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# The impact of spousal Social Security claiming decisions on the financial shock of widowhood

## Abstract

This paper presents evidence suggesting that delayed Social Security claiming by husbands—resulting in an actuarially enhanced benefit—attenuates the financial shock of widowhood for their wives. Under Social Security survivor benefit rules, primary earners (usually husbands) pass on the actuarial adjustments from delayed claiming to their surviving spouses. Using a staggered difference-in-differences approach, I find women whose husbands delayed claiming to full retirement age or later face a post-widowhood increase of 6.9 percentage points in the probability of falling below the 5th percentile of the pre-widowhood income distribution. This effect is almost 12 percent smaller for each year of delayed claiming by the husband (though the attenuation is concentrated in the first 4 years of widowhood). The general findings are robust to instrumenting for the husband's claiming age using the loosening of the retirement earnings test in 2000—a policy change that incentivized earlier claiming.

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# 1. Introduction

Husbands who claim Social Security benefits early often leave their wives with lower survivor benefits during widowhood. The link between husbands' claiming ages and their widows' survivor benefits comes from Social Security benefit rules. Under these rules, primary earners (who are usually husbands) can claim benefits based on their own earnings record at any age between 62 and 70, with an actuarial adjustment that results in a larger monthly benefit for delayed claiming. If the primary earner dies first, the widow receives a survivor benefit (in place of her existing worker or spousal benefit) equal to the actual benefit of the primary earner, including (in most cases) these actuarial adjustments. Thus, delayed claiming by primary earners results in higher Social Security income for widowed secondary earners, potentially mitigating the financial impact of widowhood and requiring less of an adjustment along other margins such as labor supply, receipt of means-tested benefits, or wealth decumulation. Prior research suggests, however, that husbands may not take this link into account when deciding when to claim benefits (Henriques 2018; Sass Sun and Webb 2008, 2013; Munnell and Soto 2005). In this paper, I empirically investigate the relationship between the Social Security claiming ages of husbands and the post-widowhood outcomes of wives. I specifically focus on the interaction between widowhood and primary earners' claiming decisions. That is, I estimate the extent to which a husband's claiming age moderates the financial impact of widowhood on his wife.

This paper contributes to the large literature on Social Security claiming decisions (see Slavov 2024 for a review). Prior studies have shown that many people can increase the lifetime value of their Social Security benefits through delaying claiming (e.g., Shoven and Slavov 2014a,b; Meyer and Reichenstein 2010; Reichenstein and Meyer 2021; Mahaney and Carlson 2008). Some papers have also examined the link between claiming decisions and longer-term outcomes (e.g., Lee and Rao 2025). The claiming literature has emphasized that the gains from delay are particularly large for primary earners because of the rules for calculating survivor benefits. Intuitively, delaying Social Security is equivalent to buying a real annuity, as individuals give up current benefits in exchange for higher inflation-indexed monthly benefits for life. When a primary earner delays, the additional monthly benefit is effectively paid as a joint and survivor annuity, as it continues as long as either spouse is still alive. In contrast, when a secondary earner delays, the additional monthly benefit is paid as a first-to-die annuity: it ends upon the death of either the primary or the secondary earner. Both annuities are priced the same under Social Security benefit rules; thus, the joint-and-survivor annuity available to the primary earner provides more value for money.

Within the Social Security claiming literature, some papers have directly examined the impact of spousal claiming decisions on the well-being of widows. For example, Sass, Sun, and Webb (2013) perform a simulation to show that while delayed Social Security claiming by primary earner husbands only results in a small increase in lifetime benefits for the household, it potentially results in a large reduction in widow poverty due to the enhanced survivor benefit paid to surviving wives. Most closely related to this paper, Diebold et al. (2017) show empirically that widows whose husbands claimed early face a greater hazard of falling into poverty. This paper builds on Diebold et al.'s (2017) work by examining whether early claiming by the husband amplifies the impact of widowhood itself. That is, I compare the post-widowhood risk of poverty to the pre-widowhood risk of poverty for the widows of early claimers and delayers. That change is interesting because early claiming by husbands also results in lower pre-widowhood Social Security income, with its accompanying poverty risk, while both members of the couple are alive. However, widowhood may interact with this risk because it causes household income to fall, placing the widow even closer to poverty. Moreover, if (as Henriques 2018 suggests), husbands consider the pre-widowhood—but not the post-widowhood—consequences of early claiming, then this interaction between early claiming and widowhood captures the spillover effect that husbands' claiming decisions have on their wives.

Several studies have also indirectly estimated the impact of both own and spousal claiming decisions on later-life poverty by studying the elimination of the Social Security retirement earnings test (Olsen and Romig 2013; Anzick and Weaver 2000; Figinski and Newmark 2018). Social Security beneficiaries who continue to work may be subject to the earnings test, which effectively forces them to delay a portion of their benefits. The earnings test has undergone multiple policy changes, the most recent of which occurred in 2000. Prior to 2000, the earnings test applied to individuals below the age of 70. Since then, the earnings test has applied to individuals below full retirement age (FRA), which as ranged from 65 to 67 depending on birth cohort. Earlier studies have established that policies that loosen the earnings test, including the one passed in 2000, incentivize both early claiming higher earnings (e.g., Song and Manchester 2007; Gruber and Orszag 2003). Figinski and Newmark (2018) use cross-cohort variation to show that this policy change is associated with lower incomes among older women, although they do not distinguish between own and spousal claiming decisions. Anzick and Weaver (2000) and Olsen and Roming (2013) simulate the impact of earnings test elimination on poverty, accounting for the fact it would accelerate claiming.

Anzick and Weaver's (2000) simulations specifically include the impact of earnings test elimination on poverty among widows; however, they do not make a distinction between primary and secondary earners. Building on that work, I investigate whether the early claiming induced by the earnings test change in 2000 has amplified the impact of widowhood.

This paper contributes also contributes to the broader literature on spousal coordination in financial decision-making. As noted earlier, there is evidence that husbands do not consider the financial impact of early claiming on their wives. In a similar vein, Choukhmane et al. (2024) and Vihriälä (2025), respectively, find that spouses do not appear to jointly optimize their retirement plan contributions and credit card payments. On the other hand, there is evidence that couples do coordinate the timing of their retirement decisions (e.g., Hurd 1990; Blau 1998; Coile 2004; Lalive and Parrotta 2017; Kruse 2021), and that one spouse's health shocks influence the other spouse's retirement decisions (e.g., McGeary 2009; and Chung and Slavov 2025). A lack of spousal coordination in certain areas may reflect psychological factors, a lack of financial knowledge, or household bargaining.

These issues are important because widowed women face a relatively high risk of poverty during old age. In 2021, the poverty rate among widowed women aged 65 and older was 15.5 percent, compared to 10.3 percent for all individuals 65 and older (Dalaker and Li 2022). Low-income widowed women are often secondary earners who depend on Social Security survivor benefits, which are calculated based on the earnings record of the deceased primary earner. Given the stakes involved in Social Security claiming decisions generally, as well as the heightened risk of poverty among widows, policy makers and financial planners may wish to understand how primary earners' claiming decisions affect post-widowhood outcomes for secondary earners. This interaction is likely to be complex. While early claiming by the primary earner leaves widows with less Social Security income, other factors may offset some of this loss. For example, when a primary earner claims Social Security early, the couple may need to spend less of their private retirement saving to finance consumption during their early retirement years, leaving the widow with more non-Social Security wealth to draw down on. On the other hand, lower pre-widowhood income (due to early claiming) may cause the couple to draw down on their other assets more rapidly, leaving the widow with fewer resources. Widows may also change their behavior to mitigate the loss of Social Security income. For example, they may change their labor supply or qualify for means-tested government benefits.

## 2. Background

Social Security benefits for retired workers are based on the highest 35 years of earnings, indexed for economy-wide wage growth. A progressive formula is applied to this average, resulting in a value known as the Primary Insurance Amount (PIA). The PIA is the monthly benefit that is payable if benefits are claimed at full retirement age (FRA), which has ranged from 65 to 67 depending on birth cohort. However, benefits can be claimed as early as age 62 or as late as age 70. Claiming before FRA results in an actuarial reduction in benefits. For example, individuals born in 1960 and later (who have an FRA of 67) receive a benefit that is 70 percent of their PIA if they claim at age 62. Claiming after FRA results in the application of a delayed retirement credit (DRC). For individuals born in 1943 or later, the DRC is equal to 8 percent of PIA for each year of delay. Thus, if someone with an FRA of 67 claims at age 70, they receive a benefit equal to 124 percent of their PIA. The first column of Table 1 shows the actuarially adjusted benefit at various claiming age—as a percent of PIA—for a person born in 1960 or later.

Primary earners typically claim retired worker benefits as determined by the formula described above. Secondary earners with significant earnings may receive similarly calculated worker benefits. However, they may alternatively receive a spousal benefit—equal to half the primary earner's PIA—if that is higher. When one spouse dies, the widow receives the higher of 1) their own Social Security benefit or 2) a survivor benefit equal to the deceased spouse's benefit. It is generally in the interest of secondary earners to begin receiving a survivor benefit after widowhood. (Primary earners, on the other hand, generally continue to receive their own benefit.) These Social Security rules are gender neutral. However, especially for the birth cohorts studied in this paper, husbands are typically primary earners and wives are typically secondary earners.[1] Accordingly, my analysis is performed for women who are married to men, and I use "husband" interchangeably with "primary earner" (and "wife" interchangeably with "secondary earner").

Because the survivor benefit is equal to the deceased spouse's actual benefit, it includes any actuarial adjustments based on that spouse's claiming age. There is, however, one exception to this rule: the widow always receives a benefit that is greater than or equal to 82.5 percent of the deceased spouse's PIA (see Weaver 2001 for a detailed discussion). For example, consider a couple born in 1960 or later. If the primary earner

1 In the sample of women used in this paper, only 18 percent have pre-widowhood Social Security benefits that are higher than that of their husbands.

claims at age 62 and receives an actuarially reduced benefit equal to 70 percent of his PIA, the secondary earner will receive 82.5 percent of primary earner's PIA in the event of widowhood. Alternatively, if the primary earner claims at age 65, resulting in a monthly benefit equal to 86.7 of PIA, the secondary earner's survivor benefit will also be equal to 86.7 percent of the primary earner's PIA (because that fraction exceeds 82.5 percent). And if the primary earner delays to age 70, receiving 124 percent of his PIA, the secondary earner's survivor benefit will also be equal to 124 percent of the primary earner's PIA. The second column of Table 1 shows the survivor benefit that the secondary earner would receive at alternative claiming ages for the primary earner.[2]

To see more clearly how a husband's claiming decision affects his wife's post-widowhood income, consider a husband and wife who are both born in 1960 or later (and therefore have an FRA of 67). Suppose the husband has a PIA of $1,500, representing the amount he would receive if he claimed benefits at his FRA of 67. Alternatively, if the husband were to delay to age 70, he would receive a monthly payment of $1,860 (124 percent of his PIA). If he were to claim at the age of 65—before FRA—he would receive a monthly benefit of $1,300. Suppose further that the wife receives a spousal benefit of $750 per month—half the husband's PIA—while the husband is alive.[3] For simplicity, I assume that the couple has no other sources of retirement income besides Social Security. The first three columns of Table 2 show the monthly benefit amounts received by each member of the couple, and the household overall, for these alternative claiming ages. The fourth column shows the couple's pre-widowhood annual income (the amount in the third column multiplied by 12). If the wife is widowed, she receives a monthly survivor benefit equal to the maximum of her deceased husband's monthly benefit and 82.5 percent of her deceased husband's PIA. (She also gives up her spousal benefit.) The final column of the table shows the wife's annual income after widowhood.

Note that for all claiming ages of 65 and older, annual income declines by $9,000 upon widowhood. This amount represents the wife's annual spousal benefit ($750 x 12). Within this age range, the husband's claiming age does not affect the absolute change in income associated with widowhood. For claiming ages below 65, annual income declines by a smaller amount because the survivor benefit must be at least 82.5 percent of the husband's PIA. However, early claiming increases the risk that the widow's income falls below any given threshold, including the poverty line. The 2025 federal poverty line (FPL) is $21,150 for a two-person household and $15,650 for a one-person household.[4] The guideline accounts for both the lower cost of living for one-person households compared to two-person households, as well as the economies of scale experienced by two-person households compared to one-person households. The hypothetical couple in Table 2 is always above the two-person FPL. However, a widow whose deceased spouse claimed before age 66 falls below the one-person poverty line. If the poverty line were not lower for a one-person household, then the widow would fall below it unless the deceased husband claimed at age 70.

In this stylized example, the couple (and widow) have no sources of income other than Social Security. However, in the empirical work that follows, I allow for the possibility that a widow can replace lost Social Security income by drawing down on wealth, by increasing labor supply, or by qualifying for means-tested government benefits. A husband who claims early may allow the couple to preserve more of their wealth while both members are still alive, which in turn may leave the widow more resources to draw on. On the other hand, the lower pre-widowhood monthly benefit may cause the couple to draw down on their other assets more rapidly, leaving the widow with fewer resources.

## 3. Data and methodology

### A. Data

I use data from the Health and Retirement Study (HRS), a panel survey that is intended to be representative of the U.S. population aged 51 and older, and their spouses (Health and Retirement Study 2025).[5] The HRS has been conducted every other year since 1992, and the most recent wave used in this analysis is 2022. New cohorts are added at regular intervals to keep the sample representative of the target population. I restrict the sample to women who are married to men during their first wave in the sample.[6] All analysis is based on this marriage even if a woman has had multiple marriages. I also drop women whose first-wave husbands were born before 1920 or after 1955. Individuals born in 1955 turn 67 in 2022, an age by which most eligible people have claimed Social Security. Thus, this restriction allows me to observe the claiming ages of most eligible husbands. For the

2 The amounts shown in the table are the survivor benefits available if claimed at the secondary earner's FRA. There is a separate actuarial reduction for secondary earners who claim survivor benefits before their FRA.

3 For simplicity, I assume the wife claims her spousal benefit at age 67. If she were to claim earlier, there would be a separate actuarial reduction.

4 See https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines.

5 I use the RAND version of the HRS, a cleaned dataset that includes a subset of variables from the original survey (RAND Center for the Study of Aging 2025). The HRS (Health and Retirement Study) is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan.

6 Table A1, in the Appendix, summarizes the steps of the sample selection, along with the number of observations dropped at each step.

same reason, I drop women who leave the sample before their first-wave husbands turn 67. Throughout the analysis, all monetary amounts are expressed in 2022 dollars using the Bureau of Labor Statistics' Consumer Price Index for all Urban Consumers Research Series (CPI-U-RS).[7]

The key independent variables used in this analysis are an indicator for widowhood (treatment) and the husband's Social Security claiming age. I create the indicator for widowhood based on the first-wave husband's year of death. I further restrict the treated sample to women whose husbands died at or after the age of 70, as these husbands had the option to choose the maximum actuarial enhancement.[8] The HRS includes the earliest Social Security claiming age, in months, of any of the respondent's spouses. I use this variable to indicate the husband's claiming age. But there is an important caveat: if a woman has had multiple marriages, the variable may not accurately indicate the claiming age of her husband during the first wave. I drop any respondents whose husbands did not claim between the ages of 62 and 70. Respondents who claim before the age of 62 are not likely to be receiving retired worker benefits, and those claiming after 70 may not have been eligible for worker benefits during their 60s (e.g., due to a limited covered work history).

The key dependent variables include the Social Security Old Age and Survivor Insurance (OASI) income of each respondent and spouse in each wave, as well as a measure of the household's maximum sustainable annual consumption. The HRS data directly includes measures of annual income from OASI.[9] I estimate maximum sustainable annual consumption by adding total household income to a measure of the annuity value of household wealth. Total household income includes Social Security OASI and disability benefits, earnings from work, pension and annuity income, government benefits other than Social Security (such as unemployment benefits or SSI), and capital income. I construct a measure of household wealth that includes non-housing and non-retirement financial wealth, wealth held in individual retirement accounts (IRAs), and wealth held in any defined contribution plans offered by the respondent and spouse's current employers.[10] I convert this measure of wealth into an annual value using the Internal Revenue Service (IRS) single and uniform life tables for 2023.[11] These tables, which are intended to be used in calculating required minimum distributions from retirement accounts, provide estimates of remaining years of life for singles and for the last survivor of couples.[12] I then calculate the annual sustainable consumption, at a real interest rate of 2.5 percent, if total wealth were spread equally over the remaining life expectancy of the household.

Early claiming results in lower Social Security income both before and after widowhood. Thus, claiming age may not moderate the impact of widowhood on average income. However, as discussed in the previous section, it may affect the lower tail of the post-widowhood distribution. That is, it may increase the risk that widowhood causes a woman to fall below a (relatively low) threshold. To capture this effect, I construct indicators for whether the household's maximum sustainable consumption is below 100, 150, or 200 percent of the 2022 FPL ($13,590 for singles and $18,310 for couples), as well as indicators for whether the household's income falls below the 5th, 10th, and 15th percentiles of the distribution of pre-widowhood sustainable consumption ($19,108, $27,605, and $35,238, respectively). Of these poverty measures, only the FPL depends on household size and is therefore adjusted upon widowhood. The other measures do not depend on household size (although maximum sustainable consumption implicitly does via life expectancy).

Additional outcome variables used in the analysis include an indicator for doing any work for pay, weekly hours worked at a main job, and an indicator for receipt of means-tested government transfers (SSI, Medicaid, and "other" government transfers besides unemployment insurance and Social Security disability). In some specifications, I also control for demographics (race and ethnicity), education, and husband's PIA. I estimate the husband's PIA by applying Social Security claiming rules to the husband's maximum observed pre-widowhood Social Security benefit. For example, consider a husband with an FRA of 65 who claims Social Security at 63. The actuarial adjustment for claiming up to 36 months before FRA is 5/9 of 1 percent of PIA per month. Thus, this husband's actuarial reduction—for claiming 24 months before FRA—must be (5/9)(0.01)(24) = 13.33 percent. If this husband's highest observed Social Security benefit is $13,000 per year, then the husband's PIA must be $13,000 / (1 – 0.1333) = $15,000.

7 See https://www.bls.gov/cpi/research-series/r-cpi-u-rs-home.htm.

8 A primary earner who dies before the age of 70 and has not claimed yet is assumed to have claimed at their age of death or their full retirement age, whichever is later. The survivor benefit is based on that assumption.

9 The RAND version of the HRS imputes missing values for OASI income. The imputation process appears to have resulted in some implausibly large values for this variable. Thus, I winsorize this variable by setting the bottom and top 1 percent of its values equal to the first and 99th percentiles respectively.

10 Financial, non-retirement wealth is derived from RAND HRS variables h1atotf-h16atotf (which capture this measure of wealth in each survey wave). I winsorize total wealth by setting the top and bottom 1 percent of values equal to the 1st and 99th percentiles respectively.

11 See https://www.federalregister.gov/documents/full_text/xml/2020/11/12/2020-24723.xml.The uniform life table can be used by married people whose spouse is less than 10 years younger than them.

12 The single life expectancies are available for all ages, while the couple life expectancies are available starting at age 72. I fit a fifth order polynomial in age to both life expectancy tables and the estimates to predict remaining life expectancy at all ages.

## B. Methodology

I use difference-in-differences and event study models to investigate how the husband's claiming age moderates the impact of widowhood on wives' economic outcomes. More specifically, I begin by estimating the following difference-in-differences model for the women in the sample described above:

$$y_{it} = \beta_1 \cdot widowed_{it} + \beta_2 \cdot widowed_{it} \cdot (claimage_i - FRA_i) + \sum_a \mu_a I(age_{it}^w = a) + \sum_a \kappa_a I(age_{it}^h - FRA_i = a) + \theta_i + \phi_t + \epsilon_{it} \quad (1)$$

In this equation, $y_{it}$ represents an outcome (for example, labor force participation, income, withdrawals from retirement accounts, or an indicator for poverty) for individual $i$ in period $t$. The key independent variable is $widowed_{it}$, which takes on a value of 1 in periods after individual $i$ is widowed, and zero otherwise. (It is equal to zero throughout for individuals who are not widowed during the sample.) This variable is interacted with ($claimage_i$ - $FRA_i$), a variable equal to the difference between husband $i$'s claiming age ($claimage_i$) and his FRA ($FRA_i$). Both $claimage_i$ and $FRA_i$ are measured in months. The impact of widowhood on $y_{it}$ is therefore $\beta_1$ for wives whose husbands claimed at their FRA. Widowhood has an additional impact of $\beta_2$ for each month (or $12 \cdot \beta_2$ for each year) that the husband delayed claiming. Each indicator variable in the summation, $I(age_{it} = a)$, is an age dummy that takes on a value of 1 if wife $i$'s age ($age_{it}^w$) is equal to a during period $t$ and zero otherwise. Each indicator $I(age_{it}^h$ - $FRA_{it} = a)$ takes on a value of 1 if the difference between wife $i$'s first-wave husband's age ($age_{it}^h$) and his FRA is (or would be, if he were alive) $a$ years. Finally, I include individual fixed effects $\theta_i$ and time dummies $\phi_t$.

I also estimate an event-study version of (1) by replacing the indicator for widowhood with a set of relative time indicators:

$$y_{it} = \sum_s \beta_{1s} I(widowed\_wave_{i,t-s} = 1) + (claimage_i - FRA_i) \cdot \sum_s \beta_{2s} I(widowed\_wave_{i,t-s} = 1) + \sum_a \mu_a I(age_{it}^w = a) + \sum_a \kappa_a I(age_{it}^h - FRA_i = a) + \theta_i + \phi_t + \epsilon_{it} \quad (2)$$

In this equation, $widowed\_wave_{it}$ is an indicator that takes on a value of 1 during the exact wave in which individual $i$ becomes widowed. Thus, $I(widowed\_wave_{i,t-s} = 1)$ is an indicator that takes on a value of 1 if individual $i$ becomes widowed in period $t - s$. That is, it is an indicator for the current observation being $s$ periods away from the widowhood event. The associated event study coefficient is $\beta_{1s}$ when the husband claimed Social Security at FRA. Each additional year of delay by the spouse increases this event study coefficient by $12 \cdot \beta_{2s}$.

The "treatment" in these models is widowhood, and it occurs at different times for different individuals. A recent literature has shown that estimating (1) and (2) using OLS with individual and time dummies (traditional two-way fixed effects) can result in biased estimates (Callaway and Sant'Anna, 2021; de Chaisemartin and D'Haultfœuille, 2020; Goodman-Bacon, 2021; Sun and Abraham, 2021; Gardner et al. 2024; Borusyak et al. 2024). To summarize the concern, the causal effect in a traditional two-way fixed effects model is estimated by comparing widowed individuals to three different groups: never widowed individuals, not-yet-widowed individuals, and earlier-widowed individuals. The last comparison—of recently-widowed individuals to less-recently widowed individuals—can result in biased estimates if treatment effects vary over time.

To address this concern, I use an imputation estimator that is robust to staggered treatment (Gardner et al. 2024; Borusyak et al. 2024). Specifically, I use the two-stage difference-in-differences estimator of Gardner et al. (2024), as implemented by Butts and Gardner (2022). This approach estimates a first-stage regression using all never-treated and not-yet-treated observations. Because widowhood may be anticipated, I exclude the two waves immediately before widowhood from the first stage. The dependent variable in the first stage is the outcome of interest ($y_{it}$), and the independent variables include all those shown in equations (1) and (2) except the treatment (widowhood, the event time indicators, and their interactions with early claiming). This equation is used to derive predicted values for

all observations in the sample. In a second-stage regression, the residuals from these predictions are then regressed on the treatment or event time indicators. Thus, the impact of widowhood on the dependent variable is based on variation that is not explained by the first-stage regression. Gardner et al. (2024) show that this approach produces valid estimates of models like (1) and (2) in the presence of staggered treatment.

Estimation of (1) and (2) can provide insight into the correlation between widowhood and the outcome variables. The relationship is causal if the exact timing of widowhood for can be treated as an exogenous shock, an assumption that can be explored by examining pre-widowhood trends. Equations (1) and (2) can also provide insight into the correlation between spousal claiming age and the impact of widowhood. However, they may not capture the causal effect of spousal claiming age if there are factors that influence both spousal claiming age *and* the way that measured outcomes change around the time of widowhood.

I address this issue in two ways. First, I control as much as possible for observable differences across individuals by interacting the widowhood indicators in equations (1) and (2) with a variety of observable characteristics, including demographics, education, and the difference between the husband's PIA and the mean PIA in the sample. With the inclusion of these interactions in equation (1), the coefficient $\beta_1$ measures the impact of widowhood on the outcome for a woman in the base demographic and educational categories (white, non-Hispanic, some college) whose husband's PIA is equal to the sample average. The coefficient $12 \cdot \beta_2$ still measures the additional impact of a one-year increase in the husband's claiming age.

Second, in a similar spirit, I use an approach based on propensity score weighting, which gives additional weight to delayers with similar pre-widowhood characteristics as early claimers. I implement this approach by calculating inverse probability weights for all women during the first year of the survey. These weights are derived from a logit model that predicts the probability of the husband claiming early as a function of demographics, education, and the husband's PIA. The inverse probability weights are then used in the estimation of equation (1).[13]

Third, I use the rollback of the retirement earnings test in 2000 as an instrumental variable (IV) for the husband's claiming age, $claimage_i$, in equation (1). This policy change is a plausible instrument because it forces Social Security recipients who earn income from work to delay some fraction, possibly 100 percent, of their Social Security benefit. Prior to 2000, the earnings test applied through age 70. Starting in 2000, individuals who had reached FRA were no longer subject to the earnings test. Several papers have shown that this post-FRA repeal of the Social Security earnings test caused affected individuals to claim Social Security earlier (e.g., Song and Manchester 2007; Gruber and Orszag 2003).[14]

I construct an instrument for early claiming by calculating the age at which each husband is no longer subject to the earnings test. Husbands born in 1930 and earlier (who turn 70 in 2000) are subject to the earnings test through age 70. In contrast, husbands born in 1935 turn 65 in 2000. As 65 is the FRA for this cohort, the earnings test ceases to apply the men in it at age 65. Husbands born in the intervening years cease to be subject to the earnings test at whatever age they are in 2000. Husbands born after 1935 are subject to the earnings test through FRA.

Figure 1 suggests a clear correlation between average claiming age and the age at which the earnings test is removed. It depicts the age (in months relative to FRA) at which the earnings test ceases to apply for each husband's birth cohort used in the analysis. It also shows the average claiming age of husbands in that cohort (in months relative to FRA). The earnings test change is a good instrument for the husband's claiming age if its moderating effect on widowhood transitions occurs only through its impact on claiming age. That exclusion restriction may be violated if the loosening of the earnings test had other direct effects on household finances. Several earlier studies have shown that the earnings test change in 2000 induced affected individuals to increase their labor supply on the extensive margin (e.g., Song and Manchester 2007; Friedberg 2000; Gelber et al. 2022; Gruber and Orszag 2003). If husbands increase their labor supply in response to the policy change, the increase in household income may leave their wives with more resources after widowhood. Since the policy change also causes early claiming, this additional channel would cause the IV approach to underestimate the impact of early claiming on the financial shock of widowhood.

To implement the IV approach in this context, I begin by estimating the following equation for all individuals i during their first wave in the sample:

$$claimage_i - FRA_i = \psi(earnteststop_i - FRA_i) + \xi_{it} \quad (3)$$

In this equation, $earnteststop_i$ is the age (in months) at which the earnings test ceases to apply to individual $i$'s husband. After estimating this equation, I obtain predicted values of the husband's claiming age relative to his $\widehat{claimage_i} - FRA_i$. Then, using all waves in the sample, I instrument for the endogenous interaction term in equation (1) using $(\widehat{claimage_i} - FRA_i) \cdot widowed_{it}$. This IV estimation is performed manually in a series of steps. First, I regress the endogenous interaction term $(claimage_i - FRA_i) \cdot widowed_{it}$ from equation (1) on the instrument as well as all the

13 This approach uses the Stata psweight module developed by Kranker (2019).

14 Figinski and Neumark (2018) further link the elimination of the earnings test to cross-cohort variation in both claiming ages and poverty rates among older women.

exogenous variables from equation (1). Next, I obtain predicted values of the endogenous interaction term. Finally, I apply the Gardner et al. (2024) imputation method to estimate (1) after substituting these predicted values for the endogenous interaction term. Standard errors for (1) are obtained by bootstrapping.

# 4. Results

Table 3 shows the means of key variables for women in the sample, broken down by whether their husbands claimed before FRA. There are some notable differences between the wives of early-claiming and delaying husbands. The wives of early claiming husbands tend to have less education. Early claiming households are more likely to be below any of the poverty measures; they also receive more means tested government benefits. However, the wives of early claiming and delaying husbands are similar in terms of their race and ethnicity, as well as their labor force status. Early-claiming and delaying husbands also have similar PIAs. Equal shares of both groups of women—35 percent—experience widowhood at some point in the sample period.

Figure 2 plots OASI income for the wife, the husband, and the household broken down by whether the husband claimed before FRA and the number of waves since widowhood. (This figure only includes women who experience widowhood.) The figures are consistent with Social Security benefit calculation rules. Upon widowhood, the wife's Social Security income increases as she switches to a survivor benefit. However, increase is smaller for wives whose husbands claim early. The husband's Social Security income is higher for delayers than for early claimers, but it declines to (roughly) zero for both groups following widowhood.[15] Overall, household Social Security income declines upon widowhood. Because early claiming by the husband lowers both pre- and post-widowhood Social Security income by the same dollar amount, there is no clear interaction between the impact of widowhood and the husband's early claiming. On the other hand, wives whose husbands claimed early have lower household Social Security benefits both before and after widowhood. The lower-right panel of the figure shows that maximum sustainable consumption declines for both groups after widowhood. The decline is greater for the widows of delayers (relative to a higher pre-widowhood level). However, this change in average potential consumption does not capture the risk of poverty, which is driven by the lower tail of the distribution.

Table 4 shows the results from estimating alternative specifications of equation (1) with various poverty measures as the dependent variable. The regressions in the top panel include interactions between widowhood and the control variables (demographics, education, and husband's PIA). The regressions in the middle panel use propensity score weighting to adjust for differences in demographics, education, and the husband's PIA. The regressions in the bottom panel use the loosening of the earnings test in 2000 to instrument for the husband's claiming age. Table 4 generally indicates that the probability of falling below any of the poverty thresholds increases upon widowhood for wives whose husbands claimed at FRA. For example, the probability of falling below 150 percent of the poverty line increases by 6.5-9.8 percentage points (a 71-107 percent increase relative to the sample mean of 9 percent) after widowhood. The point estimates suggest that a one-year delay in claiming by the husband is generally associated with a smaller increase in the probability of falling below the poverty thresholds. However, these point estimates are only statistically significant for a few of the poverty measures. For example, the top panel of the table shows that widowhood is associated with a 6.9 percentage point increase in the probability of falling below the 5th percentile of the pre-widowhood maximum consumption distribution. That effect is 0.8 percentage points (0.8 / 6.9 = 12 percent) smaller for each year of delay by the husband.

Estimates of equation (2)—the event study version of equation (1)—suggest that the moderating effect of delayed claiming may vary over time, possibly explaining why many of the overall treatment effects in Table 4 are statistically insignificant. The event study plots are shown in Figures 3 (for the measures based on the FPL) and 4 (for the measures based on the pre-widowhood income distribution). For the event studies, I address endogeneity using the method from the top panel of Table 4—i.e., by adding interactions between the event time dummies and the observable characteristics (demographics, education, and husband's PIA). In each panel of these figures, the left-hand-side graph shows the impact of widowhood on the outcome for wives whose husbands delayed to FRA or later ($\beta_{1s}$ from equation (2)). The right-hand-side graph shows the additional impact of widowhood for each year of delayed claiming by the husband ($12 \cdot \beta_{2s}$ from equation (2)).

Overall, the event study results confirm that there is an increase in the probability of falling below any given poverty measure following widowhood. Delayed claiming by the husband moderates this impact for several poverty measures, particularly those in Figure 4. For example, in the wave of widowhood, the probability of having sustainable consumption below the 5th percentile of the pre-widowhood distribution rises by 5.8 percentage points (more than doubling the average in Table 3). That increase is 1.4 percentage points smaller for each year of delay by the husband. Delayed claiming also attenuates the impact of

15 The husband's Social Security benefit always declines to zero except in the relatively rare cases that the wife remarries.

widowhood on this measure in the second wave (2-4 years) after widowhood. Delayed claiming interacts with widowhood for several of the other poverty measures in the 2nd and 3rd post-widowhood waves (4-6 years later). The indicator for being below 200 percent of the FPL shows possible signs of anticipation in the pre-widowhood wave.

Table 5 shows the impact of widowhood on a few other outcomes: an indicator for doing any work for pay, weekly hours worked, and an indicator for receipt of means-tested benefits. Generally, widowhood is not associated with any significant changes in labor force status. That result may not be surprising given that all the widowhoods in the sample occur after the husband reached the age of 70. The wives are therefore also likely to be in their late 60s and beyond at the time of widowhood, making an adjustment in labor supply less feasible than it might be at younger ages. However, widowhood is associated with an increase in the probability of receiving means-tested transfers (statistically significant in the propensity-score weighted and IV models). A one-year claiming delay by the husband reduces this impact, although the coefficient is only statistically significant (at the 10 percent level) in one of the three models. Figure 5 shows corresponding event study plots, which confirm the results shown in Table 5. The attenuating effect of a one-year claiming delay on means tested benefit receipt appears to be concentrated in the 2nd and 3rd post-widowhood waves (2-6 years after widowhood).

## 5. Conclusions

The foregoing analysis suggests that delayed claiming by husbands (or primary earners more generally) can mitigate the financial shock of widowhood for wives (or secondary earners more generally). Using a staggered difference-in-differences approach, I have found that the probability of falling below a poverty threshold increases upon widowhood. For many poverty measures, however, that impact is attenuated when the husband delayed claiming Social Security. I also find some evidence that early claiming by husbands increases their wives' post-widowhood probability of receiving means tested transfers such as SSI and Medicaid. Thus, a primary earner's claiming decision has spillover effects for the secondary earner. These results are relevant for policy makers, financial planners, and individuals planning for retirement, particularly given the higher poverty rate among widows compared to the general older population.

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### TABLE 1. SOCIAL SECURITY BENEFIT BY CLAIMING AGE

| Claiming age | Retired worker benefit (Percent of PIA) | Survivor benefit (Percent of PIA) |
|---|---|---|
| 62 | 70.0% | 82.5% |
| 63 | 75.0% | 82.5% |
| 64 | 80.0% | 82.5% |
| 65 | 86.7% | 86.7% |
| 66 | 93.3% | 93.3% |
| 67 | 100.0% | 100.0% |
| 68 | 108.0% | 108.0% |
| 69 | 116.0% | 116.0% |
| 70 | 124.0% | 124.0% |

Notes: Table shows percent of primary earner's Primary Insurance Amount (PIA) payable as retired worker benefit and survivor benefit at alternative claiming ages. Percentages based on Weaver (2001) and https://www.ssa.gov/oact/quickcalc/early_late.html.

### TABLE 2. MONTHLY SOCIAL SECURITY BENEFIT AND ANNUAL INCOME FOR STYLIZED HOUSEHOLD

| | Monthly benefit | | | Annual income | |
|---|---|---|---|---|---|
| Husband's claiming age | Husband | Wife | Household | Pre-widowhood | Post-widowhood |
| 62 | $1,050 | $750 | $1,800 | $21,600 | $14,850 |
| 63 | $1,125 | $750 | $1,875 | $22,500 | $14,850 |
| 64 | $1,200 | $750 | $1,950 | $23,400 | $14,850 |
| 65 | $1,300 | $750 | $2,050 | $24,600 | $15,600 |
| 66 | $1,400 | $750 | $2,150 | $25,800 | $16,800 |
| 67 | $1,500 | $750 | $2,250 | $27,000 | $18,000 |
| 68 | $1,620 | $750 | $2,370 | $28,440 | $19,440 |
| 69 | $1,740 | $750 | $2,490 | $29,880 | $20,880 |
| 70 | $1,860 | $750 | $2,610 | $31,320 | $22,320 |

Notes: Table shows monthly benefit amounts and annual income based on stylized couple in text. Benefits calculated based on Weaver (2001) and https://www.ssa.gov/oact/quickcalc/early_late.html.

**TABLE 3. SAMPLE MEANS BY HUSBAND'S CLAIMING AGE**

| Variable | Husband delayed to FRA or later | Husband claimed before FRA | Overall |
|---|---|---|---|
| Ever widowed | 0.35 | 0.35 | 0.35 |
| White | 0.86 | 0.86 | 0.86 |
| Black | 0.08 | 0.10 | 0.09 |
| Other race | 0.06 | 0.04 | 0.05 |
| Non-Hispanic | 0.89 | 0.91 | 0.90 |
| Hispanic | 0.11 | 0.09 | 0.10 |
| Less than high school | 0.16 | 0.16 | 0.16 |
| GED | 0.04 | 0.05 | 0.05 |
| High school graduate | 0.28 | 0.37 | 0.34 |
| Some college | 0.25 | 0.24 | 0.24 |
| College + | 0.28 | 0.18 | 0.21 |
| Husband's PIA x 12 | 23788.12 | 26521.18 | 25711.05 |
| Below 100% of poverty line | 0.03 | 0.04 | 0.04 |
| Below 150% of poverty line | 0.08 | 0.10 | 0.09 |
| Below 200% of poverty line | 0.12 | 0.16 | 0.15 |
| Below 5th percentile | 0.05 | 0.06 | 0.05 |
| Below 10th percentile | 0.09 | 0.11 | 0.11 |
| Below 15th percentile | 0.13 | 0.16 | 0.15 |
| Working | 0.38 | 0.36 | 0.37 |
| Weekly hours worked | 12.40 | 11.93 | 12.07 |
| Receives benefits from means tested programs | 0.11 | 0.14 | 0.13 |

Notes: Author's calculations based on Health And Retirement Study sample of women described in text. There are 49,366 person-wave observations for all variables except the work indicator (49,289 observations) and hours worked (48,891 observations). GED = General Educational Development. PIA = Primary Insurance Amount.

**TABLE 4. IMPACT OF WIDOWHOOD ON POVERTY MEASURES BY HUSBAND'S CLAIMING AGE**

| Variable | <100% of FPL | <150% of FPL | <200% of FPL | <5th percentile | <10th percentile | <15th percentile |
|---|---|---|---|---|---|---|
| **Controls included** | | | | | | |
| Husband claimed at FRA ($\beta_1$) | 0.0161 | 0.0649*** | 0.129*** | 0.0686*** | 0.221*** | 0.309*** |
| | (0.0119) | (0.0179) | (0.0214) | (0.0171) | (0.0225) | (0.0249) |
| Husband delayed by 1 year (12 * $\beta$2) | -0.000565 | -0.00367 | -0.00897 | -0.00798* | -0.00836 | -0.00781 |
| (Additional effect) | (0.00346) | (0.00498) | (0.00563) | (0.00474) | (0.00589) | (0.00633) |
| **Propensity score weighting** | | | | | | |
| Husband claimed at FRA ($\beta_1$) | 0.0435*** | 0.0878*** | 0.106*** | 0.132*** | 0.213*** | 0.247*** |
| | (0.00758) | (0.0122) | (0.0146) | (0.0114) | (0.0150) | (0.0163) |
| Husband delayed by 1 year (12 * $\beta$2) | 0.000305 | -0.00349 | -0.00965* | -0.00591 | -0.00885 | -0.00902 |
| (Additional effect) | (0.00337) | (0.00501) | (0.00571) | (0.00491) | (0.00615) | (0.00671) |
| **Instrumental variables** | | | | | | |
| Husband claimed at FRA ($\beta_1$) | 0.0467*** | 0.0977*** | 0.102*** | 0.138*** | 0.217*** | 0.241*** |
| | (0.00865) | (0.0137) | (0.0153) | (0.0116) | (0.0144) | (0.0155) |
| Husband delayed by 1 year (12 * $\beta$2) | 0.00115 | -0.000315 | -0.0181** | -0.00366 | -0.0105 | -0.0189** |
| (Additional effect) | (0.00543) | (0.00609) | (0.00798) | (0.00664) | (0.00826) | (0.00805) |
| Observations | 49,366 | 49,366 | 49,366 | 49,366 | 49,366 | 49,366 |

*** p<0.01, ** p<0.05, * p<0.1

Notes: Standard errors clustered by individual in parentheses. Coefficients are estimates of $\beta$1 and 12 * $\beta$2 from equation (1). All regressions include controls for wife's age, difference between husband's age and FRA, individual fixed effects, and wave dummies. FRA = Full Retirement Age. FPL = Federal Poverty Line.

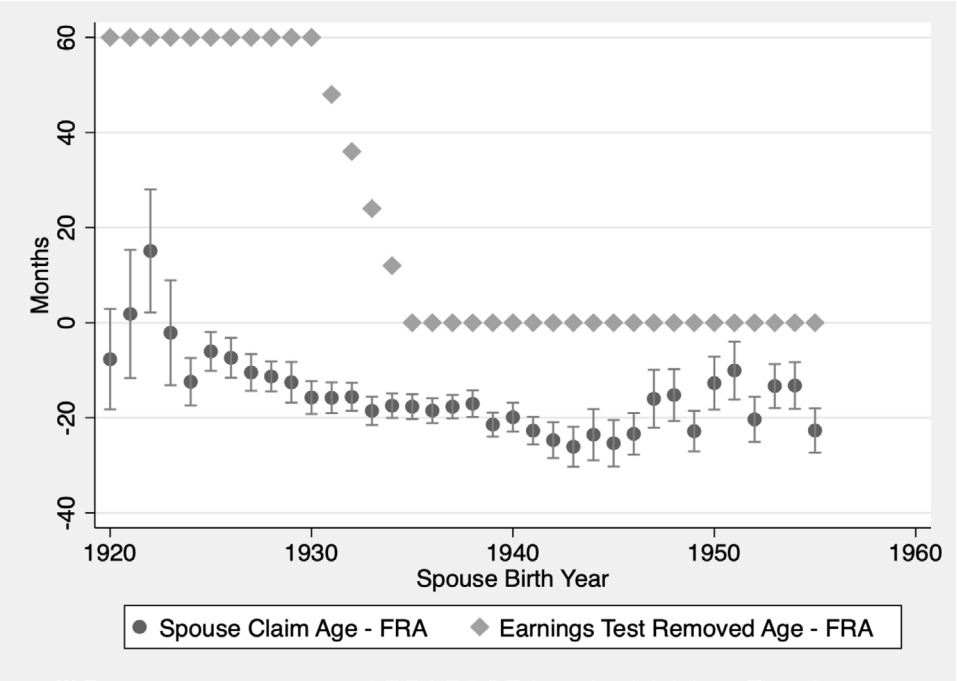
**TABLE 5. IMPACT OF WIDOWHOOD ON OTHER OUTCOMES BY HUSBAND'S CLAIMING AGE**

| Variable | Working | Weekly hours | Means tested benefit receipt |
|---|---|---|---|
| **Controls included** | | | |
| Husband claimed at FRA ($\beta_1$) | 0.0113 | 0.520 | 0.0221 |
| | (0.0258) | (0.968) | (0.0170) |
| Husband delayed by 1 year (12 * $\beta$2) | 0.00531 | 0.159 | -0.00717* |
| (Additional effect) | (0.00659) | (0.222) | (0.00412) |
| **Propensity score weighting** | | | |
| Husband claimed at FRA ($\beta_1$) | -0.0183 | -0.892 | 0.0708*** |
| | (0.0168) | (0.605) | (0.0111) |
| Husband delayed by 1 year (12 * $\beta$2) | 0.00518 | 0.141 | -0.00616 |
| (Additional effect) | (0.00648) | (0.223) | (0.00418) |
| **Instrumental variables** | | | |
| Husband claimed at FRA ($\beta_1$) | -0.0158 | -0.887 | 0.0716*** |
| | (0.0210) | (0.651) | (0.0120) |
| Husband delayed by 1 year (12 * $\beta$2) | 0.00570 | 0.0657 | -0.00583 |
| (Additional effect) | (0.00975) | (0.289) | (0.00591) |
| Observations | 49,289 | 48,884 | 49,366 |

*** p<0.01, ** p<0.05, * p<0.1

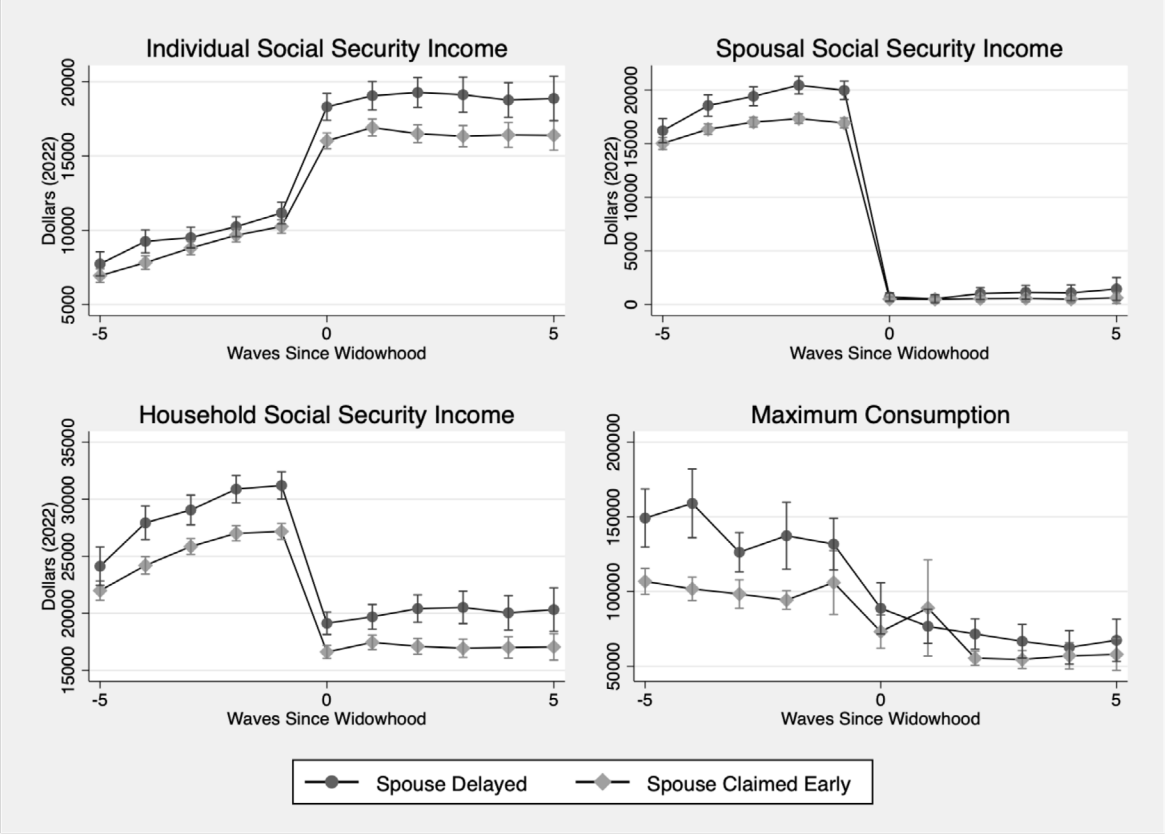
Notes: Standard errors clustered by individual in parentheses. Coefficients are estimates of $\beta_1$ and 12 * $\beta_2$ from equation (1). All regressions include controls for wife's age, difference between husband's age and FRA, individual fixed effects, and wave dummies. FRA = Full Retirement Age.

**FIGURE 1. HUSBAND'S CLAIMING AGE AND EARNINGS TEST REMOVAL AGE (MONTHS RELATIVE TO FRA)**



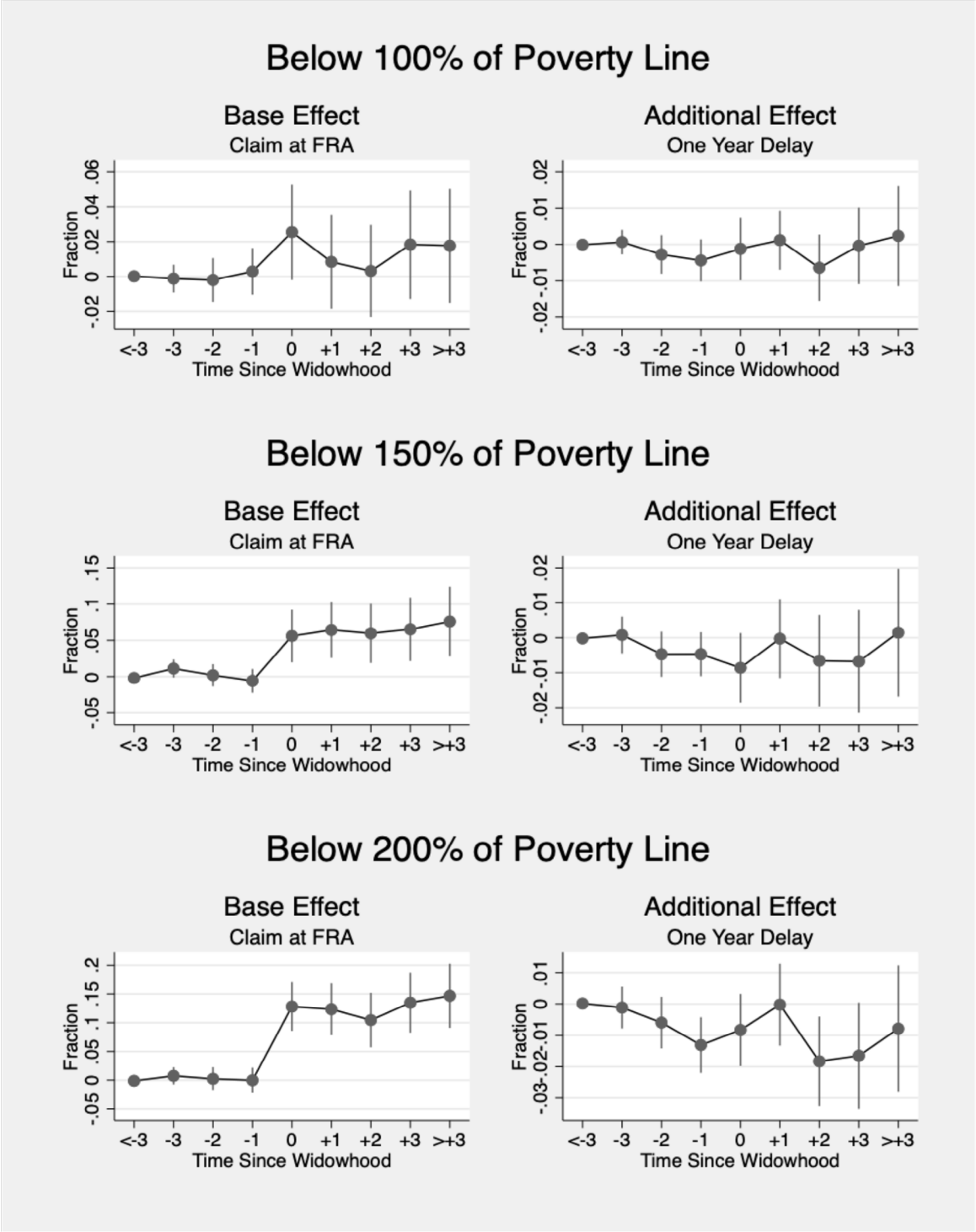

Notes: Author's calculations based on Health and Retirement Study (HRS) sample of women described in text. Figure shows average husband's claiming age (with 95 percent confidence intervals) and age at which earnings test no longer applies (in months relative to FRA), by husband's birth cohort. FRA = Full Retirement Age.

**FIGURE 2. SOCIAL SECURITY AND TOTAL INCOME AROUND WIDOWHOOD**



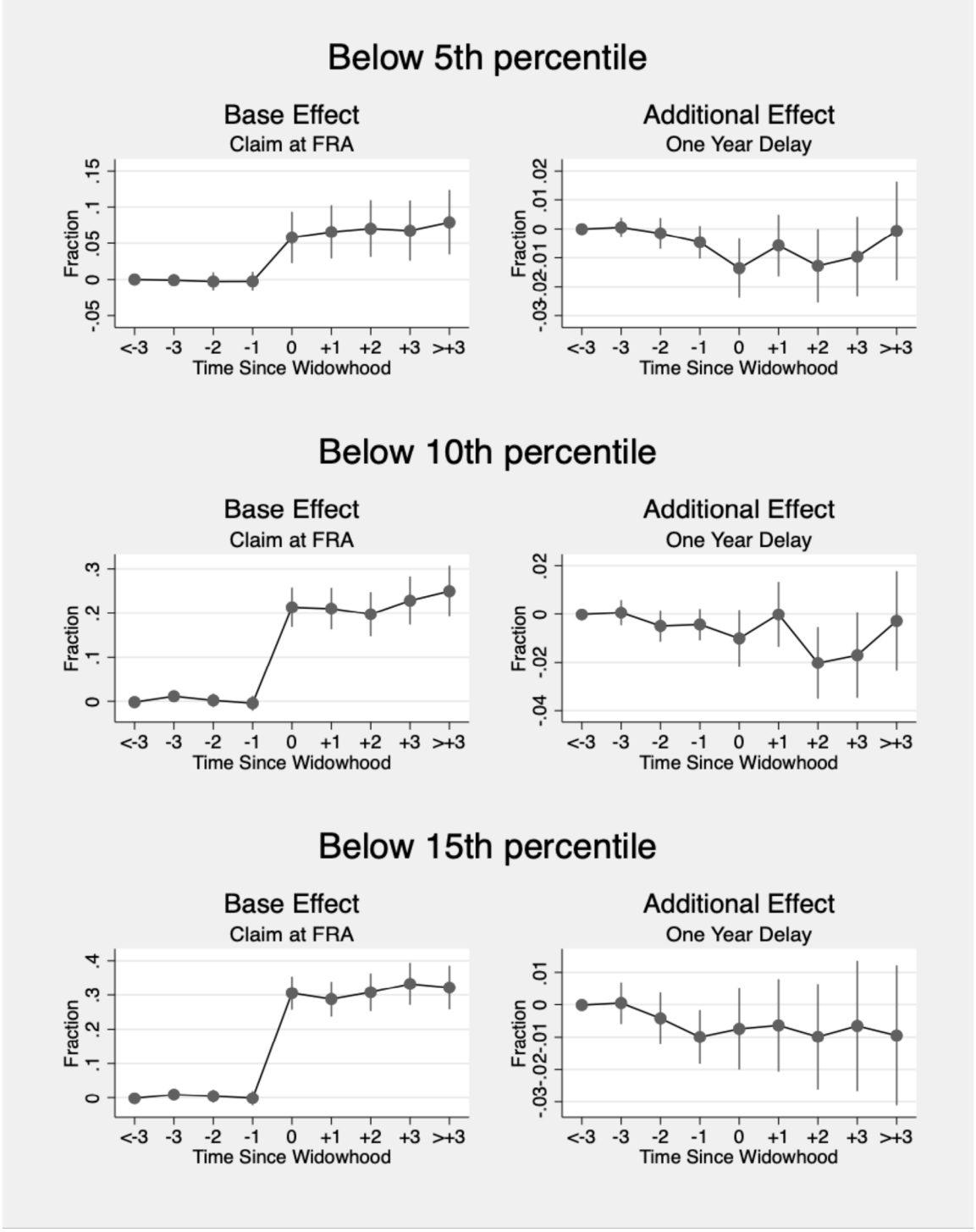

Notes: Author's calculations based on Health and Retirement Study (HRS) sample of women who experience widowhood described in text. Figures show sample mean of variable (with 95% confidence interval) by number of waves since widowhood.

**FIGURE 3. IMPACT OF WIDOWHOOD ON FPL-BASED POVERTY MEASURES**



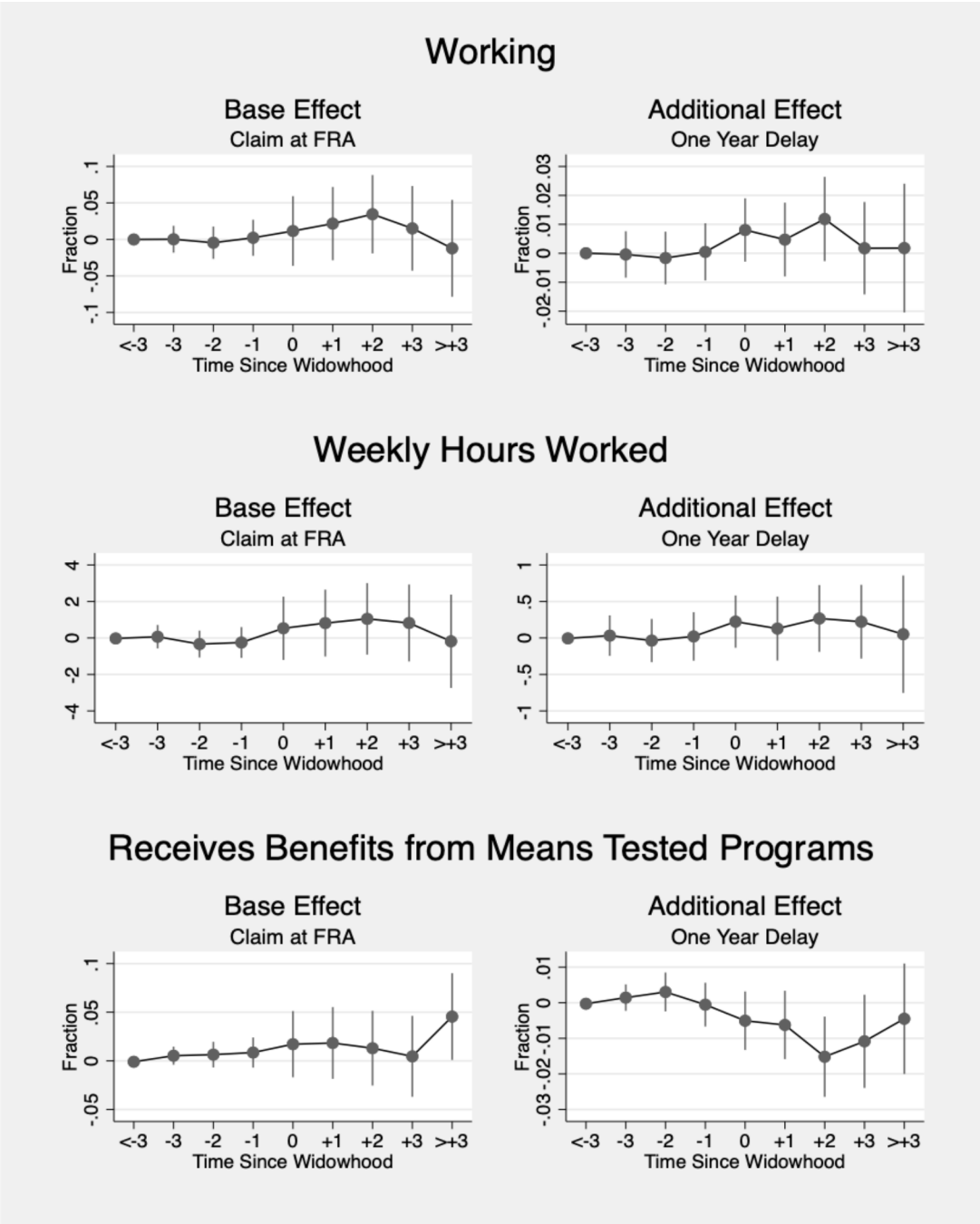

Notes: Author's calculations based on Health and Retirement Study (HRS) sample of women described in text. Figures show estimates of event study coefficients, $\beta_{1s}$ and 12 * $\beta_{2s}$, from equation (2) with 95 percent confidence intervals (standard errors clustered by individual). All regressions include controls for wife's age, difference between husband's age and FRA, individual fixed effects, and wave dummies. Regressions also include interactions between event time dummies and demographics, education, and husband's PIA relative to the mean PIA. FRA = Full Retirement Age. FPL = Federal Poverty Line.

**FIGURE 4. IMPACT OF WIDOWHOOD ON PROBABILITY OF LOW INCOME**




Notes: Author's calculations based on Health and Retirement Study (HRS) sample of women described in text. Figures show estimates of event study coefficients, $\beta_{1s}$ and 12 * $\beta_{2s}$, from equation (2) with 95 percent confidence intervals (standard errors clustered by individual). All regressions include controls for wife's age, difference between husband's age and FRA, individual fixed effects, and wave dummies. Regressions also include interactions between event time dummies and demographics, education, and husband's PIA relative to the mean PIA. FRA = Full Retirement Age. FPL = Federal Poverty Line.

**FIGURE 5. IMPACT OF WIDOWHOOD ON WORK AND MEANS TESTED BENEFIT RECEIPT**




Notes: Author's calculations based on Health and Retirement Study (HRS) sample of women described in text. Figures show estimates of event study coefficeints, $\beta_{1s}$ and 12 * $\beta_{2s}$, from equation (2) with 95 percent confidence intervals (standard errors clustered by individual). All regressions include controls for wife's age, difference between husband's age and FRA, individual fixed effects, and wave dummies. Regressions also include iiteractions between even time dummies and demographics, education, and husband's PIA relative to the mean PIA. FRA = Full Retirement Age.

## About the author

**Sita Nataraj Slavov** is a professor at the Schar School of Policy and Government at George Mason University, a research associate at the National Bureau of Economic Research and a nonresident senior fellow at the American Enterprise Institute. She has previously served as a senior economist specializing in public finance issues at the White House's Council of Economic Advisers and a member of the 2019 Social Security Technical Panel on Assumptions and Methods.

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