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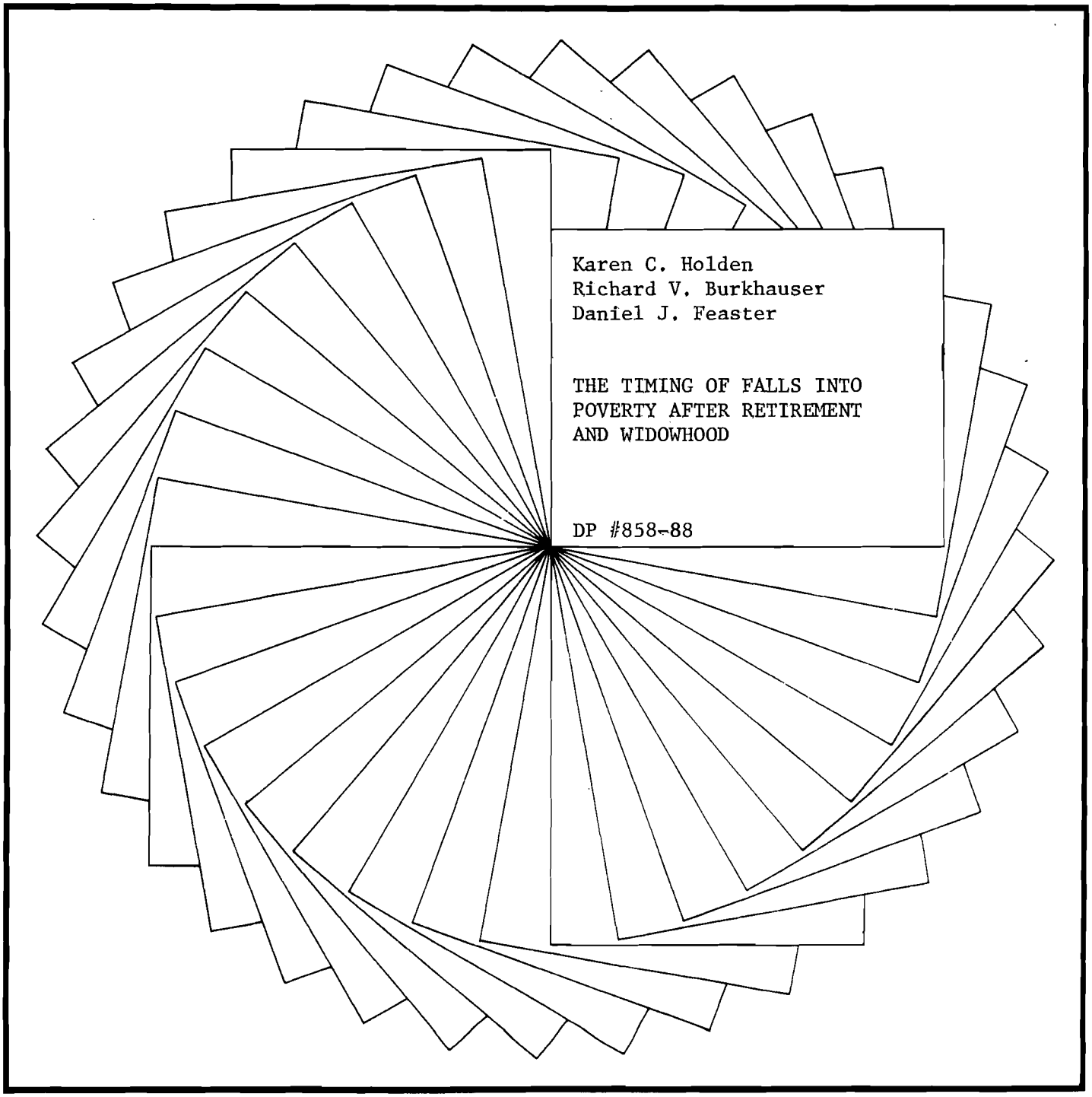

Institute for Research on Poverty
Discussion Paper no. 858-88

THE TIMING OF FALLS INTO POVERTY AFTER RETIREMENT AND WIDOWHOOD

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January 1988

This research was supported in part by a grant from the AARP Andrus Foundation to the Institute on Aging at the University of Wisconsin-Madison. Additional support for computation work was provided by the Center for Demography and Ecology at the University of Wisconsin-Madison. The views expressed are those of the authors and not those of the funding institutions.

ABSTRACT

A major concern of workers, even of those financially prepared for retirement, is that a small risk of poverty may grow over time. Cross-sectional data showing that older cohorts have higher poverty rates seem to substantiate this concern. Using data from the Retirement History Study we analyze changes in the hazard of entering poverty as a cohort of elderly couples retire, age, and the wives are widowed. The initial fall into poverty among couples who were not poor prior to retirement is more closely linked to the initial shock of retirement or widowhood than to slowly eroding household income over the period of retirement and widowhood. The death of her husband puts a wife in economic jeopardy whether this shock occurs one year after retirement or a decade later.

INTRODUCTION

A major concern of workers approaching retirement is that unexpected events during a long retirement will cause precipitous declines in economic well-being for themselves and their families. Economic setbacks (e.g., rapid inflation, sickness and eventual death of a spouse) are difficult to overcome at any age; for those who have not been employed for several years they may be especially difficult to offset. Thus what is a small risk of poverty in the near term may grow to much more dangerous proportions over time.

For those who are now entering retirement, replacement rates--the ratio of annual income in the first year of retirement to income while working--are quite high. But while replacement rates are a useful rule-of-thumb measure of economic well-being at the start of retirement, they may be a less accurate indicator of well-being over the entire retirement period, since they ignore subsequent changes in the risk of poverty both for married couples as they age and for the growing percentage of women who survive their husbands.

Cross-sectional comparisons of poverty rates by age, sex, and marital status suggest that retirement and widowhood lead to higher risk of poverty, and that this risk increases over time retired or years widowed. These data, however, may be misleading, since comparisons across cohorts are not necessarily consistent with the life experience of any single cohort. Time series data resolve this problem in part, since the retirement experience of individual cohorts can be observed over time. For example, Ross, Danziger, and Smolensky (1987) use decennial census data to track the average income of retired and nonretired men and of married and widowed female members of individual cohorts over the 1950-80 period. They show that for each birth cohort average incomes when in the same retired or marital state do not decline over time, but that the needs-adjusted incomes of retired men are significantly lower than those of working men as are those of widowed versus married women. They conclude that it is transitions into retirement and widowhood, as more members of the cohort enter these states, rather than the passage of time

in either state which cause the age-associated declines in income and increases in poverty observed in the cross-section. Their conclusions must be tentative, however, since cohort members interviewed in one census year will not be the same members interviewed in the next. Differences across income groups in the timing of death, retirement, and widowhood could cause cohort averages to change in ways that do not represent movements in the incomes of individuals.

Longitudinal panel data such as the Retirement History Study (RHS) overcome the biases that arise from using single cross-sectional or time series data, since the timing of major changes in income can be observed for each panel member (Campbell and Hudson, 1985). The analysis of even these data, however, is not without difficulty. Individuals attrite from the panel before it ends and events of interest that occur after the final survey of the panel (in 1979 for the RHS) are not observed. Researchers who have used the RHS to study income changes over time have, in general, ignored attrition by including only those respondents who are in the survey in a particular calendar year (Morgan, 1986), or only those for whom data are available in selected years (Burkhauser and Wilkinson, 1983; Fox, 1984), or only those who were interviewed in every year of the panel (Holden, Burkhauser, and Myers, 1986; Zick and Smith, 1986). Since 34 percent of the original RHS respondents and their families were missing from the 1979 interviews, restricting a study sample to always-present respondents would waste valuable information that these cases provide during the years they remain in the sample.

Fortunately, techniques are available that explicitly incorporate data on these censored individuals in the analysis. We use a simple event-history approach that allows us to exploit data on all interviewed individuals in examining the timing of falls into poverty among couples as they enter retirement and widowhood. We then evaluate the relative importance of these two events versus time in those states on the risk of becoming poor.

The risk we measure is that of falling into poverty for the first time after retirement. This definition ignores subsequent exits from or any reentry into

poverty after this initial event. Holden, Burkhauser, and Myers (1986) report considerable movement out of and reentry into poverty among RHS sample members. However, because we exclude those for whom poverty began prior to retirement and because retirement for some husbands occurs late in the survey period, the incidence of exit and reentry is small.[1]

DATA

Ten years of data from the Retirement History Study (RHS) are used to follow workers during their retirement up to the time when they became poor, died, or the study ended. In 1969 and at two-year intervals through 1979, the RHS interviewed a sample of single men and women and husbands of couples who were aged 58-63 in 1969. In the case of couples, if a respondent died, the widow was interviewed in subsequent periods.

Our sample is of married men who retired at some point during the ten-year survey period but who were not poor in the income year just prior to retirement.[2] If the retired husband died before the couple became poor, we followed his widow and observed her poverty status up to the time she became poor or the survey ended.[3] In addition, husbands must have worked in 1968 and have retired after the end of 1968. A work requirement in that year was imposed to make sure we observed the retirement event and had at least one year of preretirement income for each couple. A retirement was recorded when the husband reported he was neither working nor looking for work during the week prior to the survey date because he was "retired." The date of retirement was ascertained from questions asked about job-ending dates; based on that date we know which was the last income-reference year prior to retirement. We then compared the income of the husband and wife during that year to the relevant poverty threshold.[4]

We identify 3,572 couples in 1969, in which the husband reported becoming retired at some time during the ten-year survey period, and who were not poor in the last income year prior to his retirement. The husband in 439 couples died after his retirement but before the last survey in 1979.[5] Because the RHS surveyed

respondents at two-year intervals, the last preretirement income year can be up to two years prior to retirement. As suggested in Burkhauser, Holden, and Myers (1986), income reported by women widowed during an income-reporting year are adjusted for the imputed income received by their husbands just prior to his death.[6]

METHOD

We use a discrete-time approach to examine the hazard of falling into poverty for our sample of couples. A hazard analysis looks explicitly at the risk faced per unit of time over which individuals remain at risk. There are two major advantages of analyzing the data in this way. First, the distribution of the timing of an event rather than merely its occurrence over the entire study period is explicitly mapped. That is, we can distinguish differences among groups in the risk of ever becoming poor from differences in the timing of that risk. Second, even though the timing of a fall into poverty is not known for individuals who attrited or for whom the sample ended prior to their becoming poor, data on these individuals are used for the period they were in the sample, thus avoiding necessarily arbitrary assumptions about when those individuals did (if ever) enter poverty. Because our purpose is to describe more precisely the timing of initial falls into poverty as individuals age rather than to specify a full explanatory model of why they become poor, a third advantage--the inclusion in the explanatory model of variables that vary over time--is not exploited here.

A discrete-time approach is most appropriate since the RHS measured income only at two-year intervals (Allison, 1982). In each survey year, income data were collected for the previous calendar year (e.g., for 1970 at the 1971 interview and next for 1972 in the 1973 interview). Thus there is no information on income in the survey years, nor do we know the precise timing of the income change that caused the fall into poverty.

Table 1 illustrates how information on attrited individuals is incorporated into a hazard analysis. This table is akin to a life table and measures the probability

Table 1

Hazard of Falling into Poverty during Retirement, by Marital Status

Two-Year Period of Retirement	Intact Couples		Eventual Widow	
	No. Entered	Hazard	No. Entered	Hazard
First	3131	.055	439	.052
Second	2799	.042	410	.057
Third	2215	.021	367	.078
Fourth	1743	.013	303	.080
Fifth	595	.009	120	.043

Note: All couples were not poor in the last preretirement income year. Periods are counted from that point. Thus the first period captures the pre- to postretirement transition.

of entering poverty during each two-year interval that the elderly unit is at risk. Some couples who were at risk at the beginning of an interval attrited before the end. The implicit assumption is that attrition from the risk set--due to death, exit into poverty, or refusal--occurred randomly during the interval, hence that these nonsurvivors were exposed on average for half of the interval.[7]

The retirement periods are measured from the last income-reference year of work, thus the first two-year period is from that year to the first income-reference year of retirement. The number of couples diminishes over time because couples enter the risk set in different calendar years, because of sample attrition, and owing to the cumulative effect of exits into poverty.

The couples in this table and throughout the discussion are divided into two groups; those in which the husband and wife remained alive throughout the period they are in the RHS, and those in which the husband died. The first group is labelled "intact couples." We refer to the last group as "eventual widows" and follow these women through the retirement of their husbands, the deaths of their husbands, and their observed years of widowhood.[8] All husbands had retired and all eventual widows were widowed by the end of the last period.

The different distribution of the risk of entering poverty over time is striking. In the first period of retirement that risk is not much different for these two groups of couples, but while the risk falls for intact couples, it increases over the retirement period for eventual widows.[9] This difference is due both to the additional economic impact of their husbands' deaths and the time spent by these women as widows. Because Table 1 does not classify observations by date of widowhood and time spent as a widow, the effect of this difference cannot be ascertained from this simple survival table.

It is the contribution of widowhood to this time-dependent difference between couple groups in the distribution of risk of poverty over time that we now examine. We specify a linear probability model of the risk of a first fall into poverty and

estimate it using a logit transformation. Thus:

$$\log[P(t)/1-P(t)] = a(t) + bX,$$

where P(t) is the probability in time (t) of entering poverty, a(t) are dummy variables for each retirement year, and X is a vector of fixed variables that are assumed to influence the height of the poverty profile across individuals. (See Allison, 1984, for a description of this approach.) To disentangle the relative importance of retirement and widowhood in causing differences in the timing of poverty between the two groups of couples, we include two measures of time in our model--time spent in retirement (indicated by a set of dummy variables t(i)) and, for eventual widows, time in widowhood (indicated by a set of dummy variables p(i)).

Note that the total number of observations, as in Table 1, is equal to the number of years for which we have data on couples. Consider a couple in which the husband first reported retirement in 1973 but was last interviewed in 1977. For this couple there will be three observations. The first observation will be the 1972 preretirement income year (t1=1). It is followed by the postretirement income years 1974 (t2=1) and 1976 (t3=1). If the husband died between the 1975 and 1977 surveys, the 1976 income years would also be included as the first year of widowhood (p1=1).

Time dependence in this model includes those factors whose incidence and severity change over time. A positive and increasing coefficient on successive time dummies would indicate, as findings from cross-sectional data suggest to be the case, that individuals face a greater risk of becoming poor later in retirement when, for example, deteriorating health or inflation makes them increasingly vulnerable to real income declines.

RESULTS

Tables 2 and 3 present logit estimates of the hazard of entering poverty for intact couples and eventual widows. For couples or widows who become poor in an observation year, the dependent variable is equal to one; it is otherwise equal to

Table 2

Estimated Effects of Time on the Marginal Risk of Falling into Poverty, by Couple Group

Time	Couple Group			Difference in Coefficients (cols. 1 & 3) (4)
	Intact Couples (1)	Eventual Widows		
		Model 1 (2)	Model 2 (3)	
Constant	-3.12*	-3.15*	-3.15*	0.03
Years of retirement:[a]				
t2	-0.09	0.73**	-0.34	0.26
t3	-1.01*	1.11*	0.18	1.20*
t4	-1.66*	0.94*	0.30	1.96*
t5	-2.29*	0.18	0.15	2.44*
t6	-4.44*	-4.40***	-5.02	0.57
Years of widowhood:				
p1			1.86*	
p2			-0.18	
p3			-6.54	
p4			-6.18	

[a] t1 is the last year of work and is the excluded year.
* Significant at .01 level.
** Significant at .05 level.
*** Significant at .10 level.

zero. The first period of observation for every elderly unit is the last year of work prior to retirement. This is the excluded year in the logit regressions, the effect of which is included in the constant term. The sign of the coefficients on the time variables indicates whether individuals who survive to that year face a lower (negative coefficient) or higher (positive coefficient) risk of becoming poor than in the excluded year. The total risk of becoming poor when a woman is a widow is the combined effect of the period of widowhood and the period since her husband's retirement.

Table 2 includes as explanatory variables only the dummy variables for the years of retirement and, for eventual widows, of widowhood. As reported in Table 1 the risk of entering poverty diminishes over time for intact couples. This is not the case for eventual widows (column 2). The results in column 3 for eventual widows are more interesting because they begin to disentangle the effects of the two income shocks faced by these women. When time in widowhood is included, a different pattern emerges. The first period of widowhood is associated with a significant increase in the risk of poverty. Note however that no time-dependent pattern appears in later years of widowhood.

The pattern of time dependence between the two groups is also different. As can be seen in column 3, eventual widows experience no significant decline in the risk of poverty over time after their husbands' retirement. This difference between the two types of couples in the time dependence of poverty is confirmed in column 4. A test of differences between the retirement year coefficients in the two equations shows that the coefficients on the time variables for the third, fourth, and fifth retirement years are significantly different between intact couples and eventual widows.

The time dependence observed in Table 2, however, may share the problem faced by Ross et al. (1987) in that the observed change in the risk of becoming poor may be affected by the changing composition of couples who remain at risk as those most prone to poverty enter that category. For instance, it may be that upon retirement

those couples whose incomes were initially low enter poverty immediately, while those with higher incomes do so more slowly. Even though the risk of becoming poor may in fact grow over time for these better-off couples, our results would show the opposite to be the case. The same would be true for eventual widows if those least insured against their husbands' deaths become poor immediately when widowed.

In Table 3 we introduce variables that control for observed heterogeneity among couples in the resources they bring into retirement. With these controls, the coefficients on time are expected to measure the true pattern of changes in economic circumstances during years in retirement and widowhood.

The poverty line is an absolute threshold of economic well-being. Thus one would predict that those workers and their wives who are least prepared for retirement through their own savings or pensions will be the first to experience economic distress upon retirement and widowhood. If the time pattern observed in Table 2 is due to differences in the resources couples bring into retirement, then including income and nonpension assets in the last preretirement year should reduce or reverse that pattern.

The contribution by a working wife to the couple's income on the verge of retirement may also affect the poverty pattern of couples after husbands retire. First, couples in which the wife has an independent source of income are less likely to be affected by the loss of income associated with the retirement of the spouse. Second, it is likely that resources held by the wife will continue after her husband's death and hence differentially reduce the effect of widowhood on her well-being.

The poverty threshold is an income measure that ignores the contribution to economic well-being from the possession of assets that do not produce income. The most broadly held asset of this type is an owner-occupied house. It may be that couples for whom their house represents a large share of total assets are more likely to be counted as poor, even if they are in fact no worse off than are couples who have higher asset income but must devote a large share of it to rent.

Table 3

Hazard of Falling into Poverty after Retirement

Independent Variables	Intact Couples (1)	Eventual Widows (2)	Test of Difference (3)
Constant	18.780*	2.385	16.395*
Total income ($1,000)	-0.279*	-0.064*	0.215*
Percentage of income from wife	-1.894**	-1.744*	0.150
Total assets ($10,000)	0.004***	0.0003	0.004
Percentage of assets that is home	0.100	0.193*	0.093
Age of husband at retirement	-0.274*	-0.056	0.218*
Race of husband (nonwhite=1)	0.745**	0.752**	-0.007
Health of husband (poor=1)	0.618**	-0.573***	1.191**
Primary Insurance Amount ($1,000)	-36.97**	-21.83***	15.14
Pension: Eligibility of husband	-0.566**		
Single-life choice		-0.170	
Joint-and-survivor choice		-0.260	
Wife 60[a]	-0.004	-0.717*	0.721*
Years of retirement[b]			
t2	0.290	-0.264	0.554
t_3	-0.449***	0.338	0.787***
t4	-1.456*	0.447	1.803*
t5	-1.288*	0.308	1.596*
t6	-4.900***	-4.907	0.007
Period of widowhood			
p1		2.013*	
p2		0.009	
p3		-6.241	
p4		-5.992	
p5		-1.044	

[a] At husband's retirement for couples, at husband's death for widows.
[b] t1 is the last year of work and is the excluded year.
* Significant at .01 level.
** Significant at .05 level.
*** Significant at .10 level.

For this reason we include the percentage of all nonpension assets tied up in home equity as a variable.

We also include in Table 3 the husband's age, race, and health, measured in the initial preretirement year (t1=1), since these are expected to influence the ability of couples as they age to adjust to the immediate impact of retirement and widowhood through labor market effort. Finally, we include three variables that measure the protection available from social security and employer-provided pensions against the income consequences of retirement and widowhood. The first is the husband's Primary Insurance Amount (PIA) from social security. The second indicates his eligibility for a pension. For eventual widows husbands eligible for a pension are disaggregated into those who chose a joint-and-survivor pension, that is, an annuity that continued to be paid to their widows, or a single-life pension, one that ceased with the husbands' deaths (Myers, Burkhauser, and Holden, 1987). For both intact couples and eventual widows, the excluded case is couples in which the husband was never eligible for a pension. Finally, because social security spouse and widows' benefits are age conditioned, we include a third variable that indicates whether a woman was below or above the age of 60 when her husband retired or for eventual widows when he died.

As can be seen in Table 3, heterogeneity within the two groups of couples affects the probability of falls into poverty; higher income, a larger contribution to total income made by the wife, and greater insurance protection through social security and, for intact couples, the husband's pension, reduce the probability of an elderly unit becoming poor during the retirement years.[10] When a wife is over 60 at her husband's death, the risk of poverty is significantly lower. This result suggests that the age restrictions on social security benefit receipt affect subsequent poverty among widows.

Yet even after controlling for initial characteristics of couples, the basic results of Table 2 remain. For intact couples the risk of becoming poor falls over time. Thus, changes in conditions over the retirement period that are likely to

move couples into poverty do not appear to become more probable over time. For eventual widows no time trend is apparent over the postretirement period. In the period during which the husband dies, the risk of poverty jumps, but following this initial widowhood period no time dependence is evident. Column 3 shows that the distribution of the timing of poverty continues to be significantly different between the two groups of couples.

DISCUSSION

Our analysis confirms other studies that find that intact couples and eventual widows have substantially different risks of ever becoming poor.[11] But we take an analytical approach that explicitly considers the pattern of falls into poverty over time. Our results indicate that over the 1970s, the marginal risk of poverty faced by intact couples was significantly lower after they had weathered retirement, but that risk for eventual widows failed to fall. More important, for widows the highest risk of becoming poor was in the first period of widowhood. The resources available to couples on the verge of retirement played an important role in protecting them against poverty in retirement and widowhood. However, even after differences in resources are controlled for, we find no evidence of a growing risk of poverty during the years of our study.[12]

We have not attempted to investigate why some couples and widows fall into poverty upon retirement and widowhood. That question can be explored, however, using a hazard analysis, but within a fully specified behavioral model. In such a model it would be appropriate to also include time-varying explanatory variables. In addition we have made the strong assumption that unobserved heterogeneity is not a problem, but this may not be the case. A more sophisticated hazard model would adjust for both observed and unobserved heterogeneity.

A hazard model approach is also applicable to the study of changes in well-being using measures other than poverty status, though the definition of the hazard may be less obvious than it is here. Alternative measures should be explored, since the poverty line is clearly a limited indicator of economic well-being

because it excludes the economic security provided by assets that do not produce income. The significance of the house equity variable in Table 3 suggests this is the case.

An important caveat to our conclusions here and, indeed, those drawn from any study that uses RHS data to explore well-being after retirement is that these data trace respondents through at most the first decade of retirement and widowhood. This is a small percentage of the expected retired lifetimes of these couples. In fact, a large percentage of the intact couples would have been counted as eventual widows if the RHS had continued after 1979. Whether the experience of these wives when widowed conformed to that of the relatively early widows in the RHS is, of course, not known.

In addition, even though the marginal risk of becoming poor is significantly lower for couples in the years after retirement and widowhood, it may be that the cumulative effect of a low but persistent rate of entry into poverty is larger over their entire retired lifetime than is the single high risk at retirement and widowhood. Nevertheless, these data do provide additional insight into the retirement experience. Our results suggest that for couples who weather the initial retirement period, the risk of poverty does not grow over time. Even for these widows, it is widowhood itself rather than the passage of time spent widowed that appears to pose the greater threat.

Notes

1. That is, few individuals would be able to have a nonretired year, then retire, enter poverty, exit, and reenter over the six surveys of the RHS. If the RHS had continued or if the intrawave period had been shorter, more multiple spells may have been observed.

2. Income in the year prior to retirement is an imperfect measure of preretirement well-being if income fluctuates for reasons of unemployment or increases in work effort (perhaps to improve pension benefits) just prior to retirement. Since income is available only for 1968 and every other year thereafter, construction of average income over a long preretirement period is not possible with these data. Data from Social Security Summary Earnings Records are not a good measure of preretirement income status, since only covered earnings are reported and all sources of nonwage income are excluded.

3. Our sample includes only those RHS respondents who were married in 1969. This is because we have no information for women and men who had already lost a spouse in 1969 on the income of their spouses prior to death. In addition, because we have no way of knowing when persons who were poor in 1969 became poor, we are forced to look only at persons who became poor after that date. We also exclude any respondent who died before he retired.

4. We look at the income of the couple or subsequent widow only in determining poverty status. This is because the RHS did not consistently collect data on the presence and income of other family members. This means that the ability of elderly to avoid poverty by living with others is not considered here. Clearly this should be taken into account in a fuller study of economic status.

5. There were 7,078 married couples interviewed in 1969. We exclude from our sample 1,673 intact couples because the husband never reported being retired. Another 460 couples were poor in the year before the husband's retirement and 1,373 were excluded because the husband attrited prior to reporting retirement.

6. This is the full-year adjustment that includes estimated income of the husband during the part of the income-reporting year that he was alive and adjusts the poverty threshold for his consumption needs during that part of the year. See Burkhauser, Holden, and Myers (1986) for a discussion of this adjustment.

7. An additional assumption is that those who attrited faced no different risk of becoming poor from those who remained. Death of the husband may, in fact, have been due to poverty-associated variables, and this is one reason we separate couples into two groups as described below. Refusal is not likely to be poverty-associated because of the arbitrary nature of the poverty line. There is no reason why individuals should have attrited more often when their income fell below the poverty line than when other changes occurred.

8. This group is similar to the pooled sample of widows in the Panel Survey of Income Dynamics that is discussed in Campbell and Hudson (1985). Our sample differs from theirs because we restrict the eventual-widow sample to those whose husbands had retired and because we do not restrict the sample by the number of observations before and after widowhood.

9. Because the husband must have retired, we observe most eventual widows for at least one period of marriage. Thus poverty in the first period is a result of the husband's retirement for all couples. After that period, entry into poverty among eventual widows is the result of a lengthening

retirement, of widowhood itself, and of a lengthening period of widowhood. For intact couples only the first factor influences the observed time-related pattern of poverty.

10. Surprisingly, widows whose husbands chose a joint-and-survivor pension are no less likely to become poor, all else equal, than are widows of men who either made the single-life choice or were not eligible for a pension. Pension eligibility of the husband does not seem to influence the well-being of his wife as a widow. This is consistent with previous findings that for this sample the mean percentage change in income upon widowhood was the same for the three pension categories (Myers, Burkhauser, and Holden, 1987).

11. We have used the official, Orshansky poverty threshold. Other equivalency scales might lead to somewhat different results. For example, Lazear and Michael (1980) estimate even greater returns to scale as household size increases than is reflected in the official poverty thresholds for elderly individuals, and calculate both higher poverty among single-person elderly households and a greater absolute difference in poverty rates between single- and two-person elderly households. This implies that our estimates of poverty among widows and the change in poverty as women move from married to widowed status are conservative.

12. The 1970s may be looked upon as the golden age of social security. Social security expenditures increased from 8.6 percent of GNP in 1968 to 14.7 percent in 1987 (Burkhauser and Quinn, 1987). Although part of this increase is specifically captured by initial PIA levels in Table 3, the increase in postretirement yearly benefits may be influencing time dependency. Hence the time effects may mask to some degree the erosion effects of retirement. But it is unlikely to explain the significant difference in time dependence between intact couples and eventual widows.

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