Severe Health Shocks and Financial Well-Being

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June 2024

Abstract

We examine the effect of fatal and nonfatal health shocks on households' defaults on debts and payments. We find that fatal health shocks are a major cause of defaults and, importantly, this behavior is solely visible among surviving spouses who experience a significant negative permanent income shock and lack sufficient resources, notably housing wealth, to fulfill larger financial obligations. We provide supportive evidence that this behavior is not driven by inattention. Furthermore, these shocks have intergenerational consequences, as children of surviving spouses with less resources are more likely to be forced into debt collection. These findings in a country with relatively generous welfare system manifest the graveness of background risks among poorer households and suggest potential for improving the design of social insurance programs. In addition, we find that nonfatal health shocks lead to an immediate, but mostly temporary, increase in the likelihood of default.

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1 Introduction

One of the predominant roles of social security systems is to serve as a safeguard against unexpected health setbacks that affect broad segments of the population. The United Nations Committee on Economic, Social, and Cultural Rights underscores this by asserting that an effective social security system should encompass the necessities associated with aging, healthcare, and disability, among other specific circumstances (UN Committee on Economic and Rights, 2008).

Adverse fatal and nonfatal health events are some of the most severe and common shocks experienced by households, especially during older ages. Individuals in relationships may eventually lose their partner, and the likelihood of experiencing nonfatal health incidents increases for nearly everyone as they age. Consequently, programs that protect households against the potential income losses imposed by these health shocks – namely survivors and disability insurance – are among the largest safety net programs in most OECD countries (Fadlon and Nielsen, 2021). Therefore, studying how households are affected by and respond to severe adverse health events and the accompanying income loss is central to the design of social insurance programs. In this paper, we investigate how fatal shocks and severe nonfatal shocks affect financial well-being of households.

In the case of fatal shocks, we examine how they affect the surviving spouses' likelihood of defaulting on loans and other financial claims, 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 the surviving spouse. Additionally, we complement our analysis by looking at the impact of severe nonfatal health shocks on both the patient's behavior and that of the spouse.

To measure financial well-being, we exploit a distinct feature of the Swedish debt collection system that gives us access to data on all types of unpaid claims and debts between 2014–2020. Sweden is unique in having a government authority responsible for the collection of all unpaid dues, including unpaid bills and rents. This allows us to capture even the most marginal groups with no access to credit or bank loans. The Swedish system is generally seen as favoring creditors, especially compared with the more lenient policies

on personal bankruptcy and debt forgiveness in the United States. Consequently, the repercussions of defaulting on debt in Sweden are substantial. A non-payment record has far-reaching consequences. It 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. On average, an additional year of negative credit information has been shown to reduce employment by 3 percentage points and wage earnings by 1,000 USD (Bos et al., 2018). Together, these underscore the absence of significant incentives for strategic default. In this environment, where the medical costs associated with a health shock are negligible and the chance of strategic default is virtually zero, we argue that defaulting on financial claims indicates (serious) financial distress.

To identify the causal effects of experiencing an adverse health event, we employ a quasi-experimental research design that constructs a counterfactual to affected households by using households that experience the same event three years in the future. We combine event studies for these two groups and estimate the short-run treatment effects using a period-by-period difference-in-differences design. The main limitation of this approach is that it places an upper bound on the analysis' time horizon, as the control group becomes *treated* within a few years. This is particularly limiting for us, since we only have data on debt collection for the period of 2014–2020. The identifying assumption is that, absent the health shock, the outcomes of the treatment and control groups would have run parallel to each other. Reassuringly, we show that the pre-trends run in parallel for the relevant outcomes. This methodology is very similar to the one used in Fadlon and Nielsen (2019) and is based on the common notion that the timing of shocks within a short period may be as good as random.[1]

We find that a fatal health shock in the household substantially increases the likelihood of default; the death of a spouse increases the incidence of default by 25 percent of the pre-shock value. Interestingly, a fatal shock explains almost the entirety of default incidence

[1] This method has been exploited for identification in other settings, such as Druedahl and Martinello (2022) and Nekoei and Seim (2022)

in households with no history of default, who comprise the absolute majority of the population. While the incidence of default increases for all types of financial obligations, we find that for smaller ones, the surviving spouse pays off the claim after receiving the notice from the Enforcement Authority, thereby avoiding forced debt collection. However, the likelihood of entering debt collection significantly increases for larger than median amounts (around 1,000 USD). This finding – that,unlike larger ones, smaller claims are eventually paid off – suggests that defaults are unlikely to be explained by mental overload or grief and are more likely the result of financial difficulties arising from the loss of available resources. It should be noted that the incidence of getting a notice and repaying smaller claims at the last minute, just before entering debt collection, increases over time after the fatal shock. This indicates that surviving spouses face ongoing financial difficulties.

Surprisingly, the loss of household disposable income after the death of a spouse does not predict the likelihood of entering debt collection. Both primary and secondary earner surviving spouses exhibit similar tendencies in fulfilling their payment obligations. This finding may challenge our initial hypothesis that the increase in debt default following the loss of a spouse is primarily driven by lack of financial resources. However, we support this hypothesis by demonstrating that the findings are driven by surviving spouses with limited wealth. Secondary earner surviving spouses, often women, exhibit a higher likelihood of resorting to the liquidation of their homes, presumably to settle their financial obligations. While one might argue that downsizing after a spouse's death is a mechanical response, the significant difference in the likelihood of doing so between surviving spouses who were primary earners and those who were secondary earners does not support this possibility. Instead, it points to the importance of housing wealth in protecting against negative income shocks.

Comparing the behavior of surviving spouses who are homeowners versus renters sheds more light on this hypothesis. We find that both homeowners and renters have an increased probability of receiving a claim, but homeowners manage to repay back both small and large claims. However, the increased probability of entering debt collection for

large debts is completely driven by renters who presumably cannot self-insure by selling their house or using it as collateral.

Importantly, fatal health shocks have intergenerational effects on children's financial well-being. We find that renters' children have a higher probability of default after such events compared to children of homeowners. This may arise from the child needing to provide financial support to the surviving parent or because the surviving parent can no longer afford to assist the child financially.

Nonfatal health shocks, defined as heart attacks, strokes, and injuries that lead to outpatient visits, to one of the spouses causes a temporary decrease in the sick spouse's labor income, and only have a small effect on household disposable income. Consequently, there is a temporary increase in the probability of default in households where the sick individual is below retirement age. Similar to fatal shocks, small debts are paid off after receiving the notice, but there is a temporary increase in the likelihood of entering debt collection for larger financial obligations. Overall, housing wealth is less predictive of default after a nonfatal health event, possibly due to the transitory nature of the income shock.

Interestingly, we find that a nonfatal health shock increases the probability of debt default and debt collection only when the sick individual is below retirement age. This is consistent with the idea that household resources drive our findings, as retired individuals do not experience income loss following a health event since they continue to receive their pension. In contrast, those who are working receive sickness pay, which does not fully compensate for their income loss.

This research contributes to the literature on the economic consequences of health shocks. Cochrane (1991) rejects the existence of full insurance for long-term illness. Poterba et al. (2017) use data on the over-65 population drawn from ten waves of the Health and Retirement Study (HRS) to explore the role of health shocks in contributing to the draw-down of retirement wealth and find that for some health conditions, the net worth declines significantly following diagnosis. Dobkin et al. (2018) use an event study approach to examine the economic consequences of hospital admissions for adults in HRS

survey data and hospitalization data linked to credit reports in California. They find that for non-elderly adults, hospital admissions increase out-of-pocket medical spending, unpaid medical bills, and bankruptcy, and reduce earnings, income, access to credit, and consumer borrowing. The effects are much larger for the non-insured. Jeon and Pohl (2017) find negative effects on the labor supply of the spouse following a nonfatal health shock and Lundborg et al. (2015) find heterogeneous effects of health shocks, where the negative effects are greater for low-skilled individuals.

Our analysis also adds to the smaller literature that studies the determinants of financial distress. Keys et al. (2023) study the relative role of place versus individual-based factors and concludes that financial distress is more the consequence of persistent individual factors. Parise and Peijnenburg (2019) find that people in the bottom quintile of noncognitive abilities are ten times more likely to experience financial distress than those in the top quintile. In related work, Agarwal et al. (2020) and Kalda (2020) study the role of peer effects in determining financial distress, and Agarwal et al. (2016); Meyll and Pauls (2019); Zhou et al. (2023) study the gender gap in bankruptcy, overindebtedness, and financial distress, finding mixed evidence. Gupta et al. (2018) study the effect of cancer diagnosis and find that it is financially destabilizing only for those with negative home equity, as they are substantially more likely to default on their mortgage and file for bankruptcy. Morrison et al. (2013) use an event-study approach to examine the impact of nonfatal automobile accidents in Utah on bankruptcy and cannot reject the null hypothesis of no effect.

2 Institutional Setting

To study how individual financial well-being responds to fatal and nonfatal shocks, we leverage rich administrative data from Sweden. Sweden is a relevant country for studying the effect of health shocks, as it offers universal health care insurance with very low medical costs and has a unique government agency responsible for the collection of private and public dues. This provides population data on all individuals who have not met their

payment requirements. In this section, we describe the Swedish context concerning the coverage of income losses for individuals who are sick or lose a spouse, as well as the Swedish debt collection system.

2.1 Health Insurance and Survivor's Pension

In Sweden, almost all medical expenses are covered by a universal health insurance scheme. Health care is not free, but the costs are relatively low. The system has high-cost protection (högkostnadsskydd) which limits an individual's total healthcare expenses. This system includes separate caps for prescription medications, outpatient services, and inpatient care. Each category has a different annual limit, ensuring that once these limits are reached, additional healthcare services or medications are provided at a reduced cost or for free. In 2016, the limits were 100 SEK (US$12) per day for inpatient services, 1,100 SEK (US$128) per year for outpatient care costs and 2,200 SEK (US$257) for total medication expenses during the year (Socialstyrelsen, 2017).[2]

For those suffering from a health shock, universal health care insurance is available to cover income loss. For employees, the employer covers the first two weeks of *sick pay*. During these weeks, one receives 80% of the salary minus a 20% *waiting day deduction*. After two weeks, the Swedish Social Insurance Agency takes over, providing the *sickness benefit*. The level of benefits is determined by the sickness benefit qualifying income (sjukpenninggrundande inkomst, SGI), which is based on the individuals annual income and calculated by the Social Insurance Agency. The coverage depends on one's working capacity and can be granted at 25, 50, 75, or 100% of the SGI. At 100% sick leave, 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) monthly. This figure can be compared with the median monthly wage of 29,300 SEK (US$3,422). After 365 days of sick leave, the sickness benefit is reduced to 75% of the SGI. For work-related injuries that result in an income loss for at least one year, a separate annuity covers the loss up to 27,688 SEK

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

(US$3,234) per month.

Unemployed individuals are eligible for the sickness benefit if they are actively seeking employment through the Swedish Public Employment Service and have previously been employed by an Swedish employer. The Swedish Social Insurance Agency then provides the SGI-based sickness benefit, with recipients receiving 80% of the SGI. The maximum daily benefit for unemployed individuals is 543 SEK (US$63).[3]

If the reduction in work ability is determined to be permanent, *sickness compensation* may be granted. This compensation is available to individuals whose permanent reduction in labor supply is 25% or more and who are between the ages of 19 and 64. Recipients receive 64.7% of their previous salary, with a monthly maximum of 17,914 SEK (US$2,092).

In the event of death, the surviving spouse is 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 family model predominantly featured the male as the breadwinner, and, consequently, only women were directly entitled to these benefits. Today, most of the OECD countries provide survival pensions to both men and women, although the type and scope of these pension schemes vary. On average, OECD countries allocate 1% of GDP to survivor benefits in mandatory schemes. However, Sweden spends less than the average, with expenditures below 0.5% of its GDP (OECD, 2018). Figure A.1 in Appendix A displays the evolution of survivor pension-to-GDP in OECD on average and a few selected countries.

The original widow's pension, which provided widows 40% of their deceased spouse's pension, was replaced in 1990 by the adjustment pension. This reform aimed to encourage greater participation in the labor market among women. Eligibility for the adjustment pension is limited to spouses or registered partners who are under 66 years old at the time of their partner's death.[4] This pension pays 55% of the deceased's anticipated monthly pension for a period of one year. Table A.1 in Appendix A provides an overview of how

[3] All amounts from 2016 are described in Försäkringskassan (2016).

[4] The adjustment pension is available to spouses or registered partners born in 1958 or later. Eligibility requires a minimum of five years of cohabitation prior to the spouse's death, or cohabitation with children under 18.

the survivor pension rules vary for men and women of different birth years.

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 individuals without an income pension who have lived permanently in Sweden, the monthly guarantee pension in 2016 was SEK 8,971 (US$1,048).[5,6] The reform also aimed to improve children's rights to pensions, awarding child pensions until 18 years of age, or until 20 if they are still in school. In addition, for surviving spouses with young children, payments continue until the child reaches the age of 12.

The widow's pension continues to be 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 widow's pension payout was 41,600 SEK (US$4,859) per year, while the average adjustment pension payout was 72,900 SEK (US$8,515) (Pensionsmyndigheten, 2016).[7]

Additionally, Sweden's public pension system includes survivor protection for premium pensions. If the pension holder passes away before the spouse or partner, the survivor is entitled to receive the premium pension for life. The size of the payout depends on the accumulated savings and the age of the pension holder. Opting for this protection transforms the premium pension into joint insurance, which results in reduced payouts. In 2016, only 17,747 individuals received a survivor's payout from the premium pension, with an average amount of SEK 3,417 (US$399). This may indicate that many choose to opt out of this protection; however, the relatively low take-up could also be attributed to the fact that the premium pension was introduced in 1998. Consequently, some of those who passed away in 2016 were already over retirement age at that time.

Private life insurance policies are also available to provide financial support to surviving spouses. These policies vary in their payout structures and terms related to age. Term life insurances, for example, typically offer substantial death benefits determined

[5] The maximum annual amount is calculated 2.43 times the the annual price base amount, which in 2016 was SEK 44,300.

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

[7] Eligibility also depends on being married before the partner turned 60, a marriage duration of at least five years before the death event, or having children together.

at the policy's inception. The payouts can vary significantly according to the choices made by the policyholder. However, the critical aspect of term life insurance is that the death benefit is payable only if the insured dies within the policy term. This term often includes an upper age limit, which typically ranges between 67 and 90 years.

Survivor benefits are also available through both private and occupational pension insurance schemes. These benefits ensure that upon the policyholder's death, the surviving spouse receives either ongoing payments or a lump sum, which is calculated based on contributions and investment gains. Opting for survivor protection in these pensions results in a reduced payout for the initial policyholder. 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 accounted for 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.

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. If the debtor does not pay, the SEA enforces debt collection, which usually also leads to a negative credit rating from credit reporting agencies.[8] Having a non-payment record 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 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.[9] 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.[10]

Compared to many other countries, Sweden's approach to handling unpaid debts is

[8] 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

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

[10] 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.

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).

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, the National Board of Health and Welfare, and Statistics Sweden.

To identify individuals experiencing financial distress, we use population-wide data from the Swedish Enforcement Authority (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. 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 Death Registry, available from 2005 to 2020, records the date and specific cause of death of deceased individuals. The National Patient Registry 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. Building on previous research, we focus on sudden nonfatal health shocks, including heart attacks, strokes, and injuries, explicitly excluding injuries related to self-harm (e.g. Chandra and Staiger, 2007; Doyle, 2011; Fadlon and Nielsen, 2021).

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 might 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 also observe the type of accommodation from STATIV, a longitudinal database for integration studies. This allows us to classify individuals as homeowners or renters.

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.[11]

3.1 Samples of Analysis

In our primary analysis, we focus on households that underwent a fatal health incident during the years 2016 and 2017. The surviving spouses in these households constitute our treatment group. To establish a counterfactual scenario, we define a control group of surviving spouses in households that experienced identical fatal health shocks in the years 2019 and 2020. Our sample consists of all spouses that lost a spouse, that were married one year before the death, and where the deceased was above age 21 in the year of the (actual or placebo) event. Our treatment group includes 51,248 spouses, while the control group includes 51,048 spouses.

When studying the effects on income, we capitalize on the larger set of available data that spans more years. The treatment group consists of surviving spouses that lost a spouse in 2005, 2009, 2010, 2011, 2015, 2016, or 2017. As a result, the size of our treatment group is increased to 186,667 individuals. Our control group consists of individuals who experienced similar fatal health shocks but three years later than the respective years of the treatment group. This control group comprises 182,537 individuals.

To investigate intergenerational effects, we also study the impacts of fatal health shocks on adult children of surviving spouses. These are children who were at least 18 years old during the analysis period. The treatment group consists of 95,829 individuals

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

and the control group of 95,569 individuals.

In our investigation of nonfatal health shocks, we narrow our focus to specific incidents commonly recognized as sudden and severe, namely heart attacks, strokes, and injuries. Importantly, we deliberately exclude self-harming injuries to mitigate the risk of reverse causality, which could arise if self-harm were a reaction to financial distress. The treatment group consists of married households in which one spouse experienced a severe health shock for the first time during 2016 or 2017 and in which both spouses survived for at least three years. Our control group, in contrast, consists of households in which a similar health shock occurred in 2019 or 2020. The treatment group includes 45,385 households, while the control group includes 43,669 households.

In the analysis of nonfatal health shocks, we also expand our sample when studying income-related outcomes. We use the same years to define the treatment and control groups as in the fatal health shock sample. The treatment group in this expanded sample comprises 193,091 households and the control group of 176,234 households.

Furthermore, in both of our nonfatal health shock samples, we extend our analysis beyond the outcomes for the household as a whole; we also examine the financial impacts on the individual who experienced the health shock and the spouse. This allows us to examine potential heterogeneity within the household with respect to income and default outcomes.

Tables A.2 and A.3 in the Appendix present summary statistics and illustrate the comparability between the treatment group (2016–2017) and the control group (2019–2020) in both samples. In the fatal sample about 67% of the surviving spouses are female, 24% have some higher education. The household disposable income is roughly 460,000 SEK ($US 49,000). The share receiving a claim is on average 2%, and within this group the average number of claims received in a year is 2.5 and the average annual total debt size 36,000 SEK ($US 3800). In the nonfatal sample, approximately 63% of the spouses are women and 38% have some higher education. The household disposable income is on average 660,000 SEK ($US 70,000). In the nonfatal sample. The share receiving a claim is on average 2.5%, and within this group the average number of claims received in a year

is 2.6 and the average annual total debt size 49,000 SEK ($US 5100).

Figure A.2 in Appendix shows the age distributions in the two main treatment groups; spouses experiencing fatal and nonfatal shocks in 2016 and 2017. Spouses who experience a fatal shock tend to be older, with an average age of 76 in the year of the event, whereas spouses experiencing a nonfatal shock are on average 60 years old at the time of the shock.

4 Research Design

Our empirical strategy is similar to Fadlon and Nielsen (2019, 2021) and provides causal estimates of the effect of losing a spouse or experiencing a severe nonfatal health shock on financial well-being. Since health shocks are not random, we employ a difference-in-differences design in which our treatment group experiences a health shock in year t. To realistically capture the counterfactual behavior of the treatment group in the absence of the shock, we define the control group as those who experienced the same shock in year $t + \Delta$. The assumption underlying this choice is that, although it is not random to experience a health chock, it is quasi-random within a small time window, whether households experience the shock today or at a later point in time. Given this assumption, we implicitly match households in both observed and unobserved characteristics, with the exception that age will tend to be slightly higher in the treatment group, since they experience the shock at an earlier point in time.

We normalize the time in relation to the health shock. This involves adjusting the timeline so that 'time 0' aligns directly with the calendar year of the event. Consequently, each normalized year corresponds to a calendar year in relation to the event's year. For instance, 'time -1' signifies one year prior to the event, while 'time 1' indicates one year following the event.

Our method can be described as a stacked difference-in-differences with two subexperiments. We observe each treatment and control group over the same event years and allow for two pre-treatment periods. Importantly, no households appear in both the treatment

and control groups, and the treatment groups are always treated and observed in the same normalized year, which implies that we do not encounter issues related to staggered difference-in-differences (Callaway and Sant'Anna, 2021). For our main analysis, we are limited by data availability to analyzing data from two specific years when the health shock occurred and using $\Delta = 3$.

The identifying assumption is that the outcomes of the treatment and control groups would be similar 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_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:

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

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.

5 Default Responses to Fatal Health Events

In this section, we analyze the impact of fatal health events on household financial distress. We start by looking at how spousal death affects the likelihood of receiving a claim from

the SEA and entering forced debt collection, and explore potential explanations that could explain our findings. In addition, we investigate the impact of fatal health shocks on children's financial distress.

5.1 Main Results

Figure 1 presents the impact of spousal death on the probability that the surviving spouse will receive a claim from the SEA. The event year zero, marked by the dashed vertical line, represents the year in which the fatal health shock occurs. Panel A presents the average share of surviving spouses in the treatment and control group who receive a claim from the SEA during each event year. In the pre-event years, the treatment and control group averages are close to identical at a level around 1.6%. The similarity in both trends and levels between the groups suggests that they are comparable. During the event year, the occurrence of claims increases dramatically in the treatment group and continues to increase in the following two years, while the share of spouses in the control group receiving claims remains relatively stable.

Panel B shows the results of the dynamic difference-in-difference regression analysis. The coefficient estimates quantify the treatment effect relative to the year preceding the health shock. Importantly, the pre-shock coefficient estimate is not statistically different from zero, corroborating the parallel trend assumption underlying our analysis. The effect manifests immediately in the year of the shock, supporting a causal interpretation of the observed changes. Examining the dynamics beyond the year of death reveals that the effect is persistent. This could be in part due to households where the health shock occurs late in the year, where the response only becomes evident the following year. However, it could also be the case that the effect comes with a delay because some households manage to avoid defaults temporarily, until available resources are exhausted. The fact that the effect persists even two years after death suggests that the death of a spouse causes longer-lasting financial challenges for affected households.

Not only we observe an increase in the occurrence of claims, there is also a rise in both the average number of claims per individual and the total size of the unpaid

obligations. Figure 2 Panel A shows the impact on the annual number of claims received. Before spousal death, the average number of claims per individual is roughly 0.04 for both groups. However, during the year of the shock, there is a noticeable increase in claims for the treatment group, establishing a gap that persists throughout the observed period. Panel B illustrates the evolution of the treatment effect. This graph also supports the parallel trend assumption and a positive effect during the event year, which persist throughout the post-event period.

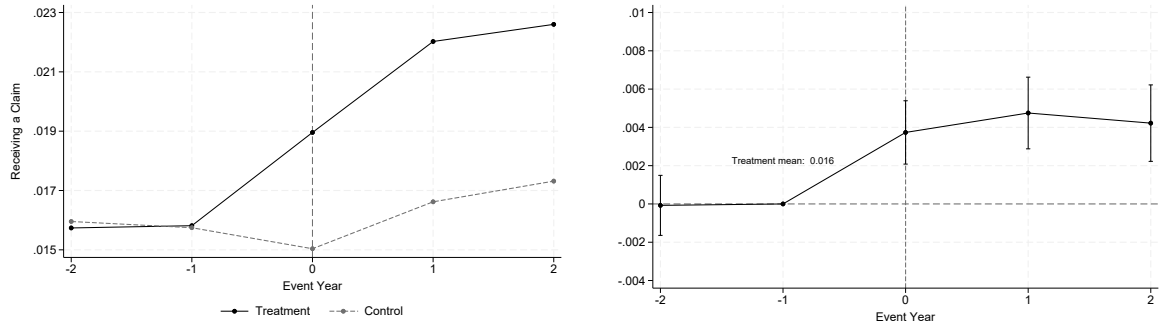
Figure 3 illustrates the impact on the total value of claims per individual. To meet normality assumptions, total debt is transformed to approximate the logarithmic function but including zero values, using the inverse hyperbolic sine transformation (IHS). Panel A compares the IHS of total debt in the treatment and control groups, with both groups showing close to identical pre-event averages. In the first two event years, the treatment group exhibits sharp increases, before the effect levels off in the last year. Panel B examines the treatment effect on the IHS of total debt. This reveals a clear effect of approximately 4% in the event year, which remains significant throughout the observed period.

Table 1 displays the average treatment effects. 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. Surviving spouses experience an increase in the probability of receiving a claim by 0.4 percentage points, resulting in an increase of 25% from the baseline ($t = -1$) average of 1.6%. Furthermore, the average number of claims increases by 49%, while the total debt amount of claims increases by 4.3% which amounts to roughly 260 SEK ($US 27).

A fatal shock also increases the risk of enforced 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. Restricting the outcomes to claims that result in debt collection, Panel B shows that 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 48%, and the average debt amount increases by 1.5% corresponding to

175 SEK ($US 18).

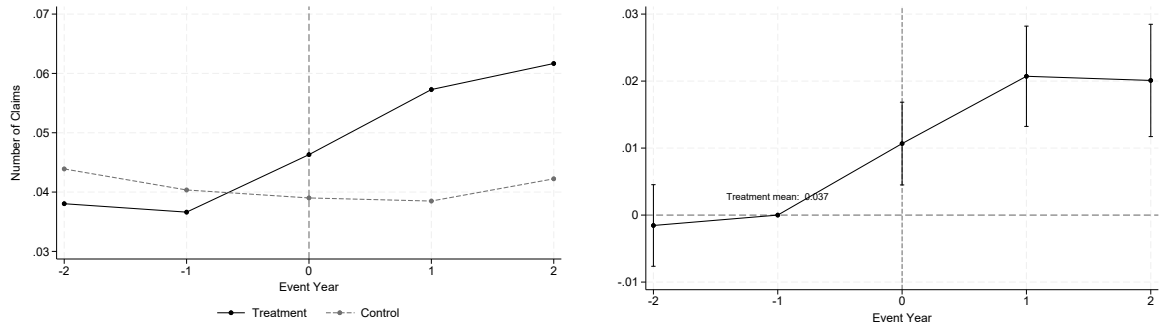
Figure 1: **The Effect of a Fatal Health Shock on the Probability of Receiving a Claim.** The figure presents the effect of a fatal health shock on the probability of receiving a debt claim from the SEA. Panel A shows the average share of spouses receiving a claim from the SEA in the treatment and control 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

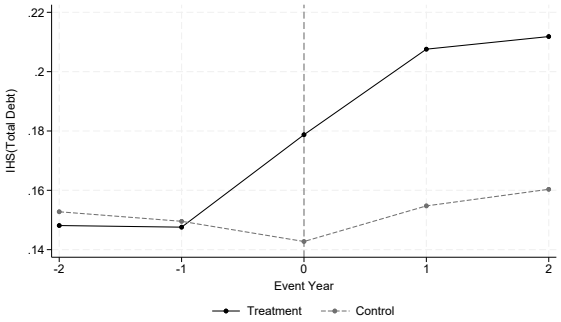
Figure 2: **The Effect of a Fatal Health Shock on the Number of Received Claims.** The figure presents the effect of a fatal health shock on the number of received debt claims from the SEA during the year. Panel A shows the average number of debt claims from the SEA in the treatment and control group. 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.



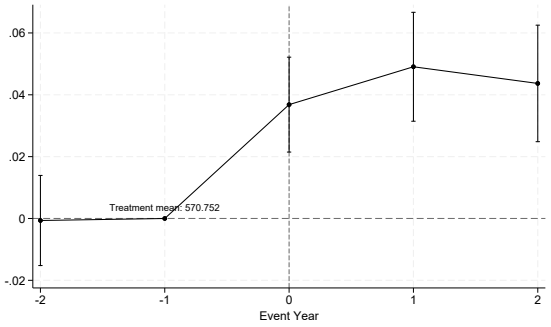
A. Mean in Treatment and Control Group

B. Coefficient Estimates

Figure 3: **The 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 1: **The Effect of a Fatal Health Event 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 kSEK. 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 kSEK. The pre-event mean is the treatment mean in 1999. Debt is expressed in constant prices (2019). Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.2 Mechanisms

In this section, we perform several analyses to understand the mechanism(s) behind our main results. We focus on two potential channels: *inattention* and *lack of resources*.

5.2.1 Does Inattention Impact Default Behavior?

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. In 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.[12]

If inattention serves as the main channel through which households default on payments and debts, one would anticipate similar repayment behaviors for individuals after they receive a claim, regardless of the total amount that must be paid. In contrast, if the issue is mainly lack of resources, one would expect more pronounced effects for larger amounts to be paid. To differentiate between these two channels, we examine the probability that individuals with small and large debts do not repay the full amount after receiving a claim. Small and large debts are defined, respectively, as having a total amount of debt below or above the median debt size among debt holders prior to the health shock. We examine these two outcomes along with the likelihood of immediate full repayment. Collectively, these three outcomes function as a decomposition of the main effect, namely the probability of receiving a claim. After receiving a claim, households either fully repay the claim or proceed to debt collection.

Panel A in Figure 4 again presents the effect of fatal health shocks on the probability of the surviving spouse receiving a claim. This effect is then decomposed in Panels B-D. Panel B depicts the likelihood of immediate debt repayment, thus avoiding a record of

[12] 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).

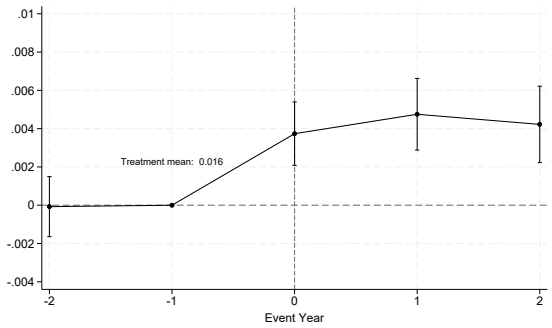
nonpayment. Panels C and D illustrate the effects of incurring debt collection for relatively large and small debts, respectively. These analyses yield two important conclusions. First, while many manage to pay off their claim, this appears to be restricted to smaller debts. The significantly elevated risk of default on larger claims compared to smaller ones points to lack of resources as the main factor that influences this behavior. Second, even though many manage to completely settle their debts, this last-minute repayment pattern is not a temporary shift; rather, it is persistent over time. This suggests that surviving spouses are more likely to face ongoing financial difficulties after a spouse's death.

Table 2 presents the corresponding average post-event estimates. The coefficient estimates in columns 2-4 decompose the main effect presented in column 1. Of the overall 0.4 percentage points increase in claims, in 75% of these cases the claim is immediately repaid, while the remaining 25% is attributed to debt collection of large debts. A fatal shock results in a 25% increase in the probability of incurring debt collection of large debts. Notably, there is a precisely estimated zero effect on debt collection of small debts.

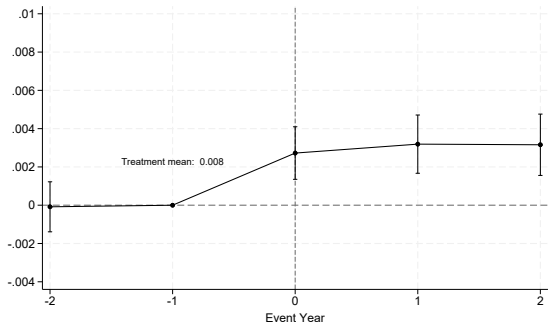
To validate that small claims are paid off, we decompose the probability of receiving a claim into the probability of receiving small and large claims. In the Robustness Section 7 we show support for this notion. The main effect is equally driven by small and large debts, with an increase of 0.2 percentage points on both outcomes.

Moreover, in Table 14 in Section 7 we show that the results are robust to the cause of death being defined as sudden or not. However, the effect are larger when deaths are unexpected, in line with households not having been able to plan for the event.

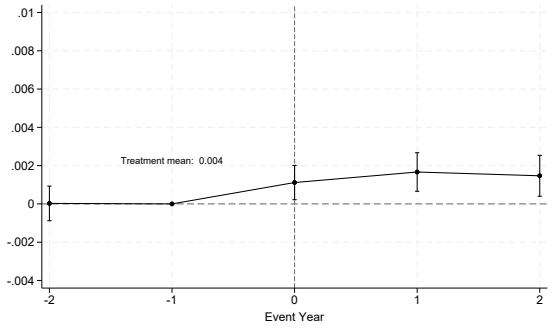
Figure 4: **The Main Effect: Probability of Receiving a Claim and Its Decomposition.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a fatal health shock on the probability to A. receive a claim, B. repaying the total amount and C. having enforced debt collection of relatively large claims and D. having enforced debt collection of relatively small claims. The regressions are specified as in Equation 1. Standard errors are clustered at the household level.



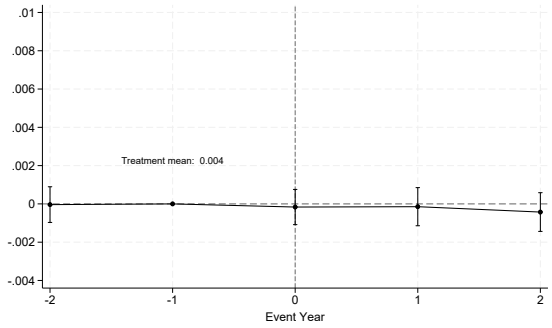
A. Receiving a Debt Claim



B. Repaying all Debts Associated with the Claim



C. Debt Collection of Large Debts



D. Debt Collection of Small Debts

Table 2: **The Main Effect: Probability of Receiving a Claim and its Decomposition, Average Post-Event Estimates.**

	(1)	(2)	(3)	(4)
	Receive Claim	Repaying All	Debt Collection (Large)	Debt Collection (Small)
Treat × Post	0.004***	0.003***	0.001***	-0.000
	(0.0007)	(0.0005)	(0.0004)	(0.0003)
R^2	0.016	0.006	0.008	0.004
Observations	502,772	502,772	502,772	502,772
Mean in t=-1	0.016	0.008	0.004	0.004

Note: This table provides estimates for the impact of a fatal health shock on the surviving spouse. Columns 1-4 present results on four metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of immediately repaying the claim; 3) the probability of being subjected to enforced debt collection of large claims and 4) the probability of being subjected to enforced debt collection of small claims. The pre-event mean is the treatment mean in 1999. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.2.2 Impact on Households Without Prior Claims

In our main analysis, we include all households regardless of their pre-existing financial situation. Although debts are not inherited in Sweden, there is concern that some observed effects may be mechanical, as the responsibility of managing household finances often shifts to the surviving spouse, or that fatal shocks might only exacerbate the financial difficulties of those already struggling.[13]

To investigate this, we restrict our sample to households where the deceased spouse had no claims in the pre-event period. The main estimates are shown in Table 3. This restriction does not change the point estimates or the significance levels, but the effect size in percentage terms increases substantially. A fatal health shock increases the risk of default by 50% and the collection of large debts by 100%, implying that these events explain the majority of the occurrence of financial claims and debt collections. 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.

Additionally, we limit the sample to households where none of the spouses had any claims in the pre-event period. The results in Table 4 show that the point estimates are similar to or slightly larger than the main results and highly significant. Even in households that have shown no recent indications of financial troubles, a nonfatal health shock drastically increases the risk of default compared to the control group.

Table 3: **The Main Effect and its Decomposition in Households where the Deceased Received no Claims in the Pre-Shock Period.**

	Receive Claim	Repaying All	Debt Collection (Large)	Debt Collection (Small)
Treat × Post	0.004***	0.003***	0.001***	0.000
	(0.0006)	(0.0004)	(0.0002)	(0.0002)
R^2	0.006	0.004	0.002	0.001
Observations	488,792	488,792	488,792	488,792
Mean in t=-1	0.008	0.005	0.001	0.002

Note: This table provides estimates for 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 present results on four metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of immediately repaying the claim; 3) the probability of being subjected to enforced debt collection of large claims and 4) the probability of being subjected to enforced debt collection of small claims. The pre-event mean is the treatment mean in 1999. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

[13] 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.

Table 4: **The Main Effect and its Decomposition in Households where None of the Spouses Received any Claims in the Pre-Shock Period.**

	Receive Claim	Repaying All	Debt Collection (Large)	Debt Collection (Small)
Treat × Post	0.005***	0.003***	0.001***	0.000***
	(0.0004)	(0.0003)	(0.0002)	(0.0001)
R^2	0.006	0.004	0.002	0.001
Observations	482,723	482,723	482,723	482,723
Mean in t=-1	0.000	0.000	0.000	0.000

Note: This table provides estimates for 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 present results on four metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of immediately repaying the claim; 3) the probability of being subjected to enforced debt collection of large claims and 4) the probability of being subjected to enforced debt collection of small claims. The pre-event mean is the treatment mean in 1999. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.2.3 Income Loss

Losing a spouse can involve a substantial decrease in income, which could affect the financial stability of the household. We evaluate the impact of this loss on various types of income: labor income, capital income, disposable income of the surviving spouse, and the total disposable income of the household. Our analysis aims to determine whether loss of income or pension of one spouse could lead to financial problems or whether this is, at least, partially compensated for by an increase in the labor supply of the surviving spouse.

Figure 5 Panel A shows the impact on the logarithm of the surviving spouse's labor income. We show results for spouses below and in retirement age, since the possibility to increase labor supply might be more challenging for retirees. We observe a relatively modest decline of approximately 7.5% during the year in which the shock occurs. Interestingly, this effect is transitory for younger spouses; it neutralizes back to zero after two years and persistent for older spouses. This finding differs from that of Fadlon and Nielsen (2021), which report a positive response to the labor supply of surviving spouses.[14] Therefore, in our context, self-insurance through increased labor supply does not appear to be a crucial insurance mechanism.

Panels B-D explore the impact on the surviving spouse's capital income, disposable income, and the household disposable income. The results are similar for both age groups.

[14] The results are stable to using the same age restriction as in Fadlon and Nielsen (2021), where the deceased was between 45 and 80 years of age at the time of death.

There is an increase in capital income of approximately 40% in the year of the initial shock, which increases in the following year. Although part of this increase could be a mechanical effect, originating from spousal inheritance, it could also be attributable to liquidation of assets to compensate for the loss of income. The combined effect on labor income and capital income results in a positive effect on the spouse's disposable income. However, at the household level this increase is insufficient to counterbalance the losses in labor and pension income triggered by the death of the spouse; Household disposable income decreases by approximately 50% for younger spouses and 60% for older ones at the years of the shock.

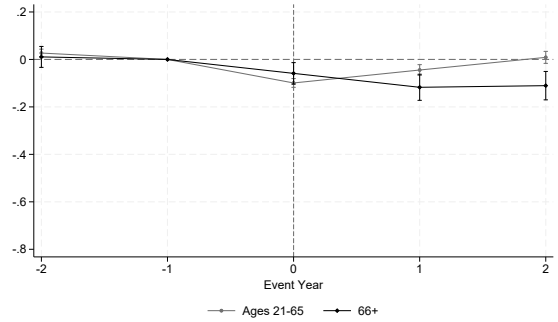
Table 5 presents the average treatment effects for spouses of working age in Panel A and above working age in Panel B. Columns 1-4 show the estimates for each income measure. All estimates are significant at the 1% level. For older spouses, labor income decreases by 10% compared to 6% for younger spouses. Both groups have positive capital income effects between 60-70%. Together, these effects translate into a positive impact on disposable income between 26-29%. Although the disposable income of the spouse increases, household disposable income decreases. For younger spouses by 41% and for older spouses by 53%. That household income decreases by more than 50% for older households, despite increases in capital income, points to the likelihood that the primary earner often dies first. In fact, in the older population, the primary earner was the deceased in 60% of the cases. This contrasts with younger households, where it is equally likely that the deceased has been either the primary or secondary earner. Furthermore, this finding lends credence to the notion that income loss could be a plausible driver for the observed increase in financial defaults following the loss of a spouse.

In Appendix B.2, we further validate these findings by demonstrating that they are robust when income is expressed in levels. However, the difference in labor income is more prominent between younger and older spouses. For older spouses, the effect is close to zero when spouses with no labor income are included in the analysis; in line with most of the older spouses already being retired. However, for younger ones, labor income decreases by 15,000 SEK (US$ 1586) in the event year, but recovers at the end of the

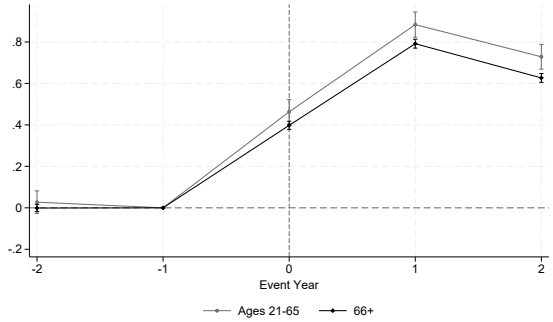
period. Household disposable income decreases by between 119,000-151,000 SEK (US$ 13,000-16,000).

In line with the income loss being larger for older spouses, we find that the risk of defaulting is higher for older spouses. Appendix Table B.1 shows the main effect and its decomposition for spouses of working age and older. The probability of receiving a claim is 15% for younger spouses and 40% for older ones, and the probability of enforced debt collection is 20% for younger spouses and 50% for older spouses.

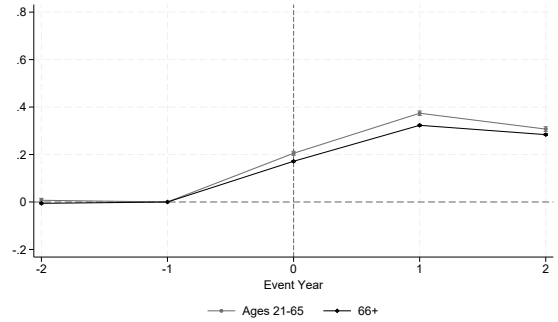
Figure 5: **The Effect on Labor, Capital and Disposable Income for Spouses Above or Below Retirement Age.** The figure plots the coefficient estimates of the effect of a fatal health shock on the logarithm of A. labor income of the spouse, B. capital income of the spouse, C. disposable income of the spouse, and D. household disposable income. Spouses below and above retirement age is defined at the time of death. Income is expressed in constant (2019) prices and thousand SEK. The regressions are specified as in Equation 1. Standard errors are clustered at the household level.



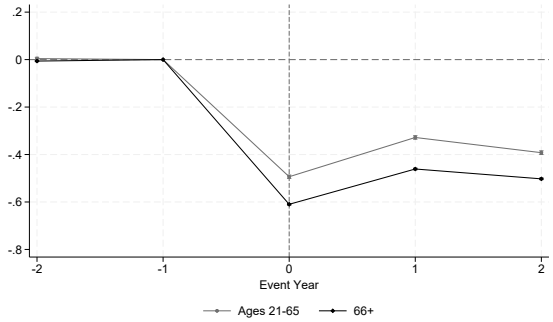
A. Log(Labor Income) (Spouse)



B. Log(Capital Income) (Spouse)



C. Log(Disposable Income) (Spouse)



D. Log(Disposable Income) (Household)

Table 5: **The Effect of a Fatal Health Event on the Income Change of the Surviving Spouse and the Household.**

	(1) Log(Labor Income)	(2) Log(Capital Income)	(3) Log(Disposable Income)	(4) Log(Hh. Disposable Income)
Panel A: Age 21-65				
Treat × Post	-0.061***	0.697***	0.291***	-0.407***
	(0.009)	(0.022)	(0.004)	(0.003)
R^2	0.089	0.066	0.121	0.153
Observations	277,388	135,774	398,183	402,333
Mean in t=-1	5.356	2.122	5.320	6.123
Panel B: Age 66+				
Treat × Post	-0.101***	0.600***	0.257***	-0.526***
	(0.021)	(0.007)	(0.001)	(0.001)
R^2	0.113	0.052	0.228	0.268
Observations	98,518	849,266	1,406,113	1,406,727
Mean in t=-1	2.979	1.574	4.929	5.743

Note: This table provides estimates for the impact of a fatal health shock on the income of the surviving spouse and the household by groups of spouses above or below retirement age. Columns 1-4 present results on four metrics: 1) labor income; 2) capital income; 3) disposable income and 4) the household disposable income. The pre-event mean income is the treatment mean in 1999, presented in thousand SEK. Incomes are adjusted to constant prices (2019). Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

To assess whether income loss is the driving factor of our main findings, we examine households based on the extent of their income loss. Similarly 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 $t = -2$.

We employ a triple-difference estimator to calculate the difference in treatment effects between the two subgroups. Figure 6 Panel A illustrates that household disposable income decreases almost 30% more when the surviving spouse is a secondary earner compared to when they are the primary earner.

Given this larger income loss for secondary earners, one would expect them to have a higher likelihood of defaulting on debts. However, contrary to this expectation, Panel B does not reveal significant differences in debt collection of large debts between the two groups.

Does this mean that income loss or available financial resources, in general, are not important factors in shaping the risk of default? To further investigate this question,

we examine the availability of other resources in addition to income. Those with less income might be more susceptible to default risk if they do not have access to other financial resources to use as insurance against income loss. The main asset category for most households is housing. Therefore, we investigate the likelihood of selling one's home and becoming a renter. In line with the idea of leveraging housing wealth as a form of self-insurance, our findings reveal that spouses who suffer a larger loss of income are considerably more inclined to liquidate housing wealth. Specifically, Panel C shows that the probability of selling one's home is 5% higher for secondary earners compared to primary earners in the event year. Although selling a home may be a somewhat mechanical response to having one fewer person in the household, there is no reason to believe that there should be a mechanical difference in the probability of liquidating housing wealth between these two groups. Instead, this variation points to distinct behavioral responses and suggests that wealth is an important factor for default responses.

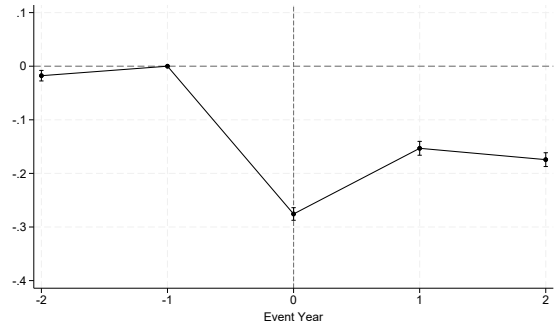
In Panel D, we investigate whether the labor supply responses differ by secondary and primary earners. The results show a positive differential effect, indicating that secondary spouses decrease their labor supply less than primary earners following the loss of a spouse. This is in line with primary earners having more initial resources, which allows them to cut back more on work following the death of a spouse.

Table 6 presents the average treatment effects for spouses classified as secondary earner and primary earner in Columns 1 and 2, respectively. Furthermore, Columns 3-4 present the results for surviving spouses that are either female or male. Secondary earners and women lose about 60% of household income when a spouse dies, while men and primary earners lose about 40% on average. While the effect on the probability of debt collection of large debts is similar across the groups, the probability of becoming a renter is almost twice for women and secondary earners compared to men and primary earners. Labor income for primary earners decreases by approximately 14% following the loss of a spouse, whereas it does not decrease for secondary earners. In contrast, labor income for women is reduced more than for men - 11% compared to 7%.

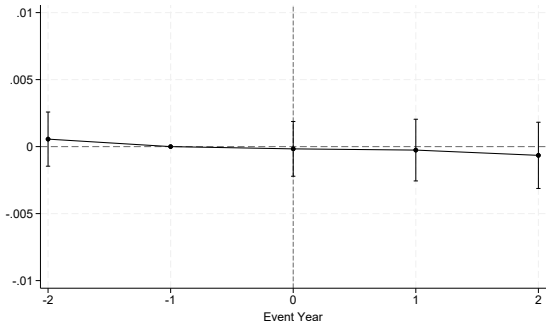
Figure B.2 in Appendix B.3 shows that the evolution of the differential effect between

women and men is very similar to that between secondary and primary earners, in line with men more often being the primary earner in the household.

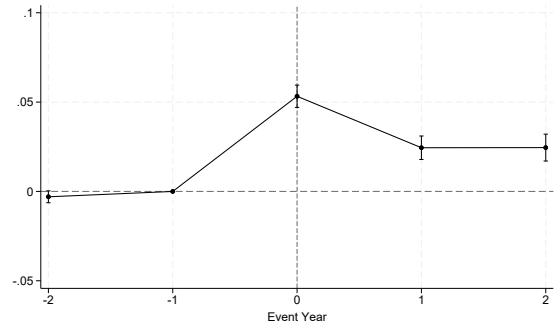
Figure 6: **The Differential Effects of Fatal Shocks on Secondary Compared to Primary Earners.** The figure plots the triple coefficient estimates and 95% confidence intervals of the differential effect of a fatal health shock between spouses defined as secondary compared to primary earners in the household on A. the logarithm of household disposable income, B. the probability of enforced debt collection of relatively large claims, C. the probability of being a renter and D. the logarithm of labor income. Income is expressed in constant prices (2019). The regressions include the same controls and fixed effects as in Equation 1.



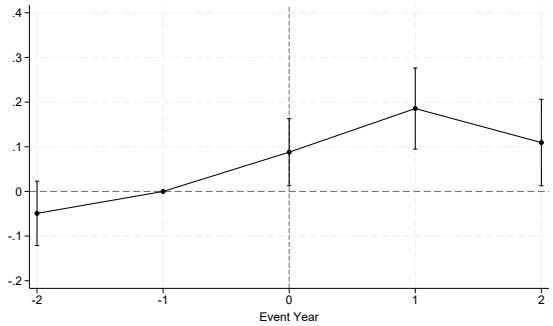
A. Log(Household Disposable Income)



B. Debt Collection of Large Debts



C. Being a Renter



D. Log(Labor Income)

Table 6: **The Effect of a Fatal Health Event on Subgroups of Surviving Spouses with Different Expected Income Loss.**

	(1) Secondary	(2) Primary	(3) Female	(4) Male
Panel A: Log(Hh. Disposable Income)				
Treat × Post	-0.588***	-0.394***	-0.555***	-0.403***
	(0.0030)	(0.0032)	(0.0028)	(0.0037)
R^2	0.304	0.261	0.299	0.266
Observations	285,932	215,478	339,207	162,203
Mean in t=-1	442.599	460.449	446.664	457.409
Panel B: Debt Collection Large				
Treat × Post	0.001***	0.002**	0.001***	0.002**
	(0.0005)	(0.0006)	(0.0004)	(0.0007)
R^2	0.008	0.009	0.008	0.007
Observations	286,868	215,904	340,094	162,678
Mean in t=-1	0.003	0.005	0.004	0.005
Panel C: Probability Being a Renter				
Treat × Post	0.091***	0.055***	0.093***	0.039***
	(0.0020)	(0.0022)	(0.0019)	(0.0024)
R^2	0.039	0.033	0.038	0.033
Observations	286,847	215,904	340,082	162,669
Mean in t=-1	0.257	0.241	0.254	0.243
Panel D: Log(Labor Income)				
Treat × Post	0.020	-0.136***	-0.114***	-0.066**
	(0.0281)	(0.0212)	(0.0209)	(0.0294)
R^2	0.411	0.376	0.355	0.413
Observations	41,218	65,592	69,456	37,354
Mean in t=-1	26.005	78.805	43.082	59.468

Note: This table provides estimates for the impact of a fatal health shock on subgroups of surviving spouses with different expected income loss. Columns 1-4 show the effects for each subgroup: 1) secondary income earners; 2) primary income earners, 3) females and 4) males. Panel A-D presents results on four metrics: A. the logarithm of household disposable income, B. the probability of being subjected to debt collection of large claims, C. the probability of being a renter and D. the logarithm of labor income.. A spouse is defined as the primary earner if they contribute more than 50% of the total average disposable income of both spouses in the three and two years preceding the death. The pre-event mean is the treatment mean in 1999, income is presented in thousand SEK. Incomes are adjusted to constant prices (2019). Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.2.4 The Impact of Housing Wealth

To delve deeper into the role of housing in default responses, we categorize households based on their homeownership status. Specifically, we classify households as renters if

they were renting their home two years prior to the shock. Similarly, households are classified as homeowners if they owned a home at that time.

Figure 7 displays the estimates derived from a dynamic difference-in-differences regression, illustrating the evolution of the effect on the probability of receiving a claim separately for renters and homeowners. The graph provides supporting evidence for the assumption of parallel trends, with no statistically significant differences in pre-event trends. For both groups, there are significant positive point estimates at the event year, but the size is almost twice as large for renters, indicating that spousal death increases default risk more for renters compared to homeowners.

Table 7 presents the average treatment effects for renters in Panel A and homeowners in Panel B. Specifically, Columns 1-4 examine the main effect and its decomposition, and column 5 presents impacts on household disposable income. For both groups, fatal shocks increase the risk of not meeting their financial obligations on time. The coefficient estimate on the probability of receiving a claim is almost twice as large for renters, but smaller in percentage terms due to a relatively higher pre-event mean, with an increase of 25% compared to 33% for homeowners. However, there is a striking difference in the probability of debt collection. For homeowners, there is a precisely estimated zero impact; showing that they manage to immediately settle the claim, whereas for renters, the risk of debt collection increases by 56%. In line with previous results, there is no risk of facing debt collection of small claims. That renters are able to pay small but not large claims indicates that they are facing real financial problems. Column 4 focuses on log(household disposable income). Interestingly, the average income loss between these groups is relatively similar, around 50%. This indicates that differences in income loss are not driving differences in default behavior between groups.

Figure 7: **The Effects of Fatal Shocks on the Probability of Receiving a Claim by Renters and Homeowners.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a fatal health shock by spouses defined as renters compared to homeowners on the probability of receiving a claim from the SEA. The regressions are specified as in Equation 1.

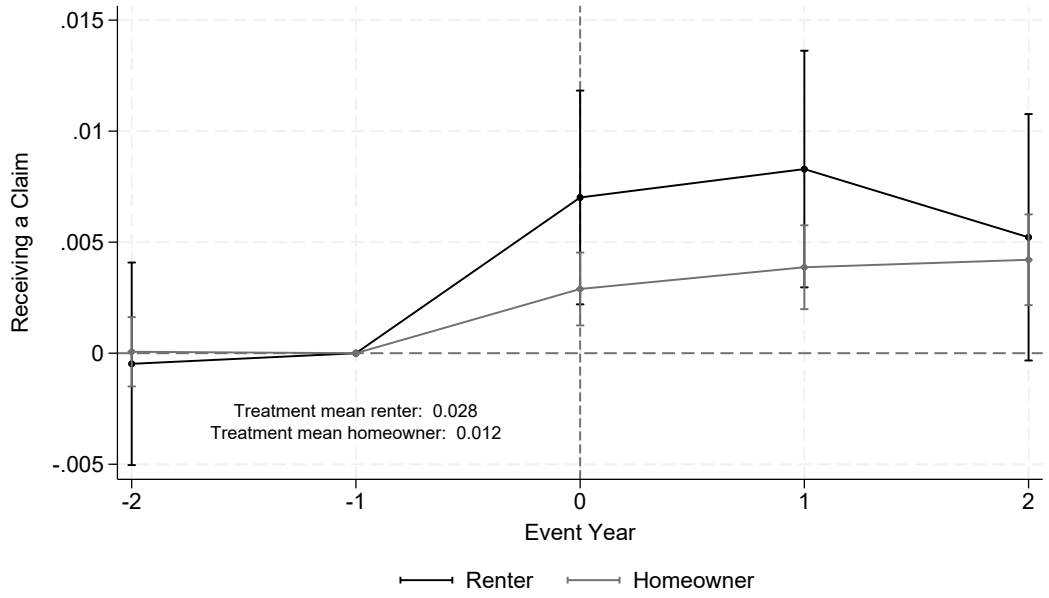


Table 7: **The Main Effect, its Decomposition and impact on Disposable Income by Renters and Homeowners.**

	(1) Receive Claim	(2) Repaying All	(3) Debt Collection (L)	(4) Debt Collection (S)	(5) Log(Hh Disposable Income)
Panel A: Renters					
Treat × Post	0.007***	0.002*	0.005***	-0.001	-0.551***
	(0.0019)	(0.0012)	(0.0012)	(0.0010)	(0.0039)
R^2	0.033	0.010	0.017	0.009	0.326
Observations	108,433	108,433	108,433	108,433	108,197
Mean in t=-1	0.028	0.011	0.009	0.008	5.767
Panel B: Homeowners					
Treat × Post	0.004***	0.003***	0.000	-0.000	-0.493***
	(0.0007)	(0.0005)	(0.0003)	(0.0003)	(0.0026)
R^2	0.011	0.005	0.005	0.002	0.283
Observations	394,339	394,339	394,339	394,339	393,213
Mean in t=-1	0.012	0.006	0.003	0.003	5.964

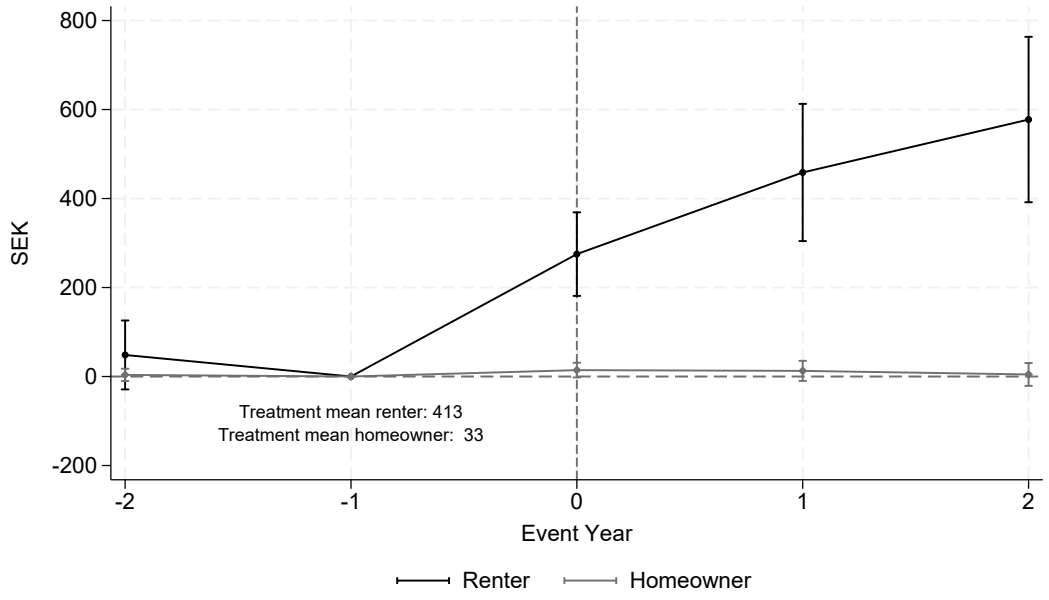
Note: This table provides estimates for the impact of a fatal health shock on 2 subgroups of surviving spouses; renters and homeowners. A surviving spouse is defined as a renter/homeowner if they rented/owned their home two years before the death. Panel A shows the effect for surviving spouses that are renters and Panel B for surviving spouses that are homeowners. Columns 1-5 present results on five metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of immediately repaying the claim; 3) the probability of being subjected to enforced debt collection of large claims, 4) the probability of being subjected to enforced debt collection of small claims, and 5) the log of household disposable income. The pre-event mean is the treatment mean in 1999, income is presented in thousand SEK. Incomes are adjusted to constant prices (2019). Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

To further explore the impact on the financial well-being of these groups, we investigate the changes in social benefits received. Social benefits are a form of financial support

provided by the government to individuals and families who are unable to meet their basic needs due to insufficient income or resources. These benefits are administered by municipal social services and aim to ensure a reasonable standard of living and support for those in financial distress.

Figure 8 shows the dynamic treatment effect on social benefits for renters and homeowners. There are no pre-trends in this outcome for any group, but there is a clear impact of the event for renters in the year of death. In Sweden, when a spouse dies, poor individuals can receive "begravningshjälp" (funeral assistance) from the government to help cover funeral costs. However, the effect is not limited to the year of death; rather, it increases over time, indicating that renters have an increased risk of living below the minimum standard of living and needing continuous financial assistance. On average, the post-event impact is roughly 400 SEK ($US 42), which implies an increase close to 100% compared to the pre-event mean for renters.

Figure 8: **The Effects of Fatal Shocks on the Social Benefit by Renters and Homeowners.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a fatal health shock by spouses defined as renters compared to homeowners on the received social benefit. Social benefit is expressed in SEK and constant prices (2019). The regressions are specified as in Equation 1.



Furthermore, our analysis demonstrates that both homeowners and renters respond to the loss of a spouse by relocating to different neighborhoods. These results are presented

in Appendix B.4 (Figure B.3 and Table B.3). Even those who maintain their homeownership status throughout the observed period are more likely to relocate. Although the decision to remain homeowner could be endogenous to the health shock, this behavior suggests a strategy of downsizing; renters may be seeking to reduce their monthly rental payments, while homeowners could be aiming to liquidate a portion of their housing wealth.

5.3 Impact on Children

Next, we shift our focus to the children of the surviving spouses. The financial consequences of spousal death can extend beyond the immediate couple and affect the financial stability of adult children in several ways. First, children may be financially obligated to support a surviving parent who has experienced a substantial loss of household income. Second, a parent who was previously able to provide financial support to their children may no longer have the means to continue doing so after the loss.

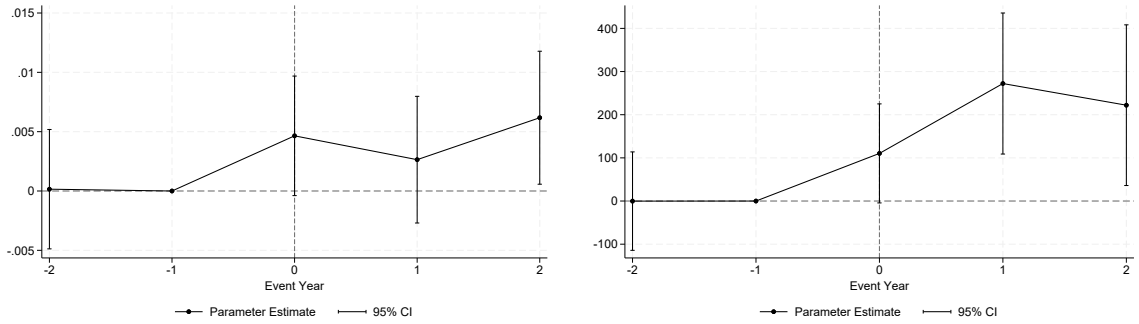
We focus on the children of the surviving spouse rather than those of the deceased for two key reasons. First, examining the surviving spouse's children allows us to capture the possibility that they may need to financially support a surviving parent. Second, focusing on the children of the surviving spouse minimizes the potential confounding effect of inheritance, as the default legal structure in Sweden dictates that the surviving spouse inherits the entire estate.

Having established that the main effect is driven by those with less wealth, and especially renters, we analyze the effect on the adult children of these two groups of surviving spouses. Figure 9 shows the evolution of the differential effect of children of renters compared to children of homeowners. Panel A displays the differential impact on the probability of receiving a claim, and Panel B on social benefits. In both cases, the pre-event estimate is zero and there is an immediate increase at the event year, supporting a causal interpretation of the death leading to children of renters facing relatively more financial problems.

Table 8 presents the average triple difference estimates on the main effect, its de-

composition, and social benefits. Children of renters experience a 0.4 percentile points higher probability of receiving a claim compared to children of homeowners. There is no significant difference in the probability of immediately repaying a claim; however, the probability of facing debt collection increases by 0.3 percentage points more for children of renters compared to children of homeowners. Moreover, children of renters receive on average 200 SEK ($US 21) higher social benefits compared to children of homeowners due to the event. These findings suggest a transmission of financial distress between generations, particularly within families where the surviving spouse has less access to financial resources.

Figure 9: **The Differential Effect of a Fatal Shocks on the Probability of Having a Claim and Social Benefits Between Children of Renters and Homeowners.** The figure plots the triple coefficient estimates and 95% confidence intervals of the differential effect of a fatal health shock between children of spouses defined as renters compared to children of spouses defined as homeowners on A. the probability of receiving a claim from the SEA, and B. the social benefit in SEK. Social benefit is expressed in constant prices (2019). The regressions are specified as in Equation 1.



A. Receiving a Claim

B. Social Benefit

Table 8: **The Differential Effect of a Fatal Health Event on Debt Default of the Children of Renters Compared to Homeowners.**

	(1) Receiving a Claim	(2) Repaying All	(3) Debt Collection	(4) Social Benefit
Renter × Treat × Post	0.004**	0.001	0.003**	202.118***
	(0.0019)	(0.0015)	(0.0015)	(71.7834)
R^2	0.009	0.002	0.009	0.004
Observations	956,990	956,990	956,990	956,990

Note: This table provides estimates for the differential impact of a fatal health shock on the children of surviving spouses that were renters compared to homeowners. Columns 1-3 present results on three metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of immediately repaying the claim; 3) the probability of being subjected to enforced debt collection; and 4) received social benefit in SEK. Social benefit is expressed in constant prices (2019). Regressions are specified as in Equation 2. Standard errors are clustered at the parent level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

6 Default Responses to Nonfatal Health Events

In this section, we investigate the financial implications of experiencing a nonfatal health event, such as a heart attack, stroke, or injury. These events are generally considered unexpected and can place a significant strain on household finances. Building on our findings related to fatal health events, we explore whether resource constraints might act as a mechanism that influences default behavior after a nonfatal health event.

6.1 Income Loss

Studying nonfatal shocks allows us to more precisely isolate the impact of income loss on the probability of default. To do so, we start by studying households where the individual experiencing the shock is retired. Working-age individuals typically transition from regular income to a reduced sickness insurance benefit when faced with a health shock. Retirees, on the contrary, maintain consistent pension payments during illness, thereby experiencing no negative shock to income. This is in contrast to the fatal shocks studied above, where essentially no one is fully insured against the loss in income following the death of a spouse. We focus on three key metrics: household disposable income, the probability of receiving a debt claim from the SEA, and the probability of debt collection of large claims.

Table 9 confirms the expectation that retirees have no income loss following a nonfatal health shock.[15] Column 1 reveals that the estimate on household disposable income for retirees is close to zero and insignificant. Consequently, as we show in Columns 2-3, there is no increased probability of receiving a debt claim and of debt collection of large claims, these coefficient estimates are precisely zero. This strongly suggests that a nonfatal health shock does not increase the risk of default when household income is fully insured and that inattention does not seem to be an important mechanism. Based on this finding, we focus on households where the sick spouse was of working age, under the age of 66 when

[15] We define retirees as those above age 65 at the time of death and that had no labor income two years before the shock, at age 64. The default retirement age is 65, but the old age pension can be claimed already at age 63. The results are identical if we restrict the sick individual to being older than 68 years at the time of the shock that had no labor income two years before the shock, at age 66.

the shock occurred.

Table 9: **The Effect of a Nonfatal Health Event on Retirees.**

	(1) Log(Hh. Disposable Inc.)	(2) Receive a Claim	(3) Debt Collection (Large)
Treat × Post	-0.005	0.000	-0.000
	(0.0036)	(0.0011)	(0.0006)
R^2	0.091	0.005	0.003
Observations	131,674	132,193	132,193
Mean in t=-1	475.750	0.014	0.004

Note: This table provides estimates for the impact of a nonfatal health shock on households where the sick individual is retired. We define a sick individual as retired if they were at least 66 years old at the time of the shock and had no labor income two years prior to the shock. Columns 1-3 present results on three metrics: 1) the probability of receiving a financial claim from the SEA; 2) the probability of immediately repaying the claim; and 3) the probability of being subjected to enforced debt collection of large claims. The pre-event mean income is the treatment mean in 1999, presented in thousand SEK. Incomes are adjusted to constant prices (2019). The regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

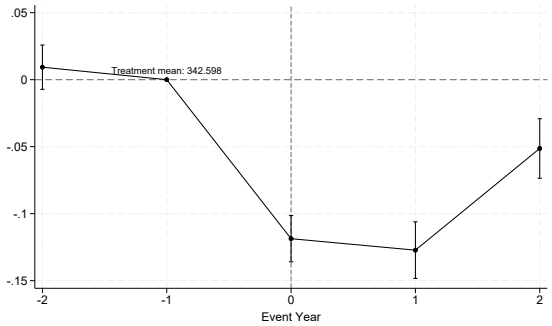
Depending on the lasting effects of a health shock, individuals may temporarily or permanently withdraw from the labor market, resulting in decreased labor income. This financial stress on a household can be exacerbated if the spouse also reduces work hours to provide care. However, the spouse may also opt to increase their labor supply as a form of self-insurance to offset the income loss. Figure 10 delineates the impact of a nonfatal health event on labor income for both the spouse and the sick individual. Panel A focuses on the individual who undergoes the health event, revealing a significant reduction in labor income of more than 10% in the year immediately after the health shock. Importantly, this decline shows signs of recovery two years after the event when the size of income reduction is halved, indicating a return to labor market activities. Panel B, which focuses on the spouse, shows no sign of any labor market response.

In Table 10 we show the average impact of the health shock on different income measures for both the sick individual and the spouse. Columns 1-3 present results on labor income, capital income, disposable income at the individual level, and Column 4 on household disposable income. Household disposable income can differ between spouses since not all couples are married throughout the period. As shown above, the health event significantly reduces the labor income of the sick individual by 10%, but there is no significant impact on the spouse. For the sick individual, there is a reduction in disposable income of 2%, indicating that the welfare system does not fully cover the reduction in labor income. For both spouses, household disposable income experiences a decrease of

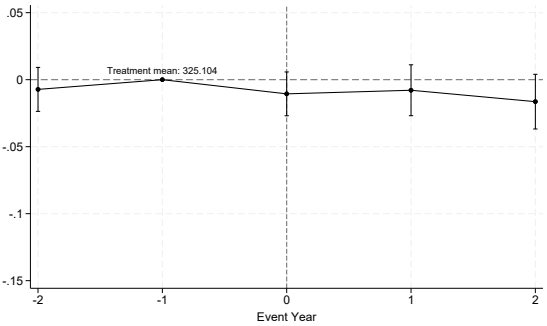
5%, attributed to the decrease in labor earnings of the individual who experienced the health event. Compared to the drastic 50% reduction in income observed after fatal health events, this is a relatively modest decrease.

In Appendix Table C.1 we show that the results are consistent when income is expressed in levels. On average, household disposable income decreases by roughly 57,000 SEK (US$ 6025), which corresponds to a decrease of 7% from the pre-event mean. Furthermore, Table C.2 shows that the effects are similar for different types of diagnosis, specifically separating heart attacks and strokes from injuries.

Figure 10: **The Effect of a Nonfatal Health Shock on Log(Labor Income).** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a nonfatal health shock on the logarithm of labor income of A. the sick individual, B. the household. Income is expressed in constant (2019) prices and thousand SEK. The regressions are specified as in Equation 1. Standard errors are clustered at the household level.



A. Labor Income (Sick Individual)



B. Labor Income (Spouse)

Table 10: **The Effect of a Nonfatal Health Event on the Income Change of the Sick Individual and the Spouse.**

	(1) Log(Labor Income)	(2) Log(Capital Income)	(3) Log(Disposable Income)	(4) Log(Hh. Disposable Income)
Panel A: Sick Individual				
Treat × Post	-0.104***	-0.033	-0.021***	-0.053***
	(0.008)	(0.030)	(0.004)	(0.003)
R^2	0.074	0.055	0.073	0.093
Observations	219,621	68,037	265,449	267,805
Mean in t=-1	342.598	44.585	364.215	775.291
Panel B: Spouse				
Treat × Post	-0.008	0.014	0.004	-0.054***
	(0.007)	(0.031)	(0.004)	(0.003)
R^2	0.127	0.069	0.109	0.095
Observations	221,600	66,025	265,503	267,985
Mean in t=-1	325.104	68.223	367.036	775.263

Note: This table provides estimates for the impact of a nonfatal health shock on the income of the sick individual and the spouse. Columns 1-4 present results on four metrics: 1) the logarithm of labor income; 2) the logarithm of capital income; 3) the logarithm of disposable income and 4) the logarithm of the household disposable income. Incomes are adjusted to constant prices (2019). The pre-event mean income is the treatment mean in 1999, presented in thousand SEK. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

6.2 Default Behavior

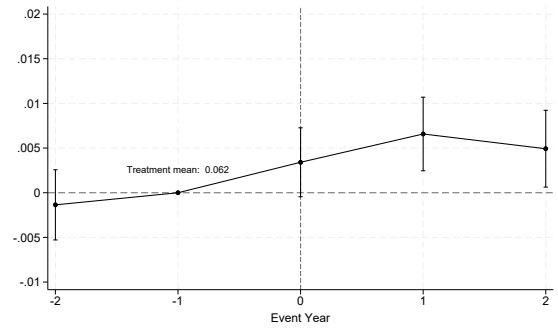
In this section, we investigate whether a nonfatal health shock impacts the default behavior of households. Since financial claims are individual, a claim at the household level indicates that at least one spouse in the household received a claim from the SEA.

Figure 11 presents the effects of a nonfatal health event on the main outcome; the probability of receiving a claim; and its decomposition; the probability of repaying it all immediately or having enforced collection collection of relatively small or large claims. The graph in Panel A shows that there is an increased risk of receiving a claim from the SEA following a nonfatal health event. Furthermore, as with fatal shocks, households typically manage to repay small dues (see Panel B), thus avoiding enforced debt collection (see Panel D). However, as shown in Panel C, for larger debts, the repayment is not as straightforward, resulting in an increased risk of enforced debt collection. Once again, this observation contradicts the notion of inattention as the primary driving force, since we would then expect repayment behavior to remain consistent regardless of debt size. Unlike the persistent impact of fatal health events, the impact of nonfatal health shocks appears to be temporary. This aligns with the effect on the sick individual's labor earnings, which shows substantial recovery after two years.

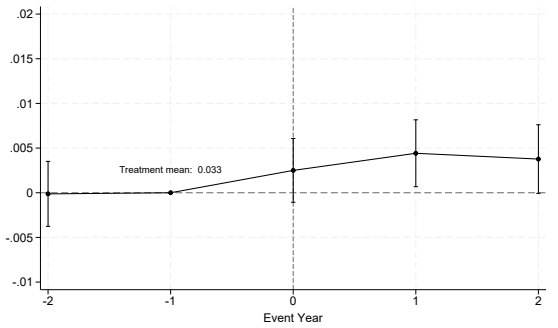
Table 11 shows the average treatment effects of households on these four outcomes. At the household level, the probability of receiving a claim increases by 0.6 percentage points. In 66% of these cases, the claim is immediately repaid and in 33% of the cases the household faces debt collection of relatively large claims.

Compared to a fatal health shock, the risk of default after a nonfatal shock is smaller, which is in line with the income loss also being less pronounced. A nonfatal shock increases the household risk of receiving a claim by almost 10%, compared to 25% for a fatal shock. The effect on the risk of collection of large debts increases by 11% after a nonfatal shock, compared to 25% after a fatal one.

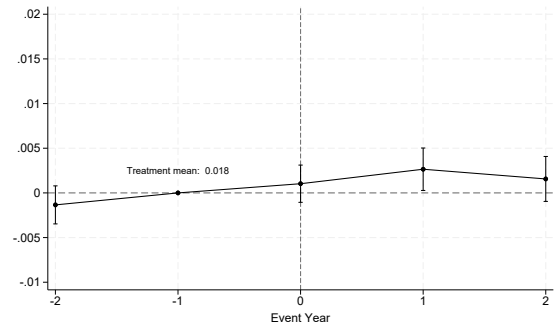
Figure 11: **The Main Effect of a Nonfatal Health Event and its Decomposition.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a nonfatal health shock on the probability of the Household to A. receive a claim, B. repaying the total amount and C. having enforced debt collection of relatively large claims and D. having enforced debt collection of relatively small claims. Since claims are reported at the individual level the outcomes at the household level indicates that either one of the spouses received a claim. The regressions are specified as in Equation 1. Standard errors are clustered at the household level.



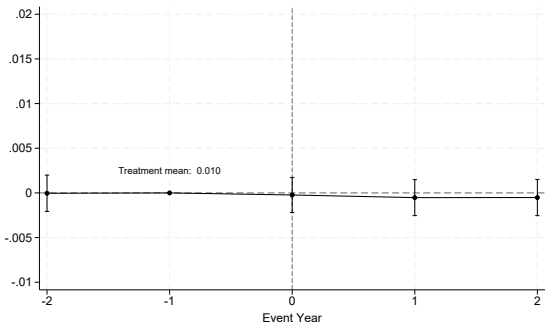
A. Receiving a Debt Claim (Household)



B. Re-paying all Debt (Household)



C. Debt Collection of Large Debts (Household)



D. Debt Collection of Small Debts (Household)

Table 11: **The Main Effect of a Nonfatal Health Event and its Decomposition, Average Post-Event Estimates.**

	Receive Claim	Repaying All	Debt Collection (Large)	Debt Collection (Small)
Treat × Post	0.006***	0.004***	0.002***	-0.000
	(0.0015)	(0.0013)	(0.0009)	(0.0007)
R^2	0.017	0.006	0.009	0.003
Observations	268,882	268,882	268,882	268,882
Mean in t=-1	0.062	0.033	0.018	0.010

Note: This table provides estimates for the impact of a nonfatal health shock on the household. Columns 1-4 present results at the household level on four metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of immediately repaying the claim; 3) the probability of being subjected to enforced debt collection of large claims and 4) the probability of being subjected to enforced debt collection of small claims. Since claims are reported at the individual level the outcomes at the household level indicates that either one of the spouses received a claim. The pre-event mean is the treatment mean in 1999. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

6.3 The Impact of Housing Wealth

For fatal shocks, we established that housing wealth is a crucial insurance mechanism for households. In this section, we study whether it is also important in the context of a nonfatal health event.

Table 12 provides an investigation of this mechanism. Panel A presents the effects on renters and Panel B on homeowners. Column 1 shows that the probability of receiving a claim due to a nonfatal health shock increases for both renters and homeowners, but the risk increases more for renters by 13% compared to 8% for homeowners. Almost half of these claims are immediately repaid by renters while homeowners pays of 75% of their claims. Consequently, the risk of facing debt collection increases more for renters. However, there is no impact on debt collection of relatively small claims, as shown in Column 4.

In Column 3, we show that nonfatal shocks significantly increase the risk of debt collection of large debts for both groups, but the impact is greater for renters, with an increase of 17%. For homeowners, the estimate is measured with less precision, significant only at the 10%-level, and the effect translates to an increase of 8%. This suggests that, just as with a fatal health shock, homeownership is an important self-insurance mechanism, although housing appears less predictive of default. This might be due to the more temporary nature of these income shocks. Selling one's home to cover income losses could be crucial if the income loss is permanent but avoidable if one is just facing

a few years hardship.

The results in column 5 reveal that renters experience a relatively larger drop in disposable income than homeowners. However, the difference is small, with a drop of 8% for renters and 5% for homeowners. Moreover, compared to the response after a fatal health shock, these effects are relatively modest.

Table 12: **The Effect of a Nonfatal Health Event on Renters and Homeowners.**

	(1) Receive Claim	(2) Repaying All	(3) Debt Collection (L)	(4) Debt Collection (S)	(5) Log(Hh Disposable Income)
Panel A: Renter					
Treat × Post	0.016***	0.007*	0.008**	0.001	-0.081***
	(0.0048)	(0.0038)	(0.0036)	(0.0026)	(0.0086)
R^2	0.020	0.005	0.011	0.005	0.059
Observations	47,151	47,151	47,151	47,151	46,842
Mean in t=-1	0.122	0.051	0.047	0.025	526.382
Panel B: Homeowner					
Treat × Post	0.004**	0.003**	0.001*	-0.001	-0.049***
	(0.0015)	(0.0013)	(0.0008)	(0.0006)	(0.0032)
R^2	0.011	0.005	0.006	0.002	0.090
Observations	221,731	221,731	221,731	221,731	221,143
Mean in t=-1	0.049	0.030	0.012	0.007	829.039

Note: This table provides estimates for the impact of a fatal health shock on 2 subgroups of households; renters and homeowners. A household is defined as renter/homeowner if it rented/owned their home two years before the death. Panel A shows the effect for households that are renters, and Panel B for households that are homeowners. Columns 1-5 present results on five metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of immediately repaying the claim; 3) the probability of being subjected to enforced debt collection of large claims, 4) the probability of being subjected to enforced debt collection of small claims, and 5) the log of household disposable income. The pre-event mean is the treatment mean in 1999, income is presented in thousand SEK. Incomes are adjusted to constant prices (2019). Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

7 Robustness Checks

7.1 Decomposing the Effect of Fatal Shocks on the Probability of Receiving a Claim into the Effect on Small and Large Claims.

In this section, we decompose the main effect into the probability of receiving relatively small and large claims. Since we do not find an increased risk of defaulting on relatively small claims, we want to ensure that this result is not driven by the absence of these claims.

The probability of receiving a claim is equally driven by small and large claims. Table 13 shows the main effect in Column 1 and the impact on the probability of receiving

relatively large claims in Column 2 and relatively small claims in Column 3. The incidence of small and large claims both increases equally by 0.2 percentage points. This supports our conclusion that relatively small claims are immediately repaid. The probability of defaulting on large claims increases by 0.1 percentage points, indicating that half of the large claims received are also repaid while the remainder are not. This is in line with our findings that homeowners manage to repay large claims, but renters do not.

Table 13: **Decomposing the Probability of Receiving a Claim into Small and Large Claims.**

	(1) Receive Claim	(2) Claims (Large)	(3) Claims (Small)
Treat × Post	0.004***	0.002***	0.002***
	(0.0007)	(0.0005)	(0.0005)
R^2	0.016	0.010	0.007
Observations	502,772	502,768	502,768
Mean in t=-1	0.016	0.006	0.010

Note: This table provides estimates for the impact of a fatal health shock on the surviving spouse. Columns 1-4 present results on three metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of receiving large claims and 3) the probability of receiving small claims. The pre-event mean is the treatment mean in 1999. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

7.2 Sudden Death

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

Table 14 shows the main effect and its decomposition for spouses whose partners' cause of death was not sudden in Panel A and sudden in Panel B. For both groups, the event significantly increases the risk of receiving a claim and entering debt collection of large debts, but not on smaller ones. However, the estimates and effects relative to the pre-event mean are larger for sudden deaths. The probability of receiving a claim increases by 27% when deaths are sudden, compared to 18% when they are non-sudden, and the probability of entering forced debt collection of large claims increases by 42% when deaths are sudden compared to 20% when they are not.

These findings are consistent with the notion that in the event of expected deaths, spouses might be prepared in advance to deal with the financial consequences. However, even in those cases, there is certainly not enough insurance and preparation for all surviving spouses

Table 14: **The Main Effect and its Decomposition by Sudden and Non-Sudden Deaths.**

	(1) Receive Claim	(2) Repaying All	(3) Debt Collection (L)	(4) Debt Collection (S)
Panel A: Non-Sudden Deaths Age 21-70				
Treat × Post	0.006***	0.005***	0.002**	-0.001
	(0.0018)	(0.0013)	(0.0011)	(0.0009)
R^2	0.013	0.006	0.005	0.003
Observations	126,304	126,304	126,304	126,304
Mean in t=-1	0.033	0.015	0.010	0.008
	Receive Claim	Repaying All	Debt Collection (L)	Debt Collection (S)
Panel B: Sudden Deaths Age 21-70				
Treat × Post	0.010***	0.006**	0.005**	-0.000
	(0.0035)	(0.0025)	(0.0021)	(0.0019)
R^2	0.024	0.007	0.014	0.006
Observations	39,601	39,601	39,601	39,601
Mean in t=-1	0.037	0.013	0.012	0.011

Note: This table provides estimates for the impact of a fatal health shock on the surviving spouse by sudden and non-sudden deaths. Sudden deaths are defined as heart attacks, strokes and injuries. Columns 1-4 present results on four metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of immediately repaying the claim; 3) the probability of being subjected to enforced debt collection of large claims and 4) the probability of being subjected to enforced debt collection of small claims. The pre-event mean is the treatment mean in 1999. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

7.3 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.[16] 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

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

entire period, resulting in the exclusion of approximately 4% of all observations.

Table 15 shows the results on the four main outcomes; probability of receiving a claim, of repaying all, and of debt collection of large and small claims. The results are identical to the main results, showing that compositional changes in the sample are not an important factor for our results.

Table 15: **The Main Effect of a Fatal Health Event and its Decomposition in the Sample of Spouses Surviving the Whole Period.**

	Receive Claim	Repaying All	Debt Collection (Large)	Debt Collection (Small)
Treat × Post	0.004***	0.003***	0.001***	-0.000
	(0.0007)	(0.0005)	(0.0004)	(0.0003)
R^2	0.016	0.006	0.008	0.004
Observations	483,286	483,286	483,286	483,286
Mean in t=-1	0.016	0.008	0.004	0.004

Note: This table provides estimates for the impact of a fatal health shock on the surviving spouse in sample of spouses surviving the whole period. Columns 1-4 present results on four metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of immediately repaying the claim; 3) the probability of being subjected to enforced debt collection of large claims and 4) the probability of being subjected to enforced debt collection of small claims. The pre-event mean is the treatment mean in 1999. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

8 Conclusion

This paper studies the effects of fatal and severe nonfatal health shocks on households' financial well-being, measured by defaults on financial obligations, within a context with essentially no health care costs or strategic motives for default.

We show that in the aftermath of a fatal health event, there is a notable increase of approximately 25-30% 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.

It is worth highlighting that 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 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.

Furthermore, our research yields similar, but smaller and more transient, 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.

Our findings collectively indicate that households, particularly those with limited financial resources, are inadequately protected against the financial consequences of health crises, resulting in enduring adverse consequences for their economic well-being.

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A Descriptives

A.1 Survivor's Pension Eligability

Figure A.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).

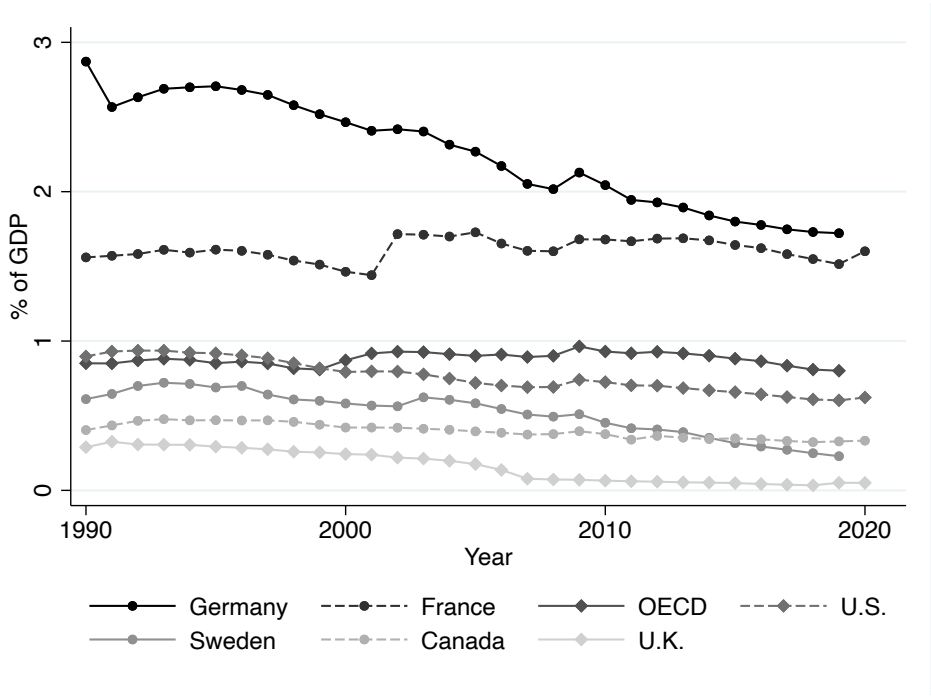


Table A.1: **Pension Eligability by Birth Year and Gender.**

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.2 Summary Statistics

We present summary statistics for the pre-event period for both the sample experiencing a fatal and nonfatal health event by year of the event, as indicated in the column header.

Tables A.2 and A.2 display mean values and standard deviations in parentheses for the sample with fatal and nonfatal health events, respectively. Reassuringly, the summary statistics illustrate the comparability between the treatment group (2016–2017) and the control group (2019–2020) in both samples.

Table A.2: **Summary Statistics for the Fatal Health Event Sample.**

	2016	2017	2019	2020
Age, Deceased Spouse	76	77	74	74
	(10.96)	(10.86)	(10.67)	(10.49)
Age, Surviving Spouse	74	75	72	72
	(10.85)	(10.79)	(10.62)	(10.60)
Female, Deceased Spouse	0.33	0.33	0.33	0.32
	(0.47)	(0.47)	(0.47)	(0.47)
Female, Surviving Spouse	0.67	0.67	0.67	0.68
	(0.47)	(0.47)	(0.47)	(0.47)
Some Higher Education, Surviving Spouse	0.22	0.23	0.25	0.25
	(0.42)	(0.42)	(0.43)	(0.43)
Some Higher Education, Surviving Spouse	0.22	0.23	0.25	0.25
	(0.42)	(0.42)	(0.43)	(0.43)
Disposable Income, Deceased Spouse	218.03	229.05	234.74	235.18
	(371.47)	(668.21)	(777.40)	(441.53)
Disposable Income, Surviving Spouse	204.63	210.99	215.75	232.49
	(369.39)	(496.13)	(300.94)	(2736.14)
Disposable Income, Household	435.12	452.20	461.70	480.06
	(590.51)	(884.61)	(872.75)	(2786.52)
Have a Claim, Deceased Spouse	0.02	0.02	0.02	0.02
	(0.13)	(0.13)	(0.13)	(0.14)
Have a Claim, Surviving Spouse	0.02	0.01	0.02	0.02
	(0.13)	(0.12)	(0.12)	(0.13)
Number of Claims (if receive claim), Deceased Spouse	2.36	2.58	2.51	2.47
	(2.78)	(2.87)	(3.11)	(2.80)
Number of Claims (if receive claim), Surviving Spouse	2.32	2.42	2.63	2.68
	(2.32)	(2.76)	(3.21)	(3.37)
Total Debt (if receive claim), Deceased Spouse	29.89	36.45	40.98	37.41
	(130.29)	(122.42)	(151.75)	(180.66)
Total Debt (if receive claim), Surviving Spouse	37.19	33.68	36.02	39.37
	(164.47)	(114.37)	(127.27)	(145.20)
Observations	52,129	50,366	48,810	53,142

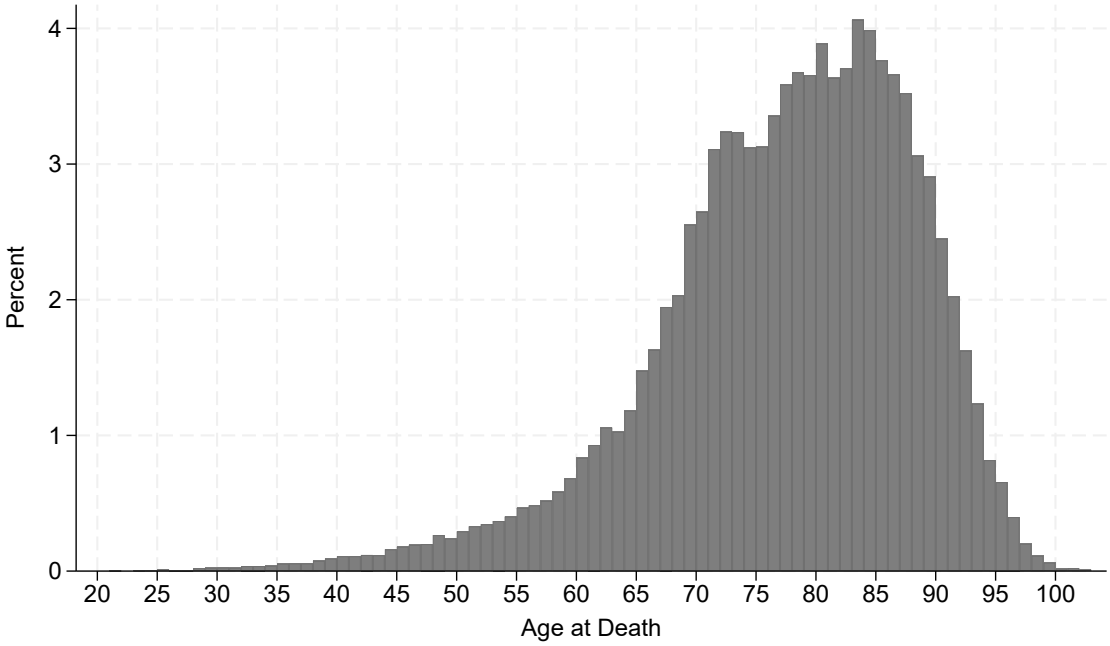
Note: The table presents summary statistics in the pre-event period by groups defined by year of the fatal health event. The table shows mean values in the two years preceding the event and standard deviations in parentheses. Column 1-2 show the results for each treatment group, experiencing a fatal health event in 2016 or 2017, and Columns 3-4 for each control group, experiencing a fatal health event in 2019 or 2020. Income and debt is expressed in constant (2019) prices and kSEK.

Table A.3: **Summary Statistics for the Nonfatal Health Event Sample.**

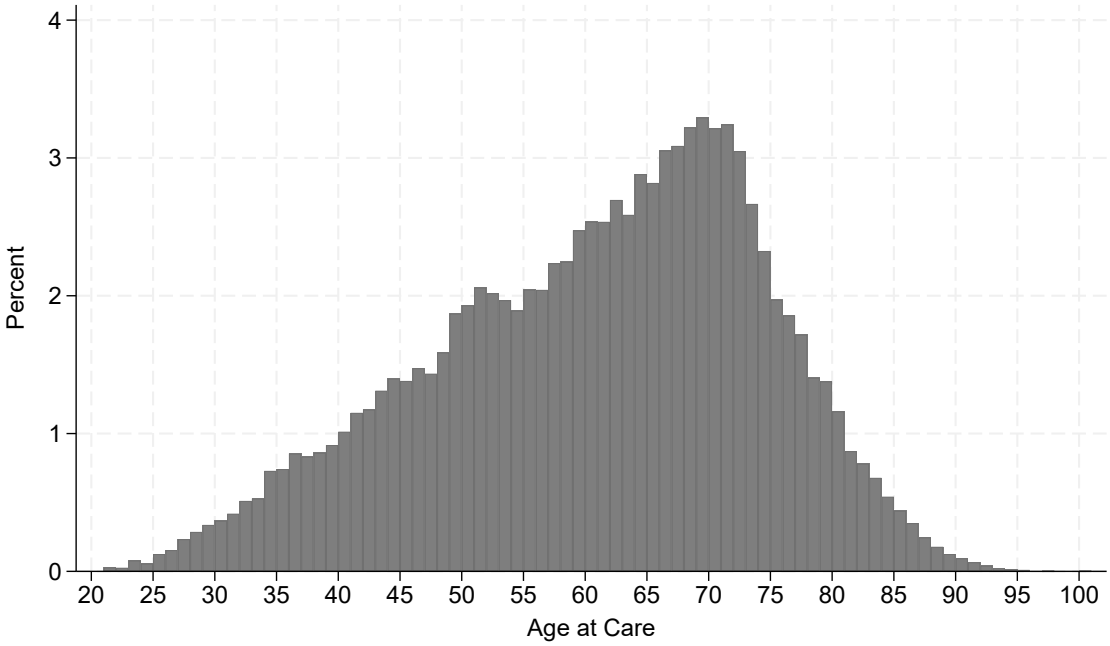
	2016	2017	2019	2020
Age, Sick Individual	60	60	58	59
	(13.41)	(13.41)	(13.44)	(13.55)
Age, Spouse	59	59	57	58
	(13.49)	(13.38)	(13.44)	(13.51)
Female, Sick Individual	0.37	0.37	0.37	0.37
	(0.48)	(0.48)	(0.48)	(0.48)
Female, Spouse	0.63	0.63	0.63	0.62
	(0.48)	(0.48)	(0.48)	(0.48)
Some Higher Education, Sick Individual	0.36	0.37	0.37	0.38
	(0.48)	(0.48)	(0.48)	(0.49)
Some Higher Education, Spouse	0.38	0.39	0.39	0.40
	(0.49)	(0.49)	(0.49)	(0.49)
Disposable Income, Sick Individual	313.02	327.26	330.71	334.83
	(487.69)	(855.83)	(834.96)	(836.98)
Disposable Income, Spouse	309.29	315.48	303.35	307.11
	(2679.03)	(1235.82)	(1152.98)	(426.91)
Household Disposable Income, Sick Individual	650.14	670.87	654.65	663.29
	(2735.83)	(1545.98)	(1447.42)	(985.01)
Household Disposable Income, Spouse	650.24	670.90	653.95	663.08
	(2735.81)	(1546.05)	(1448.40)	(986.14)
Have a Claim (if receive claim), Sick Individual	0.03	0.03	0.03	0.03
	(0.17)	(0.17)	(0.16)	(0.16)
Have a Claim, Spouse	0.02	0.02	0.02	0.02
	(0.16)	(0.15)	(0.15)	(0.15)
Number of Claims, Sick Individual	2.83	2.68	2.53	2.63
	(3.53)	(3.35)	(2.75)	(3.43)
Number of Claims (if receive claim), Spouse	2.88	2.52	2.64	2.66
	(3.51)	(2.83)	(3.20)	(3.22)
Total Debt (if receive claim), Sick Individual	61.65	44.88	43.35	48.36
	(935.87)	(204.27)	(161.01)	(238.14)
Total Debt (if receive claim), Spouse	68.56	42.83	42.25	38.40
	(1043.62)	(198.87)	(140.83)	(162.71)
Observations	47,440	43,089	43,658	43,262

Note: The table presents summary statistics in the pre-event period by groups defined by year of the nonfatal health event. The table shows mean values in the two years preceding the event and standard deviations in parentheses. Column 1-2 show the results for each treatment group, experiencing a nonfatal health event in 2016 or 2017, and Columns 3-4 for each control group, experiencing a nonfatal health event in 2019 or 2020. Income and debt is expressed in constant (2019) prices and kSEK.

Figure A.2: **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 2016-2017, and Panel B of surviving spouses experiencing a nonfatal shock in the same years.



A. Fatal



B. Nonfatal

B Additional Analyses on Fatal Health Shocks

B.1 Effects on Defaults by Surviving Spouses Above and Below Retirement Age.

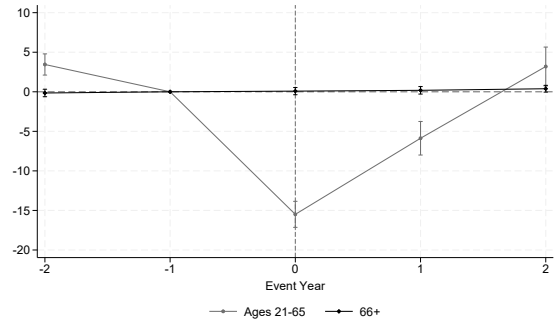
Table B.1: **The Main Effect of a Fatal Health Event and its Decomposition, by Surviving Spouses Aged Above and Below Retirement Age.**

	(1) Receive Claim	(2) Repaying All	(3) Debt Collection (Large)	(4) Debt Collection (Small)
Panel A: Age 21-65				
Treat × Post	0.007***	0.006***	0.003*	-0.001
	(0.0024)	(0.0018)	(0.0015)	(0.0012)
R^2	0.014	0.005	0.007	0.004
Observations	94,903	94,903	94,903	94,903
Mean in t=-1	0.047	0.020	0.015	0.012
Panel B: Age 66+				
Treat × Post	0.004***	0.003***	0.001***	0.000
	(0.0006)	(0.0005)	(0.0003)	(0.0003)
R^2	0.003	0.001	0.002	0.001
Observations	407,867	407,867	407,867	407,867
Mean in t=-1	0.010	0.005	0.002	0.003

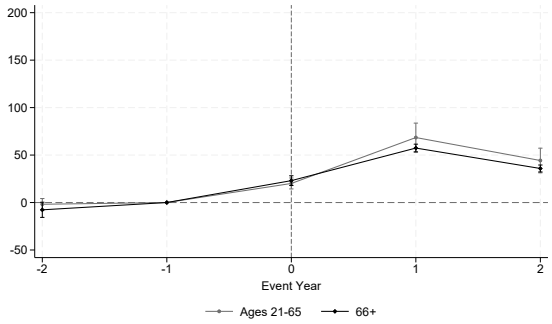
Note: This table provides estimates for the impact of a fatal health shock on the surviving spouse by groups of spouses above or below retirement age. Panel A shows results for spouses below retirement age and panel B for spouses in retirement age. Columns 1-4 present results on four metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of immediately repaying the claim; 3) the probability of being subjected to enforced debt collection of large claims and 4) the probability of being subjected to enforced debt collection of small claims. The pre-event mean is the treatment mean in 1999. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

B.2 Effects on Income in Levels.

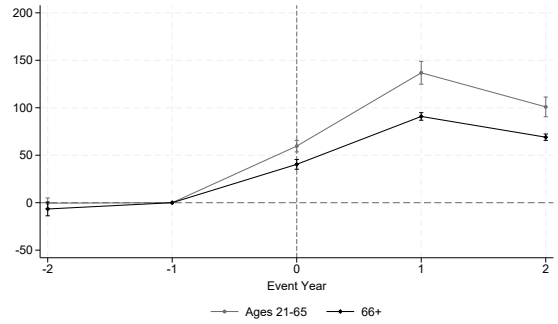
Figure B.1: **The Effect on Labor, Capital and Disposable Income in kSEK for Spouses Above or Below Retirement Age.** The figure plots the coefficient estimates of the effect of a fatal health shock on A. labor income of the spouse, B. capital income of the spouse, C. disposable income of the spouse, and D. household disposable income. Spouses below and above retirement age is defined at the time of death. Income is expressed in constant (2019) prices and thousand SEK. The regressions are specified as in Equation 1. Standard errors are clustered at the household level.



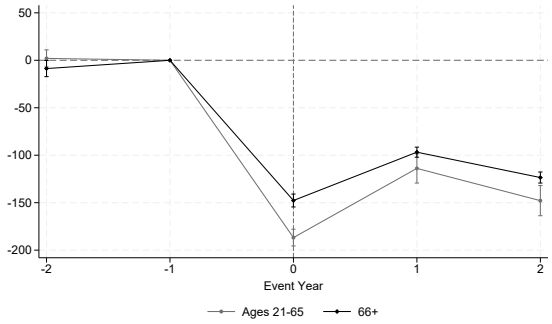
A. Log(Labor Income) (Spouse)



B. Log(Capital Income) (Spouse)



C. Log(Disposable Income) (Spouse)



D. Log(Disposable Income) (Household)

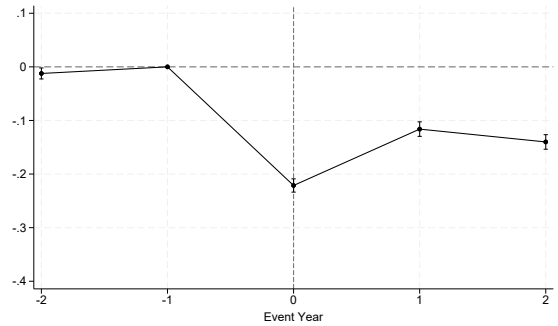
Table B.2: **The Effect of a Fatal Health Event on the Income Level of the Surviving Spouse and the Household.**

	(1) Labor Income	(2) Capital Income	(3) Disposable Income	(4) Hh. Disposable Income
Panel A: Age 21-65				
Treat × Post	-7.771***	45.089***	99.201***	-150.723***
	(1.017)	(3.607)	(2.998)	(4.485)
R^2	0.174	0.002	0.021	0.017
Observations	404,305	404,305	404,305	404,305
Mean in t=-1	220.231	16.009	252.031	532.338
Panel B: Age 66+				
Treat × Post	0.278*	42.261***	69.265***	-119.133***
	(0.151)	(2.290)	(2.250)	(2.718)
R^2	0.032	0.001	0.006	0.009
Observations	1,409,347	1,409,347	1,409,347	1,409,347
Mean in t=-1	5.267	26.706	166.142	359.768

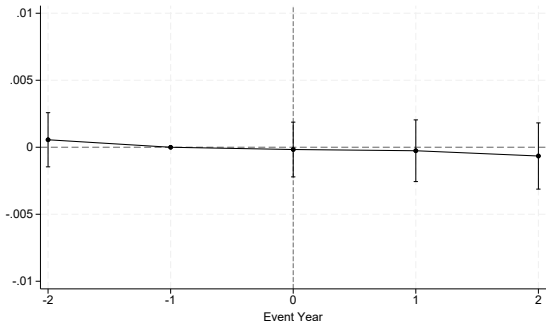
Note: This table provides estimates for the impact of a fatal health shock on the income of the surviving spouse and the household by groups of spouses above or below retirement age. Columns 1-4 present results on four metrics: 1) labor income; 2) capital income; 3) disposable income and 4) the household disposable income. The pre-event mean income is the treatment mean in 1999. Income is expressed in constant prices (2019) and thousand SEK. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

B.3 Differential Effect by Women and Men.

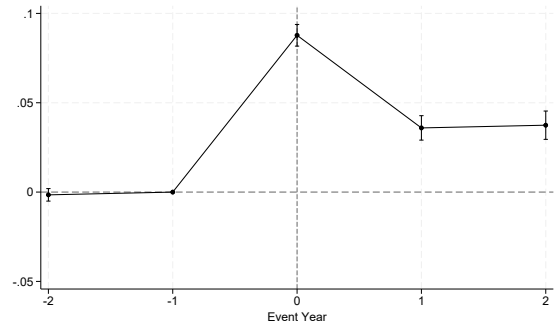
Figure B.2: **The Effect of a Fatal Health Shock, Comparing Women to Men.** The figure plots the triple difference coefficient estimates and 95% confidence intervals of the differential effect of a fatal health shock between spouses that are female compared male on A. the logarithm of household disposable income, B. the probability of enforced debt collection of large claims and C. the probability of being a renter. Income is expressed in constant (2019) prices and in thousand SEK. The regressions include the same controls and fixed effects as in Equation 1. Standard errors are clustered at the household level.



A. Log(Household Disposable Income)



B. Debt Collection of Large Debts



C. Probability Being a Renter

B.4 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.

Figure B.3 presents the dynamic regression estimates for the group of households that remain homeowners throughout the period. For these households there is no differential moving behavior compared to the control group in the pre-event years, but an increased probability of moving to another neighborhood after the spousal death. This indicates that they are also downsizing.

Table B.3 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, although the change in percentage terms is about twice as large for both groups of homeowners compared to renters, which could reflect the overall low mobility of renters and the low potential gains of moving due to the rent-controlled system in Sweden.

Figure B.3: **Probability to Move to Another Neighborhood, Households that Remain Homeowners.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a fatal health shock on the probability of moving to another neighborhood for households that remain homeowners throughout the period. The regressions are specified as in Equation 1. Standard errors are clustered at the household level.

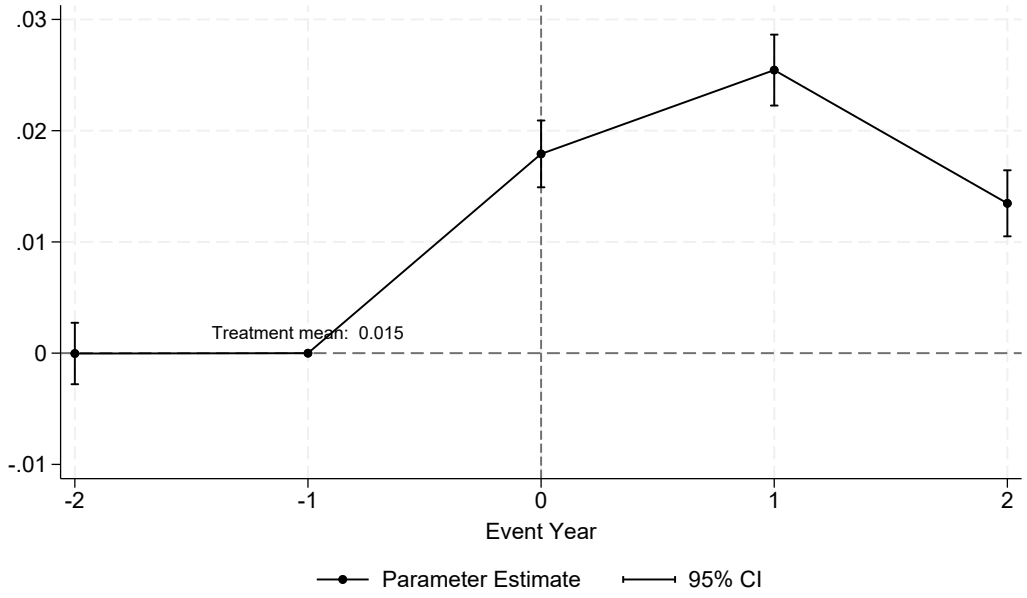


Table B.3: **The Effect of a Fatal Health Event on the Probability to Move to Another Neigborhood.**

	Renters	Homeowners	Always Homeowners
Treat × Post	0.028***	0.040***	0.019***
	(0.0028)	(0.0012)	(0.0010)
R^2	0.011	0.014	0.007
Observations	108,356	394,091	332,946
Mean in t=-1	0.046	0.033	0.015

Note: This table provides estimates for the impact of a fatal health shock on the surviving spouse's probability to move to another neighborhood. Columns 1-3 show the effects for each subgroup: 1) renters; 2) homeowners, and 3) always homeowners. A surviving spouse is defined as renter/homowner if they rented/owned their home two years before the death. Always homeowners are those households that remian homeowners throughout the period of analysis. The pre-event mean is the treatment mean in 1999. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

C Additional Analyses on Nonfatal Health Shocks

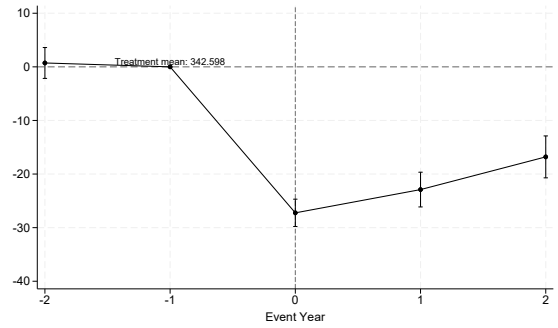
C.1 Effects on Income in Levels

Table C.1: **The Effect of a Nonfatal Health Event on the Income Level of the Sick Individual and the Spouse.**

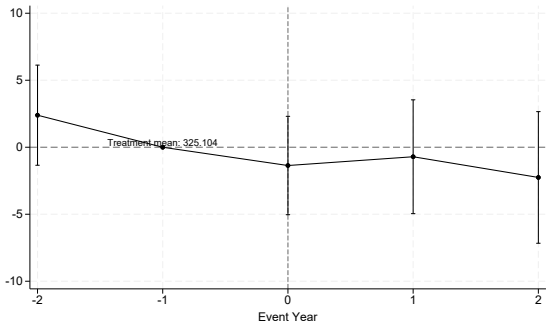
	(1) Labor Income	(2) Capital Income	(3) Disposable Income	(4) Hh. Disposable Income
Panel A: Sick Individual				
Treat × Post	-22.669***	7.361	-21.097	-57.366***
	(1.551)	(5.521)	(14.622)	(18.828)
R^2	0.092	0.001	0.001	0.002
Observations	268,882	268,882	268,882	268,882
Mean in t=-1	342.598	44.585	364.215	775.291
Panel B: Spouse				
Treat × Post	-2.641*	-23.208	-14.245	-56.937***
	(1.575)	(15.934)	(11.713)	(18.836)
R^2	0.136	0.001	0.004	0.002
Observations	268,882	268,882	268,882	268,882
Mean in t=-1	325.104	68.223	367.036	775.263

Note: This table provides estimates for the impact of a nonfatal health shock on the income of the sick individual and the spouse. Columns 1-4 present results on four metrics: 1) labor income; 2) capital income; 3) disposable income and 4) the household disposable income. The pre-event mean income is the treatment mean in 1999. Income is expressed in constant prices (2019) and thousand SEK. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Figure C.1: **The Effect of a Nonfatal Health Shock on Labor Income.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a nonfatal health shock on labor income of the sick individual and the spouse. Labor income is expressed in constant (2019) prices and thousand SEK. The regressions are specified as in Equation 1. Standard errors are clustered at the household level.



A. Labor Income (Sick Individual)



B. Labor Income (Spouse)

C.2 Effects on Household Disposable Income by Diagnosis

Table C.2: **The Effect of a Nonfatal Health Event on the Log(Household Disposable Income) of the Sick Individual and the Spouse by type of Diagnosis.**

	(1) Heart Attacks and Strokes	(2) Injuries
Panel A: Sick Individual		
Treat × Post	-0.052***	-0.053***
	(0.004)	(0.005)
R^2	0.087	0.105
Observations	150,866	116,939
Mean in t=-1	747.385	810.553
Panel B: Spouse		
Treat × Post	-0.054***	-0.053***
	(0.004)	(0.005)
R^2	0.087	0.109
Observations	150,955	117,030
Mean in t=-1	747.361	810.520

Note: This table provides estimates for the impact of a nonfatal health shock on the log(household disposable income) of the sick individual and the spouse. Panel A shows results for the sick individual and Panel B for the spouse. Columns 1 present results for the sample having a hearth attack or stroke and Column 2 for the sample suffering from an injury. The pre-event mean income is the treatment mean in 1999, presented in thousand SEK. Incomes are adjusted to constant prices (2019). Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$