When Loss Strikes Twice: Severe Health Shocks and Financial Well-Being

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Abstract

We study how fatal and nonfatal health shocks affect households' ability to meet their financial obligations. We find that fatal shocks substantially increase the likelihood of default and that housing wealth plays a key role as a self-insurance mechanism. Surviving spouses who experience the largest income losses are more likely to sell their homes, and those without housing wealth face a sharply higher risk of debt collection. Notably, these shocks generate intergenerational spillovers. In contrast, nonfatal health shocks lead to only modest increases in default risk. Taken together, our findings suggest that strengthening survivors' benefits for households with limited resources could improve welfare across generations.

JEL classifications: D14, G51, G22, I12
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1 Introduction

Financial distress is a pervasive issue worldwide, with nearly 1 in 5 individuals in OECD countries reporting difficulty making ends meet (OECD, 2024). For affected households, it reduces access to credit (Dobbie et al., 2020) and worsens labor market outcomes (Bos et al., 2018; Maturana and Nickerson, 2020; Kaur et al., 2025). At the macroeconomic level, financial distress poses risks by amplifying the transmission of shocks (Mustre-del-Río et al., 2025; Auclert et al., 2019). Understanding the causes of financial distress is crucial for designing policies that strengthen household resilience.

While prior research has emphasized individual characteristics and abilities (Keys et al., 2023; Parise and Peijnenburg, 2019), less is known about how idiosyncratic shocks contribute to financial distress. In this paper we investigate the impact of fatal and severe nonfatal shocks on the financial well-being of households, proxied by receiving a claim on unpaid commitments, or having debt in collection, and investigate key mechanisms behind these effects.

Previous research has typically relied on self-reported survey data to examine financial stress, which may suffer from under-reporting, or on records of bankruptcies and credit defaults. Bankruptcy records depend on individuals having the necessary resources and knowledge to file, while credit default data excludes the substantial share of households without access to the formal credit market.[1] Consequently, these measures do not reflect the most marginal groups that lack access to credit or bank loans, nor do they fully capture households' inability to meet basic consumption needs, such as paying utility bills.

Instead, we exploit a distinct feature of the Swedish debt collection system that gives us access to data on all types of unpaid claims, including unpaid debts, bills and rents for the entire Swedish population and link it to detailed health and cause-of-death information.

The Swedish system is generally seen as favoring creditors. Debt relief is rarely granted

[1] In the US, around 15–20% of households do not have access to credit (FDIC, 2023).

and the repercussions of defaulting on debt in Sweden are substantial.[2] Together, these underscore the absence of significant incentives for strategic default. In this environment, where the out-of-pocket medical costs associated with a health shock are negligible and the likelihood of strategic default is virtually zero, we argue that defaulting on financial claims indicates (serious) financial distress.

Estimating the causal effect of health shocks on financial well-being is challenging because such shocks are not randomly assigned. Individuals who experience them may differ from others in both observable and unobservable ways. To mitigate this concern, we use a quasi-experimental design that constructs counterfactuals for affected households by comparing them with households that experience the same health event only a few years later. The key identifying assumption is that, in the absence of the health shock, outcomes for treated and not-yet-treated households would have followed parallel trends. We provide supporting evidence for this assumption by showing that pre-treatment trends are similar across groups. To estimate the effects, we use the difference-in-differences estimator developed by Callaway and Sant'Anna (2021), which addresses the well-documented biases of traditional two-way fixed effects models with staggered treatment timing.

In the case of fatal shocks, we examine how they affect the surviving spouses' likelihood of defaulting on any financial claim, and explore mechanisms that might drive the effect. We also try to understand whether these shocks have intergenerational consequences by analyzing the financial behavior of children of surviving spouses. We complement our analysis by looking at the impact of severe nonfatal health shocks, defined as heart attacks, strokes, and injuries that lead to inpatient visits, on both the patient's behavior and that of the spouse.

Our main finding is that a fatal health shock significantly increases the likelihood of default, with the death of a spouse raising default incidence by 20 percent compared to pre-shock levels. These shocks also have intensive margin effects, increasing both the number of claims and the total amount owed. Notably, fatal shocks account for the

[2] A non-payment record can hinder access to credit, complicate housing prospects by affecting rental applications and house purchases, and create difficulties in securing service and utility contracts (Swedish Enforcement Authority, 2024). Furthermore, having a poor credit score can have significant implications for employment prospects (Bos et al., 2018).

entirety of defaults in households with no prior history of default, which represents the vast majority of the sample. Additionally, we demonstrate that our findings are not sensitive to defining deaths as sudden or non-sudden.

Our results do not support inattention and negligence as a driver of defaults. While the stress and urgent tasks following a spouse's death could lead to overlooked bills, we observe that surviving spouses typically pay off smaller obligations after receiving notices, thereby avoiding debt collection. In contrast, larger claims above the median (around $1,000) are more likely to enter debt collection, suggesting that financial difficulties, not inattention, are the driving factor.

Our findings indicate that defaults are driven by lack of resources, with wealth, rather than income loss, playing the key role. Surprisingly, a greater loss in disposable income does not predict higher debt collection likelihood, as both primary and secondary earners meet payment obligations similarly. However, secondary earners, often women, are more likely to liquidate their homes, presumably to settle financial obligations. This pattern highlights the potential role of housing wealth as a financial buffer and motivates a closer analysis by homeownership status.

When we compare renters and homeowners, we find that homeowners are able to repay both small and large claims, whereas the increased likelihood of entering debt collection is driven entirely by renters, who lack the option to self-insure through home equity. We find similar patterns when comparing households below and above the median net wealth. To assess whether mental health mediates these differences, we examine prescriptions of antidepressants and tranquilizers, as well as diagnoses of mental disorders, and find no differential impacts across housing tenure. Moreover, these patterns hold for both younger and older renters, providing little support for moral hazard arising from reduced concern for future credit access as the main driver of default.

Importantly, fatal health shocks also generate intergenerational consequences for the financial well-being of adult children. We show that children of surviving spouses who experience the largest income losses—and who lack housing wealth as a buffer—are more likely to rely on social benefits and to face heightened financial distress. On average,

these children are 10% more likely to have a debt in collection following the event. Such defaults likely reflect pressure on informal insurance arrangements: children may step in to support a surviving parent financially, or parents may no longer be able to assist their children.

We find that, although income losses are similar across all groups of children—consistent with children sacrificing earnings to help parents—the rise in debt collection is concentrated among the most vulnerable adult children - those without any labor or pension income one year before the event. This pattern suggests that the primary mechanism operates through the surviving parent's reduced ability to provide support to children who are already financially fragile.

Nonfatal health shocks to a spouse have economic consequences only when the sick individual is below retirement age, as retired individuals continue to receive their pension and do not experience income loss. Among working-age individuals, the shock leads to a decline in both spouses' labor income, but the impact on household disposable income is relatively modest. As a result, the increase in default risk is smaller than that observed after fatal health shocks. As with fatal shocks, small claims are typically paid off after receiving notice, but larger obligations are more likely to enter debt collection. However, unlike in the case of fatal shocks, housing wealth is less predictive of default following a nonfatal event, likely because the associated income losses are smaller and more temporary.

This paper provides new insights into the financial consequences of severe health shocks. Specifically, it uncovers a causal link between health shocks and defaults, highlights the critical role of (housing) wealth as a self-insurance mechanism, and documents intergenerational spillover effects. These findings complement and extend the existing literature, as we discuss below.

Our paper adds to the smaller literature that studies the determinants of financial distress. This research highlights the importance of persistent individual factors, cognitive abilities, financial behavior and peer effects in determining financial distress (Parise and Peijnenburg, 2019; Agarwal et al., 2020; Kalda, 2020; Keys et al., 2023; Hvidberg, 2023),

with mixed findings on gender gaps (Agarwal et al., 2016; Meyll and Pauls, 2019; Zhou et al., 2023). Gupta et al. (2018) finds that a cancer diagnosis is financially destabilizing only for those with negative home equity, while Morrison et al. (2013) examines the impact of nonfatal automobile accidents on bankruptcy and cannot reject the null hypothesis of no effect. Our contribution lies in demonstrating that both permanent and transitory health-related income shocks are important determinants of financial distress. Notably, we also show that financial distress have intragenerational dimensions, with health shocks impacting the economic stability of adult children.

Our paper also builds on the literature that examines the effects of spousal loss on the economic outcomes of surviving spouses. Fadlon and Nielsen (2021) find that the death of a spouse generally increases labor supply in Denmark, with the positive effects concentrated among widows. In contrast, Coyne et al. (2024) report negligible impacts on labor supply among widows in the U.S. overall but observe an increase in retirement at age 60, the threshold for Social Security survivors' benefits, suggesting that access to survivors' benefits diminishes the need to work. Our study contributes to this literature by investigating whether households have sufficient insurance to cover their expenses after spousal loss. Our findings highlight the role of housing wealth as a critical self-insurance mechanism, suggesting that the welfare gains from survivors' benefits may be lower for homeowners.

Our finding that older households use housing as a financial buffer against health shocks is consistent with the broader literature on the role of housing wealth in mitigating financial risks in later life. Davidoff (2010) shows that home equity can substitute for long-term care insurance, as elderly homeowners, especially with low bequest motives, often use it to cover care costs. The model also highlights reverse mortgages as a way to convert housing wealth into liquid assets without selling the home. This aligns with empirical findings that older households generally retain home equity unless faced with significant shocks (Venti and Wise, 1989, 1990, 2002; Feinstein and McFadden, 1989), and that home equity can be an important form of consumption insurance in the face of adverse income shocks (Benito, 2009; Hurst and Stafford, 2004). Our study contributes

to this literature by causally linking housing liquidations to health shocks, showing that housing serves as a crucial resource in mitigating financial hardship following severe health crises.

This research also contributes to the literature on the economic consequences of health shocks. Health shocks have been shown to increase out-of-pocket expenses and reduce income and wealth for both elderly and non-elderly adults, particularly for the uninsured (Poterba et al., 2017; Dobkin et al., 2018), and to have more pronounced negative effects on labor outcomes of lower-skilled individuals (Lundborg et al., 2015). The literature presents mixed findings on the labor supply response of spouses (Jeon and Pohl, 2017; Fadlon and Nielsen, 2021). Our findings contribute by showing that these shocks increase the risk of defaulting on debts and payments, without a corresponding rise in spousal labor supply, indicating that relying on spousal labor may not be a feasible or attractive coping strategy for households in these situations.

Our findings also relate to the literature on optimal insurance. Chetty and Szeidl (2007) show that housing serves as a 'consumption commitment' that is costly to adjust due to transaction and adjustment costs. These commitments influence the value of public insurance, making it more valuable for moderate or temporary shocks compared to large or permanent ones. Large shocks often lead to abandoning such consumption commitments (e.g., selling a house), which could reduce the negative welfare impact of these shocks. Our analysis adds by empirically showing that while housing equity is often used to buffer the permanent income loss from a spouse's death, it is less frequently adjusted for moderate or temporary spousal nonfatal health shocks.

The remainder of this paper is organized as follows. Section 2 describes institutional setting and Section 3 introduces the data used in this study. Section 4 outlines the empirical research design. The results on fatal shocks are presented in Section 5, and the results on nonfatal shocks are presented in Section 6. Section A presents robustness checks and Section 7 concludes.

2 Institutional Setting

This section outlines the institutional setting, detailing Sweden's approach to covering income losses from illness or spousal death, along with its debt collection system. A more detailed description of health insurance and survival pensions is provided in Appendix Section B.

2.1 Health Insurance and Survivor's Pension

In Sweden, universal health care ensures broad coverage of medical expenses, with specific caps to limit out-of-pocket costs for inpatient services, outpatient care, and prescription medications. During health shocks, income loss is mitigated through a system of employer-covered sick pay for the first two weeks, after which the Swedish Social Insurance Agency provides sickness benefits. These benefits are calculated as a percentage of qualifying income (SGI) and adjusted based on work capacity. After a year, the benefit rate decreases slightly. For long-term or permanent reductions in work capacity, sickness compensation offers a fixed percentage of prior income, with a ceiling.

Sweden has historically provided survivor benefits to support families after the death of a breadwinner. The older system, known as the widow's pension, is still in place for certain cohorts. It applies to widows born before 1945 who were married to the deceased before 1990 and met other eligibility criteria. This system provided surviving spouses with 40% of the deceased's pension. The current system replaced this with the adjustment pension, offering temporary support to both widows and widowers under 66, calculated as a percentage of the deceased's pension for one year. Guarantee pensions provide additional support for low-income survivors, while children receive pensions until adulthood, with extended payments for those still in school.

The Swedish system also includes survivor protection within premium pensions, enabling surviving spouses to receive ongoing benefits, though opting for this protection results in reduced payouts during the contributor's lifetime. Private life insurance and occupational pension schemes further supplement survivor benefits, offering options for

lump sums or regular payments. Private life insurances often include an age limit for the beneficiary, which typically ranges between 67 and 90 years. Although specific statistics on individual uptake of private life insurance or survivors' benefits are not available, in 2023, there were more than 3.6 million private life insurance contracts (including group contracts offered by employers and union memberships). This represented approximately 7% of the total insurance market (Svensk Försäkring, 2023).

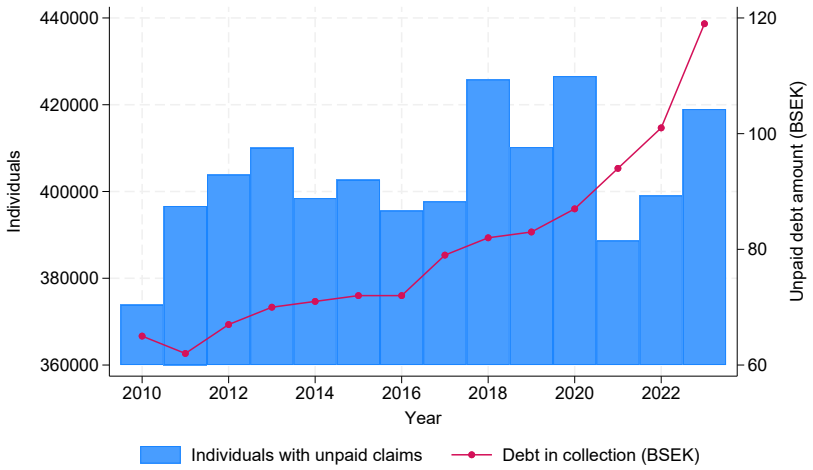
2.2 Swedish Enforcement Authority (SEA)

Sweden is fairly unique in its approach to managing citizen debt obligations, with a state authority tasked with collecting all unpaid bills. In many other countries, creditors must rely on the general court system or go through local authorities if they want their debts repaid. Furthermore, while Sweden does offer a debt restructuring process, the qualification criteria are more stringent compared to many other countries.

Individuals facing financial distress are accumulating increasing levels of debt, as illustrated in Figure 1. Between 2010 and 2023, the number of individuals receiving claims for unpaid debts and payments rose by 12%.[3] Notably, the proportion of individuals aged 65 and above among these cases increased by 63%. During the same period, the total amount of debt in collection increased by 83%, reaching a historic high of 120 billion SEK, equivalent to 2% of GDP.

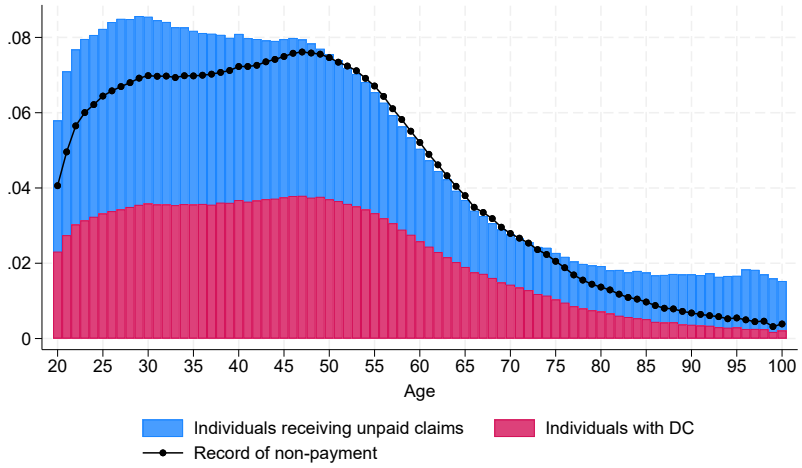
[3] The number of individuals receiving claims has been increasing steadily over time. Between 1999 and 2009 it increased by almost 50%.

Figure 1: **The Evolution of Financial Distress in Sweden, 2010-2023.** The figure shows the evolution of number of individuals receiving a claim registered at the SEA (left axis) and the total debt amount in collection in billion SEK (right axis).



In the adult population, approximately 5% receive new claims in a given year, as shown in Figure 2. Of these, nearly half (2.3%) are eventually referred to debt collection. Debt collection cases are public information, and credit information companies document each instance of non-payment. These records of non-payment remain flagged in credit reports for three years. Overall, 4.3% of adults have a record of non-payment in their credit report. The overall incidence of receiving a claim—around 5%—is comparable to the share of U.S. households that reported being 60 days delinquent on a payment in 2022 (4.6%) (Federal Reserve Board, 2022). The likelihood of receiving claims varies significantly across age groups. For individuals aged 25 to 50, the share is around 8%. In contrast, the proportion declines steadily for those over 50 years of age. Among individuals aged above 65, approximately 2% receive new claims.

Figure 2: **Financial Distress over the Life Cycle: Claims, Debt Collection, and Records of Non-Payment.** The figure shows the share of individuals receiving a claim (blue bars), with a new debt in collection (red bars) and with a record of non-payment (black line) of the adult population (18+) in different age groups, measured between 2014 and 2020.



The route from an unpaid bill to registration with the SEA is often long. Typically, if a bill remains unpaid, the creditor initially turns to a collection agency. Although these agencies cannot force debtors to pay, they can issue reminders that include additional fees. Should the debtor fail to pay the debt, it is then forwarded to the SEA. The SEA, which processes more than a million claims annually involving approximately 400,000 individuals, handles a variety of unpaid debts, including unpaid bills, housing rents, tax debts, and parking tickets. In 2019, while only 20% of the claims were from unpaid loans from financial institutions, these represented 40% of the total debt amount. This disparity suggests that, although most claims are for other types of payment issues, debts from unpaid loans tend to be larger (Finansinspektionen, 2021).

If the debtor pays immediately after receiving the SEA claim, no further action is taken. Otherwise, the SEA enforces debt collection that leads to an arrear in credit registers from credit reporting agencies.[4] Having a record of non-payment can hinder an individual from accessing a variety of financial services, such as obtaining loans, signing rental agreements, securing phone and internet contracts, and even limiting employment

[4] Credit reporting companies can issue negative credit reports based on decisions about debt collection and debt restructuring. The credit score remains public for 36 months after debt collection and for five years after debt restructuring.

opportunities. Debtors are responsible for the costs associated with the application process, including a small fixed fee for claim verification and an annual fixed fee for ongoing debt collection. In 2024, these fees amounted to 900 SEK (US$90). Among all the cases handled by the SEA, 40% are immediately settled by the debtor without further actions and 50% remain unpaid and are registered for debt collection. The remaining 10% are either directly rejected by the SEA or contested in court.

The authority employs several methods to enforce repayment, with foreclosure and wage garnishments being the most common. In cases of wage garnishment, the SEA negotiates an agreement with the debtor's employer to deduct a portion of their wages for direct payment to the authority. If the debtor has no wage income, foreclosure is implemented, in which the SEA seizes all assets except those deemed necessary to maintain a minimum standard of living. Individuals facing long-term debt problems can apply for debt restructuring, which involves entering a 5-year repayment plan while living at the minimum level of existence.[5] Despite its availability, debt restructuring is relatively rare, with only about 10,000 cases approved annually. For example, in 2022, almost 7% of those registered for debt collection applied for debt restructuring, but fewer than 3% were approved.[6]

Compared to many other countries, Sweden's approach to handling unpaid debts is notably more favorable to creditors. For example, the United States has one of the most lenient bankruptcy systems in the world, providing individuals with structured bankruptcy options such as Chapter 7 or Chapter 13 (Dobbie and Song, 2015). Furthermore, certain US states have non-recourse laws, which means that if a borrower defaults on a mortgage and the proceeds from selling the home do not cover the outstanding debt, the lender cannot pursue the borrower for the remaining balance (Nam and Oh, 2021).

[5] As of 2023, the minimum existence level for single households is set around 500 euro plus housing costs.

[6] The SEA evaluates each application individually, considering factors such as the likelihood of repayment, the reason for the debt, and the need for financial rehabilitation.

3 Data

To study the effect of health shocks on financial distress, we leverage rich administrative data from Sweden. The data includes spousal links that allow us to identify households with a surviving spouse. For the main analysis, we use data from three different government agencies, the *Swedish Enforcement Authority (SEA)*, the *National Board of Health and Welfare*, and *Statistics Sweden*.

To identify individuals experiencing financial distress, we use population-wide data from the SEA, covering all applications for unpaid claims submitted from 2014 to 2020. These data include information on the size of the debt, the registration date, and the current status of each application. However, we do not observe the specific type of debt or payment the claim refers to. Each registered claim signifies that a creditor has formally sought SEA's help to recover an unsettled debt. We aggregate this data at the individual-year level to calculate the total number of claims and the overall debt amount these claims represent. Approximately 0.15% of all observations miss information on the debt size.

Our primary outcome measure is a binary indicator that represents whether an individual received at least one claim during the study year. For more granular analyzes, we introduce additional outcome variables. First, we consider the likelihood that an individual repays the debt immediately after receiving the claim, thereby avoiding debt collection. Second, we examine the probability of a debt being registered for collection. This measure is further divided into two categories based on the amount of debt: debts below the median value of approximately 7,000 SEK (US$740) and those above it.

To accurately capture fatal and severe nonfatal health events, we employ three administrative registers provided by the Swedish National Board of Health and Welfare. The *National Cause of Death Register*, available from 2005 to 2020, records the date and specific cause of death for deceased individuals. The *National Patient Register* maintains detailed records of hospital admissions, including admission dates and precise diagnoses classified by the International Statistical Classification of Diseases and Related Health Problems (ICD). The *National Prescribed Drug Register* contains data on the date and category of prescribed drugs, organized by ATC-codes.

Following Fadlon and Nielsen (2019), we treat all deaths as the main source of fatal health shocks in our primary analysis. As a robustness check, we restrict the sample to sudden deaths, including heart attacks, strokes, and injuries—explicitly excluding cases related to self-harm (e.g., Chandra and Staiger, 2007; Doyle, 2011; Fadlon and Nielsen, 2021). For the nonfatal analysis, we apply a consistent definition and focus on sudden nonfatal health shocks, identified as first-time inpatient diagnoses of heart attacks, strokes, or injuries.

We combine these debt default and health data with individual socioeconomic characteristics sourced from the *Longitudinal Integration Database for Labour Market Studies (LISA)*, which spans 1990 to 2020. These data include detailed information on all sources of individual and household income, as well as characteristics such as age, education, and gender, and provide information on household links.

We analyze several income measures, including labor income, capital income, and disposable income. Labor income consists of the total cash gross salary and similar compensations reported to the Swedish Tax Agency by employers. This encompasses not only the basic salary subject to payroll taxes, but also other taxable cash compensations, specific reimbursements such as travel allowances, severance pay, and sick pay, as well as non-monetary benefits like gift cards or securities.

Capital income includes income from various sources, such as interest on bank deposits, dividends on shares, and capital gains from the sale of assets such as property and stocks. It is calculated by adding all revenues and deducting allowable expenses with the final amount subject to taxation; this includes making provisions for tax deductions in cases where expenses exceed income.

Disposable income is the sum of all taxable and tax-free income after subtracting final taxes and other negative transfers. Taxable income includes total earned income and capital income, while taxable transfers comprise various benefits and financial aid, such as pensions, sickness benefit, and sickness compensation. Nontaxable transfers include child pension, survival benefits for children, child allowances, and housing allowances. Negative transfers include taxes and social security contributions. We measure disposable income

at both the individual and the household level.

We link parents to adult children using the *Multi-generation register*. We also observe the type of accommodation from *STATIV*, a longitudinal database for integration studies. This allows us to classify individuals as homeowners or renters.

Lastly, we retrieve net wealth information from the *Swedish Wealth Register*. These data were collected by Statistics Sweden for tax purposes between 1999 and 2007, until the wealth tax was abolished. The register includes all financial assets held outside retirement accounts as of December 31 of each tax year.

All monetary values are reported in nominal Swedish Kronor (SEK), deflated to 2019 prices using the consumer price index. These values are then converted to US dollars based on the annual average exchange rate of 9.4604.[7]

3.1 Samples of Analysis

In our primary analysis, we focus on households that experienced a fatal health incident between 2015 and 2020. The sample includes all individuals who lost a spouse, were married one year prior to the death, and whose deceased partner was aged 25 or older at the time of death. This results in a total of 127,302 surviving spouses, approximately 25,000 per year.

For the analysis of income-related outcomes, we exploit a longer observation period due to greater data availability. Here, the treatment group consists of surviving spouses who lost a spouse between 2005 and 2020, increasing the sample size to 423,866 individuals.

To investigate intergenerational effects, we also examine the impact of fatal health shocks on the adult children of surviving spouses. This group includes individuals who were at least 17 years old in the year their parent lost a spouse. The sample consists of 293,202 individuals whose parent experienced spousal loss between 2015 and 2020.

In our investigation of nonfatal health shocks, we focus on specific incidents that are commonly recognized as sudden and severe—namely heart attacks, strokes, and injuries

[7] Data obtained from riksbanken.se on March 4, 2024.

(excluding self-harm)—where diagnoses followed an inpatient admission. The sample consists of married households in which one spouse experienced a severe health shock for the first time between 2015 and 2020, where the affected spouse was aged 25 or older at the time of the event, and both spouses survived throughout the analysis period. The resulting sample includes 139,989 households, approximately 22,000 per year.

For the analysis of income-related outcomes following nonfatal health shocks, we expand the sample to cover the same time period as in the fatal health shock analysis (2005–2020). This extended sample includes 435,159 households.

Tables C.1 and C.2 in the Appendix present summary statistics in the year before the health shock. In the fatal sample about 67% of the surviving spouses are female and around 23% have some form of higher education. The household disposable income is roughly 450,000 SEK ($US 48,000). The share receiving a claim is on average 2%. This is lower than in the general population since we are studying a sample of older married spouses. Among those receiving a claim the average number of claims received in a year is approximately 2.5 and the average annual total debt size (among debt holders) is 37,000 SEK ($US 3900). In the nonfatal sample, approximately 63% of the spouses are women and 39% have some higher education. The household disposable income is on average 680,000 SEK ($US 72,000). The share receiving a claim is on average 3%, and within this group the average number of claims received in a year (among debt holders) is 3 and the average annual total debt size 60,000 SEK ($US 6300).

Figure C.1 in the Appendix displays the age distributions of spouses affected by fatal and nonfatal health shocks during the period 2015–2020. Spouses experiencing fatal shocks are significantly older, with an average age of 77 at the time of the event, compared to an average age of 60 among those experiencing nonfatal shocks.

4 Research Design

In our analysis, we exploit a staggered adoption design and restrict attention to households that eventually experience a fatal or nonfatal health shock for the first time during

the observation window. By conditioning on ever being treated, we compare individuals who differ only in the timing of the shock, thereby holding constant the (unobserved) determinants of experiencing such an event. The key identifying assumption is that, conditional on eventually experiencing a health shock, the exact timing of a diagnosis is as good as random within the study period. To evaluate the plausibility of this assumption we test for pre-trends in the outcome variables.

Year fixed effects absorb aggregate shocks common to all households, while individual fixed effects account for time-invariant personal characteristics. In the analysis of nonfatal shocks, we additionally include age group fixed effects of the affected individual to flexibly control for life-cycle variation in outcomes that could correlate with both the likelihood and timing of nonfatal events. We do not include age group fixed effects in the fatal sample, where the age distribution is relatively compressed and the deceased are not observed after the shock.

To address the limitations of conventional two-way fixed effects (TWFE) estimators in staggered adoption settings with heterogeneous or dynamic treatment effects, we implement the estimator developed by Callaway and Sant'Anna (2021). The Callaway–Sant'Anna (CSDID) approach estimates group–time average treatment effects ($\text{ATT}_{g,t}$) separately for each cohort defined by the timing of first treatment, and then aggregates them into overall treatment effects. In our setting, a cohort is defined by the year in which a household first experiences a health shock. For each group–time pair (g, t) with $t \geq T_g$, the estimator compares outcomes of the treated cohort to those of not-yet-treated households in the same year, while controlling for individual and year fixed effects. We estimate dynamic treatment effects by aligning outcomes in event time, defined as $s = t - T_g$, where $s = 0$ denotes the year of the health shock, $s < 0$ the pre-treatment years, and $s > 0$ the post-treatment years. Aggregating $\text{ATT}_{g,t}$ by event time yields a dynamic event-study representation of the impact of health shocks on outcomes:

$$\widehat{ATT}_s = \sum_{g=1}^{G} w_{g,s} \, \widehat{ATT}(g, T_g + s),$$

where $w_{g,s}$ denotes the weight reflecting the share of group g observed at relative time s. These event-time-specific effects provide evidence on the validity of the parallel trends assumption and trace the trajectory of outcomes in the aftermath of the shock. We report both dynamic and average treatment effects, aggregating group–time estimates using the default doubly robust inverse probability weighting (DRIPW) scheme. Standard errors are clustered at the household level.

A limitation of the Callaway–Sant'Anna estimator is that some cohorts do not contribute to certain event-time estimates, because valid comparisons are only possible in group–time cells where a not-yet-treated comparison group is available. For instance, cohorts first treated in the final observation year (e.g., 2020) serve only as controls but not as treated groups. To complement these estimates and visualize event-time dynamics for all periods, we also report results from a conventional event-study specification that includes year fixed effects.

5 Household Responses to Fatal Health Events

In this section, we analyze the impact of fatal health events on household financial distress and explore potential mechanisms for our findings. Additionally, we examine if fatal health shocks have intergenerational effects.

5.1 Main Results

Figures 3-5 present the impact of spousal death on three measures of financial distress, capturing both the extensive and intensive margins; the probability that the surviving spouse receives a claim from the SEA, the annual number of claims and the annual total amount of unpaid obligations (debt). Each figure reports both annual (event-time) effects and their cumulative counterparts.

Panel A reports conventional event-study estimates. Panel B reports dynamic treatment effects estimated using the Callaway and Sant'Anna (2021) difference-in-differences method with not-yet-treated individuals as the comparison group. Panel C presents the

corresponding Callaway–Sant'Anna cumulative effects, which capture the total impact up to each post-treatment period. Each graph displays the average treatment effect on the treated (ATT), along with the corresponding percentage change relative to the pre-treatment mean. The event year zero, marked by the dashed vertical line, represents the year in which the fatal health shock occurs.

Panels A and B show effects of similar magnitude. Panel A reports 5 leads and 5 lags, whereas Panel B reports 3 leads and 4 lags because valid not-yet-treated comparison units are unavailable at the extreme leads/lags. Three key patterns emerge. First, the effect of the health shock manifests immediately in the year of the spouse's death. Second, the estimates show no evidence of differential pre-trends, supporting the validity of the parallel trends assumption. Third, the effects are persistent, with elevated levels of financial distress continuing for several years after the event.

Surviving spouses experience an increase in the probability of receiving a claim by 0.3 percentage points, resulting in an increase of 20% from the baseline ($t = -1$) average of 1.6%. This baseline level is lower than the population average of 5%, reflecting the older and likely more financially stable sample of married households included in the analysis. Furthermore, the average number of claims increases by 32%, while the total amount of claims increases by 3.4%.

Panel C provides additional insight by tracing the cumulative effect of the shock over time. For the extensive margin, the outcome is a binary indicator that switches to one after the individual's first debt claim and remains one thereafter. This shows that spouses exposed to a fatal health shock are almost 1 percentage point more likely to have received at least one claim within four years, an increase of 56%. The steady rise in the cumulative share suggests that new individuals continue to transition into financial distress in the years following the shock.

For the number of claims and total unpaid debt, the cumulative outcomes are defined as the sum of all preceding periods up to each event year. Four years after the shock, the number of claims has risen by 142%, while total debt has increased by approximately 10%. Together, these findings indicate that the financial consequences of spousal death

are both immediate and persistent, with effects that accumulate over time across multiple dimensions of financial distress.

The persistence of these effects may reflect several mechanisms. In some cases, the shock may occur late in the calendar year, delaying the financial response into the next period. In others, households may initially manage to avoid financial distress—by drawing on savings or temporary support—but eventually default as resources are depleted. The fact that elevated distress levels remain even three years after the shock suggests that the death of a spouse imposes longer-lasting financial challenges for affected households.

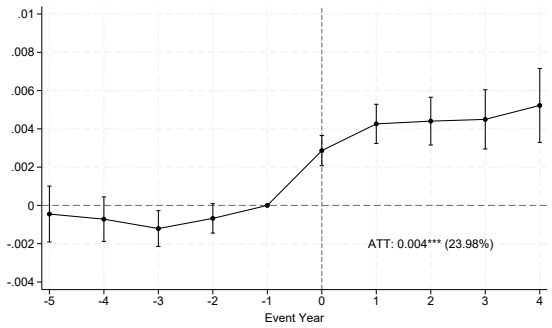
Table 1 displays the average treatment effects on the treated (ATT). Panel A outlines the impact on the probability of receiving a claim, the average number of claims received, the IHS of total debt and total debt in SEK. Panel B restricts the outcomes to claims that result in debt collection. Survivors who receive a claim from the SEA can still avoid debt collection and a record of nonpayment by promptly repaying the debt. However, the incidence of enforced debt collection increases by 12.5%. Furthermore, the average number of claims that progress to the debt collection stage increases by 32%, and the average debt amount increases by 1% corresponding to 122 SEK ($US 13).

The table also reports the results of a pre-trend test based on average estimated effects in the pre-treatment periods. Across all outcomes, these pre-treatment estimates (Pre Avg) are statistically indistinguishable from zero, lending further support to the parallel trends assumption underlying the identification strategy.

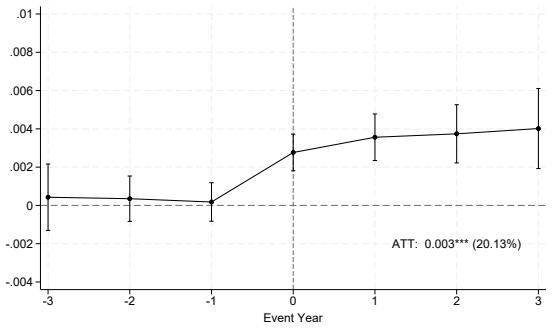
In Appendix A.1, we show that our results are robust to using a stacked difference-in-difference design. In Appendix A.2, we demonstrate that the main results remain robust regardless of whether the cause of death is defined as sudden or not. Although the event-study graphs show no indication of anticipation, whether households expected the death may influence their financial planning, and thus the impact of the shock. In line with this, most effects are more pronounced when deaths are unexpected. In Appendix A.3, we demonstrate that our results remain robust when restricting the sample to spouses who were alive throughout the post-event period. This confirms that our findings are not influenced by negative selection related to the death of surviving spouses. Lastly, in

Appendix D.1, we show that these effects are similar for spouses of both working age and retirement age.

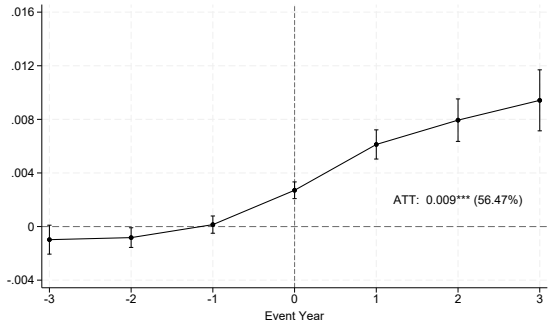
Figure 3: **Dynamic Effects of a Fatal Health Shock on the Probability of Receiving a Debt Claim.** This figure illustrates the estimated impact of a fatal health shock on the likelihood of receiving a debt claim from the Swedish Enforcement Authority (SEA). Panel A reports results from a conventional event-study specification. Panels B and C present estimates based on the Difference-in-Differences approach developed by Callaway and Sant'Anna (2021). Panel B displays period-specific effects, while Panel C shows cumulative effects, capturing the probability of having received a claim in the current or any previous period. All figures report coefficient estimates with 95% confidence intervals, as well as the average treatment effect (ATT) and the effect in percentage terms relative to the mean one year prior to the event. Standard errors are clustered at the household level.



A. Period-Specific Effect (Event Study)

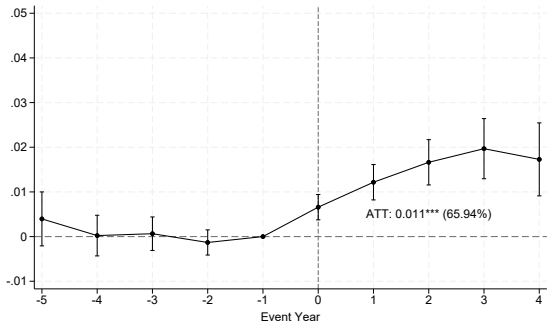


B. Period-Specific Effect (Callaway Sant' Anna)

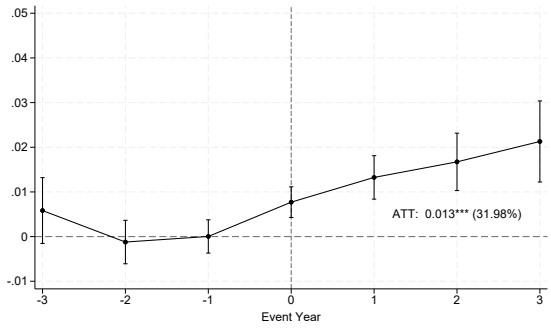


C. Cumulative Effect (Callaway Sant' Anna)

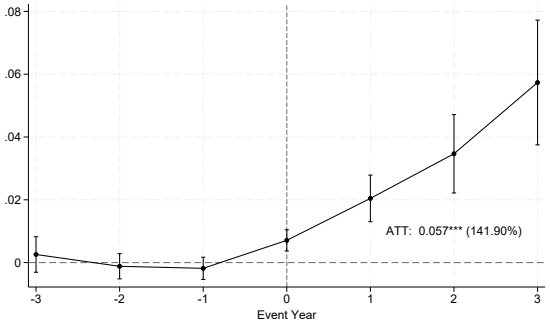
Figure 4: **Dynamic Effects of a Fatal Health Shock on the Number of Debt Claims Received** This figure illustrates the estimated impact of a fatal health shock on the number of debt claims received from the Swedish Enforcement Authority (SEA). Panel A reports results from a conventional event-study specification. Panels B and C present estimates based on the Difference-in-Differences approach developed by Callaway and Sant'Anna (2021). Panel B displays period-specific effects, while Panel C shows cumulative effects, capturing the number of claims received in the current or any previous period. All figures report coefficient estimates with 95% confidence intervals, as well as the average treatment effect (ATT) and the effect in percentage terms relative to the mean one year prior to the event. Standard errors are clustered at the household level.



A. Period-Specific Effect (Event Study)

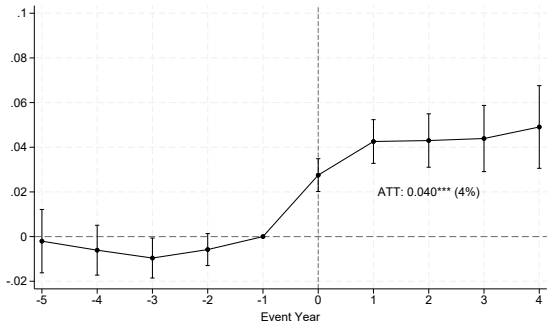


B. Period-Specific Effect (Callaway Sant' Anna)

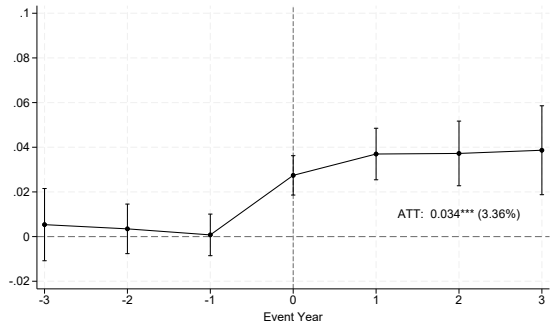


C. Cumulative Effect (Callaway Sant' Anna)

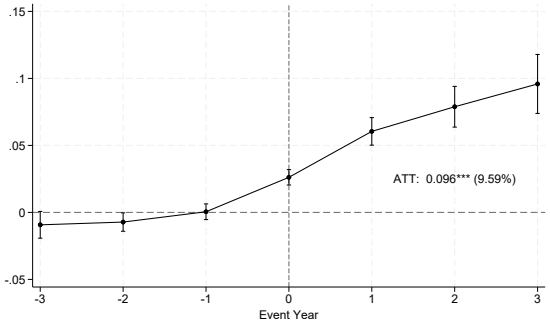
Figure 5: **Dynamic Effects of a Fatal Health Shock on the Total Size of Debt Claims** This figure illustrates the estimated impact of a fatal health shock on the total size of debt claims received from the Swedish Enforcement Authority (SEA). Panel A reports results from a conventional event-study specification. Panels B and C present estimates based on the Difference-in-Differences approach developed by Callaway and Sant'Anna (2021). Panel B displays period-specific effects, while Panel C shows cumulative effects, capturing the IHS of the total debt size in the current or any previous period. All figures report coefficient estimates with 95% confidence intervals, as well as the average treatment effect (ATT) and the effect in percentage terms relative to the mean one year prior to the event. Standard errors are clustered at the household level.



A. Period-Specific Effect (Event Study)



B. Period-Specific Effect (Callaway Sant' Anna)



C. Cumulative Effect (Callaway Sant' Anna)

Table 1: **The Effect of a Fatal Health Shock on Debt Default of the Surviving Spouse.**

	(1) Claim	(2) No. of Claims	(3) IHS(Total Debt)	(4) Total Debt
Panel A: Claims				
ATT	0.003***	0.013***	0.034***	105.647
	(0.001)	(0.002)	(0.005)	(147.103)
Pre Avg	0.000	0.002	0.003	23.697
	(0.000)	(0.001)	(0.003)	(64.106)
Observations	847,289	847,289	847,276	847,276
Mean (t-1)	0.017	0.040	0.156	684.670
Panel B: Debt Collection (DC)				
ATT	0.001**	0.007***	0.010***	121.744
	(0.0004)	(0.0016)	(0.0037)	(75.5519)
Pre Avg	0.000	0.001	0.002	82.009**
	(0.000)	(0.001)	(0.002)	(39.254)
Observations	847,289	847,289	847,289	847,289
Mean (t-1)	0.008	0.022	0.082	410.234

Note: This table reports estimates of the impact of a fatal health shock on the surviving spouse. Columns 1–4 in Panel A present results on: (1) the probability of receiving a financial claim from the SEA; (2) the average number of such claims within a year; (3) the inverse hyperbolic sine transformation of the total value of claims received during the year; and (4) the total value of all claims in SEK. Columns 1–4 in Panel B focus on enforced debt collection, reporting: (1) the probability of entering enforced collection; (2) the average number of enforced claims within a year; (3) the inverse hyperbolic sine transformation of the total value of debts in enforced collection; and (4) the total value of such debts in SEK. 'Mean (t-1)' refers to the average outcome one year before the event. All monetary values are in constant 2019 SEK. Estimates are based on the Callaway and Sant'Anna (2021) difference-in-differences approach. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

5.1.1 Impact on Households Without Prior Claims

In our analyses, we include all households regardless of their pre-existing financial situation. Although debts are not inherited in Sweden, there is a concern that some observed effects may be mechanical, as the responsibility of managing household finances could shift to the surviving spouse, or that fatal shocks could only exacerbate the financial difficulties of those already struggling.[8]

To investigate this, we restrict our sample to households where the deceased spouse

[8] Debts are not inherited by spouses or other heirs. Instead, any debt of the deceased are settled by the estate before the remainder is distributed among the heirs. If debts exceed the assets of the estate, the remaining debts are not passed on to the heirs.

had no claims in the pre-event period. The main estimates are shown in Table 2. This restriction increases the point estimates as well as the effect size in percentage terms. The point estimates for receiving any claim and for large-debt collections double, corresponding to increases of 88% and 100%, respectively. This suggests that our main results are not simply a reflection of the transfer of financial obligations from the deceased spouse to the surviving one.

Table 2: **The Effect of a Fatal Health Shock in Households where the Deceased Received no Claims in the Pre-Shock Period**

	Claim	No. of Claims	IHS(Total Debt)	DC
ATT	0.006***	0.019***	0.056***	0.002***
	(0.0004)	(0.0012)	(0.0038)	(0.0002)
Observations	815,802	815,802	815,791	815,802
Mean (t-1)	0.008	0.013	0.066	0.002

Note: This table reports estimates of the impact of a fatal health shock on the surviving spouse in households where the deceased received no claims in the pre-shock period. Columns 1–4 correspond to: (1) the probability of receiving a financial claim from the SEA; (2) the average number of such claims within a year; (3) the inverse hyperbolic sine transformation of the total value of claims received during the year; and (4) the probability of being subjected to enforced debt collection. 'Mean (t-1)' refers to the average outcome one year prior to the shock. Estimates are obtained using the difference-in-differences approach of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Additionally, we limit the sample to households where none of the spouses had any claims in the pre-event period. This is the majority of the sample; 95% of the households received no claims in the years leading up to the death. The results in Table 3 show that the point estimates for receiving any claim and for large-debt collections approximately double again, relative to the main sample the point estimates are roughly four times as large. Even in households that have shown no recent indications of financial troubles, a fatal health shock drastically increases the risk of default. This suggests that fatal health shocks are the main reason for financial distress for most widows and widowers.

Table 3: **The Effect of a Fatal Health Shock in Households where None of the Spouses Received any Claims in the Pre-Shock Period**

	Claim	No. of Claims	IHS(Total Debt)	DC
ATT	0.012***	0.026***	0.107***	0.003***
	(0.0002)	(0.0009)	(0.0023)	(0.0001)
Observations	802,624	802,624	802,617	802,624
Mean (t-1)	0.000	0.000	0.000	0.000

Note: This table reports estimates of the impact of a fatal health shock on the surviving spouse in households where none of the spouses received any claims in the pre-shock period. Columns 1–4 correspond to: ((1) the probability of receiving a financial claim from the SEA; (2) the average number of such claims within a year; (3) the inverse hyperbolic sine transformation of the total value of claims received during the year; and (4) the probability of being subjected to enforced debt collection. 'Mean (t-1)' refers to the average outcome one year prior to the shock. Estimates are obtained using the difference-in-differences approach of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

5.2 Mechanisms

In this section, we investigate the underlying mechanisms driving our key findings, focusing on two potential channels: *inattention* and *lack of resources*. These pathways are critical to distinguish, as each leads to different policy implications for a social planner seeking to enhance welfare.

5.2.1 Inattention and Default Risk

Loss of a spouse can take a substantial emotional toll, which can be associated with symptoms of stress, anxiety, and depression. In addition, it is followed by numerous urgent tasks, such as settling accounts and planning a funeral. Under these circumstances, it would not be surprising if routine household tasks, such as paying bills, are forgotten or compromised. Furthermore, if the deceased spouse was primarily responsible for managing the household finances, the surviving partner could find themselves facing an unfamiliar task.[9]

If inattention drives defaults, we would expect similar repayment behavior regardless of the debt size. In contrast, if lack of resources is the issue, larger debts should lead to

[9] This can be due to rational inattention - that it can be rational to remain financially ignorant. If one has a spouse who manages financial matters, it might be rational not to acquire these skills, as doing so is costly (Lusardi et al., 2017).

higher default rates. To distinguish these channels, we examine the likelihood of debt collection for small and large debts, defined as below or above the median debt size among debt holders prior to the health shock. Together, these outcomes help decompose the main effect, whether a household enter debt collection or fully repays after receiving a claim.

Table 4 shows the effect of fatal health shocks on the probability that the surviving spouse receive a claim, with Columns 2-6 providing a breakdown. Columns 2–3 show the likelihood of receiving a claim for small and large debts, respectively. Column 4 reports the probability of entering debt collection, while Columns 5–6 distinguish between debt collections arising from large and small debts. Reassuringly, the average of the pre-treatment effects (Pre Avg) is close to zero and statistically insignificant across all outcomes, supporting the validity of the parallel trends assumption underlying our identification strategy.

Spouses are equally likely to receive small and large claims. About one in three claims progress to debt collection; however, it is predominantly large debts that do so, roughly half of them, while small debts are repaid. The probability of entering debt collection for a large debt increases by 25% following a fatal health shock.

These analyses point to an important conclusion. While many manage to pay off their claims, this appears to be restricted to smaller debts. The significantly elevated risk of default on larger claims compared to smaller ones suggests a lack of resources to be the main factor that influences this behavior.

Table 4: **The Effect of a Fatal Health Shock on the Probability of Receiving a Claim and its Decomposition**

	(1) Claim	(2) Claim (Large)	(3) Claim (Small)	(4) Debt Collection (DC)	(5) DC (Large)	(6) DC (Small)
ATT	0.003***	0.002***	0.002***	0.001**	0.001***	-0.0001
	(0.0005)	(0.0003)	(0.0004)	(0.0004)	(0.0003)	(0.0003)
Pre Avg	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	847,289	847,276	847,276	847,289	847,289	847,289
Mean (t-1)	0.017	0.007	0.010	0.008	0.004	0.004

Note: This table provides estimates for the impact of a fatal health shock on the surviving spouse. Columns 1-6 present results on six metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of receiving a claim for a large debt; 3) the probability of receiving a claim for a small debt; 4) the probability of being subjected to enforced debt collection; 5) the probability of being subjected to enforced debt collection of a large debt; and 6) the probability of being subjected to enforced debt collection of a small debt. 'Mean (t-1)' refers to the average outcome one year before the event. All monetary values are in constant 2019 SEK. Estimates are based on the Callaway and Sant'Anna (2021) difference-in-differences approach. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.2.2 Income Effects of Fatal Health Shocks

Losing a spouse can involve a substantial reduction in income, which could affect the financial stability of the household. We examine how this loss affects different types of income: labor income, capital income, the disposable income of the surviving spouse, and the total disposable income of the household. The goal is to assess whether the surviving spouse compensates for the lost income, at least in part, through increased labor supply or other income sources.

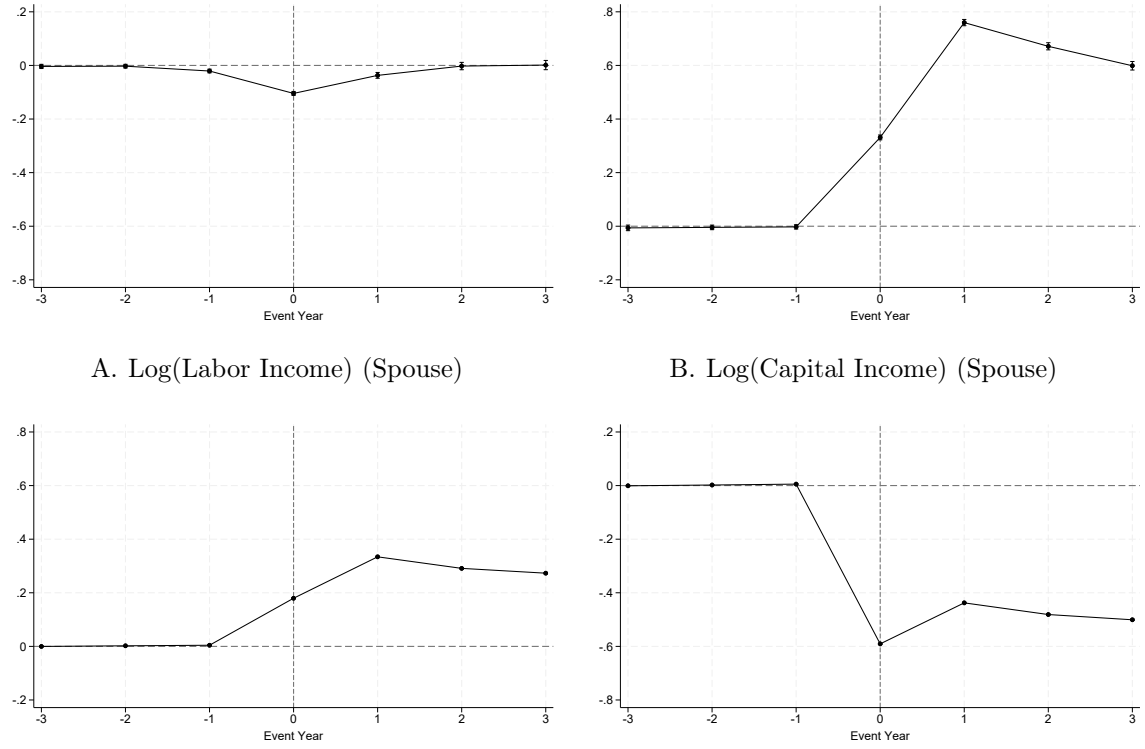
Figure 6, Panel A, shows the impact on the surviving spouse's labor income. We find a relatively modest decline of approximately 10% in the year of the shock. Notably, this effect is transitory: labor income returns to pre-shock levels within two years.

Panels B–D display the dynamic effects on capital income, disposable income, and household disposable income. The corresponding average treatment effects are reported in Table 5. We observe a substantial increase in capital income of 58%, following the shock. This rise may partly reflect mechanical transfers due to spousal inheritance, but could also indicate asset liquidation to offset lost earnings.

The combination of labor and capital income changes results in a net increase in the surviving spouse's disposable income. However, at the household level, this gain is insufficient to fully compensate for the lost contributions of the deceased spouse, particularly from labor and pension income. As a result, total household disposable income declines

by approximately 51%.

Figure 6: **The Dynamic Effect of a Fatal Health Event on Labor, Capital, and Disposable Income.** This figure presents coefficient estimates of the effect of a fatal health shock on (A) the logarithm of labor income of the spouse, (B) the logarithm of capital income of the spouse, (C) the logarithm of disposable income of the spouse, and (D) the logarithm of household disposable income. All income measures are expressed in constant 2019 prices and in thousands of SEK. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level.



A. Log(Labor Income) (Spouse)

B. Log(Capital Income) (Spouse)

C. Log(Disposable Income) (Spouse)

D. Log(Disposable Income) (Household)

Table 5: **The Effect of a Fatal Health Shock on Labor, Capital and Disposable Income of the Surviving Spouse and the Household**

	(1) Log(Labor Income)	(2) Log(Capital Income)	(3) Log(Disposable Income)	(4) Log(Hh. Disposable Income)
ATT	-0.044***	0.575***	0.266***	-0.506***
	(0.005)	(0.005)	(0.001)	(0.001)
Observations	672,185	1,709,297	3,398,944	3,411.216
Mean (t-1)	4.673	1.705	5.019	5.830

Note: This table reports estimates of the impact of a fatal health shock on the log income of the surviving spouse and the household. Columns 1–4 report effects on: (1) log labor income; (2) log capital income; (3) log disposable income of the spouse; and (4) log household disposable income. 'Mean (t-1)' refers to the average outcome in thousands of SEK one year before the event. All income variables are expressed in constant 2019 prices. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

In Appendix D.2, we further validate these findings by demonstrating that they are robust when income is expressed in levels instead of logarithm and confirm that the declines in disposable labor income are still substantial even when we include spouses who had no income prior to the event and start working afterwards.

In Appendix D.3 we investigate if the results are driven by spouses with a higher relative income loss. Similarly to Fadlon and Nielsen (2021), we categorize spouses as primary or secondary earners, based on which spouse earned the majority of household income prior to the shock. Given this larger relative income loss for secondary earners, one would expect them to have a higher likelihood of defaulting on debts. However, contrary to this expectation, we do not find significant differences in the collection of large debts between the two groups. Furthermore, there are no positive impacts on labor income, indicating that self-insurance through increased labor supply is not a common strategy.

Our findings on labor income contrast with those of Fadlon and Nielsen (2021), who observe a positive response in the labor supply of the surviving spouses.[10] The difference in labor supply responses may be attributed to variations in inheritance laws between Denmark and Sweden. In Denmark, forced heirship laws (tvangsarv) restrict how freely a person can allocate their estate through a will, ensuring that children are entitled to at least 1/4 of the estate. As a result, a fatal health shock can impose not only an income shock but also a wealth shock on the surviving spouses, potentially compelling them to increase their labor supply to compensate for the loss. In contrast, Swedish inheritance laws specify that the surviving spouse inherits the entire estate by default, which could provide greater flexibility for using wealth as a form of insurance rather than relying on increased labor supply. We will explore this further in the next section.

[10] Our methodology differs from theirs in some aspects. Fadlon and Nielsen (2021) analyze a sample of surviving spouses in which the deceased was aged 45 to 80 at the time of death, employing a stacked difference-in-differences approach. In their setup, the control group experiences a shock five years after the treatment group.

5.2.3 Role of Housing Wealth in Financial Resilience

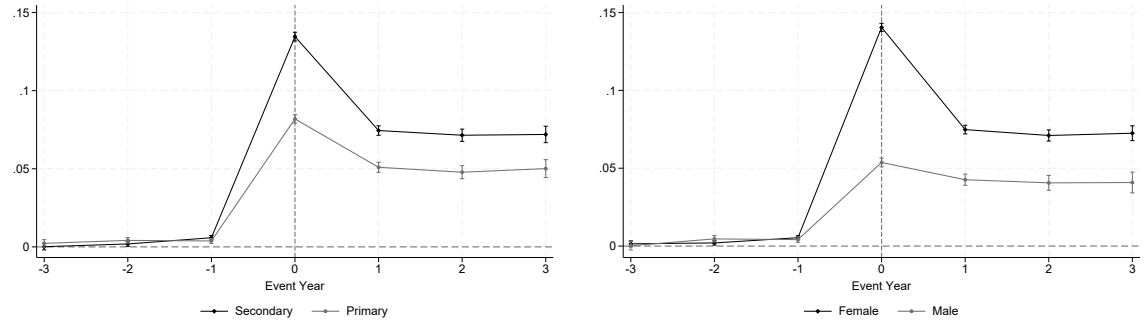
Previous research suggests that housing wealth is used to mitigate financial risks, especially later in life (Davidoff, 2010; Venti and Wise, 1989, 1990, 2002; Feinstein and McFadden, 1989). We investigate this by examining if spouses with a relatively larger drop in household disposable income are more prone to liquidating housing wealth.

We compare the effects between surviving spouses who were the primary versus secondary earners in the household prior to the shock, and between women and men. Figure 7 illustrates the differential impact on the probability of being a renter—Panel A compares secondary and primary earners, while Panel B compares women and men. The results show that the probability of selling a home increases more for secondary earners and for women.

Average treatment effect estimates for these groups, along with additional outcomes, are reported in Appendix Table D.3. The difference in the probability of being a renter is approximately 3.4 percentage points higher for secondary earners relative to primary earners, and 5.2 percentage points higher for women relative to men, both from similar baselines. While secondary earners and women experience larger income losses, they are not at greater risk of entering debt collection for large debts. This suggests that the ability to realize housing wealth acts as a buffer against the larger income shock.

Although selling a home may be a somewhat mechanical response to having one fewer person in the household, there is no reason to assume a mechanical difference in the probability of liquidating housing wealth between these groups. Rather, this variation points to distinct behavioral responses, implying that housing wealth is an important factor for default behavior.

Figure 7: **The Dynamic Effect of a Fatal Health Shock on the Probability of Being a Renter.** This figure displays the dynamic treatment effects of a fatal health shock on the likelihood of being a renter, estimated separately for renters and homeowners, and women and men using the Callaway and Sant'Anna (2021) difference-in-differences approach. Panel A shows the results for secondary and primary earners and Panel B for women and men. The plot shows point estimates and 95% confidence intervals by event time. The standard errors are clustered at the household level.



A. Secondary and Primary Earners

B. Women and Men

To further examine the role of housing, we categorize households based on homeownership status. Specifically, we classify households as renters if they were renting their home two years prior to the shock, and as homeowners if they owned a home at that time.

Figure 8 displays the evolution of the effect on the probability of entering debt collection for large debts, shown separately for renters and homeowners. For both groups, the graph provides supporting evidence for the assumption of parallel trends. Table 6 outlines the average treatment effects: Panel A covers renters and Panel B homeowners. Columns 1-3 examine the main effect and a decomposition into debt collection of large and small claims, while column 4 presents results on household disposable income.

Fatal shocks increase the likelihood of receiving a claim for both renters and homeowners. However, renters are twice as likely to receive a claim following the death of a spouse. A key distinction emerges in the resolution of these claims: homeowners show no significant increase in debt collection, suggesting they are able to settle claims promptly. In contrast, only half of the renters succeed in repaying their claims, and face a 33% higher risk of entering debt collection for large claims. Small claims do not appear to pose a problem, indicating that renters can absorb minor expenses but struggle with more substantial financial shocks. Notably, these differences arise despite both groups

experiencing similar income losses of around 50%.

Our findings show that surviving spouses who experience larger income losses are more likely to sell their homes. At the same time, homeowners overall are significantly less likely than renters to default on financial obligations following a fatal health shock. This highlights the critical role of housing wealth as a financial buffer and a form of self-insurance in the face of adverse shocks. Unlike liquid savings, home equity tends to be accessed only as a last resort, largely due to the associated transaction costs.

Approximately 70% of household wealth is tied to housing, making it a strong proxy for the total wealth of households. To assess whether our findings are driven by wealth differences rather than solely by inherent differences between homeowners and renters, we analyze wealth data available from 1999 to 2007. We use household net wealth in 2006, a year with higher data quality than 2007. Although this is 8 years prior to our analysis period, the persistence of wealth over time suggests that it provides a reasonable approximation of net wealth in the later period. Based on this, we calculate median net wealth and categorize households into above-median and below-median wealth groups, replicating our earlier analysis across these categories. 74% of renters fall into the category below median wealth and 43% of homeowners.

Table 7 presents these results, which are consistent with the findings of our previous analysis. Both below- and above-median wealth households exhibit an increased risk of receiving a claim from the SEA. However, high-wealth households tend to repay and avoid debt collection, whereas below-median wealth households are 25% more likely to have debts in collection. The below-median wealth group includes more households than the renter group, which is overrepresented at the lower end of the wealth distribution. This broader composition may explain the slightly smaller observed effect.

In Appendix D.4, we further demonstrate that differences in initial household disposable income do not explain default behavior. Spouses from households with below- and above-median disposable income face a similar risk of receiving a claim, while only those from above-median households experience a slightly higher risk of entering debt collection. This further reinforces the conclusion that wealth plays a more significant role

in explaining default behavior.

Figure 8: **Dynamic Effect of a Fatal Health Shock on the Probability of Entering Collection for a Large Debt.** This figure displays the dynamic treatment effects of a fatal health shock on the likelihood of facing collection for a large debt, estimated separately for renters and homeowners using the Callaway and Sant'Anna (2021) difference-in-differences approach. The plot shows point estimates and 95% confidence intervals by event time. The standard errors are clustered at the household level.

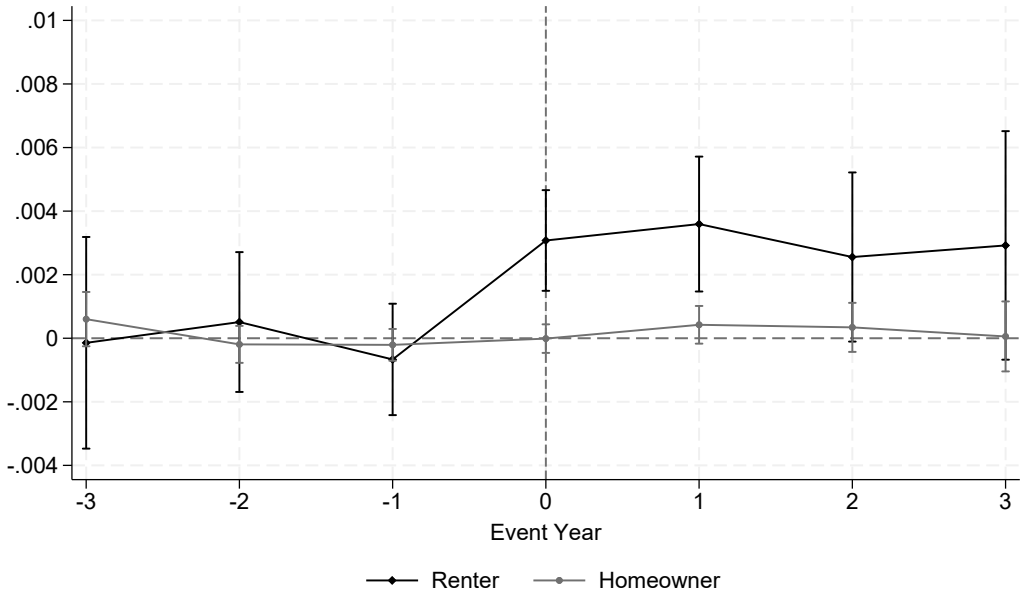


Table 6: **The Effect of a Fatal Health Shock by Renters and Homeowners**

	(1) Claim	(2) DC (Large)	(3) DC (Small)	(4) Log(Hh Disp. Income)
Panel A: Renters				
ATT	0.006***	0.003***	0.0004	-0.543***
	(0.0014)	(0.0009)	(0.0008)	(0.0026)
Observations	193,596	193,596	193,596	193,019
Mean (t-1)	0.027	0.009	0.007	5.779
Panel B: Homeowners				
ATT	0.003***	0.0002	-0.0003	-0.511***
	(0.0005)	(0.0003)	(0.0003)	(0.0020)
Observations	653,693	653,693	653,693	651,335
Mean (t-1)	0.013	0.003	0.003	5.973

Note: This table presents estimates of the impact of a fatal health shock on two subgroups of surviving spouses: renters and homeowners. A surviving spouse is classified as a renter or homeowner based on their housing status two years prior to the death. Panel A reports effects for surviving spouses who were renters, and Panel B for those who were homeowners. Columns 1–4 display results for the following outcomes: (1) the probability of receiving a financial claim from the Swedish Enforcement Authority (SEA); (2) the probability of being subjected to enforced debt collection for large claims; (3) for small claims; and (4) the logarithm of household disposable income. 'Mean (t-1)' refers to the average outcome in each subgroup one year prior to the shock. Income is measured in thousands of SEK and adjusted to 2019 constant prices. Estimates are obtained using the Difference-in-Differences approach developed by Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: **The Effect of a Fatal Health Shock by Household Net Wealth Rank.**

	(1) Claim	(2) DC (Large)	(3) DC (Small)	(4) Log(Hh Disp. Income)
Panel A: Net Wealth<=P50				
ATT	0.005***	0.002***	-0.0003	-0.509***
	(0.0009)	(0.0006)	(0.0005)	(0.0020)
Observations	423,116	423,116	423,116	421,077
Mean (t-1)	0.027	0.008	0.007	5.876
Panel B: Net Wealth>P50				
ATT	0.002***	0.0001	0.0000	-0.528***
	(0.0005)	(0.0001)	(0.0002)	(0.0026)
Observations	424,173	424,173	424,173	423,277
Mean (t-1)	0.006	0.001	0.001	5.980

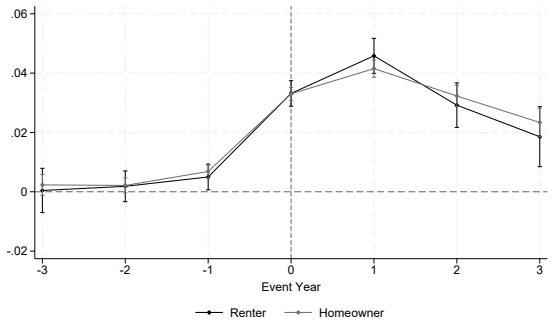
Note: This table provides estimates for the impact of a fatal health shock on 2 subgroups of surviving spouses; those with household net wealth below the median and above the median. Net wealth is measured in 2006 and summed for both spouses. Medians are computed within the sample. Panel A shows the effect for surviving spouses with household net wealth below the median and Panel B for surviving spouses with household net wealth above the median. Columns 1-4 present results on four metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of being subjected to enforced debt collection of large claims, 3) the probability of being subjected to enforced debt collection of small claims, and 4) the log of household disposable income. 'Mean (t-1)' refers to the average outcome in each subgroup one year prior to the shock. Income is measured in thousands of SEK and adjusted to 2019 constant prices. Estimates are obtained using the Difference-in-Differences approach developed by Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The loss of a spouse may also adversely affect mental health. Because renters have fewer financial buffers and might face greater housing insecurity, mental health responses could act as a mediator of the renter–homeowner gap in default. To assess this, we examine impacts on prescriptions of antidepressants and tranquilizers, as well as diagnoses of mental disorders.[11] Figure 9 displays the dynamic effects separately for homeowners and renters. Both groups experience significant impacts across all outcomes, with more persistent effects observed for antidepressant use and mental disorder diagnoses. In contrast, tranquilizer prescriptions return to baseline levels three years after the shock. Importantly, we find no statistically significant differences between renters and homeowners in these estimates, indicating that both groups face similarly adverse mental health

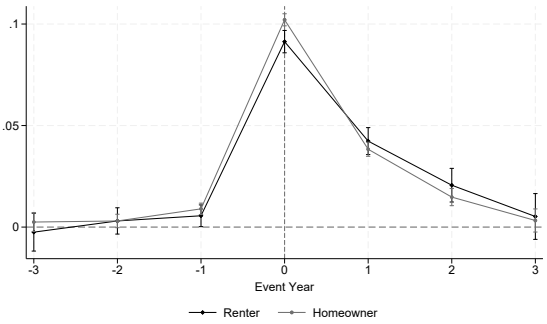
[11] We define mental health diagnoses using ICD-10 codes F01–F99, which encompass mental, behavioral, and neurodevelopmental disorders. To better capture conditions that may be affected by the death of a spouse, we exclude dementia-related diagnoses (F00–F03) from this category.

consequences. This suggests that mental health is unlikely to be driving the observed differences in default behavior.

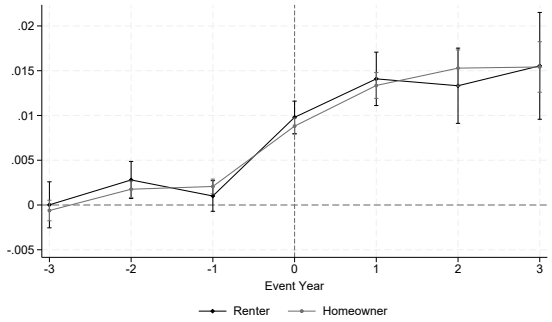
Figure 9: **The Dynamic Effect of a Fatal Health Event on Mental Health Outcomes by Renters and Homeowners.** This figure presents coefficient estimates of the effect of a fatal health shock on (A) the probability to get antidepressants subscribed, (B) the probability to get tranquilizers subscribed, (C) the probability to get diagnosed with a mental disorder. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level.



A. Antidepressants



B. Tranquilizers



C. Mental Disorder Diagnosis

Older individuals may have weaker incentives to repay financial claims if they place less value on future consequences, such as maintaining credit access. In contrast, younger households, particularly younger renters, are more likely to care about preserving creditworthiness, for example, to qualify for a mortgage in the future. To explore whether such strategic behavior plays a role in default decisions, we compare default outcomes for renters and homeowners across two age groups at the time of the spouse's death: 25–39 and 60 and older.

Table 8 examines the effect of a fatal health shock on the probability of entering debt collection for a large claim, disaggregated by housing tenure and age group. Panel A shows that both young renters (aged 25–39) and older renters (aged 60+) experience

significant increases in the probability of default. For young renters, the likelihood rises by 3.2 percentage points from a baseline of 3.1%, while for older renters, it increases by 0.3 percentage points from a baseline of 0.3%.[12] Although the absolute magnitudes differ, the relative increases are substantial in both cases. In contrast, Panel B shows no significant effects among homeowners, regardless of age.

That younger and older renters are similarly affected, while neither younger nor older homeowners are, indicates that moral hazard—such as strategic default due to reduced concern for future credit access at older ages—is unlikely to be the main driver of default.

Table 8: **The Effect of a Fatal Health Shock on the Probability of Entering Debt Collection for a Large Claim, by Housing Tenure and Age Group.**

	(1) Age 25-39	(2) Age 60+
Panel A: Renters		
ATT	0.032*	0.003***
	(0.018)	(0.001)
Observations	1,653	181,280
Mean (t-1)	0.031	0.003
Panel B: Homeowners		
ATT	-0.003	0.0004
	(0.010)	(0.000)
Observations	3,032	609,429
Mean (t-1)	0.031	0.003

Note: This table presents estimates of the impact of a fatal health shock on two subgroups of surviving spouses: renters and homeowners. Housing tenure is defined based on the surviving spouse's housing status two years prior to the death. Panel A reports results for renters, and Panel B for homeowners. Columns 1 and 2 show effects for individuals aged 25–39 and 60+, respectively, at the time of the spouse's death. The outcome of interest is the probability of entering debt collection for a large claim. 'Mean (t–1)' refers to the average outcome in each subgroup one year prior to the shock. All monetary values are expressed in thousands of SEK and adjusted to 2019 constant prices. Estimates are obtained using the Difference-in-Differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

[12] While the estimated effect for young renters is large, this group represents less than 1% of the total renter sample. Consequently, their substantial treatment effect contributes little to the overall estimate for all renters, which explains why the full-sample effect is much smaller despite the large impact in this subgroup.

Lastly, our analysis reveals that both homeowners and renters respond to the loss of a spouse by moving to different neighborhoods, as shown in Appendix D.5. Even those who remain homeowners during the observation period are more likely to move. Although the decision to remain a homeowner may be influenced by the health shock, this relocation behavior likely reflects a strategy of downsizing. Renters may be seeking to lower their monthly rent, whereas homeowners may be aiming to unlock some of their housing equity by moving to a less expensive property.

5.3 Intergenerational Effects on Adult Children

Prior research documents strong intergenerational associations in financial distress. Using comprehensive Danish loan data, Kreiner et al. (2019) show that children of parents who default are substantially more likely to default themselves. To understand one potential channel behind such intergenerational links, we examine whether financial distress triggered by a spouse's death spills over to the next generation.

We focus on the children of the surviving spouse rather than the deceased for two main reasons. First, this approach allows us to assess the potential financial burden on children who may need to support a surviving parent following the loss of household income. Second, it minimizes the confounding effects of inheritance, since the default legal structure in Sweden dictates that the surviving spouse inherits the entire estate.

Having established that the increased risk of debt collection is concentrated among renters, we now examine the impact on their adult children compared to those of homeowners. Between these children, we separate between those who had a primary or secondary earner parent surviving, to further capture the severity of the income loss.

Table 9 presents the average treatment effects for these groups. Consistent with our previous findings, the highest risk of financial distress is observed among children of secondary earner renters—those who experience the largest income losses and lack housing wealth as a form of self-insurance. For this group, the probability of entering debt collection increases by 0.3 percentage points, corresponding to a 10% increase relative to the baseline. Additionally, this group sees an increase in social benefit receipts of 148

SEK ($US 16), which represents a 17% rise from their baseline level—suggesting some compensation through the welfare system, although not enough to fully offset the shock. For the other groups, the estimates are small and statistically insignificant, indicating that these patterns reflect the consequences of the parental shock rather than behavioral responses by the adult children. These findings suggest that financial distress can be transmitted across generations, particularly in families where the surviving spouse has limited financial resources.

The financial consequences of spousal death can undermine the financial stability of adult children through several channels. Children may feel compelled to provide financial support to a surviving parent who experiences a substantial loss of income, or they may reduce their labor supply to help care for an aging parent now living alone. Alternatively, a parent who previously offered financial assistance to their children may no longer have the resources to do so after the shock.

The rise in social benefit receipt may indicate that, rather than assisting their surviving parent, children of the most vulnerable parents experience a decline in the financial support the parent had previously provided. Social benefits are means-tested based on the applicant's own income and resources, including regular support received from relatives, while voluntary transfers made by the applicant to others are not treated as deductible expenses. Upon a parent's death, if such support ceases, this would mechanically reduce the adult child's assessed resources and increase eligibility for benefits. By contrast, if the adult child were to begin supporting the surviving parent, this would not increase benefit eligibility, since such transfers are disregarded in the means test.

To explore this further, we study the impact on children's labor income and household disposable income, and further split children by their labor-market attachment and income status. Specifically, we distinguish between children who had zero labor income or pension income, positive labor or pension income below the 50th percentile, or positive labor or pension income above the 50th percentile in the year preceding the event.[13]

[13] The pension income variable captures an individual's total annual income from all age-related pension payments. It combines public old-age pensions (e.g., folkpension, ATP, garantipension, premiepension), occupational pensions (e.g., ITP, STP, KTP, other tjänstepensioner), and private pension insurance withdrawals. It also includes certain occupational and supplementary pensions that can be paid

Percentiles of labor and pension income are calculated by year within the sample. Table 10 reports the results.

Importantly, these financial strains do not appear to be driven by disproportionately large income losses among affected children. Across all subgroups, adult children reduce their labor supply, with labor income falling by 2.7–5%, consistent with grief or caregiving for the surviving parent. They also do not seem to differ in their access to within-household insurance through spousal labor supply, as household disposable income declines similarly by 1–1.9% across groups.[14] This uniform response suggests that the heightened default risk for children of secondary earner renters is more likely due to a lack of informal insurance, such as financial support from parents, or the need to provide assistance to the surviving parent.

In columns 3–6, we further disaggregate the groups by the child's labor and pension income one year before the event and examine the impact on entering debt collection. Among children of surviving spouses who were secondary earners and renters, the effects are primarily concentrated among those without labor income, for whom the probability of entering debt collection rises by 1.3 percentage points (18%). For children with income below the 50th percentile, the point estimate is positive but imprecise, while for those above the 50th percentile, the estimated effect is precisely zero. For all other subgroups, the estimated effects are small and statistically insignificant. This pattern is consistent with the interpretation that the shock spills over to adult children because the surviving parent is no longer able to provide financial support.

In Appendix D.6, we explore other potential mechanisms behind this intergenerational transmission. In particular, we examine subgroups defined by gender, number of siblings, marital status, and age. The idea is that women and only children might be more likely to care for elderly parents, that younger children might depend more on their parents, and that unmarried children may have less access to intra-household informal insurance. We do not find any evidence supporting these alternative mechanisms, further reinforcing

out before retirement age or together with sickness, disability, or survivors' benefits, meaning that some younger individuals also receive such payments.

[14] Unlike other sections, we use the logarithm of labor income plus 1 to include all children in the sample and further decompose them in the subsequent columns.

the conclusion that the observed patterns are driven by parental income loss and lack of resources.

Table 9: **The Effect of a Fatal Health Shock on Children, by Homeownership Status and Earner Role of the Surviving Spouse**

	(1) Claim	(2) DC	(3) Social Benefits (SEK)
Panel A: Surviving Spouse Renter and Secondary Earner			
ATT	0.002	0.003**	151.654***
	(0.0016)	(0.0012)	(49.1107)
Observations	227,285	227,285	227,285
Mean (t-1)	0.056	0.031	876.382
Panel B: Surviving Spouse Renter and Primary Earner			
ATT	0.001	-0.0002	-90.121
	(0.0021)	(0.0016)	(60.3798)
Observations	150,161	150,161	150,161
Mean (t-1)	0.062	0.036	1073.492
Panel C: Surviving Spouse Homeowner and Secondary Earner			
ATT	-0.0005	-0.0005	8.050
	(0.0008)	(0.0005)	(18.6073)
Observations	734,746	734,746	734,746
Mean (t-1)	0.041	0.019	387.487
Panel D: Surviving Spouse Homeowner and Primary Earner			
ATT	-0.0005	-0.0008	11.228
	(0.0010)	(0.0007)	(22.4770)
Observations	536,444	536,444	536,444
Mean (t-1)	0.045	0.021	460.160

Note: This table presents estimates of the impact of a fatal health shock on children, by housing tenure and earning role of the surviving spouse. Panels A–D correspond to children of renters or homeowners, further distinguished by whether the deceased parent was the primary or secondary earner. Columns 1–5 report effects on the following outcomes: (1) the probability of receiving a financial claim from the SEA; (2) the probability of entering debt collection; and (3) social benefit receipts (in SEK). 'Mean (t–1)' refers to the average outcome in the treatment group one year prior to the event. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021), controlling for 10-year age bins of the children. Standard errors are clustered at the parent level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 10: **The Effect of a Fatal Health Shock on Children's Income and Debt Collection, by Homeownership Status and Earner Role of the Surviving Spouse, and the Child's Income Status.**

	(1)	(2)	(3)	(4)	(5)
Subgroup:	All	All	Labor+Pension = 0	Labor+Pension ≤ P50	Labor+Pension > P50
	Log(Labor Income+1)	Log(Hh. Disp. Income)	DC		
Panel A: Surviving Spouse Renter and Secondary Earner					
ATT	-0.050***	-0.010***	0.013**	0.003	0.0004
	(0.0105)	(0.0033)	(0.0062)	(0.0020)	(0.0011)
Observations	227,285	225,750	23,923	108,970	94,392
Mean (t-1)	4.789	6.166	0.071	0.039	0.011
Panel B: Surviving Spouse Renter and Primary Earner					
ATT	-0.027**	-0.019***	-0.003	-0.0005	0.0009
	(0.0125)	(0.0042)	(0.0076)	(0.0026)	(0.0014)
Observations	150,161	148,905	16,987	73,403	59,771
Mean (t-1)	4.780	6.152	0.077	0.046	0.012
Panel C: Surviving Spouse Homeowner and Secondary Earner					
ATT	-0.042***	-0.013***	0.002	-0.002	0.0002
	(0.0051)	(0.0019)	(0.0031)	(0.0010)	(0.0005)
Observations	734,746	729,898	64,550	318,221	351,975
Mean (t-1)	5.120	6.262	0.046	0.026	0.007
Panel D: Surviving Spouse Homeowner and Primary Earner					
ATT	-0.043***	-0.014***	-0.004	-0.0007	-0.0002
	(0.0060)	(0.0023)	(0.0037)	(0.0011)	(0.0006)
Observations	536,444	533,037	47,606	242,623	246,215
Mean (t-1)	5.126	6.242	0.051	0.028	0.008

Note: This table presents estimates of the impact of a fatal health shock on children's income and probability of entering debt collection, by housing tenure and earning role of the surviving spouse, and by the child's employment status. Panels A–D correspond to children of renters or homeowners, further distinguished by whether the deceased parent was the primary or secondary earner. Columns 1–2 present results for the following outcomes: (1) the logarithm of labor income + 1, and (2) the logarithm of household disposable income. Columns 3–5 report estimates for the probability of entering debt collection for three subgroups defined by the child's income one year before the event: (3) zero labor or pension income; (4) positive labor or pension income below the 50th percentile; and (5) positive labor or pension income above the 50th percentile. Percentiles are computed by year within the estimation sample. 'Mean (t–1)' refers to the average outcome in the treatment group one year prior to the event. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021), controlling for 10-year age bins of the children. Standard errors are clustered at the parent level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6 Household Responses to Nonfatal Health Events

In this section, we investigate the financial consequences of experiencing a nonfatal health event; hearth attacks strokes and injuries that lead to inpatient visits. In general, these shocks tend to be more temporary. Studies from Sweden indicate that most working-age individuals who experience a heart attack or stroke eventually return to work. After a heart attack, nine out of ten are neither fully nor partially on sick leave one year later, and only about two in a hundred suffer another event within the same period (Gustavsson and Ljungman, 2019). Following a stroke, roughly half return to work within the first year, and nearly three-quarters do so within three years (Westerlind et al., 2017). Injuries cover a wide spectrum—from relatively minor fractures to severe trauma—making it more

difficult to provide a single estimate of return-to-work rates.

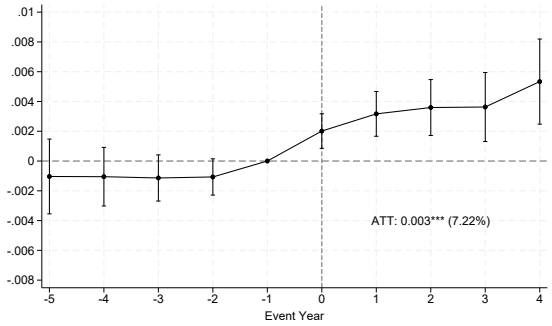
6.1 Nonfatal Health Shocks and Default Risk

We examine how a nonfatal health shock affects household default behavior. Because financial claims are recorded at the individual level, a household is considered to have received a claim if at least one spouse has a record with the SEA.

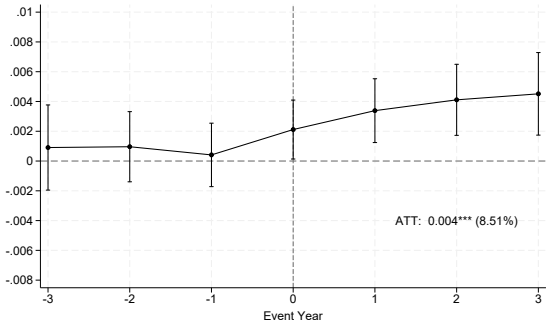
Figure 10 illustrates the effect of a nonfatal health shock on the probability of receiving a debt claim. Panel A reports estimates from a conventional event-study specification, while Panel B presents dynamic treatment effects based on the Difference-in-Differences approach by Callaway and Sant'Anna (2021). We find no evidence of significant pre-trends in either specification. The estimated average treatment effects are similar across methods; in the preferred specification, the average treatment effect on the treated (ATT) in Panel B is 0.4 percentage points, corresponding to an 8.5% increase relative to the mean one year prior to the event.

Panel C displays the corresponding cumulative effects estimated using the Callaway and Sant'Anna method. The point estimate remains approximately the same, though slightly higher in percentage terms. This suggests limited inflow of new individuals into financial distress over time, in contrast to the pattern observed following fatal health shocks.

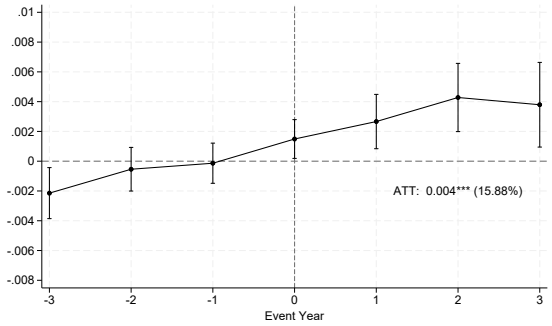
Figure 10: **Dynamic Effects of a Nonfatal Health Shock on the Probability of Receiving a Debt Claim.** This figure illustrates the estimated impact of a nonfatal health shock on the likelihood of receiving a debt claim from the Swedish Enforcement Authority (SEA). Panel A reports results from a conventional event-study specification. Panels B and C present estimates based on the Difference-in-Differences approach developed by Callaway and Sant'Anna (2021). Panel B displays period-specific effects, while Panel C shows cumulative effects, capturing the probability of having received a claim in the current or any previous period. All figures report coefficient estimates with 95% confidence intervals, as well as the average treatment effect (ATT) and the effect in percentage terms relative to the mean one year prior to the event. Standard errors are clustered at the household level.



A. Period-Specific Effect (Event Study)



B. Period-Specific Effect (Callaway Sant'Anna)



C. Cumulative Effect (Callaway Sant' Anna)

To investigate whether the effect is driven by income loss, we compare households in which the deceased was of working age with those in which the deceased was retired. Working-age individuals typically transition from regular earnings to reduced sickness benefits, while retirees continue to receive stable pension payments during illness and thus avoid income loss. We classify the sick individual as of working age if they were at most 59 years old at the time of death (or up to 63 during the sample period), and as retired if they were at least 68 years old (or a minimum of 63 during the sample period). In Sweden, the minimum age to start withdrawing the public pension is 63. Our analysis focuses on four key outcomes: the probability of receiving a claim, the number of claims, the inverse hyperbolic sine (IHS) of debt, and log household disposable income.

Table 11 reports these results. The effect is entirely driven by working-age individuals, who experience a 0.9 percentage point higher probability of receiving a claim, approximately a 13% increase relative to the mean, and a 7.7% increase in total debt. There is no corresponding increase in the number of claims, while household disposable income declines by about 8%. By contrast, for retirees, all estimates are close to zero and statistically insignificant. In the subsequent analyses, we therefore restrict the sample to households in which the sick individual was of working age.

Section D.7 shows that the effects on receiving a claim and household disposable income are similar for different types of diagnosis, specifically separating heart attacks and strokes from injuries.

Table 11: **The Effect of a Nonfatal Health Shock by Household Where the Sick Individual Is of Working or Retirement Age**

	(1) Claim	(2) No. of Claims	(3) IHS(Total Debt)	(4) Log(Hh Disp. Income)
Panel A: Working Age				
ATT	0.009***	-0.007	0.077***	-0.077***
	(0.0019)	(0.0142)	(0.0180)	(0.0033)
Observations	260,482	260,482	260,472	258,697
Mean (t-1)	0.071	0.269	0.692	6.481
Panel B: Retirement Age				
ATT	0.0001	0.0002	-0.001	-0.002
	(0.0009)	(0.0041)	(0.0084)	(0.0028)
Observations	267,800	267,800	267,797	266,205
Mean (t-1)	0.014	0.037	0.128	6.041

Note: This table provides estimates for the impact of a nonfatal health shock on 2 subgroups of households; those where the sick individual is of working age defined as being at most 59 years old at the time of death, or maximum 63 years old during the sample period, and those where the sick individual is of retirement age defined as being at least 68 years old at the time of death, or minimum 63 years old during the sample period. Panel A shows the effect for working age households and Panel B for retirement households. Columns 1-4 present results on four metrics: 1) the probability to receive a financial claim from the SEA; (2) the average number of such claims within a year; (3) the inverse hyperbolic sine transformation of the total value of claims received during the year; 4) the log of household disposable income. 'Mean (t-1)' refers to the average outcome in each subgroup one year prior to the shock. Income and debt is adjusted to 2019 constant prices. Estimates are obtained using the Difference-in-Differences approach developed by Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

6.2 Inattention and Default Risk

Similar to the analysis of fatal health shocks, we examine whether inattention could be a contributing factor by decomposing the main effect for individuals of working age. Table 12 presents the probability of receiving a claim in Columns 1–3, decomposed into large and small debt claims, and the probability of entering enforced debt collection in Columns 4–6, similarly decomposed by debt size.

Nonfatal shocks increase the likelihood of receiving both large and small debt claims by 0.5 and 0.3 percentage points, respectively. Approximately 44% of all claims are not repaid and proceed to debt collection. However, similar to the results for fatal shocks, only larger debts tend to enter debt collection – an increase by 18% – whereas smaller ones are typically repaid. This pattern suggests that inattention is not the main underlying mechanism.

Table 12: **The Effect of a Nonfatal Health Shock on the Probability of Receiving a Claim and its Decomposition**

	(1) Claim	(2) Claim (Large)	(3) Claim (Small)	(4) Debt Collection (DC)	(5) DC (Large)	(6) DC (Small)
ATT	0.009***	0.005***	0.003**	0.004***	0.004***	0.0004
	(0.0019)	(0.0017)	(0.0014)	(0.0012)	(0.0011)	(0.0009)
Observations	260,482	260,472	260,472	260,482	260,482	260,482
Mean (t-1)	0.071	0.037	0.034	0.032	0.022	0.011

Note: This table presents estimates of the impact of a nonfatal health shock on households. Columns 1–6 report household-level effects on the following outcomes: 1) the probability to receive a financial claim from the SEA; 2) the probability of receiving a claim for a large debt; 3) the probability of receiving a claim for a small debt; 4) the probability of being subjected to enforced debt collection; 5) the probability of being subjected to enforced debt collection of a large debt; and 6) the probability of being subjected to enforced debt collection of a small debt. Since claims are reported at the individual level, household-level outcomes reflect whether either spouse received a claim. 'Mean (t–1)' refers to the average outcome in the treatment group one year prior to the event. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6.3 Income Effects of Nonfatal Health Shocks

For working individuals, a nonfatal health shock can lead to temporary or permanent withdrawal from the labor market, reducing household income. This financial strain may worsen if the spouse reduces work hours to provide care. Alternatively, the spouse might increase their labor supply as a form of self-insurance to compensate for the income loss.

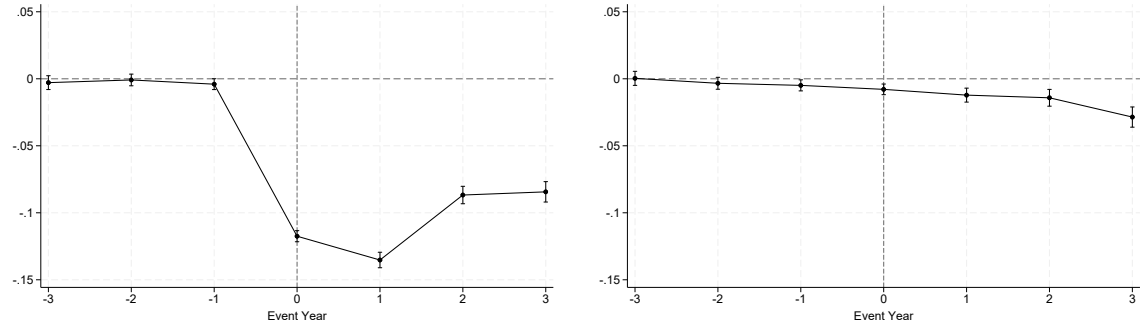
Figure 11 illustrates the effects on labor income for both the affected individual and their spouse. Panel A shows a sharp and immediate drop in labor income for the sick

individual, followed by a partial recovery within two years—suggesting that a portion of individuals are able to return to work. In contrast, Panel B reveals a small but gradual decline in labor income for the spouse, consistent with reduced work effort due to caregiving responsibilities.

Table 13 reports the average treatment effects of a nonfatal health shock on income. Columns 1–2 present effects on the sick individual and their spouse, respectively, while Columns 3–5 show impacts on household labor income, household capital income, and household disposable income. For the affected individual, labor income declines by 10.6%, consistent with reduced work capacity following the health shock. Spousal labor income also falls modestly (1.5%), indicating that partners do not increase their labor supply to compensate for the income loss. Capital income remains unchanged, suggesting that households do not liquidate assets to self-insure against the shock. As a result, household labor income declines by 6.2%, leading to a 7.5% drop in disposable income. While these losses are economically meaningful, they are moderate compared to the roughly 50% decline observed following a fatal shock. Together, the results indicate that households have limited ability to smooth income after a nonfatal health shock—neither through adjustments in spousal labor supply nor through asset draw-downs.

In Appendix Section D.8, we present the results with income expressed in levels rather than logs. On average, household disposable income decreases by roughly 39,000 SEK (US$ 4100).

Figure 11: **The Dynamic Effect of a Nonfatal Health Shock on Labor, Capital, and Disposable Income.** This figure presents coefficient estimates of the effect of a nonfatal health shock on (A) the logarithm of labor income of the sick individual, and (B) the logarithm of labor income of the spouse. All income measures are expressed in constant 2019 prices. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level.



A. Log(Labor Income) (Sick Individual)

B. Log(Labor Income) (Spouse)

Table 13: **The Effect of a Nonfatal Health Shock on Labor, Capital and Disposable Income**

	(1) Log(Labor Inc) (Sick Ind)	(2) Log(Labor Inc) (Spouse)	(3) Log(Hh. Labor Inc)	(4) Log(Hh. Capital Inc)	(5) Log(Hh. Disp. Inc)
ATT	-0.106***	-0.015***	-0.062***	-0.006	-0.075***
	(0.0024)	(0.0023)	(0.0017)	(0.0132)	(0.0013)
Observations	1,310,426	1,322,631	1,478,036	266,599	1,566,446
Mean (t-1)	5.643	5.602	6.269	3.575	6.318

Note: This table reports estimates of the impact of a nonfatal health shock on income. Columns 1-5 present results on five metrics: 1) the logarithm of the sick individual's labor income; 2) the logarithm of the spouse's labor income; 3) the logarithm of the household labor income; 4) the logarithm of the household capital income and 5) the logarithm of the household disposable income. 'Mean (t-1)' refers to the average outcome. All income variables are expressed in constant 2019 prices. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6.4 Role of Housing Wealth in Financial Resilience

For fatal shocks, we found that housing wealth serves as a key self-insurance mechanism. Here, we examine its role in nonfatal health events.

Table 14 compares the effects for renters (Panel A) and homeowners (Panel B). Both groups experience a higher probability of receiving a claim following a nonfatal shock, with similar magnitudes—about 10% for renters and 12% for homeowners. Both groups also face an increased risk of having large debts enter collection, rising by 13% among renters and by 21% among homeowners, while household disposable income declines by approximately 7-15%. These findings suggest that homeownership provides less protec-

tion against nonfatal shocks compared to fatal ones, potentially because the associated income losses are smaller and, for some households, temporary. Selling a home may be necessary for permanent income losses but avoidable for short-term ones.

Table 14: **The Effect of a Nonfatal Health Shock by Renters and Homeowners**

	(1) Claim	(2) DC (Large)	(3) DC (Small)	(4) Log(Hh Disp. Income)
Panel A: Renter				
ATT	0.014**	0.007*	0.003	-0.145***
	(0.0058)	(0.0042)	(0.0034)	(0.0085)
Observations	48,774	48,774	48,774	48,266
Mean (t-1)	0.137	0.054	0.027	6.131
Panel B: Homeowner				
ATT	0.007***	0.003***	-0.0003	-0.067***
	(0.0019)	(0.0010)	(0.0008)	(0.0037)
Observations	211,708	211,708	211,708	210,816
Mean (t-1)	0.056	0.014	0.007	6.562

Note: This table presents estimates of the impact of a nonfatal health shock on two subgroups of households: renters and homeowners. A household is classified as a renter or homeowner based on their housing status two years prior to the shock. Panel A reports effects for households that were renters, and Panel B for those who were homeowners. Columns 1–4 display results for the following outcomes: (1) the probability of receiving a financial claim from the Swedish Enforcement Authority (SEA); (2) the probability of being subjected to enforced debt collection for large claims; (3) for small claims; and (4) the logarithm of household disposable income. 'Mean (t-1)' refers to the average outcome in each subgroup one year prior to the event. Income is measured in thousands of SEK and adjusted to 2019 constant prices. Estimates are obtained using the Difference-in-Differences approach developed by Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

We next investigate the role of wealth in shaping households' financial response to nonfatal health shocks. Using household net wealth measured in 2006, we divide the sample into above- and below-median wealth groups based on the within-sample distribution. We then replicate the earlier analysis separately for each group, allowing us to assess how pre-existing financial resources influence the likelihood of repayment difficulties and debt accumulation following a health shock.

Table 15 presents the results for households with below-median net wealth (Panel

A) and with above-median net wealth (Panel B). Both groups experience an increased probability of receiving a claim following a nonfatal health shock, with a similar relative increase of 14%. Both groups also show an increased probability of facing large debt collection by 18-19%. Finally, household disposable income declines by approximately 8% for both groups.

Taken together, these results highlight that housing and wealth are less predictive of default risk following nonfatal health shocks than they are after fatal ones. This likely reflects the smaller and more temporary nature of income losses associated with nonfatal events. In contrast, fatal shocks tend to cause more severe financial disruptions, where pre-existing financial buffers such as homeownership or wealth play a more decisive protective role.

Table 15: **The Effect of a Nonfatal Health Shock by Household Net Wealth Rank**

	(1) Claim	(2) DC (Large)	(3) DC (Small)	(4) Log(Hh Disp. Income)
Panel A: Net Wealth<=P50				
ATT	0.012***	0.005**	-0.001	-0.081***
	(0.0039)	(0.0025)	(0.0020)	(0.0055)
Observations	89,222	89,222	89,222	88,924
Mean (t-1)	0.083	0.027	0.013	6.536
Panel B: Net Wealth>P50				
ATT	0.008***	0.003**	0.0004	-0.080***
	(0.0024)	(0.0013)	(0.0011)	(0.0054)
Observations	130,224	130,224	130,224	129,160
Mean (t-1)	0.059	0.017	0.008	6.426

Note: This table provides estimates for the impact of a nonfatal health shock on 2 subgroups of households; those with household net wealth below the median and above the median. Net wealth is measured in 2006 and summed for both spouses. Medians are computed within the sample. Panel A shows the effect for households with household net wealth below the median and Panel B for households with household net wealth above the median. Columns 1-4 present results on four metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of being subjected to enforced debt collection of large claims, 3) the probability of being subjected to enforced debt collection of small claims, and 4) the log of household disposable income. 'Mean (t-1)' refers to the average outcome in each subgroup one year prior to the shock. Income is adjusted to 2019 constant prices. Estimates are obtained using the Difference-in-Differences approach developed by Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

7 Conclusion

This paper studies the effects of fatal and severe nonfatal health shocks on households' financial well-being, measured by defaults on financial obligations. Using high-quality administrative data, it establishes a causal link between health shocks and defaults, uncovers the critical role of housing wealth as a self-insurance mechanism, and highlights the intergenerational financial effects of fatal shocks.

We show that in the aftermath of a fatal health event, there is an increase of approximately 20% in the likelihood of default by the surviving spouse. Notably, this increased risk persists for several years and does not stem from a mechanical transfer of financial strain from the deceased spouse, nor is it confined to households exhibiting default tendencies prior to the health shock.

This behavior cannot be solely attributed to factors such as inattention or grief. We discern a differential behavior in obligations of varying magnitudes. Smaller debts are settled directly after receiving a notice, resulting in no further actions, whereas spouses burdened with larger debts are more inclined to become entangled in debt collection proceedings.

Crucially, our findings suggest that variations in income levels alone cannot account for these differences in default rates. Instead, variations in wealth levels play a pivotal role. We observe that spouses with the largest relative income loss are more likely to liquidate housing wealth and that defaults are primarily driven by surviving spouses who are renters, lacking the housing wealth that could serve as a financial buffer. We also show that children of financially disadvantaged households also become more susceptible to financial distress following the loss of a parent and that largely happens because parents are no longer able to help children most in need.

Furthermore, our research yields similar, but smaller, effects when we study nonfatal health shocks for those below the age of retirement, underscoring that the rise of financial distress is rooted in a deficiency of resources after adverse health shocks. However, housing wealth appears to be a weaker predictor of default following a nonfatal health event, likely because the associated income shock is more temporary in nature.

We observe that health shocks are an important determinant of financial distress within a welfare state characterized by minimal out-of-pocket health care costs and the absence of strategic motives for default. Additionally, our measure focuses on severe financial distress and does not encompass less severe but nonetheless significant financial hardships. Together, this suggests that our findings represent a lower bound on the impact of health shocks on financial well-being. In settings with higher medical expenses, weaker social insurance systems, or greater strategic default incentives, the financial consequences of severe health shocks are likely to be even more pronounced.

Our results highlight the need to assess both income and wealth when evaluating the sufficiency of household insurance, emphasizing the role of housing wealth as a buffer against financial shocks. Households tend to self-insure by liquidating housing assets in response to permanent income shocks, like spousal death, but are less likely to adjust housing for temporary income losses, consistent with housing as a 'consumption commitment' (Chetty and Szeidl, 2007). For homeowners, this suggests that formal insurance may be less welfare improving for permanent shocks but particularly valuable for managing short-term ones, as the high transaction costs of adjusting housing make it less efficient for temporary risks.

The finding that homeowners tend to sell their house when facing permanent income shocks suggests that expanding access to reverse mortgages and home equity lines of credit (HELOCs) could provide essential liquidity while allowing older households to remain in their homes. This could also help homeowners manage transitory income shocks following nonfatal health shocks by offering a more flexible approach to accessing housing wealth. As highlighted in Davidoff (2010), such tools can be efficient in managing financial risks later in life. At the same time, our results highlight a critical vulnerability for households without housing wealth and their adult children, who experience significantly higher financial distress following fatal health shocks. This indicates that increasing survivor benefits for this group could improve welfare across generations. However, evaluating the optimal policy response requires a general equilibrium analysis, which could be a fruitful avenue for future research.

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Appendix

A Robustness Checks

A.1 Alternative Difference-in-Differences Specification

To assess the robustness of our results, we implement an alternative difference-in-differences (DiD) design. In this setup, the treatment group experiences a health shock in year t, while the control group experience the same shock in year $t + \Delta$. This approach with a fixed Δ is similar to Fadlon and Nielsen (2019, 2021).

Conceptually, this method can be described as a stacked difference-in-differences with two sub-experiments. In each sub-experiment, we compare the treated group to the control group in the same calendar year. All groups are observed over identical event-year horizons, and no household appears in both the treatment and control groups. By adopting this stacked design, we avoid issues arising from two-way fixed effects under staggered treatment timing—a concern that we explicitly address in the main analysis using the Callaway and Sant'Anna (2021) estimator.

Due to data constraints, our analysis focuses on two specific event-year cohorts, using $\Delta = 3$. Accordingly, the treatment groups consist of households experiencing the health shock in 2016–2017, while the control groups experience the same event in 2019–2020.

The identifying assumption is that the outcomes of the treatment and control groups would run in parallel in the absence of the health shock. To evaluate the validity of this parallel trend assumption, we estimate the following dynamic difference-in-differences model:

$$y_{i,t} = \alpha + \gamma treat_i + \sum_{t=-2, r\neq -1}^{2} \beta_t (treat_i \times I_t) + I_t + \theta_{i,t} + X_i + \epsilon_{i,t}, \tag{1}$$

where $y_{i,t}$ is the outcome variable. Vector β trace out the effect of treatment relative to the year just before the event year. The variable $treat$ is an indicator for being in the treatment group, I_t is an indicator for every year prior and after the event. θ_i, t are fixed

effects for ten-year age bins and X_i includes binary control variables for gender and for having some post-secondary education, measured two years prior to the shock.

For assessing the post-event average effects (instead of year-by-year effects), we estimate the following regression:

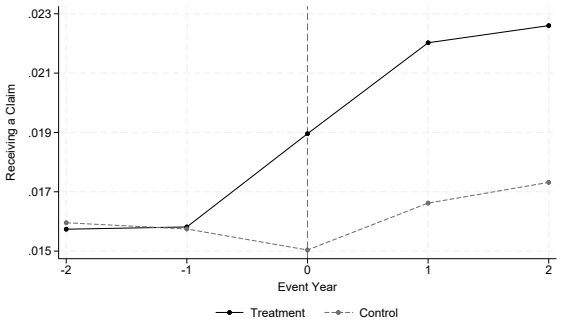
$$y_{i,t} = \alpha + \gamma treat_i + \delta post_t + \beta treat_i \times post_t + \theta_{i,t} + X_i + \epsilon_{i,t}, \tag{2}$$

where the coefficient of interest β measures the average effect of a fatal or nonfatal health event on the outcome variable $y_{i,t}$. In both regressions, standard errors are clustered at the household level.

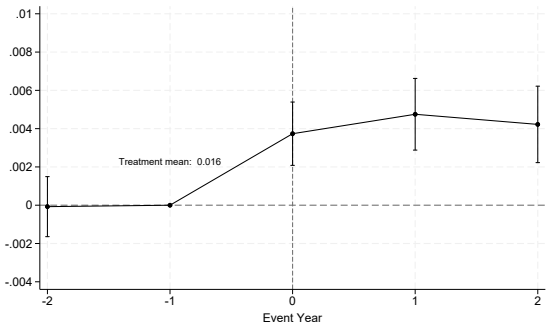
Figures A.1–A.3 illustrate the impact of spousal death on (i) the probability that the surviving spouse receives a claim from the SEA, (ii) the average number of claims per individual, and (iii) the total value of unpaid obligations incurred each year. The results in Panel B align closely with the main analysis: there are no significant pre-trends, the treatment effect emerges immediately in the year of the shock, and it remains persistent over time. Panel A further allows examination of the raw means in the treatment and control groups. Both levels and pre-trends are comparable across groups, and the post-event divergence is driven by an increase in the treatment group, supporting a causal interpretation of the observed changes.

Table A.1 presents the corresponding average treatment effects. Panel A reports the estimated impacts on the probability of receiving a claim, the average number of claims, the inverse hyperbolic sine (IHS) of total debt, and total debt in SEK. Panel B displays analogous results for debt collection outcomes. Overall, the findings are highly consistent with those from the main specification in Table A.1, reinforcing the robustness of our main analyis.

Figure A.1: **The Dynamic Effect of a Fatal Health Shock on the Probability of Receiving a Claim.** The figure presents the effect of a fatal health shock on the probability of receiving a debt claim from the SEA. Panel A shows the average share of spouses receiving a claim from the SEA in the treatment and control group. Panel B plots the coefficient estimates and 95% confidence intervals of the effect on the probability to receive a claim from the SEA. The regression is specified as in Equation 1.

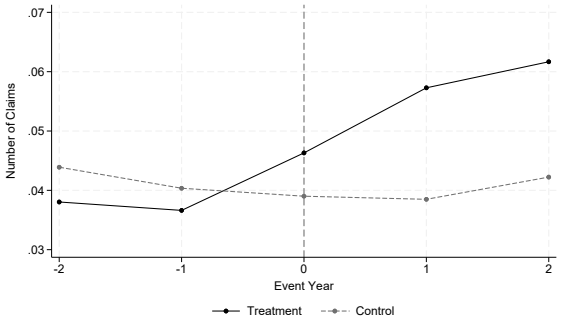


A. Mean in Treatment and Control Group

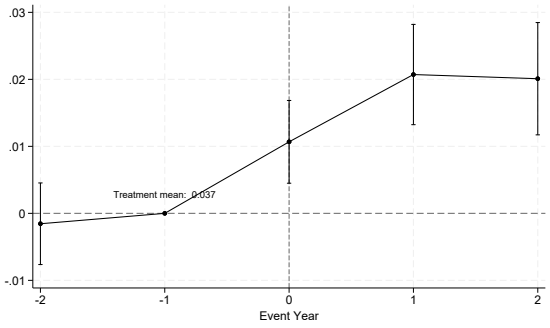


B. Coefficient Estimates

Figure A.2: **The Dynamic Effect of a Fatal Health Shock on the Number of Received Claims.** The figure presents the effect of a fatal health shock on the number of received debt claims from the SEA during the year. Panel A shows the average number of debt claims from the SEA in the treatment and control group. Panel B plots the coefficient estimates and 95% confidence intervals of the effect on the number of claims received from the SEA. The regression is specified as in Equation 1.

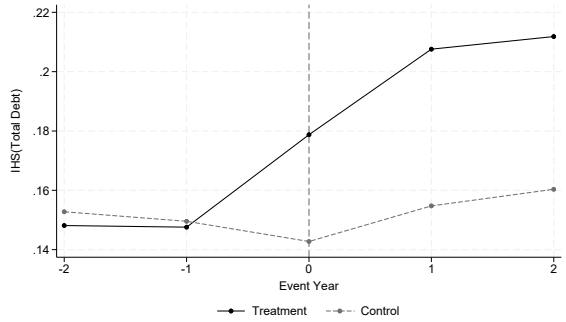


A. Mean in Treatment and Control Group

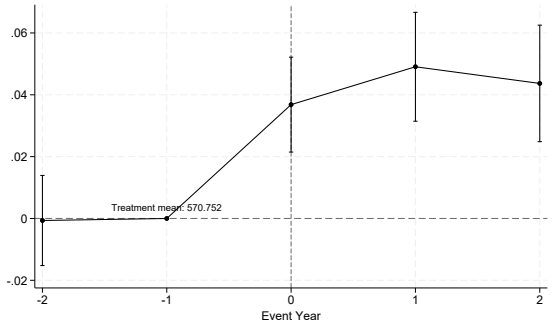


B. Coefficient Estimates

Figure A.3: **The Dynamic Effect of a Fatal Health Shock on The Total Size of All Claims.** The figure presents the effect of a fatal health shock on the total debt from all claims from the SEA during the year. Debt is transformed using the inverse hyperbolic sine transformation. Panel A shows the average IHS of total debt in the treatment and control group. Panel B plots the coefficient estimates and 95% confidence intervals of the effect on the IHS of total debt. Debt is expressed in constant (2019) prices. The regression is specified as in Equation 1.



A. Mean in Treatment and Control Group



B. Coefficient Estimates

Table A.1: **The Effect of a Fatal Health Shock on Debt Default of the Surviving Spouse.**

	(1) Receive Claim	(2) No. of Claims	(3) IHS(Total Debt)	(4) Total Debt
Panel A: Claims				
Treat × Post	0.004***	0.018***	0.043***	263.305**
	(0.0007)	(0.0028)	(0.0064)	(126.1789)
R^2	0.016	0.010	0.017	0.001
Observations	502,772	502,772	502,768	502,768
Mean in t=-1	0.016	0.037	570.752	570.752
Panel B: Debt Collection				
Treat × Post	0.001**	0.010***	0.015***	175.185**
	(0.0005)	(0.0022)	(0.0048)	(78.5957)
R^2	0.011	0.007	0.011	0.002
Observations	502,772	502,772	502,772	502,772
Mean in t=-1	0.008	0.021	398.303	398.303

Note: This table provides estimates for the impact of a fatal health shock on the surviving spouse. Columns 1-3 in Panel A present results on three metrics: 1) the probability to receive a financial claim from the SEA; 2) the average number of such claims within a year; and 3) the inverse hyperbolic sine transformation of the total size of all claims made during the year; and 4) the total size of all claims in SEK. Columns 1-3 in Panel B focus on enforced debt collection, specifically: 1) the probability of entering enforced debt collection; 2) the average number of enforced claims within a year; and 3) the inverse hyperbolic sine transformation of the total size of all claims subjected to enforced debt collection during the year; and 4) the total size of all claims in SEK. The pre-event mean is the treatment mean one year before the event. Debt is expressed in constant prices (2019). Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

A.2 Sudden Death

In this section, we investigate whether the impact of fatal shocks differs if the death is unexpected. We define sudden death as deaths from heart attacks, strokes, and injuries. We restrict the analysis to spouses dying before age 70, since deaths are less likely to be unexpected at older ages.

Table A.2 shows the impact on the main outcomes for spouses whose partners' cause of death was not sudden in Panel A and sudden in Panel B. The probability of receiving a claim increases by 0.8 percentage points (17%) when deaths are sudden, compared to 0.4 percentage points (12%) when they are non-sudden, and the total debt size increases by 7.6% for sudden deaths, compared to 4.9% for non-sudden ones. The point estimates on debt collection are also larger for sudden deaths but not measured with precision, while the number of claims increases more for non-sudden deaths. These findings are consistent with the idea that, in the event of unexpected deaths, spouses may be less prepared to deal with the financial consequences.

Table A.2: **The Effect of a Fatal Health Shock on Debt Default of the Surviving Spouse by Sudden and Non-Sudden Deaths.**

	(1) Claim	(2) No. of Claims	(3) IHS(Total Debt)	(4) DC
Panel A: Sudden Deaths Age 21-70				
ATT	0.008**	0.010	0.076**	0.003
	(0.0037)	(0.0186)	(0.0363)	(0.0029)
Observations	45,383	45,383	45,379	45,383
Mean (t-1)	0.048	0.146	0.462	0.029
Panel B: Non-Sudden Deaths Age 21-70				
ATT	0.004**	0.039***	0.049***	0.001
	(0.0017)	(0.0075)	(0.0165)	(0.0012)
Observations	155,024	155,024	155,019	155,024
Mean (t-1)	0.034	0.085	0.325	0.018

Note: This table presents estimates of the impact of a fatal health shock on surviving spouses, separated by whether the death was sudden or non-sudden. Sudden deaths are defined as those caused by heart attacks, strokes, or injuries. Panel A shows results for sudden deaths, and Panel B for non-sudden deaths. Columns 1–4 report effects on: (1) the probability of receiving a financial claim from the SEA; (2) the average number of such claims within a year; and (3) the inverse hyperbolic sine transformation of the total size of all claims made during the year; and 4) the probability of being subjected to enforced debt collection. 'Mean (t–1)' refers to the average outcome in the treatment group one year before the event. All monetary values are expressed in constant 2019 SEK. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

A.3 Compositional Sample Changes

It is a widely recognized empirical observation that mortality rates tend to be elevated among individuals who have recently experienced the loss of a spouse.[15] In our primary analysis, we refrain from limiting the sample solely to spouses who have survived the entire observation period, as doing so could introduce a survival bias. However, this approach leads to changes in the sample composition over time, particularly as households where both spouses pass away exit the dataset. If surviving spouses who pass away shortly after the loss exhibit different default rates compared to those who survive the entire period, their departure could potentially skew our estimates. To address this concern, we perform a supplementary analysis using only the sample of spouses who survived the entire period, resulting in the exclusion of approximately 4% of all observations.

[15] See for example Shor et al. (2012) who perform a meta-analysis of 123 studies.

Table A.3 shows the results on the four main outcomes; probability of receiving a claim, number of claims received, the inverse hyperbolic sine transformation of the total debt size, and the probability of entering enforced debt collection. The results are very similar to the main results, showing that compositional changes in the sample are not an important factor for our findings.

Table A.3: **The Effect of a Fatal Health Shock in the Restricted Sample of Spouses Surviving the Entire Period**

	(1) Claim	(2) No. of Claims	(3) IHS(Total Debt)	(4) DC
ATT	0.003***	0.012***	0.027***	0.001
	(0.0006)	(0.0022)	(0.0052)	(0.0004)
Pre Avg	0.000	0.001	0.001	0.000
	(0.000)	(0.002)	(0.003)	(0.000)
Observations	757,952	757,952	757,939	757,952
Mean (t-1)	0.017	0.041	0.157	0.008

Note: This table provides estimates for the impact of a fatal health shock on the surviving spouse in a restricted sample of spouses that survive the entire analysis period. Columns 1–4 report effects on: (1) the probability of receiving a financial claim from the SEA; (2) the average number of such claims within a year; and (3) the inverse hyperbolic sine transformation of the total size of all claims made during the year; and 4) the probability of being subjected to enforced debt collection. 'Mean (t-1)' refers to the average outcome one year before the event. All monetary values are in constant 2019 SEK. Estimates are based on the Callaway and Sant'Anna (2021) difference-in-differences approach. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

B Health Insurance and Survivor's Pension

In Sweden, almost all medical expenses are covered by tax-funded universal health care. Health care is not free, but patient charges are relatively low. A system of high-cost protection (högkostnadsskydd) limits an individual's out-of-pocket expenses. It includes separate caps for prescription medications, outpatient services, as well as a fixed daily fee for inpatient care. In 2016, patients paid 100 SEK (US$12) per day for hospital stays, with annual caps of 1,100 SEK (US$128) for outpatient visits and 2,200 SEK (US$257) for prescribed medicines (Socialstyrelsen, 2017).[16]

For those suffering from a health shock, the national social insurance system provides

[16] Converted to US Dollar using the average exchange rate of 8,5613 in 2016, retrieved from riksbanken.se on Mars 4 2024.

compensation for income loss. For employees, the employer pays *sick pay* during the first two weeks of absence. In 2016, this period included one unpaid waiting day (karensdag), after which employees received 80% of their salary.[17] After two weeks, responsibility shifts to the Swedish Social Insurance Agency, which provides the *sickness benefit*. The level of this benefit is determined by the sickness benefit qualifying income (sjukpenninggrundande inkomst, SGI), which is based on the individuals annual earnings and assessed by the Agency. Benefits can be granted at 25, 50, 75, or 100% of the SGI depending on work capacity. At the full-time sick leave (100%), individuals receive 80% of their SGI up to a ceiling that in 2016 was 706 SEK (US$82) per day, approximately 22,000 SEK (US$2,570) per month. For comparison, the median monthly wage was 29,300 SEK (US$3,422). After 365 days of sick leave, replacement rate is reduced to 75% of the SGI. For work-related injuries that result in an income loss lasting at least one year, a separate annuity compensates the loss, up to 27,688 SEK (US$3,234) per month.

Unemployed individuals are eligible for the sickness benefit if they are registered with the Swedish Public Employment Service and actively seeking work. Eligibility requires a previously established SGI. In 2016, the maximum daily benefit for unemployed individuals was 543 SEK (US$63).[18]

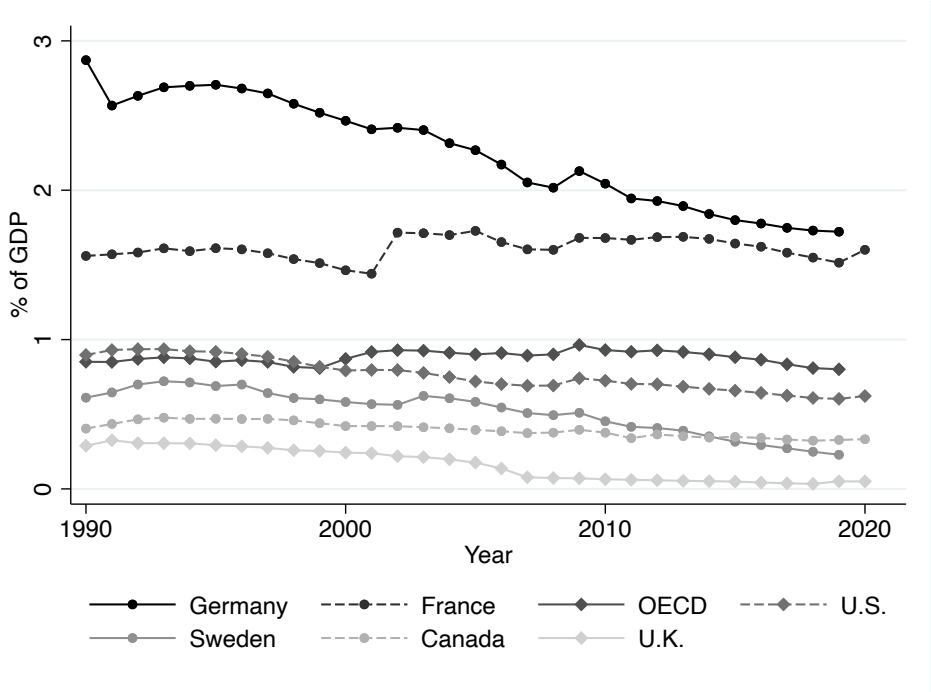
If the reduction in work ability is determined to be permanent, *sickness compensation (disability benefit)* may be granted. This benefit is available to individuals aged 19-64 whose work capacity is permanently reduced by at least 25%. The compensation corresponds to 64.7% of the previous income, up to a maximum of 17,914 SEK (US$2,092) per month in 2016.

In the event of death, the surviving spouse may be supported through a combination of public and private insurance. Sweden was a pioneer in this area, introducing a widow's pension in the 1940s. At that time, the prevailing family model predominantly assumed the man as the breadwinner, and only women were directly entitled to these benefits. Today, most of the OECD countries provide survival pensions to both men and women,

[17] From 2019, the waiting day was replaced by a waiting day deduction (karensavdrag), corresponding to 20% of a typical week's sick pay.
[18] All amounts from 2016 are described in Försäkringskassan (2016).

although the type and scope of these schemes vary. On average, OECD countries allocate close to 1% of GDP to survivor benefits in mandatory schemes. However, Sweden spends less than the average, with expenditures below 0.5% of GDP (OECD, 2018). Figure B.1 displays the evolution of survivor pension spending as a percentage of GDP in the OECD average and in selected countries.

Figure B.1: **The Evolution of Survivor's Pension-to-GDP ratio (%) in Different OECD Countries.** The figure plots the evolution of Survivor's Pension-to-GDP in the OECD on average and a few selected countries; Germany, France, US, Sweden, Canada and, the UK. Sourced from OECD, 'Pensions at a Glance (Edition 2018)', OECD Pensions Statistics (database).



The original widow's pension, which provided widows with 40% of their deceased spouse's pension, was replaced in 1990 by the adjustment pension. The reform aimed to encourage greater labor market participation among women. Eligibility for the adjustment pension is limited to spouses or registered partners who are younger than 66 at the time of their partner's death.[19] The benefit amounts to 55% of the deceased's anticipated monthly pension and is paid for a period of one year. Table B.1 provides an overview of how survivor pension rules differ for men and women across birth cohorts.

[19] The adjustment pension applies to spouses or registered partners born in 1958 or later. Eligibility further requires either at least five years of cohabitation prior to the spouse's death, or cohabitation with children under the age of 18.

Table B.1: **Pension Eligability by Birth Year and Gender.**

Birth Year	Before 1945	1945-1957	1958
Women	widows pension*	adjustment pension**	adjustment pension
Men	n/a	n/a	adjustment pension

Note: The table presents eligability for public survivial pension by gender and birth year.

*To qualify for widow's pension, the individual must have been married to the deceased as of the end of 1989.

**Women born in 1945 or later are primarily granted adjustment pension but may, to some extent and under certain conditions, also be granted widow's pension.

A *guarantee pension* supplements low adjustment pensions and is calculated based on the income pension and the number of years the person has lived in Sweden. For those without an income pension who has resided permanently in Sweden, the monthly guarantee pension in 2016 was SEK 8,971 (US$1,048).[20,21] The 1990 reform also aimed to improve children's rights to survivor benefits, introducing a child pension payable until the age of 18, or up to 20 if the child remains in school. In addition, for surviving spouses with young children, payments continue until the child reaches the age of 12.

The widow's pension remains available for spouses born before 1945, provided they were married to the deceased in 1989 and remained married until the time of death. In 2016, the average annual widow's pension was 41,600 SEK (US$4,859), while the average adjustment pension was 72,900 SEK (US$8,515) (Pensionsmyndigheten, 2016).[22]

Additionally, Sweden's public pension system includes survivor protection within the premium pension scheme. If the pension holder dies before the spouse or partner, the survivor is entitled to receive the premium pension for life. The size of the benefit depends on the accumulated savings and the age of the pension holder. Opting for this protection converts the premium pension into joint insurance, which lowers the payouts. In 2016, 17,747 individuals received a survivor's payout from the premium pension, with an average amount of SEK 3,417 (US$399). This relatively small number of individuals may indicate that many choose to opt out of this protection; however, the relatively low

[20] The maximum annual guarantee pension corresponds to 2.43 times the the annual price base amount, which in 2016 was SEK 44,300.

[21] Surviving spouses are also eligible for an annuity in cases of work-related deaths, paid alongside the adjustment pension.

[22] Additional eligibility criteria include being married before the partner turned 60, a marriage duration of at least five years prior to the death, or having children together.

take-up could also be attributed to the fact that the premium pension was introduced in 1998, meaning that many who died in 2016 had already reached retirement age at the time the schedule was launched.

Private life insurance policies are also available to provide financial support to surviving spouses. These policies vary in payout structures and in age-related conditions. Term life insurances, for example, typically offer substantial death benefits determined at the policy's inception. The payouts depends on the choices made by the policyholder, but the defining feature is that the benefit is payable only if the insured dies during the policy term. Such terms often includes an upper age limit, usually between 67 and 90 years.

Survivor benefits are also available through private and occupational pension insurance schemes. These arrangements ensure that, upon the policyholder's death, the surviving spouse receives either ongoing payments or a lump sum, calculated based on contributions and investment returns. Opting for survivor protection in such schemes reduces the payout to the initial policyholder during their lifetime. Although detailed statistics on the individual uptake of private life insurance or survivor benefits are not available, there were more than 3.6 million private life insurance contracts in 2023 (including group contracts offered by employers and union memberships). These contracts accounted for approximately 7% of the total insurance market (Svensk Försäkring, 2023).

C Descriptive Statistics

In this section, we present tables of summary statistics for the pre-event period for both the sample experiencing a fatal and nonfatal health event by year of the event and figures with the age distribution of surviving spouses at the event year for the treatment group in both samples.

Tables C.1 and C.2 display mean values and standard deviations in parentheses for the sample with fatal and nonfatal health events, respectively. The event year is indicated in the column header.

Table C.1: **Summary Statistics for the Fatal Health Shock Sample.**

	2015	2016	2017	2018	2019	2020
Age, Deceased Spouse	77	77	77	77	77	78
	(10.90)	(10.96)	(10.84)	(10.73)	(10.67)	(10.49)
Age, Surviving Spouse	75	75	75	75	75	76
	(10.88)	(10.84)	(10.78)	(10.74)	(10.62)	(10.60)
Female, Deceased Spouse	0.32	0.33	0.33	0.33	0.33	0.32
	(0.47)	(0.47)	(0.47)	(0.47)	(0.47)	(0.47)
Female, Surviving Spouse	0.68	0.67	0.67	0.67	0.67	0.68
	(0.47)	(0.47)	(0.47)	(0.47)	(0.47)	(0.47)
Higher Education, Deceased Spouse	0.20	0.21	0.22	0.23	0.24	0.24
	(0.40)	(0.41)	(0.41)	(0.42)	(0.42)	(0.43)
Higher Education, Surviving Spouse	0.21	0.22	0.23	0.24	0.25	0.25
	(0.41)	(0.42)	(0.42)	(0.43)	(0.43)	(0.43)
Disposable Income, Deceased Spouse	214.06	221.83	229.17	227.53	243.18	227.89
	(478.88)	(394.18)	(626.33)	(520.30)	(1514.86)	(349.69)
Disposable Income, Surviving Spouse	198.22	208.75	214.80	216.55	217.99	219.03
	(264.48)	(426.18)	(631.60)	(544.72)	(522.64)	(705.08)
Disposable Income, Household	424.85	443.65	456.98	456.83	474.01	459.29
	(583.67)	(635.59)	(953.76)	(798.52)	(1621.29)	(821.91)
Receiving a Claim, Deceased Spouse	0.02	0.02	0.02	0.02	0.02	0.02
	(0.13)	(0.13)	(0.13)	(0.13)	(0.14)	(0.14)
Receiving a Claim, Surviving Spouse	0.02	0.02	0.02	0.02	0.02	0.02
	(0.13)	(0.13)	(0.12)	(0.13)	(0.13)	(0.13)
Number of Claims (if claim received), Deceased Spouse	2.51	2.31	2.46	2.63	2.38	2.55
	(2.63)	(2.76)	(2.81)	(2.78)	(2.84)	(2.89)
Number of Claims (if claim received), Surviving Spouse	2.56	2.36	2.26	2.45	2.33	2.53
	(3.30)	(2.38)	(2.88)	(3.45)	(2.65)	(2.80)
Total Debt (if claim received), Deceased Spouse	33.76	36.31	30.15	35.63	26.09	57.14
	(91.61)	(171.93)	(98.20)	(140.45)	(77.15)	(282.07)
Total Debt (if claim received), Surviving Spouse	57.76	45.53	25.39	42.53	39.16	33.86
	(389.00)	(208.94)	(77.73)	(191.36)	(309.31)	(101.42)
Observations	26,361	26,082	25,196	25,207	24,444	26,604

Note: The table presents summary statistics by groups defined by year of the fatal health shock. The table shows mean values in the year preceding the event and standard deviations in parentheses. Income and debt is expressed in constant (2019) prices and thousand SEK.

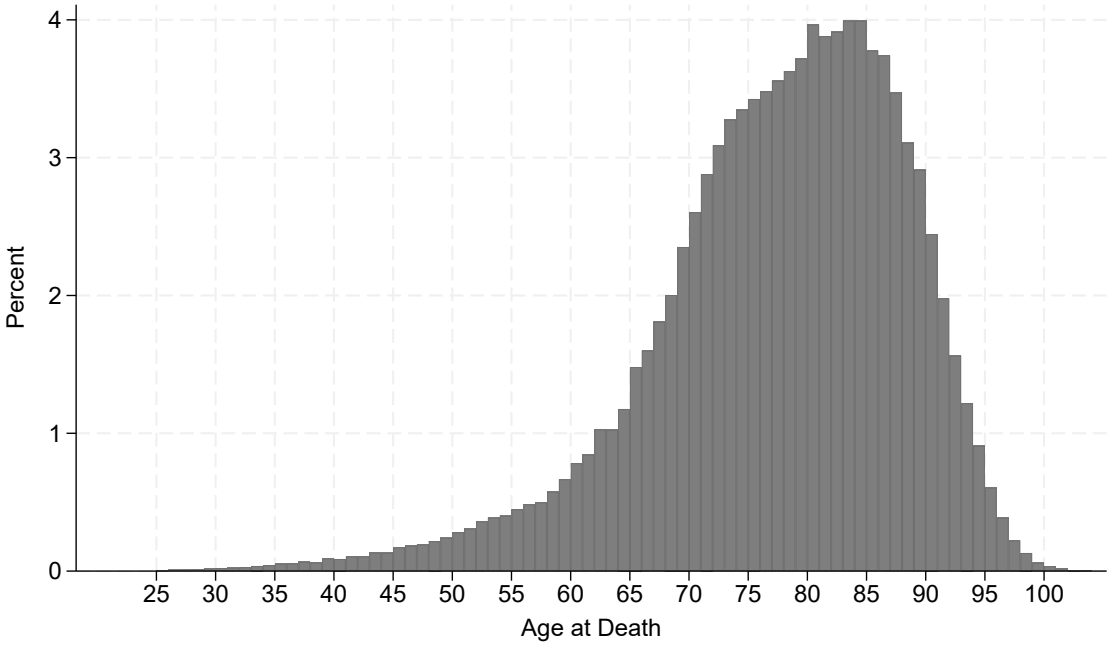
Table C.2: **Summary Statistics for the Nonfatal Health Shock Sample.**

	2015	2016	2017	2018	2019	2020
Age, Sick Individual	59	59	60	60	61	62
	(13.33)	(13.25)	(13.33)	(13.26)	(13.44)	(13.55)
Age, Spouse	59	59	59	60	61	61
	(13.36)	(13.33)	(13.37)	(13.41)	(13.50)	(13.54)
Female, Sick Individual	0.36	0.37	0.37	0.36	0.37	0.37
	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)
Female, Spouse	0.64	0.63	0.63	0.64	0.63	0.63
	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)
Higher Education, Sick Individual	0.35	0.36	0.37	0.37	0.37	0.38
	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.49)
Higher Education, Spouse	0.37	0.38	0.39	0.39	0.40	0.40
	(0.48)	(0.49)	(0.49)	(0.49)	(0.49)	(0.49)
Disposable Income, Sick Individual	305.66	319.54	333.78	331.51	330.64	327.67
	(518.41)	(464.32)	(916.93)	(720.00)	(596.38)	(589.33)
Disposable Income, Spouse	285.02	329.49	314.83	322.76	315.13	305.77
	(505.81)	(3772.43)	(1001.64)	(1949.61)	(1759.70)	(457.83)
Household Disposable Income, Sick Individual	618.79	679.69	679.51	685.06	675.95	662.73
	(905.90)	(3811.61)	(1394.99)	(2097.40)	(1874.37)	(817.82)
Household Disposable Income, Spouse	618.79	679.69	679.43	685.07	675.70	662.94
	(905.90)	(3811.61)	(1395.02)	(2097.39)	(1873.88)	(818.14)
Receiving a Claim, Sick Individual	0.03	0.03	0.03	0.03	0.03	0.03
	(0.17)	(0.17)	(0.17)	(0.16)	(0.17)	(0.16)
Receiving a Claim, Spouse	0.03	0.02	0.02	0.02	0.02	0.02
	(0.16)	(0.16)	(0.15)	(0.15)	(0.15)	(0.15)
Number of Claims (if claim received), Sick Individual	3.04	2.90	2.67	2.73	2.67	2.77
	(4.01)	(3.69)	(3.27)	(3.51)	(3.39)	(3.56)
Number of Claims (if claim received), Spouse	2.94	3.02	2.39	2.76	2.85	2.69
	(3.67)	(3.90)	(2.46)	(3.62)	(4.22)	(3.50)
Total Debt (if claim received), Sick Individual	70.55	95.70	49.82	45.04	47.39	45.25
	(232.10)	(1326.17)	(252.63)	(230.89)	(171.75)	(145.49)
Total Debt (if claim received), Spouse	63.64	110.36	49.00	53.44	53.31	36.70
	(203.38)	(1482.31)	(235.44)	(229.75)	(187.95)	(131.11)
Observations	23,963	23,393	21,520	21,255	22,063	21,795

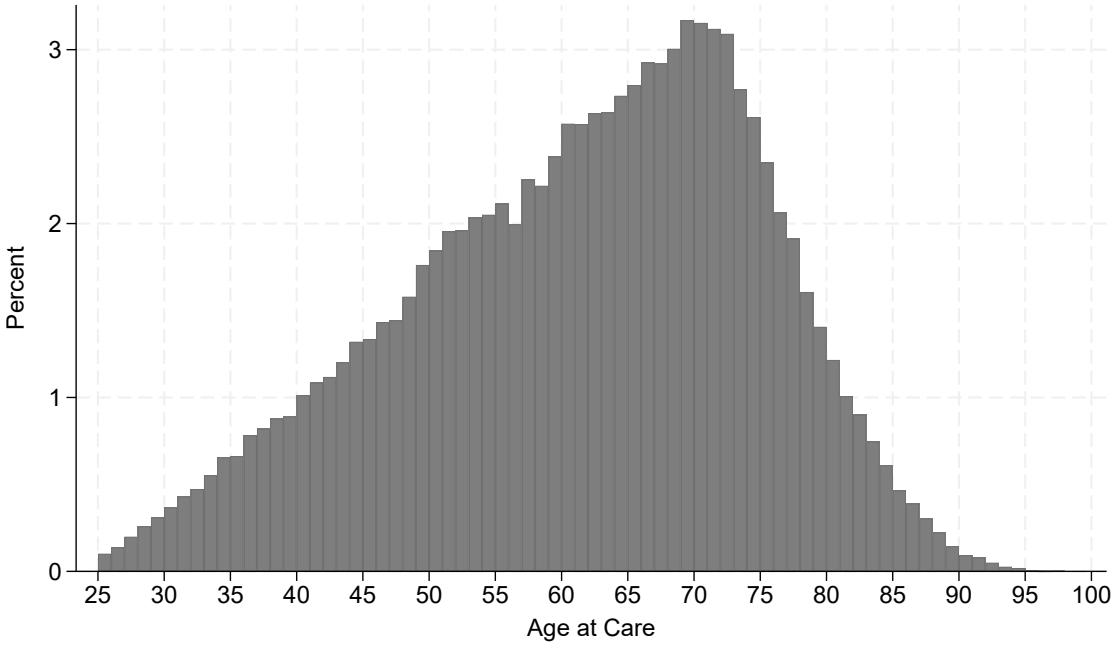
Note: The table presents summary statistics by groups defined by year of the nonfatal health shock. The table shows mean values in the year preceding the event and standard deviations in parentheses. Income and debt is expressed in constant (2019) prices and thousand SEK.

Figure C.1 displays the age distribution of surviving spouses in the event year for both the fatal and nonfatal samples. In the fatal sample, only 13% of surviving spouses are of working age, while 87% are aged 65 or older. Ages range from 25 to 104 years, with a median age of 79. In contrast, the nonfatal sample includes a younger population: 58% of surviving spouses are of working age, with ages ranging from 25 to 98 years and a median age of 63.

Figure C.1: **The Age Distribution of the Surviving Spouses in the Treatment Groups Experiencing a Fatal or Nonfatal Shock.** The figure plots the age distribution of surviving spouses. Panel A shows the age distribution of surviving spouses experiencing a fatal shock in 2015-2020, and Panel B of surviving spouses experiencing a nonfatal shock in the same years.



A. Fatal



B. Nonfatal

D Additional Analyses on Fatal Health Shocks

D.1 Effects by Surviving Spouses Above and Below Retirement Age

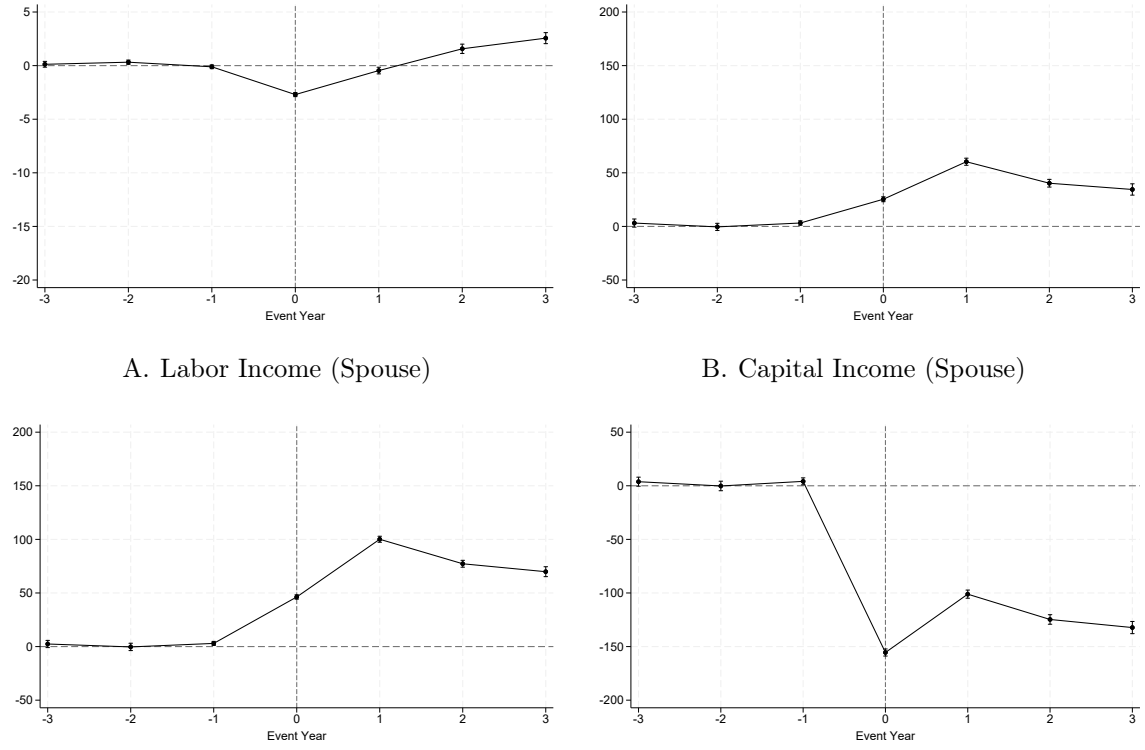
Table D.1: **The Effect of a Fatal Health Shock on Spouses of Working Age and Retirement Age**

	(1) Claim	(2) No. of Claims	(3) IHS(Total Debt)	(4) DC
Panel A: Working Age				
ATT	0.006**	0.042***	0.068**	0.002
	(0.0032)	(0.0159)	(0.0305)	(0.0023)
Pre Avg	0.001	-0.001	0.011	0.000
	(0.002)	(0.013)	(0.020)	(0.002)
Observations	71,712	71,712	71,708	71,712
Mean (t-1)	0.060	0.170	0.571	0.033
Panel B: Retirement Age				
ATT	0.003***	0.008***	0.031***	0.001***
	(0.0005)	(0.0016)	(0.0044)	(0.0003)
Pre Avg	0.000	0.001	0.002	0.000
	(0.000)	(0.001)	(0.003)	(0.000)
Observations	653,738	653,738	653,733	653,738
Mean (t-1)	0.010	0.022	0.094	0.004

Note: This table presents estimates of the impact of a fatal health shock on surviving spouses, separately by retirement status. Working age is defined as being at most 59 years old at the time of death, or maximum 63 years old during the sample period, and retirement age is defined as being at least 68 years old at the time of death, or minimum 63 years old during the sample period. Panel A shows results for spouses below retirement age, while Panel B reports results for spouses at or above retirement age. Columns 1–4 correspond to: (1) the probability of receiving a financial claim from the SEA; (2) the average number of such claims within a year; (3) the inverse hyperbolic sine transformation of the total value of claims received during the year; and (4) the probability of being subjected to enforced debt collection. 'Pre-event mean' refers to the average outcome in the treatment group one year prior to the event. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

D.2 Effects on Income in Levels

Figure D.1: **The Dynamic Effect of a Fatal Health Event on Labor, Capital, and Disposable Income.** This figure presents coefficient estimates of the effect of a fatal health shock on (A) the labor income of the spouse, (B) the capital income of the spouse, (C) the disposable income of the spouse, and (D) the household disposable income. All income measures are expressed in constant 2019 prices and in thousands of SEK. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level.



A. Labor Income (Spouse)

B. Capital Income (Spouse)

C. Disposable Income (Spouse)

D. Disposable Income (Household)

Table D.2: **The Effect of a Fatal Health Shock on Labor, Capital and Disposable Income of the Surviving Spouse and the Household.**

	(1) Labor Income	(2) Capital Income	(3) Disposable Income	(4) Hh. Disposable Income
ATT	-0.037	39.956***	72.561***	-129.185***
	(0.160)	(1.490)	(1.302)	(1.890)
Observations	3,421,606	3,421,606	3,421,606	3,421,606
Mean (t-1)	47.120	26.759	186.328	400.635

Note: This table reports estimates of the impact of a fatal health shock on the income of the surviving spouse and the household. Columns 1–4 report effects on: (1) labor income; (2) capital income; (3) disposable income of the spouse; and (4) household disposable income. 'Mean (t-1)' refers to the average outcome in thousands of SEK one year before the event. All income variables are expressed in constant 2019 prices. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

D.3 Differential Impact by Extent of Income loss

To assess whether income loss is the driving factor of our main findings, we examine households based on the extent of their income loss. Similar to Fadlon and Nielsen (2021), we categorize households into subgroups according to whether the surviving spouse was the primary or secondary earner. We anticipate that the financial impact will be larger in households where the surviving spouse was the secondary earner. A spouse is designated as the primary earner if they contribute more than 50% of the total average disposable income of both spouses in years $t = -3$ and $t = -2$.

Table D.3 presents average treatment effects for each subgroup. Panel A reports results for secondary earners, Panel B for primary earners, Panel C for female spouses, and Panel D for male spouses. As expected, secondary earners and women face larger income losses—around 60% of household disposable income—compared to approximately 40% for primary earners and men.

Despite these larger income losses, secondary earners do not exhibit a higher likelihood of defaulting on large debts. The effect on the probability of entering debt collection is similar across groups. However, housing responses differ: the probability of becoming a renter increases by about 10% for secondary earners and women, compared to 6% for primary earners and 5% for men.

Labor income responses also vary. For primary earners, labor income falls by approximately 8% following the loss, while it remains unchanged for secondary earners. Gender differences are also evident: women's labor income declines by 3.4%, whereas men experience a larger drop of 5%.

These patterns suggest that, despite experiencing larger income shocks, secondary earners and women are able to adjust through housing decisions, highlighting the role of housing wealth as a key buffer in mitigating financial distress.

Table D.3: **The Effect of a Fatal Health Shock by Expected Income Loss of the Surviving Spouse**

	(1) Log(Hh Disp. Income)	(2) DC (Large)	(3) Renting	(4) Log(Labor Income)
Panel A: Secondary				
ATT	-0.606***	0.001*	0.096***	0.017
	(0.0022)	(0.0004)	(0.0014)	(0.0146)
Observations	482,802	484,794	484,760	61,975
Mean (t-1)	5.905	0.004	0.255	4.342
Panel B: Primary				
ATT	-0.399***	0.001**	0.062***	-0.076***
	(0.0023)	(0.0005)	(0.0014)	(0.0106)
Observations	361,552	362,495	362,493	100,722
Mean (t-1)	5.959	0.005	0.234	4.797
Panel C: Female				
ATT	-0.569***	0.001**	0.098***	-0.034***
	(0.0020)	(0.0003)	(0.0013)	(0.0106)
Observations	571,921	573,830	573,806	106,249
Mean (t-1)	5.921	0.004	0.252	4.623
Panel D: Male				
ATT	-0.411***	0.001*	0.046***	-0.050***
	(0.0027)	(0.0006)	(0.0016)	(0.0146)
Observations	272,430	273,456	273,444	56,448
Mean (t-1)	5.942	0.005	0.234	4.624

Note: This table reports estimates of the impact of a fatal health shock on surviving spouses. Panels A–D present results for four subgroups based on expected income loss and gender: (A) secondary income earners; (B) primary income earners; (C) females; and (D) males. Columns 1–4 report effects on the following outcomes: (1) the logarithm of household disposable income; (2) the probability of entering debt collection for large claims; (3) the probability of being a renter; and (4) the logarithm of labor income. A spouse is defined as the primary earner if they contributed more than 50% of the couple's average disposable income during the two to three years prior to the death. 'Mean (t-1)' refers to the average outcome in the subgroup one year before the event. All income measures are expressed in constant 2019 prices and in thousands of SEK. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

D.4 Impacts of Fatal Health Shocks by Household Disposable Income

In this section, we examine whether differences in default behavior are driven by pre-existing differences in household disposable income. Disposable income is measured two years prior to the event, and we split the sample at the median to compare households with below- and above-median income levels.

Table D.4 presents the results. Panel A shows estimates for households with below-median income, and Panel B for those with above-median income. In both groups, the probability of receiving a financial claim increase significantly following a fatal health shock. However, debt collection outcomes differ by income level. Among households with above-median income, the probability of entering debt collection for large claims rises significantly by 0.1 percentage points, but there is no significant increase for below-median households.

While both income groups experience substantial declines in household disposable income—around 50%—the elevated default risk among higher-income households indicates that financial fragility in the face of large shocks is not confined to those with initially low income.

Table D.4: **The Effect of a Fatal Health Event on Debt Default by Household Disposable Income.**

	(1) Claim	(2) DC (Large)	(3) DC (Small)	(4) Log(Hh Disp. Income)
Panel A: Hh Disp. Income<=P50				
ATT	0.003***	0.0004	-0.0001	-0.531***
	(0.0007)	(0.0004)	(0.0004)	(0.0022)
Observations	419,701	419,701	419,701	417,462
Mean (t-1)	0.016	0.005	0.004	5.640
Panel B: Hh Disp. Income>P50				
ATT	0.003***	0.001***	-0.0001	-0.508***
	(0.0008)	(0.0004)	(0.0004)	(0.0024)
Pre Avg	0.000	0.000	-0.000	-0.012***
	(0.000)	(0.000)	(0.000)	(0.001)
Observations	427,080	427,080	427,080	426,448
Mean (t-1)	0.017	0.004	0.003	6.217

Note: This table provides estimates for the impact of a fatal health shock on 2 subgroups of surviving spouses; below and above median household disposable income. Household disposable income is measured two years before the death and percentiles are computed in the sample. Panel A shows the effect for surviving spouses with household disposable income below the median and Panel B for above the median. Columns 1-4 present results on four metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of being subjected to enforced debt collection of large claims; 3) the probability of being subjected to enforced debt collection of small claims; and 4) the log household disposable income. 'Mean (t–1)' refers to the average outcome in the treatment group one year before the event. All monetary values are expressed in constant 2019 SEK. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

D.5 Downsizing of Homeowners

In this section, we investigate the effects of a fatal health event on the downsizing decisions of different types of households. We have previously found that fatal shocks increase the probability that homeowners sell their home. Now we study the downsizing behavior also of renters and households that remain homeowners throughout the period. As we do not observe the value or size of housing, we proxy downsizing behavior by moving to another neighborhood. Neighborhoods are defined as Demographic Statistical Areas (DeSo). DeSO divides Sweden into 5,984 areas, each initially containing between 700 and 2,700 inhabitants, serving as subdivisions within Swedish municipalities and regions.

Table D.5 presents the average treatment effects. Column 1 shows results for renters,

column 2 for homeowners, and column 3 for households that remain homeowners throughout the period. In all cases the effect is positive and significant.

Table D.5: **The Effect of a Fatal Health Shock on the Probability of Moving to Another Neighborhood, by Housing Tenure**

	Renters	Homeowners	Always Homeowners
ATT	0.044***	0.033***	0.019***
	(0.0021)	(0.0010)	(0.0008)
Observations	193,411	652,997	512,082
Mean (t-1)	0.045	0.032	0.016

Note: This table reports estimates of the impact of a fatal health shock on the surviving spouse's probability of moving to another neighborhood. Columns 1–3 present results for the following subgroups: (1) renters; (2) homeowners; and (3) always homeowners. A surviving spouse is classified as a renter or homeowner based on their housing tenure two years prior to the death. 'Always homeowners' refers to households that remained homeowners throughout the entire observation period. 'Mean (t-1)' refers to the average outcome in the subgroup one year before the event. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

D.6 Intergenerational

Table D.6: **The Effect of a Fatal Health Shock on Children by Gender, Siblings, Marital Status and Age**

	(1) Female	(2) Male	(3) Only Child	(4) Siblings	(5) Married	(6) Not Married	(7) Age<35	(8) Age≥35
Panel A: Debt Collection								
ATT	-0.0001	-0.0001	0.0006	-0.0002	-0.0003	0.0000	-0.0001	-0.0003
	(0.0005)	(0.0006)	(0.0011)	(0.0004)	(0.0007)	(0.0004)	(0.0014)	(0.0004)
Observations	803,771	844,817	170,436	1,478,200	840,182	808,454	176,382	1,472,254
Mean (t-1)	0.021	0.024	0.020	0.023	0.032	0.012	0.026	0.022
Panel B: Log(Labor Income)								
ATT	-0.021***	-0.017***	-0.027***	-0.018***	-0.021***	-0.019***	-0.034***	-0.018***
	(0.0030)	(0.0025)	(0.0064)	(0.0020)	(0.0030)	(0.0026)	(0.0097)	(0.0019)
Observations	693,507	723,824	141,270	1,276,089	699,549	717,810	147,953	1,269,406
Mean (t-1)	5.623	5.894	5.719	5.766	5.643	5.877	5.136	5.836

Note: This table presents estimates of the impact of a fatal health shock on debt collection and log labor income of children, by gender, siblings, marital status and age. Panel A shows results on debt collection and Panel B on log labor income. Columns 1–8 report effects for the different subgroups: (1) female; (2) male; (3) only child; (4) have siblings; and (5) married one year before the event; (6) not married, (7) age at death of parent below 35; and (8) age 35 or older. 'Mean (t–1)' refers to the average outcome in the treatment group one year prior to the event. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021), controlling for 10-year age bins of the children. Standard errors are clustered at the parent level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

D.7 Effects of a Nonfatal Health Shock by Diagnosis

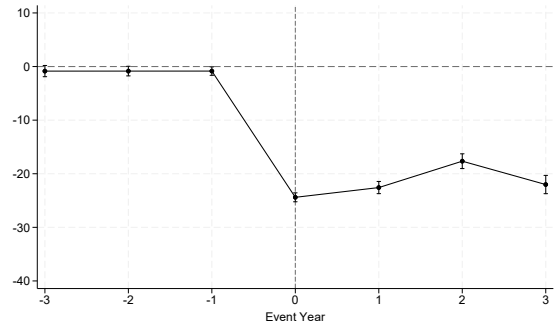
Table D.7: **The Effect of a Nonfatal Health Shock by Type of Diagnosis.**

	(1) Claim	(2) No. of Claims	(3) IHS(Total Debt)	(4) Log(Hh Disp. Income)
Panel A: Heart Attacks and Strokes				
ATT	0.006**	-0.003	0.043*	-0.072***
	(0.0025)	(0.0198)	(0.0246)	(0.0046)
Observations	133,921	133,921	133,917	133,002
Mean (t-1)	0.067	0.254	0.659	6.469
Panel B: Injuries				
ATT	0.012***	-0.012	0.113***	-0.082***
	(0.0027)	(0.0203)	(0.0265)	(0.0048)
Observations	126,561	126,561	126,555	125,695
Mean (t-1)	0.075	0.285	0.728	6.494

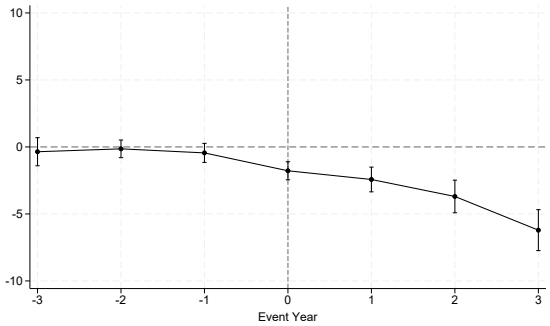
Note: This table provides estimates for the impact of a nonfatal health shock by type of diagnosis. Panel A shows results for hearth attacks and strokes and Panel B for injuries. Columns 1-4 present results on four metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of being subjected to enforced debt collection of large claims; 3) the probability of being subjected to enforced debt collection of small claims; and 4) the log household disposable income. 'Mean (t-1)' refers to the average outcome in each subgroup one year prior to the shock. Income is adjusted to 2019 constant prices. Estimates are obtained using the Difference-in-Differences approach developed by Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

D.8 Effects on Income in Levels

Figure D.2: **The Dynamic Effect of a Nonfatal Health Shock on Labor, Capital, and Disposable Income.** This figure presents coefficient estimates of the effect of a nonfatal health shock on (A) the labor income of the sick individual, and (B) the labor income of the spouse. All income measures are expressed in thousands of SEK and constant 2019 prices. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level.



A. Labor Income (Sick Individual)



B. Labor Income (Spouse)

Table D.8: **The Effect of a Nonfatal Health Shock on Labor, Capital and Disposable Income for the Household.**

	(1) Labor Inc (Sick Ind)	(2) Labor Inc (Spouse)	(3) Hh. Labor Inc	(4) Hh. Capital Inc	(5) Hh. Disp. Inc
ATT	-22.230***	-4.700***	-26.930***	-4.342	-39.474***
	(0.5517)	(0.4753)	(0.7377)	(11.2358)	(8.3603)
Observations	1,574,209	1,574,209	1,574,209	1,574,209	1,574,209
Mean (t-1)	322.467	306.310	628.778	49.174	655.889

Note: This table reports estimates of the impact of a nonfatal health shock on income. Columns 1-5 present results on five metrics: 1) the sick individual's labor income; 2) the spouse's labor income; 3) the household labor income; 4) the household capital income and 5) the household disposable income. 'Mean (t-1)' refers to the average outcome. All income variables are expressed in constant 2019 prices. Estimates are obtained using the difference-in-differences method of Callaway and Sant'Anna (2021). Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.