1
Sample: People Married in Wave 1 and Dead by Wave 2,
but Spouse Survived (N=271)

Percentile	Ratio of OOPME to Income
5th	0.017
10th	0.043
20th	0.075
30th	0.121
40th	0.181
50th	0.238
60th	0.311
70th	0.444
80th	0.625
90th	1.043
95th	1.427

Table 5. Income, Wealth, and Poverty in Wave 2 by Marital Status in Waves 1 & 2

		Widows in Wave 2		
	Married in Wave 2 [1]	All [2]	*"Recently Widowed"* Married in Wave 1, Widowed in Wave 2 [3]	*"Previously Widowed"* Widowed in Both Waves [2]
Income				
Mean	51,378	22,841	29,514	21,977
Median	32,808	15,748	18,372	15,433
Mean per capita	25,689	22,841	29,514	21,977
Wealth				
Mean	620,772	314,254	426,045	290,463
Median	257,218	118,851	167,322	108,923
Mean per capita	310,386	314,254	426,045	290,463
Poverty rate	6.6	21.9	17.6	22.9
Observations	3,558	2,758	271	2,461

Table 6. Effects of Widowhood on Poverty, Income, and Wealth
Sample: People Married in Wave 1

	Marital Status at Wave 2										
	Married (N=3550)				Widowed (N=271)						
	Wave 1	Wave 2	Change [2]-[1]	Percent Change ([3]/[1])*100	Wave 1	Wave 2	Change [6]-[5]	Percent Change ([7]/[5])*100	Difference in Change [7]-[3]	Difference in % Change [8]-[4]	% of Post-widowhood Gap Due to Pre-widohood Gap ([5]-[1])/[6]-[2])*100
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Poverty rate	6.34	6.1	-0.24	-3.79	11.43	17.59	6.16	53.89	6.4	57.7	44.3%
Mean Income	44,180	51,439	7,259	16	35,017	29,515	-5,502	-16	-12,761	-32.1	41.8%
Mean Wealth	384,354	618,946	234,592	61	297,068	426,045	128,977	43	-105,615	-17.6	45.2%

Table 7. Simulated Poverty Rate with Amortized OOPME Adjustment
Sample: People Married in Wave 1 and Dead by Wave 2,
But Spouse Survives

	Wave 1	Wave 2
With no OOPME adjustment	11.4	17.6
Add OOPME to income		15.9

OOPME: Exit interview only.

Table A1. Descriptive Statistics

Characteristics at wave I	*Decedents* People Married in Wave 1 and Dead by Wave 2, But Spouse Survives	*Survivors* People Married to the Same Person in Wave 1 and Wave 2
Mean age	78.8	76.1
% Black	8.8	4.9
% Hispanic	4.3	3.1
% Female	26.2	40.7
% in poor health	42.3	7.6
Years of schooling	10.5	11.6
Mean income	$37,336	$45,501
Mean wealth	$285,212	$383,602
Number of observations	269	3559