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

Kaveh Majlesi, Elin Molin, and Paula Roth*†

November 2024

Abstract

We examine the impact of fatal and nonfatal health shocks on household defaults on financial obligations. We show that fatal shocks significantly increase the likelihood of defaults and provide evidence that housing wealth serves as an important self-insurance mechanism. Surviving spouses experiencing the greatest income losses are more likely to liquidate their homes, and those lacking housing wealth face a heightened risk of debt collection. Notably, these shocks have intergenerational consequences. Nonfatal health shocks cause an immediate but temporary rise in default risk. These findings suggest that improving survivors' benefits for those who lack resources could enhance welfare across generations.

*All the authors acknowledge equal contribution.

†Kaveh Majlesi, Monash University, Lund University, IZA and CEPR, kaveh.majlesi@monash.edu. Elin Molin, Lund University, UCFS, CED and KWC, elin.molin@nek.lu.se. Paula Roth, Stockholm School of Economics, UCFS and IFN, Paula.Roth@hhs.se. This paper was formerly titled "Severe Health Shocks and Financial Well-Being". We thank Sandra Black, Claudio Daminato, Per Krusell, Arash Nekoei, Paolo Sodini, Roine Vestman, Wenlan Qian, seminar attendants at Lund University, Jönköping Business School, Linnaeus University, Monash University, Stockholm University, and participants at the Uppsala Centre for Fiscal Studies Workshop and Essen Health Conference for valuable comments and helpful discussions. We also gratefully acknowledge financial support from the Institute for Evaluation of Labour Market and Education Policy (IFAU), Åke Wibergs Stiftelse and Torsten Söderbergs stiftelse.

1 Introduction

Adverse fatal and nonfatal health events are among the most severe and common shocks experienced by households. Consequently, programs that protect households against income losses imposed by these shocks – namely survivors and disability insurance – are substantial, with spending accounting for about 3% of GDP on average across OECD countries (OECD, 2018, 2023b). As individuals grow older, the likelihood of losing a partner or experiencing a serious health incident increases significantly. With rapidly aging populations, the cost of public insurance programs are expected to rise further (OECD, 2023a). This underscores the importance of understanding the consequences of these shocks at the household level to support informed policy design.

In this paper, we examine the impact of fatal and severe nonfatal shocks on the financial well-being of households, proxied by their ability to meet financial obligations, and investigate key mechanisms behind these effects. Understanding household resilience and responses to severe health shocks is essential for evaluating savings behavior across the life cycle and designing effective insurance policies. While previous research has explored labor supply responses, there is limited evidence on how these shocks affect households' financial well-being. This is difficult to assess because direct measures of financial strain are typically unobserved. Moreover, to provide causal estimates requires household-level panel data, including health information. We address this challenge by using unique data on unpaid claims for the entire Swedish population linked to detailed register data, and employing a compelling quasi-experimental research design.

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, including unpaid bills and rents. This allows us to capture even the most marginal groups that lack access to credit or bank loans. Additionally, it enables us to observe when individuals fail to cover their basic consumption expenses. The Swedish system is generally seen as favoring creditors. Debt relief is rarely granted and the repercussions of defaulting on debt in Sweden are substantial.[1] Together, these underscore the absence of

[1] A non-payment record can hinder access to credit, complicate housing prospects by affecting rental ap-

significant incentives for strategic default. In this environment, where the medical costs associated with a health shock are negligible and the likelihood of strategic default is virtually zero, we argue that defaulting on financial claims indicates (serious) financial distress.

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.[2] We estimate the short-run treatment effects using a difference-in-differences design. The main limitation of this approach is that it places an upper bound on the time horizon of the analysis, 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 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. Moreover, we complement this analysis with an event study approach that allows to study longer pre- and post-event periods.

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

Our main finding is that a fatal health shock significantly increases the likelihood of default, with the death of a spouse raising default incidence by 25 percent compared to pre-shock levels. These shocks also have intensive margin effects, increasing both the

plications and house purchases, and create difficulties in securing service and utility contracts (Swedish Enforcement Authority, 2024).

[2] This methodology is 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. This method has also been exploited for identification in other settings, such as Druedahl and Martinello (2022) and Nekoei and Seim (2022).

number of claims and the total amount owed. Notably, fatal shocks account for the entirety of defaults in households with no prior history of default, which represents the vast majority of the population. Additionally, we demonstrate that our findings are not sensitive to the choice of treatment period by incorporating more treatment groups and periods using an event study approach.

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

Our findings indicate that defaults are driven by a lack of resources, with wealth—rather than income loss—playing the key role. A greater loss in disposable income does not predict higher debt collection likelihood, as both primary and secondary earners meet payment obligations similarly. However, secondary earners, often women, are more likely to liquidate their homes, presumably to settle financial obligations. When comparing homeowners to renters, we find that homeowners are able to repay both small and large claims, whereas the increased likelihood of entering debt collection for larger debts is driven entirely by renters, who lack the option to self-insure through home equity. Additionally, renters are more inclined to rely on social benefits in response to these shocks, further highlighting their lack of financial protection compared to homeowners.

Importantly, fatal health shocks have intergenerational effects on adult children's financial well-being. We find that renters' children have an increased take-up of social benefits and face a higher probability of default after such events compared to children of homeowners. These defaults may arise because the child needs to financially support the surviving parent or because the surviving parent can no longer afford to assist the child financially.

Nonfatal health shocks to a spouse have economic consequences only when the sick individual is below retirement age, as retired individuals continue to receive their pension and do not experience income loss. For those below retirement age, the shock temporarily reduces the sick spouse's labor income, with only a small effect on household disposable income, leading to a temporary increase in the probability of default. As with fatal shocks, small claims are typically paid off after receiving notice, but larger obligations are more likely to enter debt collection. Overall, housing wealth is less predictive of default after a nonfatal health event, possibly due to the transitory nature of the income shock.

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

Our finding that older households use housing as a financial buffer against health shocks is consistent with the broader literature on the role of housing wealth in mitigating financial risks in later life. Davidoff (2010) shows that home equity can substitute for long-term care insurance, as elderly homeowners, especially with low bequest motives, often use it to cover care costs. The model also highlights reverse mortgages as a way to convert housing wealth into liquid assets without selling the home. This aligns with empirical findings by Venti and Wise (1989, 1990, 2002) and Feinstein and McFadden (1989), who suggest that households generally retain housing equity unless faced with significant shocks. Our study contributes to this literature by causally linking housing liquidations to health shocks, showing that housing serves as a crucial resource in mitigating financial hardship following severe health crises.

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

Our analysis also adds to the smaller literature that studies the determinants of financial distress. This research highlights the importance of persistent individual factors, cognitive abilities, and peer effects in determining financial distress (Keys et al., 2023; Parise and Peijnenburg, 2019; Agarwal et al., 2020; Kalda, 2020), with mixed findings on gender gaps (Agarwal et al., 2016; Meyll and Pauls, 2019; Zhou et al., 2023). Gupta et al. (2018) finds that a cancer diagnosis is financially destabilizing only for those with negative home equity, while Morrison et al. (2013) examines the impact of nonfatal automobile accidents on bankruptcy and cannot reject the null hypothesis of no effect. Our contribution lies in demonstrating that permanent and transitory health-related income shocks are important determinants of financial distress. Notably, we also show that financial distress have intragenerational dimensions, with health shocks impacting the economic stability of adult children.

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

often used to buffer the permanent income loss from a spouse's death, it is less frequently adjusted for moderate or temporary spousal nonfatal health shocks.

The remainder of this paper is organized as follows. Section 2 describes institutional setting and Section 3 introduces the data used in this study. Section 4 outlines the empirical research design. The results on fatal shocks are presented in Section 5, and the results on nonfatal shocks are presented in Section 6. Section 7 presents robustness checks and Section 8 concludes.

2 Institutional Setting

This section outlines the institutional setting, detailing Sweden's approach to covering income losses from illness or spousal death, along with its debt collection system.

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).[3]

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

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

(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 (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).[4]

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

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

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.[5] 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 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).[6,7] 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).[8]

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

[5] 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.

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

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

[8] 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.

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 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.[9] 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

[9] 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

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.[10] 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.[11]

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

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. However, we do not observe the specific type of debt or payment the claim refers to. Each registered claim signifies that a creditor has formally sought SEA's help to recover an unsettled

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

[11] 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.

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 for 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 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.[12]

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

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

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 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 (excluding self-harm), where patients were diagnosed following inpatient care. 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 in the pre-event period

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 and 24% have some higher education. The household disposable income is roughly 460,000 SEK ($US 49,000). The share receiving a claim is on average 2%, and within this group the average number of claims received in a year is 2.5 and the average annual total debt size is 36,000 SEK ($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 sub-experiments. 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_i, t are fixed effects for ten-year age bins and X_i includes binary control variables for gender and for having some post-secondary education, measured two years prior to the shock.

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

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

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 Household Responses to Fatal Health Events

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

5.1 Main Results

Figures 1-3 present the impact of spousal death on three measures of financial distress, capturing both the extensive and intensive margins; the probability that the surviving spouse receives a claim from the SEA, the average number of claims per individual and the total size of the unpaid obligations.

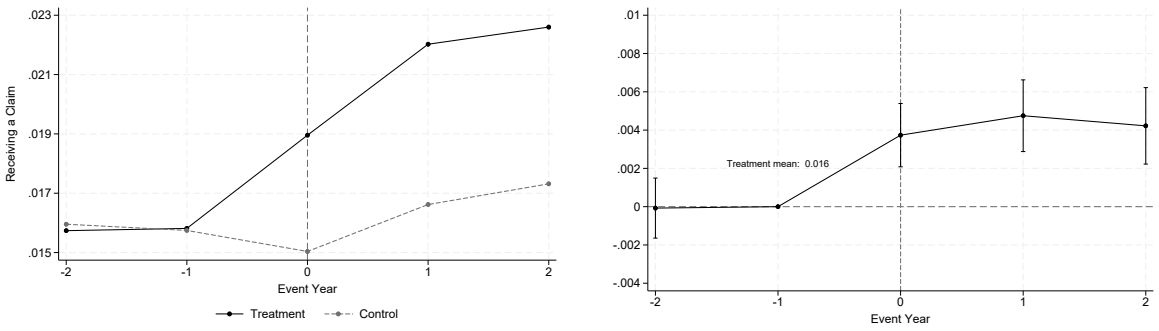
The event year zero, marked by the dashed vertical line, represents the year in which the fatal health shock occurs. Panel A presents averages in treatment and control group, and Panel B presents the results of the dynamic difference-in-difference regression analysis. There are four main takeaways from these graphs. First, both levels and pre-trends between treatment and control group are comparable, supporting that the outcome of the control group is a plausible counterfactual. Second, the effect manifests immediately in the year of the shock, and third, the effect is driven by an increase in the treatment group, supporting a causal interpretation of the observed changes. Fourth, the effects are persistent. This could be in part due to households for whom the health shock occurs late in the year, where the response only becomes evident the following year. 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. However, the fact

that the effect persists even two years later suggests that the death of a spouse causes longer-lasting financial challenges for affected households.

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 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).

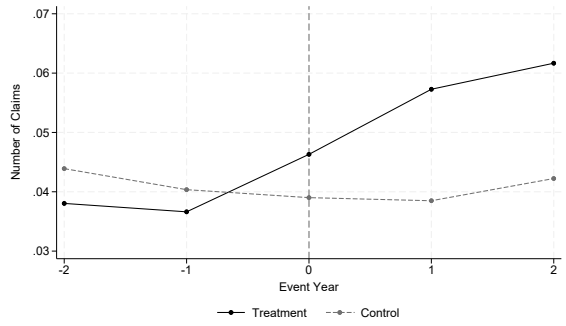
Figure 1: **The Dynamic Effect of a Fatal Health Shock on the Probability of Receiving a Claim.** The figure presents the effect of a fatal health shock on the probability of receiving a debt claim from the SEA. Panel A shows the average share of spouses receiving a claim from the SEA in the treatment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



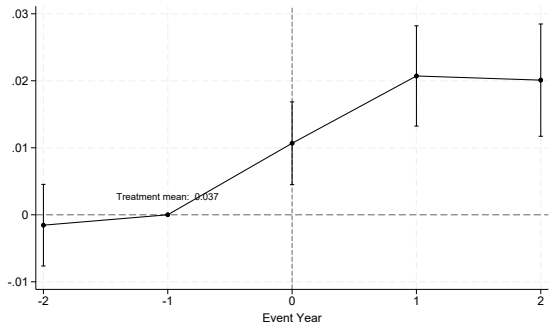
A. Mean in Treatment and Control Group

B. Coefficient Estimates

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

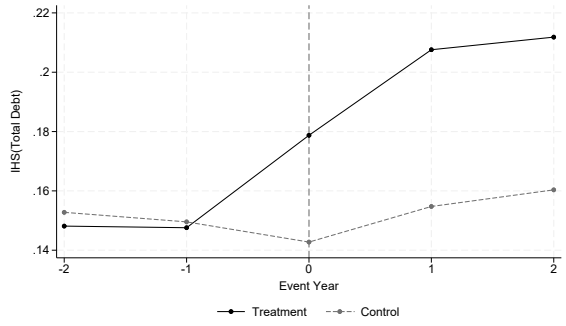


A. Mean in Treatment and Control Group

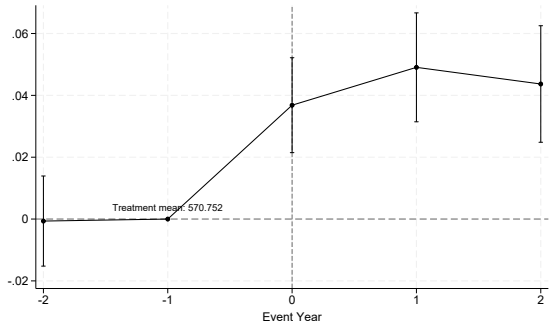


B. Coefficient Estimates

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



A. Mean in Treatment and Control Group



B. Coefficient Estimates

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

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

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

5.2 Mechanisms

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

5.2.1 Inattention and Default Risk

Loss of a spouse can take a substantial emotional toll, which can be associated with symptoms of stress, anxiety, and depression. In addition, it is followed by numerous urgent tasks, such as settling accounts and planning a funeral. Under these circumstances, it would not be surprising if routine household tasks, such as paying bills, are forgot-

ten 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.[13]

If inattention drives defaults, we would expect similar repayment behavior regardless of the debt size. In contrast, if lack of resources is the issue, larger debts should lead to higher default rates. To distinguish these channels, we examine the likelihood of debt collection for small and large debts, defined as below or above the median debt size among debt holders prior to the health shock. We also assess the probability of immediate full repayment. Together, these outcomes help decompose the main effect, whether a household enter debt collection or fully repays after receiving a claim.

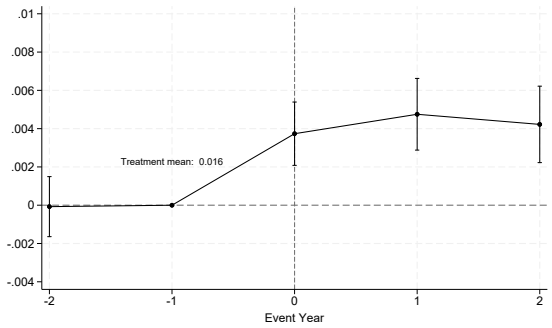
Panel A in Figure 4 shows the effect of fatal health shocks on the probability of the surviving spouse receiving a claim, with Panels B-D providing a breakdown. Panel B highlights the likelihood of immediate repayment, while Panels C and D show the risk of debt collection for large and small debts, respectively. These figures support the parallel trend assumption and a causal interpretation.

Table 2 presents the post-event estimates. Of the overall 0.4 percentage point increase in claims, 75% are immediately repaid, while 25% corresponds to large debts entering debt collection. A fatal shock leads to a 25% rise in the probability of large debts going to collection, with no effect on small debts.

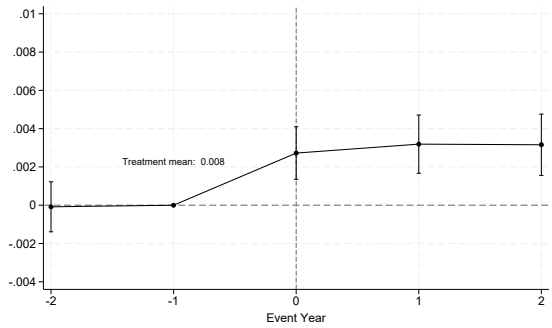
These analyses yield two important conclusions. First, while many manage to pay off their claims, this appears to be restricted to smaller debts. The significantly elevated risk of default on larger claims compared to smaller ones points to lack of resources as the main factor that influences this behavior. 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.

[13] 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).

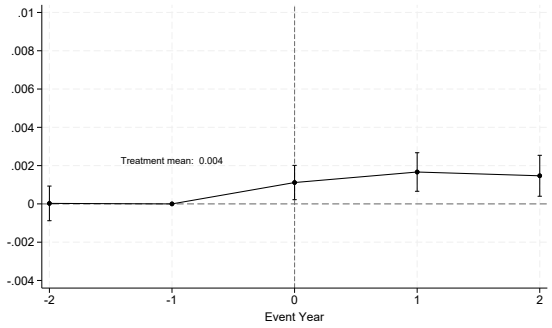
Figure 4: **The Dynamic Effect of a Fatal Health Shock on the Probability of Receiving a Claim and its Decomposition.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a fatal health shock on the probability to A. receive a claim, B. repaying the total amount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



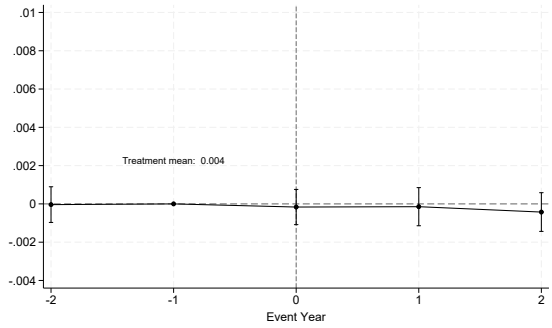
A. Receiving a Debt Claim



B. Repaying all Debts Associated with the Claim



C. Debt Collection of Large Debts



D. Debt Collection of Small Debts

Table 2: **The Effect of a Fatal Health Shock on the Probability of Receiving a Claim and its Decomposition.**

	(1) Receive Claim	(2) Repaying All	(3) Debt Collection (Large)	(4) 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 one year before the event. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

In the Robustness Section 7, we demonstrate that the incidence of claims is equally driven by both small and large debts. This shows that the increase in debt collection for

larger claims is not due to a higher occurrence of large claims following a fatal shock.

Moreover, in section 7.2 we show that, when we restrict the sample to households where either the deceased spouse or both spouses did not have any claims in the years leading up to the health shock, the coefficient estimates remain consistent and the effect size in percentage terms increases, implying that the fatal health event explains the absolute majority of the occurrence of financial claims and debt collections. Importantly, this also suggests that the results are not driven by a mechanical transfer of financial problems from the deceased to the surviving spouse and that the effect is not driven by households that had severe financial problems to begin with. It is important to note that debts are not inherited by spouses or any other heirs.[14]

In Section 7.3, we show that the results are robust to the cause of death being defined as sudden or not. However, the effects are larger when deaths are unexpected, in line with households not having been able to plan for the event.

In Section 7.4, we demonstrate that our results remain robust when restricting the sample to spouses who were alive throughout the post-event period. This confirms that our findings are not influenced by negative selection related to the death of surviving spouses.

Lastly, to increase the number of treatment year-of-death cohorts and incorporate more pre- and post-reform periods, we conduct an event study analysis. The results in Section 7.5 show that our main findings and decomposition is robust to using this alternative method. Moreover, there is no indication of a decline in defaults over time when the period is extended, indicating long-term financial struggle rather than a temporary inattention.

5.2.2 Income Effects of Fatal Health Shocks

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

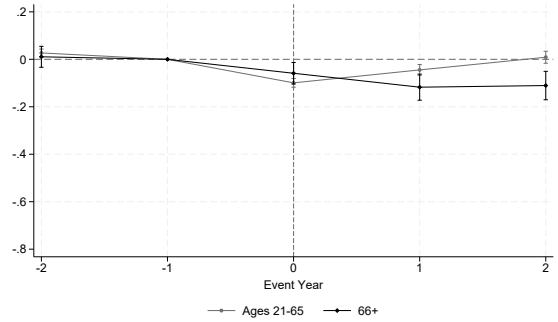
[14] Any debts of the deceased are settled by the estate before the remainder is distributed among the heirs. If the debts exceed the assets of the estate, the remaining debts are not passed on to the heirs.

the total disposable income of the household. Our analysis aims to determine whether loss of income 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.

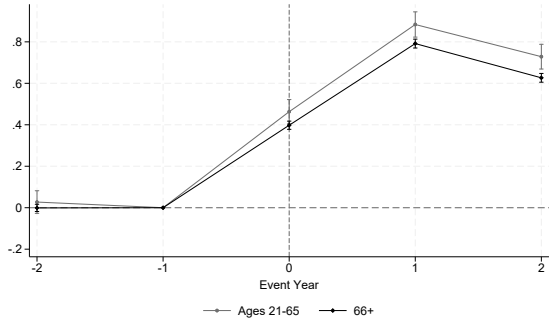
Figure 5 Panel A shows the impact on the logarithm of the surviving spouse's labor income. We show results for spouses below and in retirement age since the possibility to increase labor supply might be more challenging for retirees. We observe a relatively modest decline of approximately 7.5% during the year in which the shock occurs. Interestingly, this effect is transitory for younger spouses - it neutralizes back to zero after two years - and is persistent for older spouses.

Panels B-D explore the dynamic effect on the surviving spouse's capital income, disposable income, and the household disposable income, and Table 3 presents the average treatment effects for spouses of working age in Panel A and above working age in Panel B. The results are similar for both age groups. The shock increases capital income by 60-70%. Part of this increase could be a mechanical effect, originating from spousal inheritance, but 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 41% for younger spouses and 53% for older ones. The fact that household income drops by more than 50% for older households is likely explained by the primary earner passing away first in 60% of cases, compared to 50% for younger households.

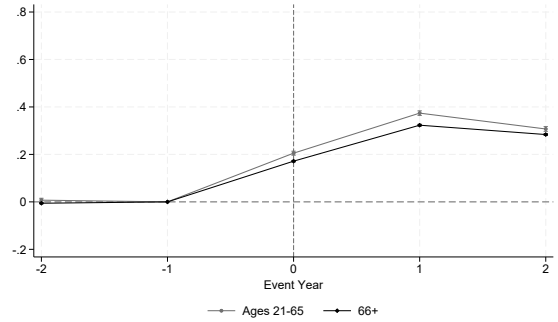
Figure 5: **The Dynamic Effect of a Fatal Health Event on Labor, Capital and Disposable Income by Spouses Above or Below Retirement Age.** The figure plots the coefficient estimates of the effect of a fatal health shock on the logarithm of A. labor income of the spouse, B. capital income of the spouse, C. disposable income of the spouse, and D. household disposable income. Spouses below and above retirement age is defined at the year 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.



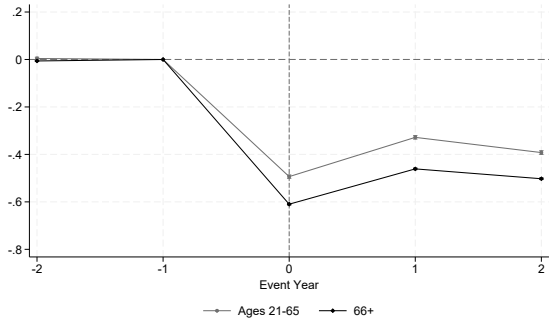
A. Log(Labor Income) (Spouse)



B. Log(Capital Income) (Spouse)



C. Log(Disposable Income) (Spouse)



D. Log(Disposable Income) (Household)

Table 3: **The Effect of a Fatal Health Shock on Labor, Capital and Disposable Income of the Surviving Spouse and the Household by Spouses Above or Below Retirement Age.**

	(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. Panel A shows results for spouses below retirement age and Panel B in 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. Spouses below and above retirement age is defined at the year of death. The pre-event mean is the treatment mean one year before the event. 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. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

In Appendix B.1, we further validate these findings by demonstrating that they are robust when income is expressed in levels. However, 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. For younger ones, labor income decreases by almost 8000 SEK (US$ 846).

In line with the income loss being larger for older spouses, we find that the risk of defaulting is higher for older spouses. The results in Appendix B.2 show that the probability of receiving a claim increases by 15% for younger spouses and 40% for older ones, and the probability of enforced debt collection by 20% for younger spouses and 50% for older ones.

In Appendix B.3 we investigate if the results are driven by spouses with a higher relative income loss. Similar to Fadlon and Nielsen (2021), we categorize spouses as primary or secondary earners, based on which spouse earned the majority of household income prior to the shock. Given this larger relative income loss for secondary earners, one would expect them to have a higher likelihood of defaulting on debts. However, contrary to this expectation, we do not find significant differences in debt collection of

large debts between the two groups. Furthermore, there are no positive impacts on labor income, indicating that self-insurance through increased labor supply is not a common strategy.

Our findings on labor income contrasts with that of Fadlon and Nielsen (2021), who observe a positive response in the labor supply of surviving spouses. Our methodology diverges from theirs in some aspects. Fadlon and Nielsen (2021) analyze a sample of surviving spouses where the deceased was aged 45 to 80 at the time of death, employing a stacked difference-in-differences approach with household fixed effects. In their setup, the control group experiences a shock five years after the treatment group, as opposed to three years in our analysis. Given that there is no reason to believe that the treatment and control groups differ in unobservable characteristics that remain constant over time, we do not include household fixed effects in our primary specification. Instead, we use age-bin fixed effects, similar to Coyne et al. (2024), who uses age fixed effects. However, in Appendix B.4, we demonstrate that our results remain robust when applying the same age restrictions and incorporating household fixed effects. Consequently, in our context, self-insurance via an increased labor supply does not seem to play a significant role as an insurance mechanism.

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

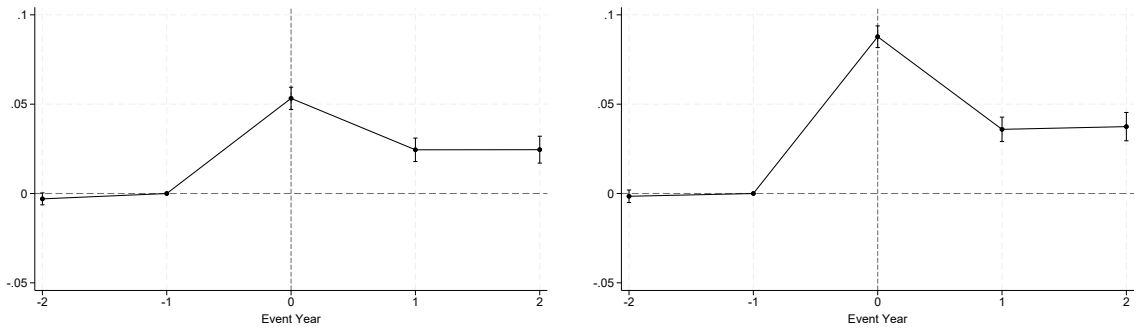
5.2.3 Role of Housing Wealth in Financial Resilience

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

We use a triple-difference estimator to calculate the difference in effects between surviving spouses that were the secondary and primary earner in the household prior to the shock, and between women and men. Figure 6 plots the differential effect on the probability of being a renter between secondary and primary earners in Panel A and between women and men in Panel B. These results shows that the probability of selling one's home is 5% higher for secondary earners compared to primary earners, and approximately 8% higher for women compared to men 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 assume a mechanical difference in the probability of liquidating housing wealth between these groups. Rather, this variation points to distinct behavioral responses, implying that housing wealth is an important factor for default responses.

Figure 6: **The Differential Effects of a Fatal Health Shock on the Probability of Being a Renter.** The figure plots the triple difference coefficient estimates and 95% confidence intervals of the differential effect of a fatal health shock on the probability of being a renter. Panel A shows the difference between secondary and primary earners and Panel B between women and men. The regressions include the same controls and fixed effects as in Equation 1. Standard errors are clustered at the household level.



A. Secondary vs. Primary Earners

B. Women vs. Men

To further examine 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, and as homeowners if they owned a home at that time.

Figure 7 displays the evolution of the effect on the probability of receiving a claim separately for renters and homeowners. For both groups, the graph provides supporting evidence for the assumption of parallel trends. Table 4 outlines the average treatment effects: Panel A covers renters and Panel B homeowners. Columns 1-4 examine the main effect and its components, while column 5 looks at household disposable income.

Fatal shocks increase the probability of failing to meet financial obligations in both groups. Renters are nearly twice as likely to receive a claim, though the difference is smaller in percentage terms due to their higher pre-event mean. A key contrast lies in the probability of debt collection: homeowners show no significant increase, indicating they can settle claims immediately. In contrast, renters face a 56% rise in debt collection of large claims, highlighting their financial strain. Small claims are not a concern, suggesting renters can handle minor expenses but struggle with larger ones. These differences occur despite similar income losses of approximately 50%.

Figure 7: **The Dynamic Effect of a Fatal Health Shock 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. Standard errors are clustered at the household level.

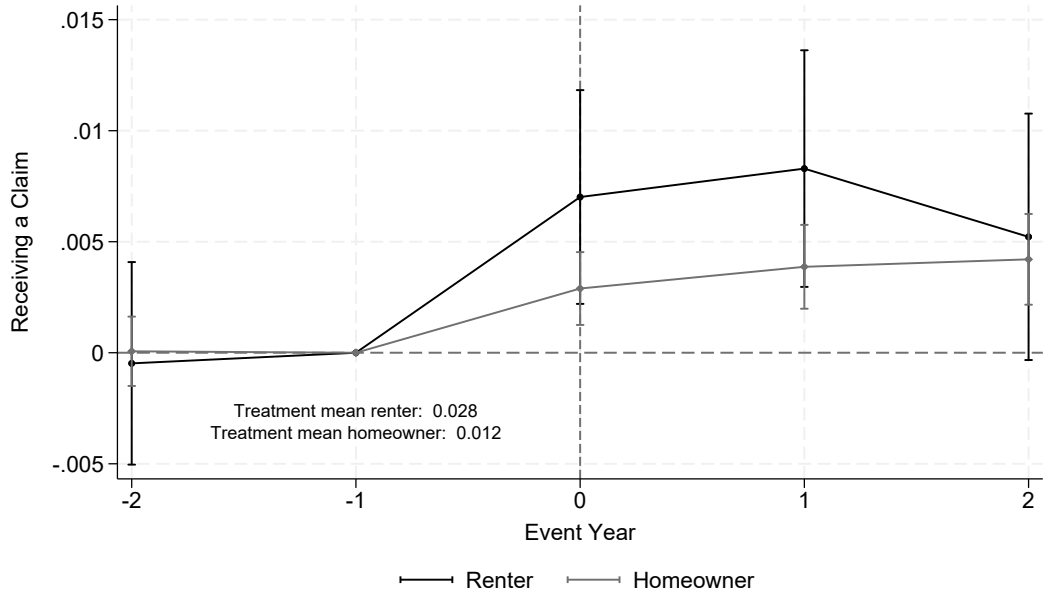


Table 4: **The Effect of a Fatal Health Shock on the Probability of Receiving a Claim and its Decomposition, and on Disposable Income by Renters and Homeowners.**

	(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

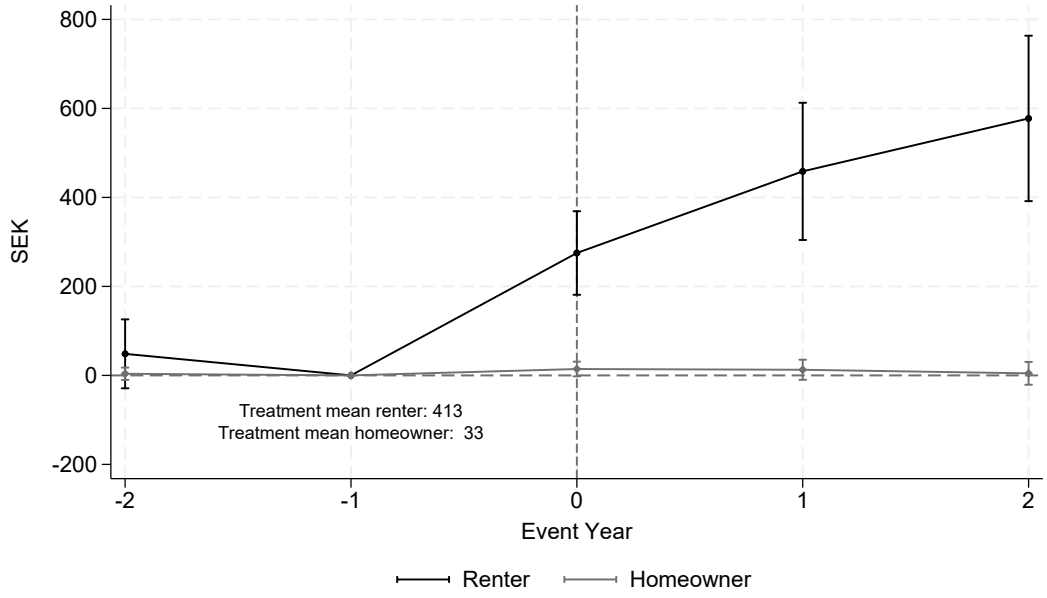
Note: This table provides estimates for the impact of a fatal health shock on 2 subgroups of surviving spouses; renters and homeowners. A surviving spouse is defined as a renter/homeowner if they rented/owned their home two years before the death. Panel A shows the effect for surviving spouses that are 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 one year before the event, 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 of fatal shocks on financial well-being, we examine

changes in social benefits, financial support provided by the government to individuals and families who struggle to meet basic needs. Administered by municipal social services, these benefits aim to ensure a reasonable standard of living.

Figure 8 shows the dynamic treatment effect of social benefits for renters and homeowners. Renters experience a clear increase in social benefits during the year of death. In Sweden, low-income individuals can receive "begravningshjälp" (funeral assistance) to help cover funeral costs. However, the impact extends beyond this, with benefits continuing to rise over time, suggesting that renters face an ongoing risk of living below the minimum standard of living and needing long-term financial aid. On average, the post-event effect is around 400 SEK ($US 42), representing an increase of nearly 100% compared to renters' pre-event levels.

Figure 8: **The Dynamic Effect of a Fatal Health Shock 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. Standard errors are clustered at the household level.



Furthermore, our analysis reveals that both homeowners and renters respond to the loss of a spouse by relocating to different neighborhoods, as shown in Appendix B.5. Even those who remain homeowners during the observation period are more likely to

move. While the decision to stay a homeowner may be influenced by the health shock, this relocation behavior likely reflects a strategy of downsizing. Renters might be seeking to lower their monthly rent, whereas homeowners could be aiming to unlock some of their housing equity by moving to a less expensive property.

5.3 Intergenerational Effects on Adult Children

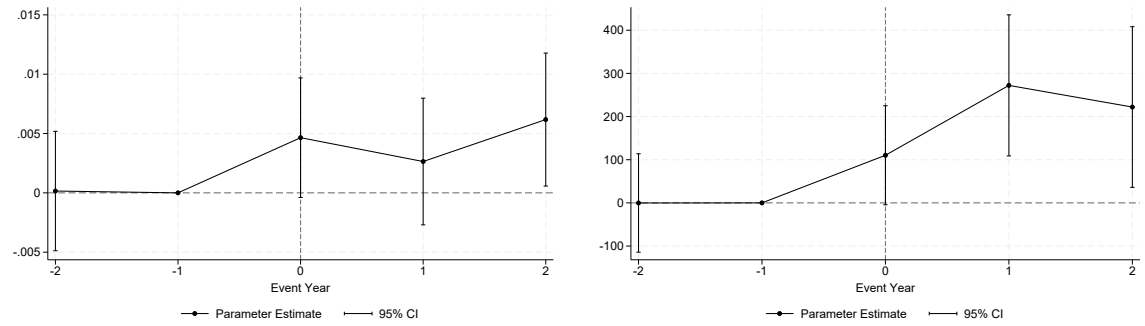
The financial consequences of spousal death can extend beyond the immediate couple and affect the financial stability of adult children. These children may face financial pressure to support a surviving parent who has experienced a significant reduction in household income. Alternatively, a surviving parent who had previously been able to offer financial assistance to their children may no longer have the means to do so after the loss.

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

Having established that the increased risk of debt collection is concentrated among renters, we now examine the impact on their adult children compared to those of homeowners. Figure 9 illustrates the differential effect on the likelihood of receiving a claim (Panel A) and social benefits (Panel B), showing clear causal differences. Table 5 presents the average triple difference estimates, indicating that children of renters are 0.4 percentage points more likely to receive a claim and 0.3 percentage points more likely to face debt collection. Additionally, they receive 200 SEK ($21) more in social benefits than children of homeowners.

These findings suggest that financial distress is transmitted across generations, especially in families where the surviving spouse has fewer financial resources. The increase in social benefits received by children of renters could indicate that, rather than helping their surviving parent, these children experience a reduction in financial support previously provided by the parent.

Figure 9: **The Differential Effect of a Fatal Health Shock on the Probability of Receiving a Claim and the Level of Social Benefits Between Children of Renters and Homeowners.** The figure plots the triple difference 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. Standard errors are clustered at the parent level.



A. Receiving a Claim

B. Social Benefit

Table 5: **The Differential Effect of a Fatal Health Shock on the Probability of Receiving a Claim, its Decomposition and the Level of Social Benefits Between the Children of Renters and 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 who is 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 Household Responses to Nonfatal Health Events

In this section, we investigate the financial consequences of experiencing a nonfatal health event. Building on our findings related to fatal health events, we explore whether resource constraints serve as a mechanism influencing default behavior following these shocks.

6.1 Income Effects of Nonfatal Health Shocks

Studying nonfatal shocks allows us to more precisely isolate the impact of income loss on default risk. We begin by examining households where the individual affected by the shock is retired. Unlike working-age individuals, who typically transition from regular income to reduced sickness benefits, retirees continue receiving stable pension payments during illness, avoiding income loss. This contrasts with fatal shocks, where few are fully insured against income loss after a spouse's death. We focus on three key metrics: household disposable income, the probability of receiving a debt claim, and the likelihood of debt collection on large claims.

Table 6 confirms that retirees experience no income loss following a nonfatal health shock.[15] Column 1 shows that household disposable income remains stable, with an insignificant estimate near zero. Correspondingly, columns 2-3 indicate no increased probability of receiving a debt claim or facing debt collection on large claims, as these estimates are also effectively zero. This suggests that when income is fully insured, nonfatal health shocks do not increase default risk. Based on this, we shift focus to households where the sick spouse was of working age (below 66) at the time of the shock.

Table 6: **The Effect of a Nonfatal Health Shock on Disposable Income, and Debt Default for Households Where the Sick Individual is Retired.**

	(1)	(2)	(3)
	Log(Hh. Disposable Inc.)	Receive a Claim	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 is the treatment mean one year before the event. Income is expressed in constant prices (2019) and thousand SEK. The regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

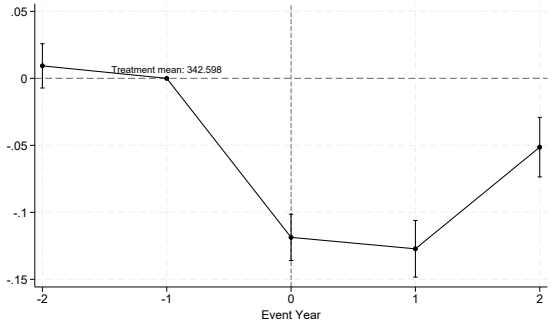
For working individuals, a nonfatal health shock can lead to temporary or permanent withdrawal from the labor market, reducing household income. This financial strain may be worsened if the spouse reduces work hours to provide care. Alternatively, the spouse

[15] Retirees are defined as those aged 65 or older at the time of the shock, with no labor income two years prior (at age 64). Although the default retirement age is 65, pension claims can begin at age 63.

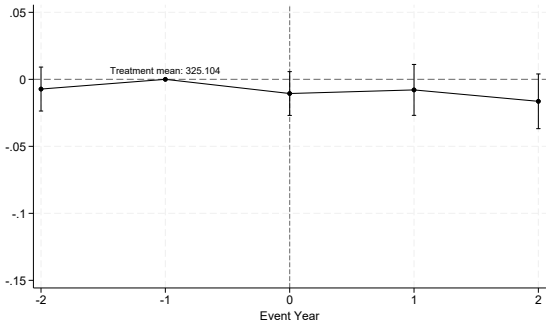
might increase their labor supply as a form of self-insurance to compensate for the income loss. Figure 10 illustrates the impact on labor income for both the sick individual and their spouse. Panel A highlights an immediate income drop for the sick person, with partial recovery by year two, indicating that many return to work. Panel B shows no significant income change for the spouse.

Table 7 presents average income effects from the health shock. Columns 1-3 detail impacts on labor, capital, and disposable income for the sick individual, while column 4 covers household disposable income. The individual's labor income falls by 10%, with a 2% drop in disposable income, indicating that the welfare system offers good but incomplete coverage of the labor income loss. Household disposable income drops by 5%, driven by the reduced earnings of the sick individual. However, compared to the steep 50% drop seen in fatal events, this decrease is relatively moderate.

Figure 10: **The Dynamic Effect of a Nonfatal Health Shock on Labor Income for the Sick Individual and Their Spouse.** 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. The regressions are specified as in Equation 1. Standard errors are clustered at the household level.



A. Log(Labor Income) (Sick Individual)



B. Log(Labor Income) (Spouse)

Table 7: **The Effect of a Nonfatal Health Shock on Labor, Capital and Disposable Income for the Sick Individual and Their 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. Panel A shows results for the sick individual and Panel B for 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. The pre-event mean is the treatment mean one year before the event. 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. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

In Appendix Section 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). Furthermore, Section C.2 shows that the effects are similar for different types of diagnosis, specifically separating heart attacks and strokes from injuries.

6.2 Nonfatal Health Shocks and Default Risk

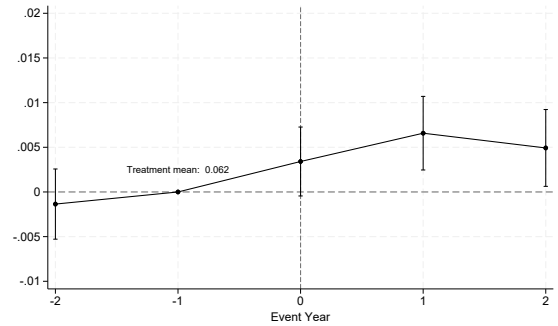
This section examines how a nonfatal health shock affects household default behavior. Since financial claims are individual, a household-level claim means at least one spouse received a claim from the SEA. Similar to fatal shocks, we further investigate whether inattention could explain default behavior by assessing repayment patterns for both small and large debts.

Figure 11 shows the probability of receiving a claim and the likelihood of immediate repayment or enforced collection for small and large debts. Panel A indicates an increased risk of receiving a claim after a nonfatal health event. As with fatal shocks, households tend to repay smaller debts (Panel B), avoiding enforced collection (Panel D). However, larger debts (Panel C) are harder to repay, raising the risk of enforced collection. This challenges the idea that inattention drives repayment behavior, as it varies by debt size.

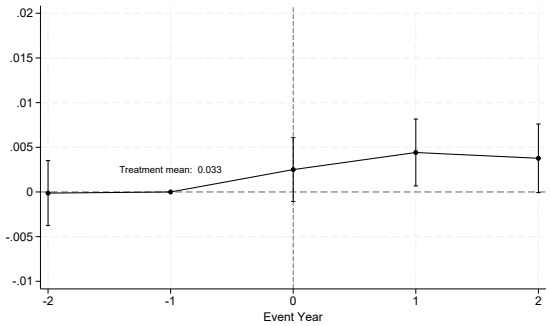
Unlike fatal shocks, the impact of nonfatal events is temporary, consistent with partial recovery in labor earnings after two years.

Table 8 reports that nonfatal shocks increase the likelihood of receiving a claim by 0.6 percentage points, with 66% repaid immediately and 33% resulting in enforced collection of larger debts. Compared to fatal shocks, nonfatal events carry a smaller default risk, reflecting the less severe income loss. Nonfatal shocks raise the risk of receiving a claim by nearly 10%, compared to 25% for fatal shocks, and increase the risk of large debt collection by 11%, compared to 25% for fatal events.

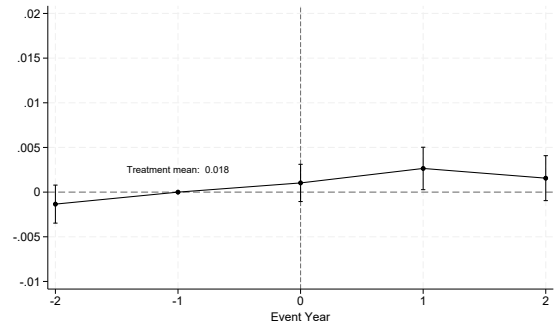
Figure 11: **The Dynamic Effect of a Nonfatal Health Shock on the Probability of Receiving a Claim and its Decomposition.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a nonfatal health shock on the probability of the Household to A. receive a claim, B. repaying the total amount and C. having enforced debt collection of large claims and D. having 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 regressions are specified as in Equation 1. Standard errors are clustered at the household level.



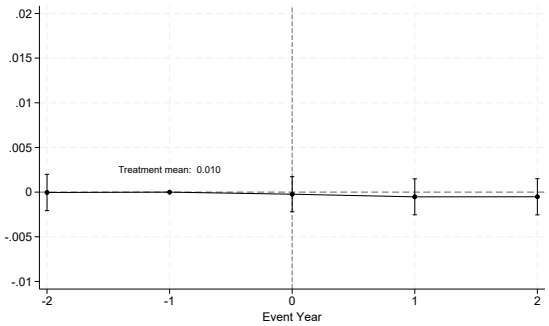
A. Receiving a Debt Claim (Household)



B. Re-paying all Debt (Household)



C. Debt Collection of Large Debts (Household)



D. Debt Collection of Small Debts (Household)

Table 8: **The Effect of a Nonfatal Health Shock on the Probability of Receiving a Claim and its Decomposition.**

	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 one year before the event. 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 Role of Housing Wealth in Financial Resilience

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

Table 9 compares the effects on renters (Panel A) and homeowners (Panel B). While both groups face a higher probability of receiving a claim after a nonfatal shock, the risk is higher for renters (13%) than homeowners (8%). Renters repay about half of these claims immediately, compared to 75% for homeowners. Both groups face a higher risk of large debt collection, but renters experience a greater increase (17%) than homeowners (8%). While homeownership provides some protection, its impact is less pronounced for nonfatal shocks, likely due to the temporary nature of the income loss. Selling a home may be necessary for permanent income losses but avoidable for short-term ones. Finally, column 5 shows a slightly larger drop in disposable income for renters (8%) compared to homeowners (5%), which could also impact the differences in default risks.

Table 9: **The Effect of a Nonfatal Health Shock on the Probability of Receiving a Claim and its Decomposition, and 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: 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 nonfatal shock. 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 one year before the event. 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. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

7 Robustness Checks

7.1 The Likelihood of Receiving Small and Large Claims

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

Table 10 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 some of the large claims received are also repaid. This is in line with our findings that homeowners manage to repay large claims, but renters do not.

Table 10: **The Effect of a Fatal Health Shock on the Probability of Receiving a Claim and its Decomposition 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 one year before the event. 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 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 a 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.[16]

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 11. 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 12 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 fatal health

[16] 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.

shock drastically increases the risk of default.

Table 11: **The Effect of a Fatal Health Shock on the Probability of Receiving a Claim 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 one year before the event. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 12: **The Effect of a Fatal Health Shock on the Probability of Receiving a Claim 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 one year before the event. 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 Sudden Death

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

Table 13 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 13: **The Effect of a Fatal Health Shock on the Probability of Receiving a Claim 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. Panel A shows results for non-sudden deaths and Panel B for sudden deaths. 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 one year before the event. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

7.4 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.[17] 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

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

both spouses pass away exit the dataset. If surviving spouses who pass away shortly after the loss exhibit different default rates compared to those who survive the entire period, their departure could potentially skew our estimates. To address this concern, we perform a supplementary analysis using only the sample of spouses who survived the entire period, resulting in the exclusion of approximately 4% of all observations.

Table 14 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 findings.

Table 14: **The Effect of a Fatal Health Shock on the Probability of Receiving a Claim 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 one year before the event. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

7.5 Event Study Specification

To increase the size of the treatment group and incorporate more pre- and post-reform periods, we conduct an event study analysis. The treatment group comprises households that experienced a fatal health incident between 2016 and 2019. We exclude 2020 both as the year of death and as a calendar year due to the onset of the COVID-19 pandemic. This approach yields five pre-reform periods and four post-reform periods for analysis. However, due to data limitations, not all year-of-death cohorts will be observable in every event year.

We specify the following event study to capture the dynamic effects:

$$y_{i,t} = \alpha + \sum_{t=-2, r\neq -1}^{2} \beta_t I_t + \theta_t + \gamma_i + \epsilon_{i,t}, \tag{3}$$

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 I_t is an indicator for every year prior and after the event. θ_t are year fixed effects and γ_i are household fixed effects.

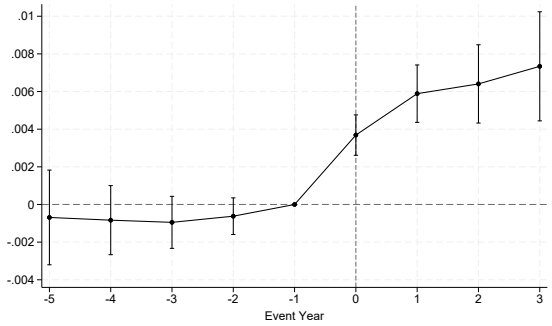
For assessing the post-event average effects, we estimate the following regression:

$$y_{i,t} = \alpha + \beta post_t + I_t + \theta_t + \gamma_i + \epsilon_{i,t}, \tag{4}$$

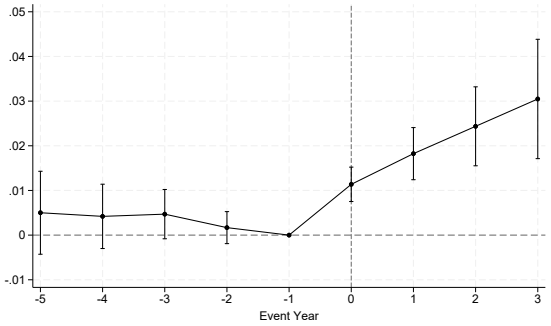
where the coefficient of interest β measures the average effect of a fatal or nonfatal health event on the outcome variable $y_{i,t}$. In both regressions, standard errors are clustered at the household level.

We replicate the main results from Section 5.1 using the event study approach. Figure 12 displays the coefficients and confidence intervals from the dynamic specification. Across all graphs, the pre-event period coefficients are centered around zero, followed by a sharp increase at the event year. The effects persist throughout the post-event period. Standard errors increase at the beginning and end of the observation window, reflecting the smaller number of observations in those years. Table 15 presents the average post-shock impact. These results closely align with the main findings.

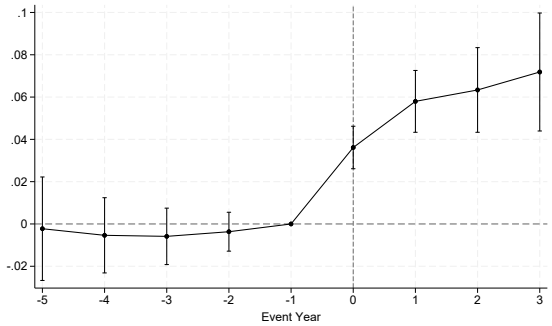
Figure 12: **The Dynamic Event Study Effect of a Fatal Health Shock.** The figure presents the effect of a fatal health shock on the probability of receiving a debt claim from the SEA. All graphs plots the coefficient estimates and 95% confidence intervals from an event study. Panel A shows the effect on the probability to receive a claim from the SEA, Panel B the average number of claims received, and Panel C the IHS of total debt. The regressions are specified as in Equation 3.



A. Receiving a Claim



B. Number of Received Claims



C. IHS(Total Debt)

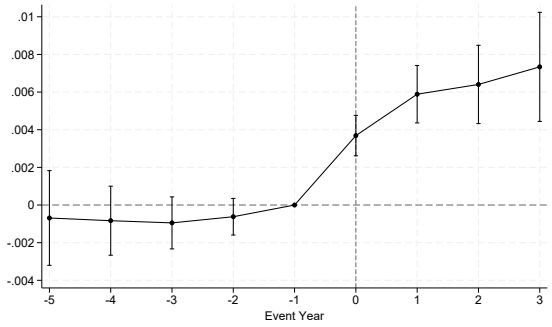
Table 15: **The Event Study Effect of a Fatal Health Shock on Debt Default of the Surviving Spouse.**

	(1) Receive Claim	(2) No. of Claims	(3) IHS(Total Debt)	(4) Total Debt
Panel A: Claims				
Post	0.005***	0.014***	0.047***	212.950*
	(0.0006)	(0.0024)	(0.0061)	(108.7369)
R^2	0.001	0.001	0.001	0.000
Observations	590,997	590,997	590,988	590,988
Mean in t=-1	0.016	0.038	621.916	621.916
Panel B: Debt Collection				
Post	0.002***	0.005***	0.017***	180.332***
	(0.0004)	(0.0018)	(0.0045)	(63.1527)
R^2	0.001	0.000	0.001	0.000
Observations	590,997	590,997	590,997	590,997
Mean in t=-1	0.008	0.021	393.804	393.804

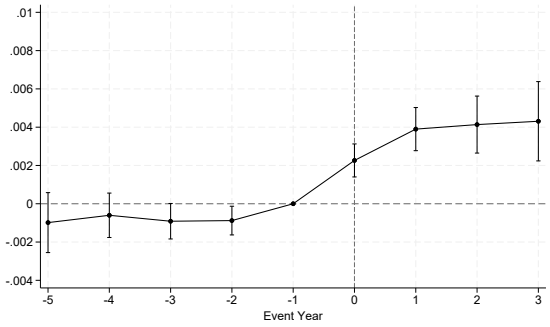
Note: This table provides estimates for the impact of a fatal health shock on the surviving spouse. Columns 1-3 in Panel A present results on three metrics: 1) the probability to receive a financial claim from the SEA; 2) the average number of such claims within a year; and 3) the inverse hyperbolic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

Next, we replicate the decomposition results from Section 5.2.1. Figure 13 presents the dynamic event study results. There is no indication of any pre-event trend across these graphs. As before, there is a clear impact at the event year across all outcomes, except for debt collection of small claims. Table 16 shows that the average post-event impact is remarkably similar to the main specification, further supporting the consistency of the findings.

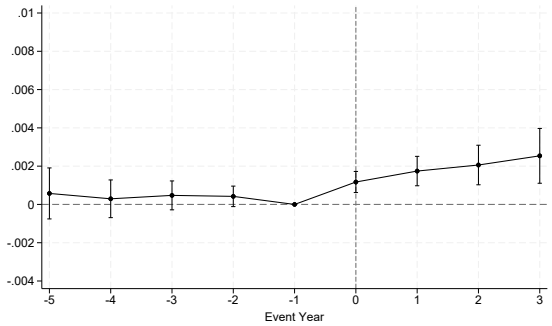
Figure 13: **The Dynamic Event Study Effect of a Fatal Health Shock on the Probability of Receiving a Claim and its Decomposition.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a fatal health shock on the probability to A. receive a claim, B. repaying the total amount and C. having enforced debt collection of large claims and D. having enforced debt collection of small claims. The regressions are specified as in Equation 3. Standard errors are clustered at the household level.



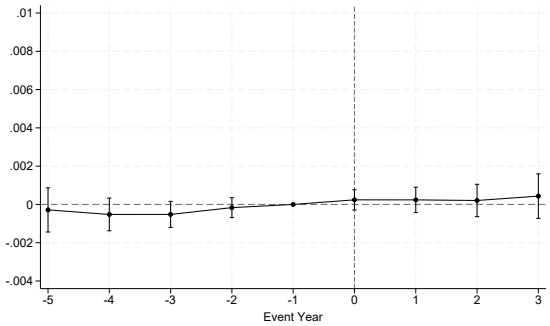
A. Receiving a Debt Claim



B. Repaying all Debts Associated with the Claim



C. Debt Collection of Large Debts



D. Debt Collection of Small Debts

Table 16: **The Event Study Effect of a Fatal Health Shock on the Probability of Receiving a Claim and its Decomposition.**

	(1) Receive Claim	(2) Repaying All	(3) Debt Collection (Large)	(4) Debt Collection (Small)
Post	0.005***	0.003***	0.001***	0.000
	(0.0006)	(0.0004)	(0.0003)	(0.0003)
R^2	0.001	0.001	0.000	0.000
Observations	590,997	590,997	590,997	590,997
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 one year before the event. Regressions are specified as in Equation 4. 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 where there is essentially no health care costs or strategic motives for default.

We show that in the aftermath of a fatal health event, there is an increase of approximately 25% in the likelihood of default by the surviving spouse. Notably, this increased risk persists for several years and does not stem from a mechanical transfer of financial strain from the deceased spouse, nor is it confined to households exhibiting default tendencies prior to the health shock.

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

Crucially, our findings suggest that variations in income levels alone cannot account for these differences in default rates. Instead, variations in wealth levels play a pivotal role. We observe that spouses with the largest relative income loss are more likely to liquidate housing wealth and that defaults are primarily driven by surviving spouses who are renters, lacking the housing wealth that could serve as a financial buffer. We also show that children of financially disadvantaged households also become more susceptible to financial distress following the loss of a parent.

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. However, housing wealth appears to be a weaker predictor of default following a nonfatal health event, likely because the associated income shock is more temporary in nature.

Our results highlight the need to assess both income and wealth when evaluating household insurance adequacy, emphasizing the role of housing wealth as a buffer against

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

The finding that homeowners tend to sell their house when facing permanent income shocks suggest that expanding access to reverse mortgages and home equity lines of credit (HELOCs) could provide essential liquidity while allowing older households to remain in their homes. This could offer a more flexible approach to managing financial risks in later life, as highlighted by Davidoff (2010). At the same time, our results highlight a critical vulnerability for households without housing wealth, who experience significantly higher financial distress following fatal health shocks.

References

Agarwal, S., J. He, T. F. Sing, and J. Zhang (2016, 12). Gender Gap in Personal Bankruptcy Risks: Empirical Evidence from Singapore*. *Review of Finance 22*(2), 813–847.

Agarwal, S., V. Mikhed, and B. Scholnick (2020). Peers' Income and Financial distress: Evidence from Lottery Winners and Neighboring Bankruptcies. *The Review of Financial Studies 33(1)*, 433—-472.

Callaway, B. and P. H. Sant'Anna (2021). Difference-in-differences with multiple time periods. *Journal of Econometrics 225*(2), 200–230. Themed Issue: Treatment Effect 1.

Chandra, A. and D. O. Staiger (2007). Productive spillovers in health care: Evidence from treatment of heart attacs. *Journal of Political Economy 115(1)*, 103–140.

Chetty, R. and A. Szeidl (2007, 05). Consumption Commitments and Risk Preferences*. *The Quarterly Journal of Economics 122*(2), 831–877.

Coyne, D., I. Fadlon, S. P. Ramnath, and P. K. Tong (2024). Household Labor Supply and the Value of Social Security Survivors Benefits. *Forthcoming, American Economic Review*.

Davidoff, T. (2010). Home equity commitment and long-term care insurance demand. *Journal of Public Economics 94*(1), 44–49.

Dobbie, W. and J. Song (2015, March). Debt relief and debtor outcomes: Measuring the effects of consumer bankruptcy protection. *American Economic Review 105*(3), 1272–1311.

Dobkin, C., A. Finkelstein, R. Kluender, and M. J. Notowidigdo (2018). The economic consequences of hospital admissions. *American Economic Review 108*(2), 308–352.

Doyle, J. J. (2011). Returns to local-area health care spending: Evidence from health shocks to patients far from home. *American Economic Journal: Applied Economics 3(3)*, 221–243.

Druedahl, J. and A. Martinello (2022). Long-run saving dynamics: Evidence from unexpected inheritances. *Review of Economics and Statistics*, 1079–1095.

Fadlon, I. and T. H. Nielsen (2019). Family health behaviors. *American Economic Review 109(9)*, 3162–3191.

Fadlon, I. and T. H. Nielsen (2021). Family labor responses to severe health shocks: Evidence from danish administrative records. *American Economic Journal: Applied Economics 13(3)*, 1–30.

Feinstein, J. and D. McFadden (1989). The dynamics of housing demand by the elderly: Wealth, cash flow, and demographic effects. In D. A. Wise (Ed.), *The Economics of Aging*, pp. 55–86. Chicago: University of Chicago Press.

Finansinspektionen (2021). Fi-analys 32: Lån, betalningsproblem och skuld hos kronofogden. Report. Accessed: 2024-03-18.

Försäkringskassan (2016). Aktuella belopp 2016. PDF-file. Accessed: 2024-04-07.

Gupta, A., E. Morrison, C. R. Fedorenko, and S. D. Ramsey (2018). Home equity mitigates the financial and mortality consequences of health shocks: Evidence from cancer diagnoses. *New York University, Stern School of Business*.

Jeon, S.-H. and R. V. Pohl (2017). Health and work in the family: Evidence from spouse's cancer diagnoses. *Journal of Health Economics 52*, 1–18.

Kalda, A. (2020). Peer financial distress and individual leverage. *The Review of Financial Studies 33*, 3348–3390.

Keys, B. J., N. Mahoney, and H. Yang (2023). What determines consumer financial distress? place-and person-based factors. *The Review of Financial Studies 36*(1), 42–69.

Lundborg, P., M. Nilsson, and J. Wikström (2015). Heterogeneity in the impact of health shocks on labour outcomes: evidence from swedish workers. *Oxford Economic Papers 67*(3), 715–739.

Lusardi, A., P.-C. Michaud, and O. S. Mitchell (2017). Optimal financial knowledge and wealth inequality. *Journal of Political Economy 125*(2), 431–477.

Meyll, T. and T. Pauls (2019). The gender gap in over-indebtedness. *Finance Research Letters 31*.

Morrison, E. R., A. Gupta, L. Olson, L. Cook, and H. Keenan (2013). Health and financial fragility: Evidence from car crashes and consumer bankruptcy. *University of Chicago Coase-Sandor Institute for Law & Economics Research Paper* (655), 13–81.

Nam, T.-y. and S. Oh (2021). Non-recourse mortgage law and housing speculation. *Journal of Banking Finance 133*, 106292.

Nekoei, A. and D. Seim (2022). How do inheritances shape wealth inequality? theory and evidence from sweden. *Review of Economic Studies*, 1–36.

OECD (2018). *OECD Pension Outlook 2018*. Paris: OECD Publishing.

OECD (2023a). *Pensions at a Glance 2023: OECD and G20 Indicators*. Paris: OECD Publishing.

OECD (2023b). Public spending on incapacity. Accessed: 2024-10-16.

Parise, G. and K. Peijnenburg (2019, 02). Noncognitive Abilities and Financial Distress: Evidence from a Representative Household Panel. *The Review of Financial Studies 32*(10), 3884–3919.

Pensionsmyndigheten (2016). Bilaga 2 jan 2016 utgifter inom pensionsområdet. Excel file. Accessed: 2024-04-05.

Poterba, J. M., S. F. Venti, and D. A. Wise (2017). The asset cost of poor health. *The Journal of the Economics of Ageing 9*, 172–184.

Shor, E., D. J. Roelfs, M. Curreli, L. Clemow, M. M. Burg, and J. E. Schwartz (2012, 03). Widowhood and Mortality: A Meta-Analysis and Meta-Regression. *Demography 49*(2), 575–606.

Socialstyrelsen (2017). Högkostnadsskyddsbelopp för vård läkemedel och viss kommunal omvårdnad år 2017. Accessed: 2023-12-8.

Svensk Försäkring (2023). Svensk försäkrings statistikdatabas: Från a till Ö - bestånd - antal försäkringsavtal. Excel file. Accessed: 2024-03-07.

Swedish Enforcement Authority (2024). Record of non-payment. Accessed: 2024-05-29.

Venti, S. F. and D. A. Wise (1989). Aging, moving, and housing wealth. In D. A. Wise (Ed.), *The Economics of Aging*, pp. 9–48. Chicago: University of Chicago Press.

Venti, S. F. and D. A. Wise (1990). But they don't want to reduce housing equity. In D. A. Wise (Ed.), *Issues in the Economics of Aging*, pp. 13–29. Chicago: University of Chicago Press.

Venti, S. F. and D. A. Wise (2002). Aging and housing equity. In O. S. Mitchell and Z. Bodie (Eds.), *Innovations in Retirement Financing*, pp. 254–281. Philadelphia: University of Pennsylvania Press.

Zhou, Y., W. Lu, C. Liu, and H. Gan (2023). The gender gap in financial distress. *Applied Economics 0*(0), 1–16.

Appendix

A Descriptives

A.1 Survivor's Pension Eligibility

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).

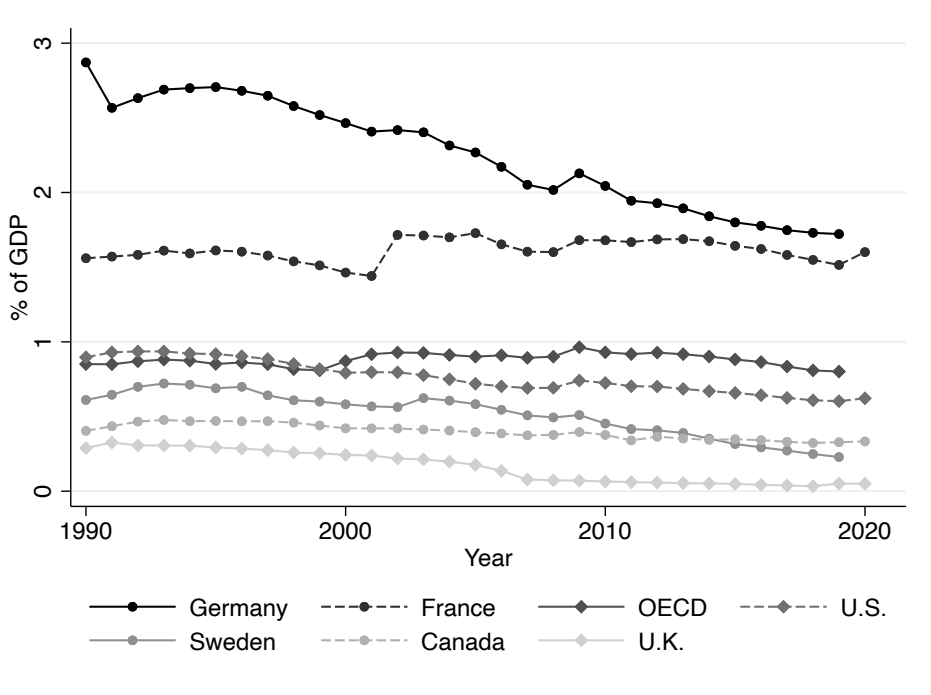


Table A.1: **Pension Eligability by Birth Year and Gender.**

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 Shock 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

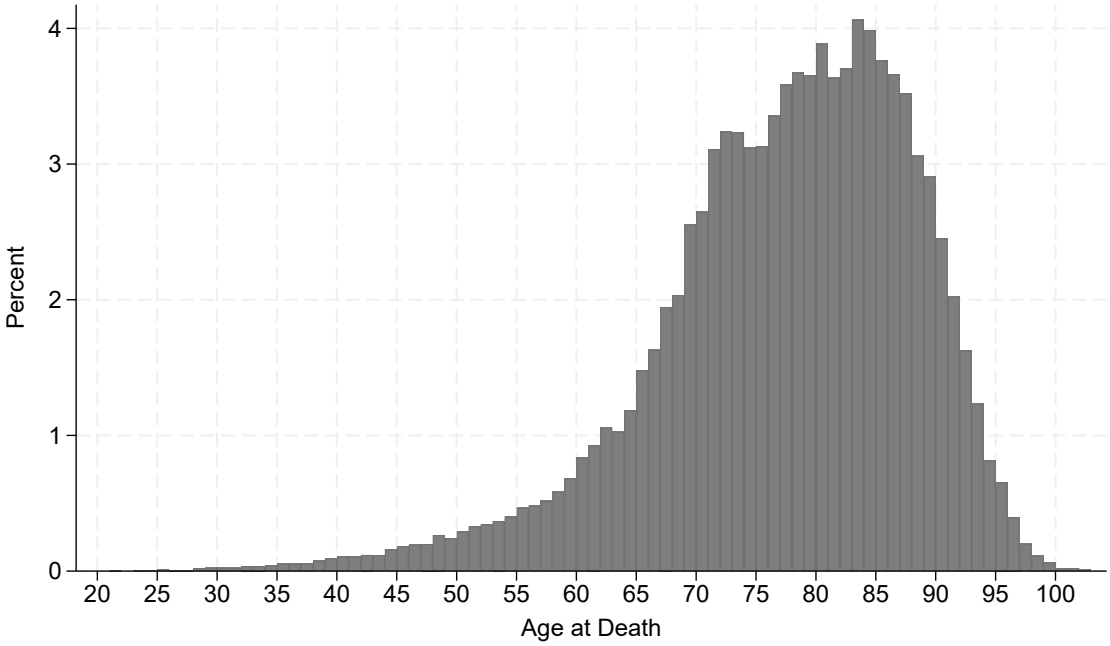
Note: The table presents summary statistics in the pre-event period by groups defined by year of the fatal health event. The table shows mean values in the two years preceding the event and standard deviations in parentheses. Column 1-2 show the results for each treatment group, experiencing a fatal 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 thousand SEK.

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

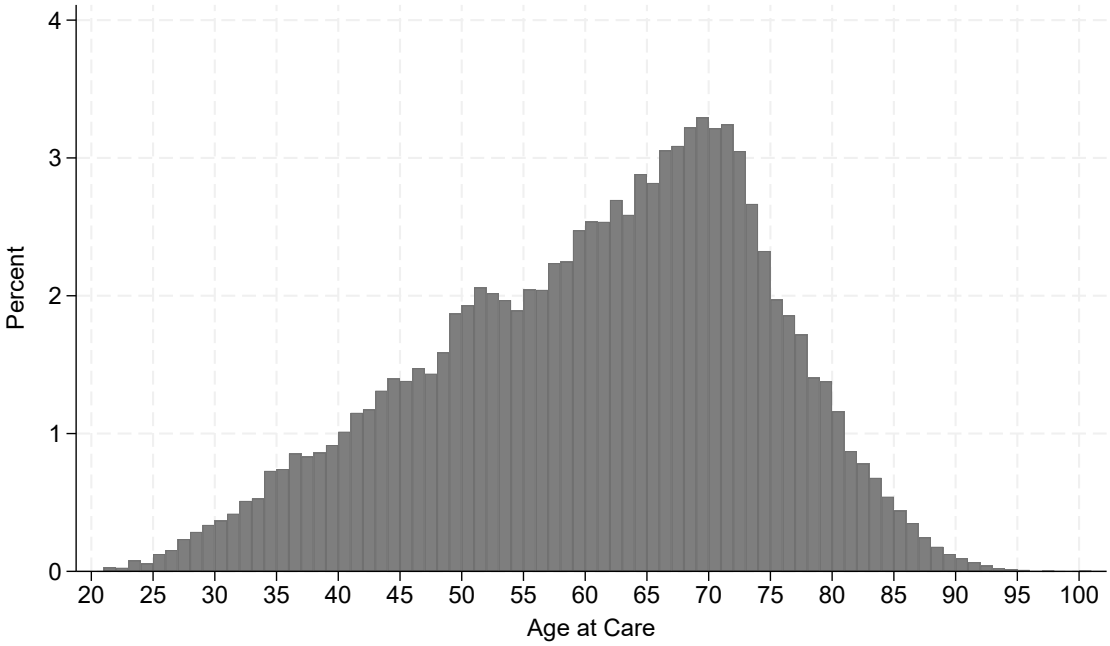
	2016	2017	2019	2020
Age, Sick Individual	60	60	58	59
	(13.41)	(13.41)	(13.44)	(13.55)
Age, Spouse	59	59	57	58
	(13.49)	(13.38)	(13.44)	(13.51)
Female, Sick Individual	0.37	0.37	0.37	0.37
	(0.48)	(0.48)	(0.48)	(0.48)
Female, Spouse	0.63	0.63	0.63	0.62
	(0.48)	(0.48)	(0.48)	(0.48)
Some Higher Education, 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 thousand SEK.

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

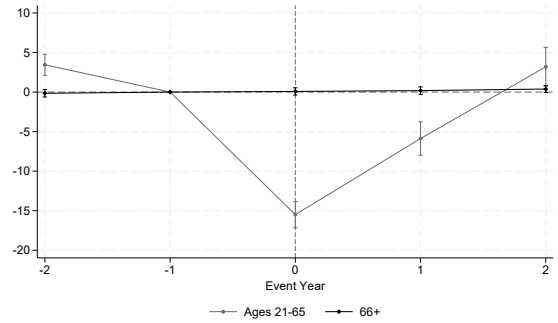


B. Nonfatal

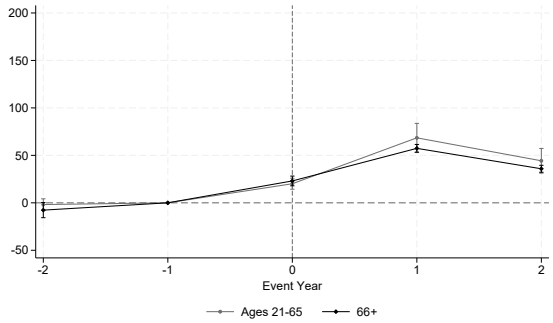
B Additional Analyses on Fatal Health Shocks

B.1 Effects on Income in Levels.

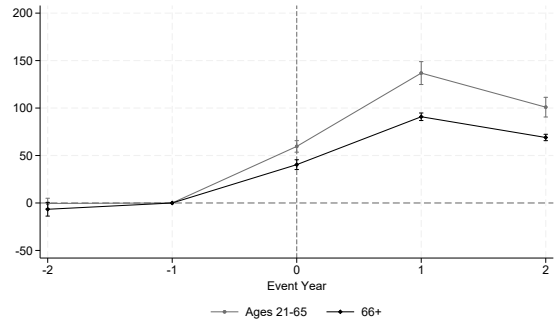
Figure B.1: **The Dynamic Effect of a Fatal Health Shock on Labor, Capital and Disposable Income for Spouses Above or Below Retirement Age.** The figure plots the coefficient estimates of the effect of a fatal health shock on A. labor income of the spouse, B. capital income of the spouse, C. disposable 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.



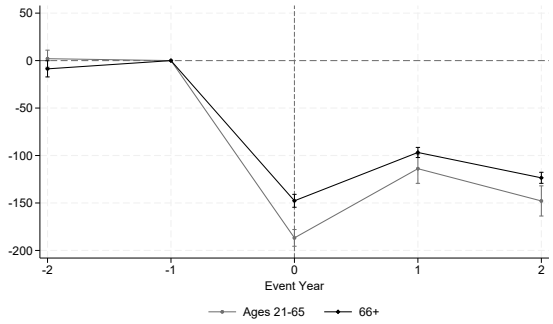
A. Labor Income (Spouse)



B. Capital Income (Spouse)



C. Disposable Income (Spouse)



D. Disposable Income (Household)

Table B.1: **The Effect of a Fatal Health Shock on Labor, Capital and Disposable Income of the Surviving Spouse and the Household.**

	(1) Labor Income	(2) Capital Income	(3) Disposable Income	(4) Hh. Disposable Income
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. Panel A shows results for spouses below retirement age and Panel B in 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 is the treatment mean one year before the event. 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.2 Effects on Defaults by Surviving Spouses Above and Below Retirement Age.

Table B.2: **The Effect of a Fatal Health Shock on the Probability of Receiving a Claim and its Decomposition, by Surviving Spouses Above or 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 one year before the event. 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 Impact by Extent of Income loss

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

We employ a triple-difference estimator to calculate the difference in treatment effects between the two subgroups. Panel A in Figure B.2 illustrates that household disposable

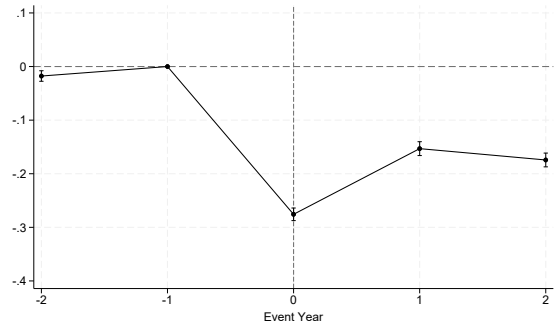
income decreases almost 30% more when the surviving spouse is a secondary earner compared to when they are the primary earner.

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.

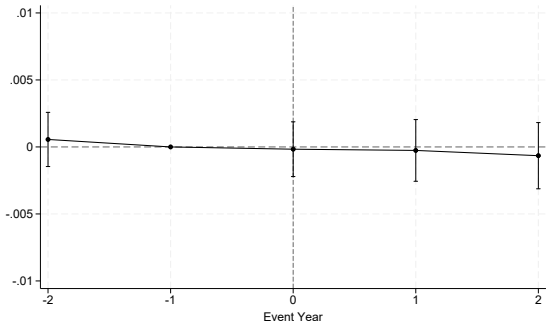
Table B.3 presents the average treatment effects for spouses classified as secondary earner and primary earner in columns 1 and 2, respectively. Furthermore, columns 3-4 present the results for surviving spouses that are either female or male. Secondary earners and women lose about 60% of household income when a spouse dies, while men and primary earners lose about 40% on average. The effect on the probability of debt collection of large debts is similar across the groups. 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.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 B.2: **The Differential Effects of a Fatal Health Shock on Secondary vs. Primary Earners.** The figure plots the triple difference 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 large claims. 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. Income is expressed in constant prices (2019). 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)



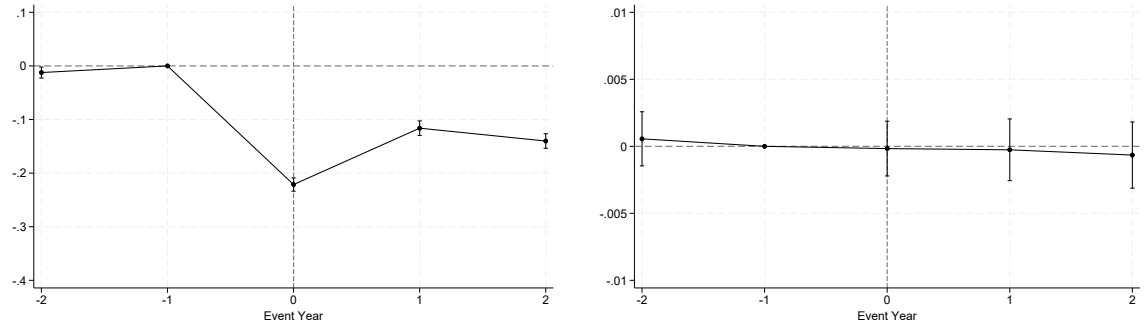
B. Debt Collection of Large Debts

Table B.3: **The Effect of a Fatal Health Shock on Subgroups of Surviving Spouses with Different Expected Income Losses.**

	(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: 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 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 one year before the event. 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 B.3: **The Differential Effect of a Fatal Health Shock on Women vs. 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. Income is expressed in constant (2019) prices. 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)

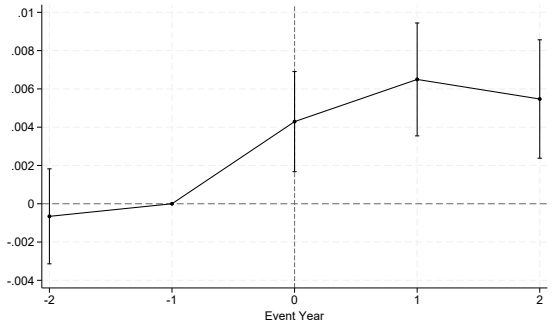
B. Debt Collection of Large Debts

B.4 Same Age Restriction and Specification as in Fadlon and Nielsen (2021).

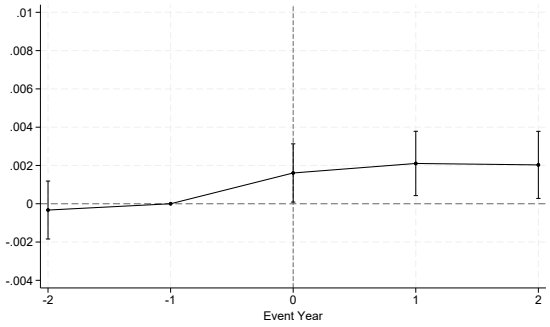
To enhance the comparability of our results with those of Fadlon and Nielsen (2021), we estimate the impacts of fatal health shocks using identical age restrictions and regression specifications. Specifically, we limit the sample to households where the deceased was between 45 and 80 years old at the time of death. Additionally, we incorporate household fixed effects in the regression, replacing age fixed effects.

Figure B.4 presents the dynamic point estimates derived from these regressions. The findings align closely with our main results, indicating a decline in labor income of approximately 10% during the event year. Additionally, both the likelihood of receiving a claim and the probability of entering debt collection for large claims exhibit positive effects of similar magnitude.

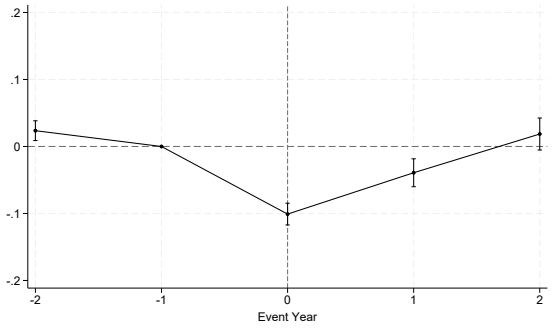
Figure B.4: **The Dynamic Effect of a Fatal Health Shock on Labor Income and Default with same age restriction and specification as in Fadlon and Nielsen.** The figure plots the coefficient estimates of the effect of a fatal health shock on A. receiving a claim, B. debt collection of large claims, and C. labor income. Restricted to spouses with a partner dying at age 45-80. Income is expressed in constant (2019). The regressions are specified as in Equation 1 but including household fixed effects instead of age bin fixed effects. Standard errors are clustered at the household level.



A. Receving a Claim



B. Debt Collection (Large)



C. Log(Labor Income)

B.5 Downsizing of Homeowners

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

Figure B.5 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.4 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.5: **The Dynamic Effect of a Fatal Health Shock on the Probability to Move to Another Neighborhood for 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.

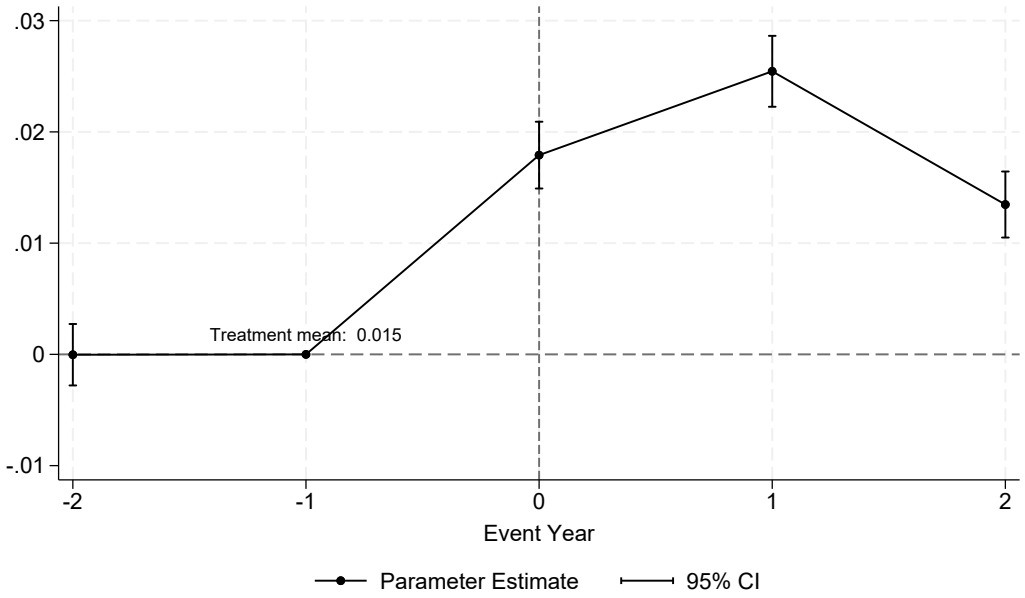


Table B.4: **The Effect of a Fatal Health Event on the Probability to Move to Another Neigborhood by Housing Type.**

	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 remain homeowners throughout the period of analysis. The pre-event mean is the treatment mean one year before the event. 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

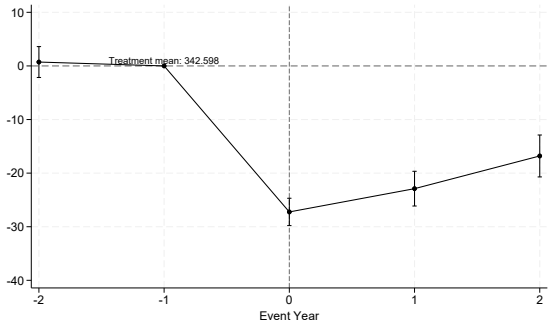
C.1 Effects on Income in Levels

Table C.1: **The Effect of a Nonfatal Health Shock on Labor, Capital and Disposable Income for the Sick Individual and Their Spouse.**

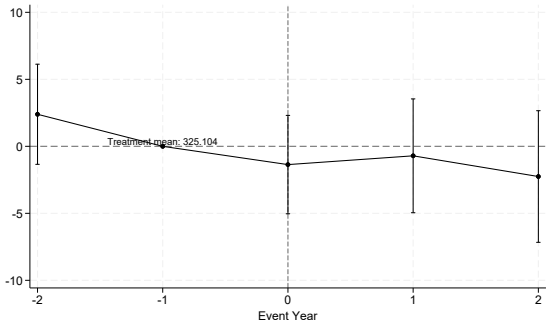
	(1) Labor Income	(2) Capital Income	(3) Disposable Income	(4) Hh. Disposable Income
Panel A: Sick Individual				
Treat × Post	-22.669***	7.361	-21.097	-57.366***
	(1.551)	(5.521)	(14.622)	(18.828)
R^2	0.092	0.001	0.001	0.002
Observations	268,882	268,882	268,882	268,882
Mean in t=-1	342.598	44.585	364.215	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. Panel A shows results for the sick individual and Panel B for 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 is the treatment mean one year before the event. 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 Dynamic Effect of a Nonfatal Health Shock on Labor Income for the Sick Individual and Their Spouse.** 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. Panel A shows results for the sick individual and Panel B for 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 Shock on the Household Disposable Income for the Sick Individual and Their 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 is the treatment mean one year before the event. 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. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$