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The Economic Consequences of Widowhood during Retirement

A Comparative Study on Survivor Benefits

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Abstract

Widowhood entails not only profound grief, but also severe economic consequences. The challenges surrounding widowhood are becoming increasingly urgent, and many pension systems require more sustainable solutions. Nevertheless, research is limited and fragmented in this regard. We assessed (1) the economic consequences of widowhood for households across European countries and (2) the role of survivor benefit transfers in mitigating the economic consequences of widowhood. We drew on data from the Survey of Health, Ageing, and Retirement in Europe and applied multilevel between-within random effects regression modelling to address our research questions. We found that surviving spouses' economic wellbeing declined in the years of spousal death in all European countries, and continued to decline one to two years after bereavement in nearly half of the countries in our sample. However, the impact of spousal death on widowed households' economic wellbeing varied largely across countries. Our empirical analyses suggest that some country variation in the consequences of widowhood on surviving spouses' economic wellbeing was due to cross-national differences in the coverage and especially the generosity of survivor benefits. We found that the decline in widowed households' economic wellbeing was smaller in countries where survivor benefits were more generous. We conclude that public survivor benefits remain an important pillar to secure retired widows' and widowers' economic wellbeing during retirement.

Introduction

Widowhood is a critical life course event that entails not only profound grief, but also severe social and economic consequences. For instance, spousal loss can significantly reduce household income, while expenses remain unchanged (Burkhauser et al., 2005; Sevak, 2004; van der Vaart et al., 2020). Such a rapid drop in purchasing power, together with other psychological and social challenges, puts widows and widowers at a high risk of poverty and exclusion. Moreover, these risks are strongly gendered (Holden & Smock, 1991). Women are more likely to outlive their husbands, but their pensions tend to be lower because of gender differences in lifetime earnings (Rowold et al., 2024).

As populations age, the number of marriages ending with the death of a spouse is dramatically rising along with the potential number of years a widow or widower can expect to live (Mayol-García et al., 2021). In the Netherlands, almost 61,000 spousal deaths were recorder in 2019, roughly 6,000 more than a decade earlier and twice the number of divorces.[1] During the Covid-19 pandemic, the incidence of widowhood increased to unexpectedly high numbers. Despite widowhood events increasing in frequency, many countries have retrenched or even abolished survivor benefit schemes targeted at securing the wellbeing of widows and widowers (OECD, 2018). For example, survivor benefits in the Netherlands were scaled back considerably in the mid-1990s, while the new pension agreement states that total expenditure on survivor pensions will not rise.

The challenges surrounding widowhood are becoming increasingly urgent, and many pension systems require more sustainable and equitable solutions for survivor benefit schemes. Nevertheless, social scientific research is limited and fragmented in this regard. At the individual level, research is needed to understand the individual consequences of spousal death

[1] See Eurostat population data on deaths and divorces (https://ec.europa.eu/eurostat).

for older survivors' social and economic wellbeing as well as the socioeconomic disparities involved in this process. At the structural level, it is necessary to learn how to design pension systems that prevent widowhood-related poverty and reduce economic inequalities while remaining sustainable for future generations. To address these goals, this project takes a comparative approach to study widowhood events across countries.

The first research question assess change in individual wellbeing across the process of spousal loss: *What are the economic consequences of widowhood for surviving spouses' households across European countries?* We study change in total household income in the year of spousal death and up to five years after the event of widowhood takes place. We focus on households where the surviving spouse is retired at the time of widowhood to be able to assess how pension systems, specifically public survivor benefits, react to the event of spousal death.

Our second research question focuses on country differences in pension systems and how they support bereaved retirees: *What is the role of survivor benefits in mitigating the economic consequences of widowhood?* Specifically, we assess whether the impact of spousal death on surviving spouses' economic wellbeing is smaller in countries with more universal and more generous survivor benefits. In addition, we focus on how the economic consequences of widowhood and the role of survivor benefits vary by gender and older adults' employment histories to gage social disparities in the impact of spousal loss.

Previous Research on Widowhood and Economic Wellbeing

Studies using longitudinal data from the United States have found a negative association between widowhood and economic wellbeing, especially for women (Bound et al., 1991; Haveman et al., 2003; Holden et al., 1986, 1988; Holden & Kuo, 1996; Hurd & Wise, 1987; Morgan, 1981; Poterba & Venti, 2017) . For example, Haveman and colleagues (2003) used

data to examine recipients of social security retired-work benefits in 1982 and 10 years later in 1992. Women who lost their spouses experienced large declines in economic status, measured as family income, income-to-needs ratio, and poverty, over the decade (see also Holden & Kuo, 1996). Gillen and Kim (2009) estimate the effect of widowhood on income source change – transition from year 2002 to 2004 in the HRS – and how such change affects the poverty transitions of recently widowed women using logistic regressions. Results demonstrate that widowhood decreases income from all sources, and that especially an increase in social security benefits would drastically decrease the probability that widowed women enter poverty. Moreover, recently widowed women are more likely to fall into poverty compared to women that have been widowed for longer periods.

Other studies focused on age differences, such as how the association between widowhood and economic wellbeing differs by the age at spousal loss (Sevak, 2004; Vartanian & McNamara, 2002; Weir et al., 2002). Weir and colleagues (2002) used the first two waves of the AHEAD and original HRS cohorts and to describe the economic consequences in terms of income and poverty of widowhood for women. Women over 65 were less likely to experience severe economic changes than women under age 61 (see also Sevak, 2004). The declining importance of husbands' earnings, the rising importance of Social Security benefits, and large out-of-pocket medical expenses before Medicare eligibility account for the decreasing economic risk of widowhood with age. However, using data from the Retirement History Study and discrete hazards models, Holden and colleagues (1988) showed with RHS data and hazard models that the risk of entering poverty of widowed women is considerable regardless of whether husbands die shortly after retirement or years later. However, Vartanian and McNamara (2002) demonstrated with PSID data that widowhood only had a negative impact on younger women's (66-77) family income-to-needs standard and time in poverty after accounting for mid-life factors, such as labour market participation.

Few studies assessed cross-national differences (Bíró, 2013; Hungerford, 2001). Hungerford (2001) showed with data from Panel Study of Income Dynamics (PSID) and German Socioeconomic Panel (GSOEP) that widows' economic wellbeing declined in both countries. One year after bereavement, the severe poverty rate nearly doubled in the US and tripled in Germany. Biro (2013) studied the relationship between widowhood and financial hardship in Europe using retrospective data from SHARE amongst women aged 50 and above and demonstrate heightened reports of financial hardship following widowhood across Europe. In sum, there is a clear need for cross-national and longitudinal research on the consequences of spousal loss in both the short- and medium-term.

Theoretical Background

Widowhood and Economic Wellbeing

The most straightforward contributor of economic decline is the immediate loss of spousal labor market and pension income. Although most European countries provide support in the form of survivor pensions and social security, it may be insufficient to buffer the considerable loss of income from the deceased spouse (Gillen & Kim, 2009; Hungerford, 2001; Hurd & Wise, 1987). Moreover, it is unlikely that any increase in labor market activity by the surviving spouse by the surviving spouse to improve their financial wellbeing will match that of the deceased spouse. In contrast, the psychological and physical consequences of widowhood may decrease widows' and widowers' earnings capacities on the labor market. Overall, we expect that *widowhood is associated with both a decline in the surviving spouses' economic wellbeing in the short-term, i.e. the year of spousal death, as well as in the medium-term, i.e. up to five years following spousal death* (hypothesis 1).

Survivor benefit regimes in a comparative perspective

Old-age pensions systems and survivor benefit regimes are two tightly related policy instruments to mitigate the consequences of widowhood for older adults (James, 2009). There is, however, considerable variation in arrangements, support levels, and the importance of survivor benefits. Old-age pensions systems are particularly relevant for post-retirement widowhood, and especially for widows in countries with high female labor market participation. In countries with universal and generous old-age pension systems, additional survival benefits to secure the economic wellbeing of spouses after retirement may be less important. However, in countries with low (female) labor market participation and less generous pensions, the wellbeing of retired bereaved spouses may depend on survivor benefits to avoid poverty.

While there is substantial literature on old-age pension regimes and their redistributive potential (Ebbinghaus, 2021), there is a lack of systematic studies on survivor benefits. One reason is the complexity of survivor benefits. For example, survivor benefits differ in their administration (public, private), financing (public or private insurance), target population (widows and widowers or orphans), benefit type (flat rates, means-tested, earnings-related), duration (temporary, lifetime), and eligibility (age, gender and marital status restrictions) (OECD, 2018).

In this study, we focus on the extent that widows' and widowers' access to survivor benefits as well as the generosity of such transfers, can account for different economic outcomes in several countries. This goes beyond previous cross-national studies that linked variation in survivors' economic wellbeing to course measures of welfare state generosity (Bíró, 2013; Hungerford, 2001). We focus on two dimensions of survivor benefits – coverage and generosity – that are likely central to classifying and assessing countries' abilities in protecting the wellbeing of widows and widowers. For example, regimes with low benefits and restricted access (e.g., means-based eligibility) likely focus on poverty reduction, but may miss vulnerable groups, such as women and older adults with precarious employment histories. In contrast, it is unlikely

that social groups will be neglected in regimes with generous benefits and universal access. Altogether, we expect that *the short- and medium-terms association between widowhood and surviving spouses' economic wellbeing is weaker in countries with a wider coverage and more generous survivor benefits* (hypothesis 2).

Heterogeneity by Gender and Labor Market Attachment

Widowhood is commonly thought to impact women's economic wellbeing to a greater degree than men's (see Holden & Smock, 1991). Compared to men, women's employment life courses are characterized by less full-time employment and more part-time employment as well as a larger number of spells out of the labor force due to childbearing (Van Winkle & Fasang, 2021, 2017). Not only does this result in large gender and motherhood pay gaps while women are actively employed (Van Winkle & Fasang, 2020), but also in large pension gaps as well (Rowold et al., 2024). Therefore, the relative loss of a deceased male spouse's pension income tends to be considerably larger than that of a deceased female spouse's pension income. However, gender differences as well as differences based on lifetime labor market attachment should be smaller in countries wider coverage and more generous benefits, because survivor benefits should mitigate those relative losses to a greater degree than when they are absent. Therefore, we expect that *the change in the association between widowhood and economic wellbeing in the short- and medium-term due to the coverage and generosity of survivor benefits is larger for women and for retired adults with low lifetime labor market attachment* (hypothesis 3).

Data and Methods

Analytical sample

We drew on data from the Survey of Health, Ageing, and Retirement in Europe (SHARE) (Börsch-Supan et al., 2013) to test our hypotheses. SHARE is a cross-national household panel study that collects information on health, socio-economic status and social and family networks of individuals aged 50 or older on a biennial basis.

The first wave of SHARE was collected in 2004 with representative samples of individuals in 11 European countries and Israel. The third wave of SHARE, also called SHARELIFE, consisted of a life history module rather than the regular questionnaire from the first and second wave. In the life history modules of SHARELIFE, retrospective information on respondents' work, family, residential, and health histories as well as information about childhood was collected. The 4th, 5th, 6th and 8th waves returned to the regular questionnaires from the first two waves that collected various prospective information and saw the addition of numerous countries. The 7th wave, collected in 2017, was a dual wave: Respondents and countries who did not participate in the third wave (SHARELIFE) were given the retrospective life history questionnaires rather than the regular prospective interview. Only respondents who had participated in the third wave were given the regular questionnaire.

Our aim was to assess the consequences of spousal loss on a sample of persons who were observed to transition from marriage to widowhood. We first restricted our country sample to those who participated in at least five waves, excluding wave 3. This ensures that our potential window of observation was long enough to observe transitions into widowhood. Our sample included individuals from Austria, Germany, Sweden, the Netherlands, Spain, Italy, France, Denmark, Greece, Switzerland, Belgium, Israel, the Czech Republic, Poland, Slovenia, and Estonia.

We then generated a sample of individuals who were married or in a registered partnership at their first regular observation and who were observed to transition to widowhood. We included all regular observations following spousal loss regardless of whether widows or widowers re-

partner. Including these observations was consistent with our goal of estimating the association between widowhood and economic wellbeing in the years following spousal loss. Their exclusion would have led to larger negative estimates and concealed any post-bereavement recovery. Finally, we restricted our sample of widows and widowers to persons who entered retirement prior to widowhood or in the year of spousal death. We classified individuals as retired if they (a) declared being in retirement or (b) were 55 years or older and declared being permanently sick or a homemaker. In addition, we included a sample of continuously married respondents in our analyses. Concurrent to our widowed sample, we restricted our sample of continuously married to retired older adults.

Focus variables

We measured *economic wellbeing* in terms of total net household income percentile rank.[2] Net household income included annual post-tax earnings from 1) employment and self-employment, 2) public and private pensions, such as old-age, retirement, survivor, war and occupational pensions, 3) disability, sickness, unemployment, and social assistance benefits, 4) regular private pensions and transfers, 5) rent and sublet income, 6) interest and dividends from bank accounts, bonds, stocks, and mutual funds, 7) and any further income from household members. Due to a high amount of missing values, we used the first imputed total net household income value provided by SHARE for respondents with no income values. We then computed percentile ranks for all SHARE respondents by country and wave with calibrated cross-sectional weights.

We constructed two country-wave variables that reflect the *coverage and generosity of survivor benefits* for widowed households. Coverage indicated the percent of widows and widowers

[2] Note that respondents were asked about pre-tax income in wave 1. We used the post-tax estimates provided by SHARE, which are based on estimates from EUROMOD.

receiving any survivor benefit in a given country-year. Generosity reflected the average amount of received by widows and widowers measured as the percent of an average widowed household income in a given country-year.

The main explanatory variable was a categorical indicator of the *time since widowhood* in five categories: (1) married, (2) the year of spousal death, (3) one or two years, (4) three or four years, and (5) five or more years after bereavement.

Analytical strategy

Our first aim was to explore how widowhood influences the economic wellbeing of retired adults across European countries. We used between-within random effects linear regression models (Sjölander et al., 2013), also known as hybrid random effects regression models (Allison, 2009), with observation years nested in individuals to estimate changes in the percentile rank of household income separately by country. Alternatively, we could have used fixed effects models or variants of traditional hierarchical random effects modeling, e.g. growth curve models. However, between-within random effects models combine the advantages of fixed effects and random effects models by estimating both between- and within-individual effects. In addition, between-within models allowed us to retain information about baseline differences in income, i.e. that we do not disregard the levels around which change occurs. To accomplish this, all relevant time-varying covariates were included twice: as time-constant individual means and as time-varying deviations from those individual means.

A between-within random effects model can be formulated as:

$$y_{it} = \beta_0 + \bar{X}_i\beta^{BE} + (X_{it} - \bar{X}_i)\beta^{FE} + u_i + e_{it} \quad (1)$$

where income percentile, *y*, for an individual, *i*, at time point, *t*, is a function of time-constant predictors and their vector of between-individual coefficients, and time-varying predictors and

their within-individual coefficients as well as an individual random intercept and idiosyncratic error term.

In our case, we included our categorical indicator for duration since widowhood as a series of binary indicators and individual averages of those binary indicators.

$$2 \qquad y_{it} = \beta_0 + \overline{D}_i\beta_1^{BE} + (D_{it} - \overline{D}_i)\beta_1^{FE} + X\beta + u_i + e_{it}$$

Our focus was on the binary indicators, displayed in Equation 2 as β_1^{FE}, which capture average within-individual change in economic wellbeing in the year of spousal death, one or two years, three or four years, and five or more years after bereavement compared to one or more years within marriage prior to widowhood.

Our second aim was to assess whether survivor benefits were able to mitigate the consequences of widowhood for surviving spouses' economic wellbeing. To that end, we pooled our country samples and estimated one between-within random effects linear regression model that included country random intercepts, i.e. a three level model (see Equation 3).

$$3 \qquad y_{itc} = \beta_0 + \overline{D}_i\beta_1^{BE} + (D_{it} - \overline{D}_i)\beta_1^{FE} + X\beta + u_i + u_c + e_{itc}$$

This gave us an estimate of average within-individual change in economic wellbeing at the time of spousal death and in the following years across our sample of European countries. We then included our indicator for the generosity of survivor benefits and interacted it with our set of duration since widowhood indicators.

$$4 \qquad y_{itc} = \beta_0 + \overline{D}_i\beta_1^{BE} + (D_{it} - \overline{D}_i)\beta_1^{FE}$$
$$+ G_{ct}\beta_2 + \overline{D}_i G_{ct}\beta_3^{BE} + (D_{it} - \overline{D}_i)G_{ct}\beta_3^{FE} + X\beta + u_i + u_c + e_{itc}$$

Our focus was on whether we observed a positive interaction between generosity of survivor benefits and within-individual change in economic wellbeing following widowhood, displayed as β_3^{FE} in Equation 4. We estimated an analogous model with the coverage of survivor benefits

as well as a final model that included both the generosity and coverage of survivor benefits (see Equation 5).

$$
\begin{aligned}
5 \qquad y_{itc} = {} & \beta_0 + \overline{D}_i\beta_1^{BE} + (D_{it} - \overline{D}_i)\beta_1^{FE} \\
& + G_{ct}\beta_2 + \overline{D}_i G_{ct}\beta_3^{BE} + (D_{it} - \overline{D}_i)G_{ct}\beta_3^{FE} \\
& + C_{ct}\beta_4 + \overline{D}_i C_{ct}\beta_5^{BE} + (D_{it} - \overline{D}_i)C_{ct}\beta_5^{FE} + X\beta + u_i + u_c + e_{itc}
\end{aligned}
$$

In all models, we included a number of controls, such as a sample indicator (ever widowed or continuously married), gender, age, years of education, and survey wave fixed effects. In additional analyses, we estimated our final model first by gender and then by lifetime labor market attachment. We measure lifetime labor market attachment based on the number of years in fulltime employment taken from retrospective SHARELIFE surveys in waves 3 and 7. Older adults in the lower quartile of the country-specific years in fulltime employment distribution were considered to have low lifetime labor market attachment, while those in the upper-75 percent of the distribution were considered to have high lifetime labor market attachment.

Results

Descriptive Statistics

Summary statistics for our widowed and continuously married samples are displayed in Table 1. As can be seen, average household incomes and percentile ranks were lower for the widowed compared to the continuously married samples. Across our sample of European countries, men and women in our widowed sample had an average of 23,000 euros, while continuously married households had roughly 31,300 euros. In terms of percentile rank, our widowed sample was located around the 42nd percentile of their country-year distribution of observed household incomes, whereas our continuously married sample ranged near the 56th percentile. A considerable proportion, roughly 18 %, of observations in the widowed sample received

survivor benefits. Across our sample of European countries, survivor benefits received by the widowed sample totaled an average of 1,200 euros. That corresponded to approximately 9 % of the average household income for widows and widowers.

Table 1

Our two samples differed on other observed characteristics in expected ways. For example, women made up some 72 % of the widowed sample, compared to nearly equal proportions in our continuously married sample. Moreover, the widowed sample was slightly older than the continuously married sample: roughly 74 and 70 years, respectively. The gender and age difference could account for the slight difference in educational attainment between the two groups. Our widowed sample had 9.4 years of education, compared to 10.5 years for continuously married respondents.

Table 2

Descriptive statistics on our economic wellbeing and survivor benefit variables are shown by country in Table 2. Average household incomes – displayed here as 2015 German euros – varied dramatically across countries from roughly 53,700 euros in Switzerland to 10,400 euros in Poland. Average percentile ranks were more similar across countries, and as would be expected, and generally varied between 40 and 60. Survivor benefit coverage and generosity varied considerably across our sample of European countries. Not even 1 % of widowed households received any survivor benefit in Estonia, while in France nearly 66 % of widowed households received a survivor benefit. In absolute terms, survivor benefits were most generous in the

Netherlands (roughly 3,000 euros) and were least generous in the Czech Republic (approximately 160 euros). Measured as the percent of an average widowed household income, survivor benefits were most generous in Slovenia (over 13 %) and were least generous in the Czech Republic (nearly 2 %).

Economic Wellbeing following Widowhood across Countries

Average within-individual change in economic wellbeing following widowhood is displayed in Figure 1 by country, estimated by between-within random effects regressions. As can be seen in Figure 1, surviving spouses' economic wellbeing measured in terms of household income percentile rank decreased in the year of spousal loss across all countries, in line with our first hypothesis. The immediate impact on economic wellbeing was largest in Greece, where surviving spouses' household incomes droped by roughly 26 percentiles in the distribution compared to pre-widowhood levels. The consequences in the years of widowhood were smallest in Slovenia, where widows' and widowers' household incomes were just over 7 percentiles lower than pre-bereavement levels.

Figure 1

In many countries – such as Germany, the Netherlands, Italy, France, Greece, and Switzerland – the decline in economic wellbeing was in largest in the year of spousal death. In these countries, household incomes tended to remain constantly lower than pre-widowhood levels; however, there were no further declines. In other countries – such as Austria, Sweden, Spain, Denmark, the Czech Republic, Poland, Slovenia, and Estonia – survivors' economic wellbeing declined further one to two years after spousal death. For example, widows' and widowers'

household incomes in Estonia were approximately 18 percentiles lower than pre-bereavement levels in the year of spousal loss, but roughly 34 percentiles lower one to two years after death. In all countries, surviving spouses' position in the income distribution remained lower then pre-bereavement levels three or more years following widowhood, but we did not observe any further substantial declines.

Survivor Benefits and Economic Wellbeing following Widowhood

Results from our pooled between-within random effects regressions are displayed in Table 3. As can be seen from Model 1 (see Table 3), surviving spouses' household incomes were on average roughly 14 percentiles lower than pre-bereavement levels across our sample of European countries. Widows' and widowers' economic wellbeing declined further one to two years after spousal death and was approximately 23 percentiles lower than pre-widowhood levels. Although survivors' location in the income distribution remained lower three or more years after spousal loss, we did not observe any further average declines in our pooled country sample.

Table 3

In a second model, we included the country-wave indicator for the generosity of survivor benefits and interacted it with time since widowhood (see Table 3). We found that survivor benefit generosity was not associated with household income percentile rank for married individuals, i.e. the main effect displayed in Table 3. However, we did find statistically significant and sizable interactions between survivor benefit generosity and time since widowhood. Our results demonstrated that country-years with more generous survivor benefits

were associated with smaller declines in household income percentile rank in the year of spousal loss and beyond. A one-point increase in the generosity of survivor benefits was linked with a 0.3 reduction in the estimated decline of household income percentile rank in the year of spousal death. Interestingly, the estimated interaction effect increased with time since widowhood. One to two years after spousal death, a one-point increase in the generosity of survivor benefits was associated with a 0.5 reduction in the estimated decline of household income percentile rank. This reduction increased to 0.6 and nearly 0.8 three to four years and five or more years after bereavement, respectively.

Results for the coverage of survivor benefits (see Model 3, Table 3) were similar to those survivor benefit generosity, but considerably smaller. An increase in the coverage of survivor benefits was not linked with the decline of household income percentile rank in the year of spousal death. One to two years after spousal death, a one-point increase in the coverage of survivor benefits was associated with a 0.1 reduction in the estimated decline of household income percentile rank. A similar sized association was observed for three to four years and five or more years after bereavement. Our results for the generosity and coverage of survivor benefits remained, although were somewhat smaller, when both indicators were included in the model simultaneously (see Model 4, Table 3), which supports our second hypothesis.

Additional Analyses

Results from fully specified models estimated separately by gender and by lifetime labor market attachment can be found in Table 4. Our analyses by gender lent support to previous findings that widowhood is more detrimental for women's economic wellbeing than for men's. Across our sample of European countries, widows' household incomes declined on average by roughly 16 percentiles in the year of spousal death, compared roughly 9 percentiles for men. Interestingly, these gender differences decreased as time since widowhood passes. One to two

years following widowhood, women's household incomes remained nearly 24 percentiles lower than pre-widowhood levels. For men the association between widowhood and economic wellbeing nearly doubled and grew from a 9 percentile decrease in the year of spousal death to an 18 percentile decrease one to two years after death. Five or more years following widowhood, men's household incomes remained nearly 20 percentiles lower than pre-widowhood levels compared to 22 percentiles for women.

However, our findings did not support our third hypothesis that survivor benefit coverage and generosity should moderate the link between spousal death and economic wellbeing more for women than for men. For both widowed men and women, the results reflected those presented above. Survivor benefit generosity and to a lesser extent survivor benefit coverage ameliorated the association between time since widowhood and household income percentile rank. However, we found no systematic gender differences in the strength of our estimated interaction coefficients.

Table 4

In contrast to our findings for gender, we found no substantial differences in the consequences of widowhood for economic wellbeing by the degree of lifetime labor market attachment. The household incomes of older adults with low lifetime labor market attachment declined by roughly 15 percentiles in the year of spousal death, compared to roughly 13 percentiles for those with high lifetime labor market attachment. In the years following widowhood, our estimates for the two groups were nearly the same.

However, and in support for our third hypothesis, we found evidence that the generosity of survivor benefits may be diminish the link between widowhood and surviving spouses'

economic wellbeing more for older adults with low compared to high lifetime labor market attachment. In the year of spousal death, a one percentage point increase in the generosity of survivor benefits was associated with a 0.6 lower decrease in household income percentile rank for bereaved adults with low lifetime labor market attachment compared to a 0.5 decrease for those with high lifetime labor market attachment. That small difference grew as time since widowhood progressed. Our results for the coverage of survivor benefits, however, were mixed and showed no systematic differences.

Discussion

In this study, we took a comparative approach to address two research questions. First, we assessed the economic consequences of widowhood for households across European countries. Second, we investigated the role of survivor benefit transfers in mitigating the economic consequences of widowhood. We drew on longitudinal data from the Survey of Health, Ageing, and Retirement in Europe and used between-within random effects regression modeling to empirically examine our research questions. We estimated change in household income measured as percentile rank in the year of spousal death and after the event of widowhood takes place. In addition, we calculated how changes in economic wellbeing varied depending on the coverage and generosity of survivor benefits across our sample of European countries. For that reason, our analyses focused on households where the surviving spouse was retired at the time of widowhood.

We found that surviving spouses' economic wellbeing declines in the years of spousal death in all European countries. Moreover, widows' and widowers' economic wellbeing continued to decline one to two years after bereavement in nearly half of the countries in our sample. Starting around three years after spousal loss, the economic wellbeing of bereaved spouses remained

relatively constant without declining further or recuperating. However, the impact of spousal death on widowed households' economic wellbeing varied largely across countries.

Our empirical analyses suggested that some country variation in the consequences of widowhood on surviving spouses' economic wellbeing was due to the coverage but especially the generosity of survivor benefits. We found that the decline in widowed households' economic wellbeing was smaller in countries where survivor benefits are more generous. Moreover, our findings suggested that the impact of survivor benefits grows or at least persists as time since spousal death progressed.

In addition, we assessed heterogeneity by gender and lifetime labor market attachment. Our findings for gender were largely in line with previous research (e.g., Holden & Smock, 1991), however we demonstrated that the coverage and generosity of survivor benefits did not moderate the link between widowhood and economic wellbeing in a gender-specific manner. We did find evidence that the generosity of survivor benefits may be especially effective in ameliorating the economic consequences of widowhood for older adults with low lifetime labor market attachment. Further research is needed to understand the interplay between widowhood, survivor benefits and economic wellbeing by gender and lifetime labor market attachment.

A limitation of our study lies in its focus on public survivor benefits. This was a reasonable restriction due to the context of our study, which sought to focus on retired widows and widowers and understand how the pension system reacts to spousal death. However, we did not include private or occupational survivor benefits that are common in many European countries. In addition, we did not assess the potential of life insurance payments that may be triggered among spousal death. Future research should focus on differences between public and private survivor pensions and how they may mitigate or exacerbate economic inequalities in the consequences on widowhood.

In sum, our study demonstrated that even within European countries with the strongest welfare states, widowhood remains a considerable risk for surviving spouses' economic wellbeing. At a time when numerous countries are curtailing or abolishing survivor benefits (James, 2009; OECD, 2018), often as a reaction to increased women's labor market participation, our findings highlight the importance of public financial transfers following spousal death to secure widows' and widowers' economic wellbeing during retirement.

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Tables

Table 1: Summary Statistics of the Widowed and Continuously Married Samples

	Continuously Married	Widowed	Total
N	121,315 (86.8%)	18,476 (13.2%)	139,791 (100.0%)
Total household income	31,255.944 (31,377.285)	23,043.326 (26,108.642)	30,170.492 (30,858.302)
Income percentile rank	55.901 (24.956)	42.461 (25.650)	54.124 (25.459)
Marital status			
Married	121,315 (100.0%)	10,471 (56.7%)	131,786 (94.3%)
Widowed	0 (0.0%)	8,001 (43.3%)	8,001 (5.7%)
Widowhood duration			
-1 or more	121,315 (100.0%)	9,714 (52.6%)	131,029 (93.7%)
0	0 (0.0%)	1,356 (7.3%)	1,356 (1.0%)
+1/+2	0 (0.0%)	3,140 (17.0%)	3,140 (2.2%)
+3/+4	0 (0.0%)	1,797 (9.7%)	1,797 (1.3%)
+5 or more	0 (0.0%)	2,469 (13.4%)	2,469 (1.8%)
Survivor pension recipient			
None	119,559 (99.0%)	15,100 (82.3%)	134,659 (96.8%)
At least one	1,219 (1.0%)	3,242 (17.7%)	4,461 (3.2%)
Survivor pensions (€)	1,493.956 (2,933.586)	1,193.557 (2,052.037)	1,276.165 (2,331.426)
Survivor pensions (%)	8.692 (16.358)	9.233 (14.892)	9.084 (15.309)
Male or female			
Male	62,711 (51.7%)	5,104 (27.6%)	67,815 (48.5%)
Female	58,604 (48.3%)	13,372 (72.4%)	71,976 (51.5%)
Age	69.523 (7.877)	73.994 (8.716)	70.114 (8.135)
Years of education	10.510 (4.354)	9.430 (4.292)	10.367 (4.361)
Country			
Austria	7,309 (6.0%)	919 (5.0%)	8,228 (5.9%)
Germany	8,439 (7.0%)	1,034 (5.6%)	9,473 (6.8%)
Sweden	8,306 (6.8%)	1,332 (7.2%)	9,638 (6.9%)
Netherlands	5,923 (4.9%)	639 (3.5%)	6,562 (4.7%)
Spain	11,715 (9.7%)	2,079 (11.3%)	13,794 (9.9%)
Italy	11,029 (9.1%)	1,561 (8.4%)	12,590 (9.0%)
France	9,285 (7.7%)	1,312 (7.1%)	10,597 (7.6%)
Denmark	5,779 (4.8%)	1,060 (5.7%)	6,839 (4.9%)
Greece	6,619 (5.5%)	816 (4.4%)	7,435 (5.3%)
Switzerland	5,382 (4.4%)	813 (4.4%)	6,195 (4.4%)
Belgium	11,048 (9.1%)	1,434 (7.8%)	12,482 (8.9%)
Israel	3,941 (3.2%)	895 (4.8%)	4,836 (3.5%)
Czech Republic	9,100 (7.5%)	1,398 (7.6%)	10,498 (7.5%)
Poland	4,348 (3.6%)	886 (4.8%)	5,234 (3.7%)
Slovenia	6,364 (5.2%)	714 (3.9%)	7,078 (5.1%)
Estonia	6,728 (5.5%)	1,584 (8.6%)	8,312 (5.9%)

Note: Frequencies and percentages in parentheses or means and standard deviations in parentheses are shown. Data are weighted.

Table 2: Summary Statistics by Country

	Austria	Germany	Sweden	Netherlands	Spain	Italy	France	Denmark
Waves	7 (7.2%)	7 (7.2%)	7 (7.2%)	5 (5.2%)	7 (7.2%)	7 (7.2%)	7 (7.2%)	7 (7.2%)
HH income	28,515.962	26,567.625	29,821.192	26,778.301	13,453.892	24,342.123	32,297.000	30,447.741
	(11,437.232)	(10,762.499)	(12,314.294)	(19,078.657)	(3,767.364)	(11,072.954)	(19,586.953)	(11,258.863)
Percentile	54.000	47.143	50.143	36.200	41.857	58.714	49.571	52.571
	(22.855)	(22.807)	(24.909)	(33.109)	(14.724)	(28.779)	(31.187)	(20.082)
SB coverage	54.135	56.653	31.615	12.975	64.932	51.562	65.740	12.212
	(10.978)	(4.644)	(10.286)	(3.775)	(2.059)	(5.087)	(2.988)	(1.786)
SB generosity	1,847.124	929.520	775.144	2,991.546	2,131.447	1,107.757	1,364.139	1,331.806
(absolute)	(145.047)	(181.284)	(943.665)	(3,224.195)	(263.235)	(185.842)	(745.628)	(1,514.176)
SB generosity	9.133	4.555	4.487	8.625	17.016	7.962	6.212	7.861
(percent)	(1.316)	(0.819)	(4.886)	(4.049)	(1.713)	(1.675)	(3.192)	(7.921)

	Greece	Switzerland	Belgium	Israel	Czech Republic	Poland	Slovenia	Estonia
Waves	5 (5.2%)	7 (7.2%)	7 (7.2%)	5 (5.2%)	6 (6.2%)	5 (5.2%)	4 (4.1%)	4 (4.1%)
HH income	13,897.632	53,728.914	31,753.306	32,504.080	16,144.909	10,453.562	22,167.184	12,450.882
	(8,542.428)	(42,219.819)	(30,901.840)	(15,919.185)	(5,060.271)	(3,920.589)	(4,240.351)	(12,468.399)
Percentile	46.600	49.286	43.286	63.000	55.333	48.600	66.500	46.250
	(29.022)	(26.569)	(29.125)	(23.065)	(19.325)	(20.268)	(15.330)	(36.142)
SB coverage	45.892	17.666	45.296	29.576	49.186	18.890	39.505	0.463
	(6.584)	(3.365)	(2.279)	(4.409)	(11.137)	(3.243)	(3.877)	(0.210)
SB generosity	1,328.134	2,651.004	2,541.271	375.802	160.265	772.479	1,571.460	419.791
(absolute)	(591.905)	(2,485.913)	(532.838)	(46.418)	(11.916)	(165.759)	(557.773)	(210.238)
SB generosity	12.402	9.564	8.497	2.410	1.680	9.861	13.548	5.911
(percent)	(3.504)	(8.979)	(1.434)	(0.669)	(0.147)	(1.498)	(3.171)	(3.094)

Note: Frequencies and percentages in parentheses or means and standard deviations in parentheses are shown. Data are weighted.

Table 3: Results from Between-Within Random Effects Regressions of Duration Since Widowhood and Survivor Pensions on Household Income Percentile Rank

	1	2	3	4
Years since widowhood (ref. -1 or more)				
0 years	-13.818***	-13.736***	-13.871***	-13.814***
	(0.64)	(0.64)	(0.64)	(0.64)
1/2 years	-22.527***	-22.224***	-22.333***	-22.196***
	(0.43)	(0.44)	(0.44)	(0.44)
3/4 years	-21.468***	-21.182***	-21.345***	-21.213***
	(0.56)	(0.56)	(0.56)	(0.57)
5+ years	-21.926***	-21.697***	-21.882***	-21.779***
	(0.56)	(0.57)	(0.56)	(0.58)
Survivor benefit generosity		-0.249		-0.291
		(0.18)		(0.18)
Years since widowhood*Generosity				
0 years		0.321*		0.324*
		(0.13)		(0.14)
1/2 years		0.585***		0.471***
		(0.09)		(0.10)
3/4 years		0.621***		0.456***
		(0.12)		(0.12)
5+ years		0.771***		0.669***
		(0.11)		(0.11)
Survivor benefit coverage			-0.153*	-0.082
			(0.06)	(0.06)
Years since widowhood*Coverage				
0 years			0.026	-0.007
			(0.03)	(0.03)
1/2 years			0.129***	0.080***
			(0.02)	(0.02)
3/4 years			0.168***	0.126***
			(0.03)	(0.03)
5+ years			0.146***	0.083**
			(0.03)	(0.03)
Constant	64.023***	63.477***	63.550***	63.370***
	(1.95)	(1.90)	(2.02)	(1.93)
Random Parameters				
Var(Countries)	1.361***	1.216***	1.478***	1.291***
	(0.18)	(0.19)	(0.19)	(0.19)
Var(Individuals)	2.640***	2.642***	2.640***	2.642***
	(0.01)	(0.01)	(0.01)	(0.01)
Var(Residuals)	2.957***	2.956***	2.956***	2.955***
	(0.00)	(0.00)	(0.00)	(0.00)
Observations	139791	139791	139791	139791

Note: Unstandardized coefficients and standard errors in parentheses are displayed. Significance levels displayed as +p<0.1, *p<0.05, **p<0.01, and ***p<0.001. All between estimates are omitted as well as the sample indicator, gender, age education, and survey fixed effects.

Table 4: Results from Between-Within Random Effects Regressions of Duration Since Widowhood and Survivor Pensions on Household Income Percentile Rank by Gender and LM Attachment

	Men	Women	Low LM	High LM
Years since widowhood (ref. -1 or more)				
0 years	-8.767***	-15.605***	-15.255***	-12.667***
	(1.22)	(0.76)	(1.33)	(0.80)
1/2 years	-17.757***	-23.813***	-22.351***	-22.130***
	(0.80)	(0.53)	(0.93)	(0.55)
3/4 years	-18.393***	-21.961***	-21.161***	-20.956***
	(1.10)	(0.67)	(1.18)	(0.69)
5+ years	-19.555***	-22.302***	-21.828***	-21.479***
	(1.14)	(0.69)	(1.19)	(0.70)
Survivor benefit generosity	-0.428	-0.236	-0.037	-0.507*
	(0.34)	(0.22)	(0.36)	(0.23)
Years since widowhood*Generosity				
0 years	0.241	0.403*	0.609*	0.538**
	(0.27)	(0.16)	(0.29)	(0.17)
1/2 years	0.804***	0.349**	0.807***	0.455***
	(0.18)	(0.12)	(0.20)	(0.12)
3/4 years	0.696**	0.399**	0.704**	0.571***
	(0.24)	(0.15)	(0.25)	(0.15)
5+ years	0.562*	0.725***	0.941***	0.725***
	(0.24)	(0.13)	(0.22)	(0.14)
Survivor benefit coverage	-0.214+	-0.036	-0.070	-0.071
	(0.13)	(0.08)	(0.12)	(0.08)
Years since widowhood*Coverage				
0 years	-0.044	0.001	-0.031	0.021
	(0.06)	(0.04)	(0.06)	(0.04)
1/2 years	0.073+	0.087***	0.029	0.106***
	(0.04)	(0.03)	(0.05)	(0.03)
3/4 years	0.143**	0.122***	0.124*	0.130***
	(0.05)	(0.03)	(0.06)	(0.03)
5+ years	0.119*	0.073*	0.075	0.100**
	(0.05)	(0.03)	(0.05)	(0.03)
Constant	64.554***	61.381***	54.431***	65.929***
	(3.33)	(2.24)	(3.51)	(2.38)
Random Parameters				
Var(Countries)	1.356***	1.224***	0.953***	1.443***
	(0.19)	(0.19)	(0.22)	(0.19)
Var(Individuals)	2.650***	2.632***	2.578***	2.639***
	(0.01)	(0.01)	(0.02)	(0.01)
Var(Residuals)	2.941***	2.968***	2.982***	2.937***
	(0.00)	(0.00)	(0.01)	(0.00)
Observations	67815	71976	23645	93926

Note: Unstandardized coefficients and standard errors in parentheses are displayed. Significance levels displayed as +p<0.1, *p<0.05, **p<0.01, and ***p<0.001. All between estimates are omitted as well as the sample indicator, gender, age education, and survey fixed effects.

Figures

Figure 1: Results from Between-Within Random Effects Regression of Duration since Widowhood on Household Income Percentile Rank by Country