Severe Health Shocks and Financial Well-Being

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Abstract

We examine the effect of fatal shocks among the older people and non-fatal health shocks among the general population on defaults in the household. We find that fatal health shocks are a major cause of defaults during older ages. Importantly, this behavior is solely visible among secondary-earner surviving spouses, who experience a significant permanent negative income shock and who do not have enough resources, notably housing wealth, to pay larger financial obligations. We show supportive evidence that this behavior is not driven by inattention. Additionally, children of surviving spouses with less resources become more likely to not pay a financial claim. These findings in a country with relatively generous welfare system manifest the graveness of background risks among poorer households during old ages and suggest that there might be room for improving the design of social insurance programs. We also find that non-fatal health shocks lead to an immediate, but mostly temporary, increase in the likelihood of default.

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1 Introduction

One of the preeminent roles of social security systems is to serve as a safeguard against the prevalent background risks that become increasingly salient in later stages of life, as well as the unforeseen health setbacks that affect a broader segment of the population. The United Nations Committee on Economic, Social, and Cultural Rights underscores this by asserting that an effective social security system should encompass the necessities associated with aging, healthcare, and disability, among other specific circumstances.

Adverse fatal and non-fatal health events are some of the most severe, and yet common, shocks that occur in most households during older ages. Those in a relationship can lose their partner at some point, and the likelihood of non-fatal health incidents goes up for almost everyone as they age. Consequently, programs that protect households against the potential income losses imposed by these health shocks – namely, survivors and disability insurance – are among the largest safety net programs in most OECD countries (Fadlon and Nielsen, 2021).

Studying how households are affected by and respond to severe adverse health events, and the accompanying income loss, is therefore central for the design of social insurance programs. In this paper we investigate how fatal shocks during older ages and severe non-fatal shocks in general affect financial well-being of households.

In the case of fatal shocks, we ask how they affect the surviving spouses' likelihood of defaulting on loans and other financial claims and the mechanisms driving the outcome. We also try to understand if these shocks have intergenerational effects by analyzing the financial behavior of children of the surviving spouse. We complement our analysis by looking at the effect of severe non-fatal health shocks on both the patient's behavior as well as that of the spouse.

To measure financial well-being, we exploit a distinct feature of the Swedish debt collection system, giving us access to data on all types of unpaid claims and debts between 2014–2020. Sweden is unique in having a government authority responsible for the collection of unpaid dues, including, for example, unpaid bills and rents. This allows us to capture even the most marginal groups with no access to credit or bank loans. The Swedish system is generally seen as favoring creditors, especially compared with the more lenient policies on personal bankruptcy and debt forgiveness in the United States. Consequently, the repercussions of defaulting on debt in Sweden are substantial. A non-payment record has far-reaching consequences. It can hinder access to credit, complicate housing prospects by affecting rental applications and house purchases, and create difficulties in securing service and utility contracts.[1] Furthermore, having a poor credit score can have significant implications for employment prospects. On average, one additional year of negative credit information has been shown to reduce employment by 3 percentage points and wage earnings by 1,000 USD (Bos et al., 2018). Together, these underscore the absence of significant incentives for strategic default. In this environment, where medical costs associated with a health shock are negligible and the chance of strategic default is

[1] https://kronofogden.se/other-languages/the-enforcement-authority—english/record-of-non-payment

virtually zero, we argue that defaulting on financial claims indicates financial strain.

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 but three years in the future. We combine event studies for these two groups and estimate the short-run treatment effects using a period-by-period difference-in-differences design. The main limitation of this approach is that it places an upper bound on the analysis' time horizon since the control group becomes "treated" within a few years. This is especially limiting for us, since we only have data on debt collection for the period of 2014–2020. The identifying assumption is that, absent the health shock, the outcomes of the treatment and control groups would have run in parallel to each other. Reassuringly, we show that the pre-trends run in parallel for the relevant outcomes. This methodology is very similar to the one used in Fadlon and Nielsen (2019) and relies on the common notion that the timing of the shocks within a short period of time may be as good as random.[2]

We find that a fatal health event in the household substantially increases the likelihood of default - the death of a spouse increases the incidence of default by around 25 percent of the pre-shock value. While the incidence of default goes up for all types of financial obligations, we find that for smaller ones, the surviving spouse pays off the claim after receiving the notice from the Swedish Enforcement Authority and subsequently avoids going into forced debt collection. However, the likelihood of going into debt collection increases significantly for larger than median claims (around 1,000 USD). This finding, that unlike larger one, smaller claims are eventually paid off, suggests that default is unlikely to be explained by mental overload or grief and is more likely to be the result of financial difficulties arising from loss of available resources. It is noteworthy that the incidence of getting a notice and paying back only before going into debt collection for smaller claims increases over time after the fatal shock, indicating that surviving spouses have ongoing financial problems.

Surprisingly, the loss of household disposable income after the death of a spouse does not predict the likelihood of entering debt collection. Both primary and secondary earner surviving spouses exhibit similar tendencies in fulfilling their payment obligations. This finding may challenge our initial hypothesis, that the increase in debt default following the loss of a spouse is primarily driven by lack of financial resources.

However, we support this hypothesis by demonstrating that surviving spouses who were secondary earners, often women, exhibit a higher likelihood of resorting to the liquidation of their homes, presumably, to settle their larger financial obligations. One might argue that the decision to liquidate housing could be attributed to downsizing after the loss of a spouse, which might seem like a mechanical response. However, the significant difference in the likelihood of doing so between surviving spouses who were primary earners and those who were secondary earners does not support this possibility.

Comparing the behavior of surviving spouses who are homeowners versus renters

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

sheds more light on this hypothesis. We find that both homeowners and renters have an increased probability of receiving a claim, but homeowners manage to repay back both small and large claims. However, the increased probability of entering debt collection for large debts is mainly driven by renters who, presumably, cannot self-insure by selling their house or using that as a collateral. We get similar results if we look at those whose spouse's wealth was above or below median wealth in 2006, the last year we observe individuals' wealth in the administrative data. The results are driven by those below median wealth.

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

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

Interestingly, we find that a nonfatal health event increases the probability of debt default and debt collection only when the sick individual is below retirement age. This is consistent with resources available to the household being the driver of our findings, since those retired that become sick have no income loss, as they keep getting their pension, whereas someone who is working will get sickness pay that does not fully compensate for the income loss.

Even in welfare states, individuals self-insure by increasing labor supply when a spouse suffers from a severe health shock. This is particularly noticeable when the affected spouse is the primary income earner in the household, resulting in a significant loss of household income (Fadlon and Nielsen, 2021). However, the effectiveness of this in circumventing financial distress remains uncertain. Challenges could arise if the secondary earner lacks a strong attachment to the labor market. Moreover, many spouses are at retirement age when their partner passes away or becomes sick, making re-entry into the labor market a potentially daunting task. Our findings suggest that households, especially those with less resources, cannot fully insure against health shocks, and in some cases, incur significant financial consequences. Our results shed light on the extent of financial consequences of health shocks in spite of generous social insurance programs in a welfare economy and can be regarded as a lower bound, suggesting that the financial fallout in many other countries may be even more substantial.

This research contributes to the literature on the economic consequences of health

shocks. Cochrane (1991) rejects the existence of full insurance for long-term illness. Poterba et al. (2017) use data on the over-65 population drawn from ten waves of the Health and Retirement Study (HRS) to explore the role of health shocks in contributing to the draw-down of retirement wealth and find that for some health conditions, the net worth declines significantly following diagnosis. Dobkin et al. (2018) use an event study approach to examine the economic consequences of hospital admissions for adults in survey data from the HRS and hospitalization data linked to credit reports in California. They find that for non-elderly adults, hospital admissions increase out-of-pocket medical spending, unpaid medical bills, and bankruptcy, and reduce earnings, income, access to credit, and consumer borrowing. The effects are much larger for the non-insured. Jeon and Pohl (2017) find negative effects on the labor supply of the spouse following a nonfatal health shock and Lundborg et al. (2015) find heterogeneous effects of health shocks, where the negative effects are greater for low-skilled individuals.

Our analysis also adds to the smaller literature that studies the determinants of financial distress. Keys et al. (2023) study the relative role of place versus individual-based factors and concludes that financial distress is more the consequence of persistent individual factors. In related work, Agarwal et al. (2020) and Kalda (2020) study the role of peer effects in determining financial distress. Gupta et al. (2018) study the effect of cancer diagnosis and find that it is financially destabilizing only for those with negative home equity as they are substantially more likely to default on their mortgage and file for bankruptcy. Morrison et al. (2013) use an event-study approach to examine the impact of nonfatal automobile accidents in Utah on bankruptcy and do not reject the null hypothesis of no effect.

2 Institutional Setting

2.1 Health Care Costs

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 the 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 per day for inpatient services, 1100 SEK per year for outpatient care costs, and 2200 SEK for total medical expenses during the year (Socialstyrelsen, 2017).

2.2 Survivor's Pension

Sweden was one of the first countries in the world to introduce a widow's pension in the 1940s. During this time, family representation was dominated by the male-breadwinner

model and, consequently, only women were directly entitled to these benefits. Nowadays, most OECD countries offer survival pensions to both men and women, but there is variety in the type and scope of survivor pension schemes. On average, OECD countries spend 1% of GDP on survivor benefits in mandatory schemes, Sweden is among the countries with lower average spending below 0.5% (OECD, 2018).

The original widow's pension, which granted widows 40% of their deceased spouse's pension, was replaced in 1990 by the adjustment pension. This reform was designed to encourage women's participation in the labor market. Eligibility for the adjustment pension is limited to spouses or registered partners under 66 years at their partner's time of death.[3] The adjustment pension, constituting 55% of the deceased's anticipated monthly pension, is disbursed over a year. A guarantee pension supplements low adjustment pensions, ensuring a minimum financial support level for those receiving less than SEK 9,319 (approximately 898$) per month.[4] The reform also emphasized enhancing children's rights to pensions, with child pensions awarded up to 18 years (or 20 if still in school), and for surviving spouses with children under 12 payments continue until the child reaches 12 years.

The widow's pension remains available to spouses born before 1945 who were married to the deceased in 1989 and until the time of death. In 2014, the average widow's pension payout was 41,900 SEK, while the average adjustment pension payout was 73,100 SEK (Pensionsmyndigheten, 2014).[5]

Additionally, Sweden's public pension system allows for survivor protection in premium pensions. If the pension holder dies before their spouse or partner, the survivor receives the premium pension for life. The payout size is contingent on the accumulated savings and the pension holder's age. Opting for this protection converts the premium pension into a joint insurance, often leading to reduced payouts.

There are also private life insurance policies designed to provide financial support to surviving spouses. These vary in their payout structures and age-related terms. Term life insurances typically offer substantial death benefits, the amount of which is determined at the inception of the policy. These payouts can range significantly depending on the policyholder's coverage choices. However, the critical factor is that the death benefit is only payable if the insured dies within the policy term, which often has an upper age limit between 67-90 years. Survivor benefits are also an option in private and occupational pension insurance. These benefits ensure that the surviving spouse receives either ongoing payments or a lump sum upon the policyholder's death, calculated based on contributions and investment gains. Opting for survivor protection in these pensions typically leads to a reduced payout for the initial policyholder.

[3] 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 under-18 children.

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

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

2.3 Health Insurance

For those suffering from a severe health shock, there are different insurance schemes that cover income loss. The first two weeks of sick leave are financed by employers. One receives 80% of the salary minus a 20% *waiting day deduction*. After two weeks, the insurance is covered by the Swedish Social Insurance Agency. The coverage depends on one's working capacity and can be granted at 25, 50, 75 or 100 percent. At 100% sick leave, one receives 80% of the salary up to a ceiling that in 2016 was 29,533 SEK per month, compared to the median wage of 29,300 SEK. If the reduction in work ability is determined to be permanent, *sickness compensation* can be granted. Sickness compensation can be granted if the permanent reduction in labor supply is 25% or more and the person is between 19 and 64 years of age. One receives 64.7% of previous salary, with a monthly cap of 21,230 SEK.

2.4 Swedish Enforcement Authority (SEA)

Sweden is distinct in its approach to managing citizens' debt commitments, with a state authority tasked with collecting all unpaid bills. In many other countries, creditors need to rely on the general court system or go through local authorities if they want their debts repaid. Also, although Sweden has a debt restructuring process, the threshold to qualify is much higher and the process is stricter than many other countries.

The route from an unpaid bill to registration with the SEA is often lengthy. Typically, after a bill is unpaid, the creditor engages a collection company before involving the SEA. While collection companies cannot force debtors to pay, they may send reminders with additional fees. If the debtor fails to pay, the debt is sent to the SEA, which receives more than one million claims annually. This unique system provides us with access to comprehensive data detailing the entire population's debt defaults. The SEA handles all types of unpaid settlements, such as unpaid bills, housing rents, tax debts, unpaid parking tickets. This allows us to study even the most marginal households with little access to credit or bank loans.

If the debtor pays immediately after receiving the claim from the SEA, no further action is needed. Otherwise, the SEA enforces debt collection, which typically also leads to a negative credit score with credit reporting companies.[6] The authority has several means of enforcing repayment, the most common being foreclose and wage garnishments. In the latter case, the SEA negotiates an agreement with the debtor's employer to deduct a portion of their wage for payment to the authorities. In cases where there is no wage income, a foreclosure occurs, and the SEA seizes all assets, except those required for a minimum standard of living. Individuals who cannot repay their debts for an extended period can apply for debt restructuring, which grants them up to five years to repay

[6] The credit reporting companies can give negative credit reports for decisions about debt collection and debt restructuring. The credit score will remain public for 36 months for debt collection and five years for debt restructuring.

their debts while living at the minimum level of existence.[7] In 2022, 25,658 individuals (0.24% of the population) applied for debt restructuring. Of these applications, 39.7% were granted restructuring, highlighting that debt restructuring is very rare and only granted in extreme financial hardship. To provide some context, in 2022, more than 390,000 individuals were registered for debt collection, and less than 3% of them where granted debt restructuring.[8]

In comparison to many other countries, Sweden's approach to handling unpaid debts is notably more favorable for creditors, ensuring that debts are rarely left unresolved. When individuals fail to meet their financial obligations, they are promptly registered for debt collection through the Swedish Enforcement Authority. Subsequently, they are subjected to rigorous and stringent repayment plans until the entire debt is fully settled. For example, the United States boasts one of the world's most lenient bankruptcy systems, providing individuals with structured bankruptcy options like Chapter 7 or Chapter 13 (Dobbie and Song, 2015). Additionally, certain U.S. 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 is unable to pursue the borrower for the remaining balance (Nam and Oh, 2021). For example, the US bankruptcy system is among the most generous in the world, with structured bankruptcy laws, allowing individuals to file for bankruptcy under Chapter 7 or Chapter 13 (see e.g. Dobbie and Song (2015)). The U.S. has non-recourse laws in some states, which means that if a borrower defaults on a mortgage and the sale of the house does 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 full-population data from Sweden. The Swedish registers contain personal identifiers for all individuals, allowing us to merge data from different sources. Furthermore, it 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.

3.1 Financial Distress

To identify individuals experiencing financial distress, we use data from the Swedish Enforcement Authority's (SEA) register, which captures all applications for unpaid claims submitted between 2014 and 2019. This comprehensive register includes information on

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

[8] The SEA evaluates each application individually, taking into account factors such as the likelihood of repayment, the reason for the debt, and the need for financial rehabilitation (Swedish Enforcement Authority 2018)).

the debt size, the registration date, and the current status of each application. Each registered claim signifies that a creditor has formally sought SEA's help to recover an unsettled debt. On an annual basis, the SEA processes more than one million such applications, implicating approximately 400,000 individuals. The debtor is responsible for covering the cost of the application process, which also includes an added fee on top of the original debt. Among these applications, 40% are immediately settled by the debtor, requiring no additional action. Conversely, 50% remain unpaid and are subsequently registered for debt collection. The remaining 10% are either directly rejected by the SEA or end up being contested in court.

We aggregate the claims data at the individual-year level to estimate the total number of claims and total amount of claims an individual receives in a given year. Henceforth, we will use the term *debt* to denote the sum of all outstanding claims filed at SEA for an individual within a given year. Approximately 0.15% of all observations miss information on 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 supplementary outcome variables. First, we consider the likelihood that an individual repays the debt immediately after receiving the claim, thus avoiding debt collection. Second, we examine the likelihood of a debt collection registration. This latter measure is further disaggregated into two subsets based on the debt amount: those below the median debt of approximately 7,000 SEK and those above it.

3.2 Health Data

To accurately capture fatal and severe nonfatal health events, we employ two administrative registers provided by Sweden's National Board of Health and Welfare. The first is the Death Registry, a comprehensive source that chronicles the date and specific cause of death of deceased individuals. The second is the National Patient Registry, which maintains detailed records of hospital admissions, including admission dates and precise diagnoses as classified by the International Statistical Classification of Diseases and Related Health Problems (ICD). Building upon the methodologies of previous research, specifically those cited in Fadlon and Nielsen (2021) and other studies such as Chandra and Staiger (2007) and Doyle (2011), we narrow our focus to heart attacks, strokes, and injuries, given their frequent portrayal in the literature as sudden and severe health events. Importantly, we exclude injuries due to self-harm.

Add description of data on drug prescriptions..

3.3 Economic Data

We combine the data described above with other socioeconomic data that cover the period 1990-2020 and include detailed information on all sources of individual and household income and characteristics such as age, education, and industry of activity, as well as

household linkages. We study several income measures; labor income, capital income, and disposable income. Disposable income measures the sum of all taxable and tax-free income minus final tax and other negative transfers..[9] We measure disposable income both at the individual and the household level.

3.4 Wealth

To add data on household wealth, we use the Swedish Wealth Registry (Förmögenhetsregistret, FORM). The registry contains information on debt and wealth holdings as of December 31 for all Swedish residents during the years 1999–2007. These data are based on wealth tax returns, personal tax assessments, and information from financial institutions. The wealth data comprise detailed disaggregated information on bank account balances, stock and mutual fund investments, and real estate holdings.[10] The debt data include the total household debt, but we cannot disaggregate the amount by loan type, except for public student loans. Both debt and wealth holdings are reported in market value. After 2007, the wealth tax was abolished and the collection of information on individual wealth was discontinued.

3.5 Samples of Analysis

In our primary analysis, we focus on households that underwent a fatal health incident during the years 2016 and 2017. These households constitute our treatment group. To establish a counterfactual scenario, we establish a control group comprising households that experienced identical fatal health shocks in the years 2019 and 2020. Our sample consists of all households in which one spouse died, that were married one year before the death, and where the deceased was above age 45 in the year of the (actual or placebo) event. Our treatment group includes 50,187 households, while the control group includes 50,575 households.

When studying the effects on income, we capitalize on the larger set of available data that spans more years. This enables us to include a treatment group that experienced fatal health shock in an expanded range of years, specifically in 2005, 2009, 2010, 2011, 2015, 2016, or 2017. As a result, the size of our treatment group is increased to 184,015 individuals. For constructing a counterfactual scenario, 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 178,886 individuals.

In our investigation of nonfatal health shocks, we narrow our focus to specific incidents

[9] Taxable income includes the total earned income and capital income. Non-taxable income comprises various types of benefits and financial aid, including student aid and loans. Negative transfers consist of paid alimony and repayment of student loans.

[10] Overall the coverage of wealth is broad but some type of wealth such as pension wealth, unlisted shares and consumer durables are not included. Co-ops are registered from year 2004. Bank account balances over 100 SEK is reported until 2005, while in 2006–2007, only account balances exceeding 10,000 SEK are reported.

commonly recognized as sudden and severe, namely heart attacks, strokes, and accidents. Importantly, we deliberately exclude accidents resulting from self-harm to mitigate the risk of reverse causality, which could arise if self-harm were a reaction to financial distress. The treatment group consists of married households in which one spouse experienced a severe health shock for the first time during 2016 or 2017 and in which both spouses survived for at least three years. Our control group, in contrast, consists of households where a similar health shock occurred in either 2019 or 2020. The treatment group consists of 40,923 individuals, while the control group includes 43,068 individuals.

In the analysis of non-fatal health shocks, we also expand our sample when focusing on 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 184,989 individuals and the control group of 167,373 individuals.

Furthermore, in both of our nonfatal health shock samples, we extend our analysis beyond the outcomes for the spouse or the household as a whole; we also examine the financial impacts on the individual who experienced the health shock. This allows us to examine potential heterogeneity within the household regarding income and default outcomes. Appendix Tables A.1 and A.2 present summary statistics and illustrate the comparability between the treatment group (2016–2017) and the control group (2019–2020) in both samples.

4 Research Design

Our empirical strategy is similar to Fadlon and Nielsen (2019, 2021) and provides causal estimates on the effect of losing a spouse or having a severe nonfatal health shock in the household on financial well-being. We employ a quasi-experiment in which our treatment group experiences a health shock in year t and the control group experiences the same shock in year $t + \Delta$. Our choice of Δ is restricted by the availability of data, leading to the choice of $\Delta = 3$, which allows us to study both the treatment and control groups two years before and after the event of losing a spouse. Specifically, our treatment group consists of individuals experiencing a shock in the years 2016-2017 and the control group consists of those experiencing the same shock in 2019-2020. For the control group, we construct a placebo event at time t.

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-difference model:

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

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

fixed effects and X_i includes controls for the gender and education two years before the shock happens.

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

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

where the coefficient of interest β measures the average effect of a fatal or nonfatal health event on the outcome variable $y_{i,t}$. The indicator variable *post* is subsumed by the year fixed effects. In both regressions, the standard errors are clustered at the household level.

5 Default Responses to Fatal Health Events

In this section, we analyze the impact of fatal health events on household financial distress. We start by looking at how spousal death affects the likelihood of receiving a claim from the SEA and entering forced debt collection. Additionally, we explore two potential explanations for our results; lack of attention and resource limitation.

5.1 Main Results

Figure 1 presents the impact of spousal death on the probability of receiving a claim from the SEA. The event year zero, marked by the dashed vertical line, represents the year in which the fatal health shock occurs. Panel A presents the average share of surviving spouses in the treatment and control group who receive a claim from the SEA in each event year. In the pre-event years, the treatment and control group averages are close to identical at a level around 1.5%. At the event year, the occurrence of claims increases sharply in the treatment group and continues to increase in the following two years, while the share of spouses in the control group receiving claims remains relatively stable.

Panel B shows the results of the dynamic difference-in-difference regression analysis. The coefficient estimates quantify the treatment effect relative to the year preceding the health shock. Importantly, the pre-shock coefficient estimate in $t = -2$ is not statistically different from zero, corroborating the parallel trend assumption underlying our analysis. The effect manifests immediately in the year of the shock, supporting a causal interpretation of the observed changes. Examining the dynamics beyond the year of death reveals that this effect persists. This could be partly due to households where the health shock occurs late in the year, where the response only becomes evident in the following year. However, it could also be the case that the effect comes with a delay because some households manage to avoid defaults temporarily, up until available resources are exhausted. The fact that the effect persists even two years after death suggests that the death of a spouse causes longer-lasting financial challenges for affected households.

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

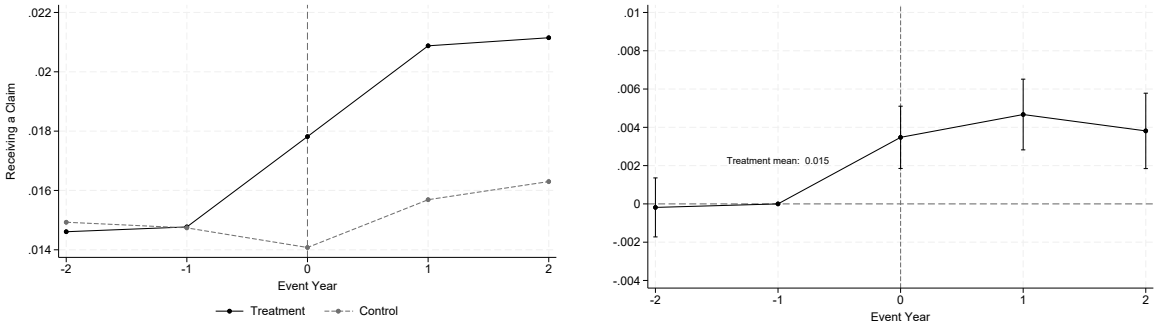
Figure 2 shows the effect on the number of claims per individual. Panel A displays that the average number of claims per individual was around 0.03-0.04 in the treatment and control group before death and that it increases in the treatment group after the death of the spouse. Panel B shows the coefficient estimates, which illustrates an immediate effect at the death year of around 1-2 percentage points. Figure 3 shows the effect on the total size of all claims received per individual during the year. Again, Panel A shows the averages in the treatment and control groups. The average debt is around 500 SEK in the pre-event years in the treatment group, which increases to close to 1000 SEK in the last two years. Panel B shows the effect of treatment on the logarithm of total debt. We logarithmicly transform the debt variable to better align with the assumptions of normality. Also for this outcome the regression estimates show no significant differences in pre-event trends but a significant increase for the treatment group compared to the control group at the event year.

Table 1 displays the average treatment effects. Panel A presents the effect on the probability of receiving a claim, the average number of claims received during the year, and the total unpaid debt. On average, surviving spouses experience a 0.4 percentage point increase in the probability of receiving a claim, representing a 27% surge relative to the baseline ($t = -1$) average of 1.5 percent. This suggests that more than one-fourth of all claims in old age can be attributed to spousal death. Furthermore, not only the frequency of claims increases, the average number of claims increases by 52%, while the total size of the claims owed by those who already had claims in the base period increases by 26%.

In Section 7.1 we show that, when we condition on spouses not having any claims before the health shock, the relative size of the effect is much larger, and the fatal health event explains the absolute majority of the rise in receiving financial claims from the SEA and ending up in debt collection.

A fatal shock also increases the risk of being subjected to enforced debt collection. Although surviving spouses may receive a claim from the SEA, they can still avoid debt collection and avoid a negative impact on their credit score by promptly repaying the debt. Panel B shows the effect on the same outcomes as in Panel A, but for financial claims that end up in debt collection. The probability of a surviving spouse not being able to repay a debt such that it has to be enforced through debt collection increases by 12.5%. Furthermore, the average number of claims that progress to the debt collection stage increases by 47%, and the average level of debt itself increases by nearly 39% for those who were already in debt collection before the fatal shock in the household.

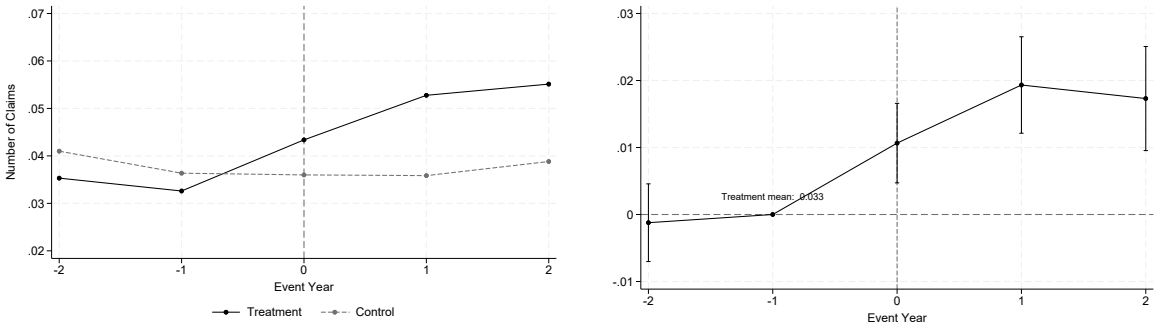
Figure 1: **The Effect of a Fatal Health Shock on the Probability of Receiving a Claim.** The figure presents the effect of a fatal health shock on the probability of receiving a debt claim from the SEA. Panel A shows the average share of spouses receiving a claim from the SEA in the treatment and control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



A. Mean in Treatment and Control Group

B. Coefficient Estimates

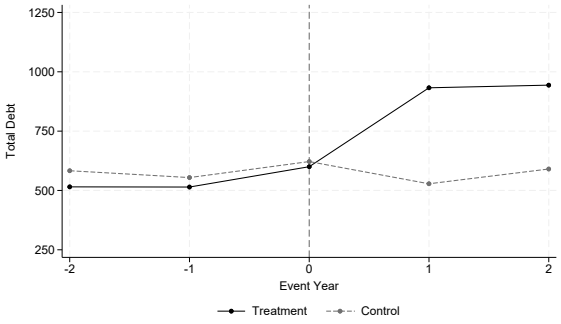
Figure 2: **The Effect of a Fatal Health Shock on the Number of Received Claims.** The figure presents the effect of a fatal health shock on the number of received debt claims from the SEA during the year. Panel A shows the average number of debt claims from the SEA in the treatment and control group.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



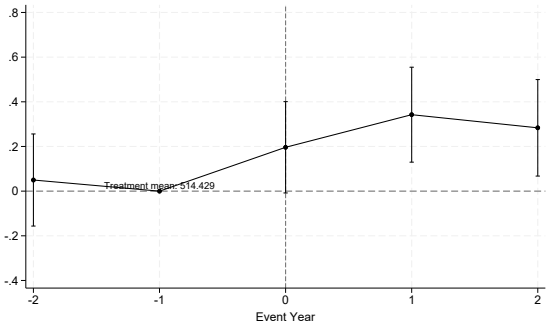
A. Mean in Treatment and Control Group

B. Coefficient Estimates

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



A. Mean in Treatment and Control Group



B. Coefficient Estimates

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

	(1) Receive Claim	(2) No. of Claims	(3) Log(Total Debt)
Panel A: Claims			
Treat × Post	0.004***	0.016***	0.257***
	(0.0007)	(0.0027)	(0.0770)
R^2	0.014	0.008	0.054
Observations	494,986	494,986	8,112
Mean in t=-1	0.015	0.033	514.429
Panel B: Debt Collection			
Treat × Post	0.001**	0.009***	0.391***
	(0.0005)	(0.0022)	(0.1104)
R^2	0.010	0.006	0.050
Observations	494,986	494,986	3,919
Mean in t=-1	0.008	0.019	356.452

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 natural logarithm of the total size of all claims made during the year. 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 natural logarithm of the total size of all claims subjected to enforced debt collection during the year. Debt is expressed in constant (2019) prices. The regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.2 Mechanism

In this section, we perform several analyses to understand the mechanism behind our main results. We focus on two potential channels: *inattention* and *lack of resources*. In the aftermath of the loss, the surviving spouse is likely forced to handle both grief and the administrative issues of the household. This can lead to not meeting financial obligations and receiving claims. Another channel is a decrease in household financial resources after the loss, which can make it difficult to pay the bills.

5.2.1 Does Inattention Impact Default Behavior?

The loss of a spouse typically takes a substantial emotional toll, which can be associated with symptoms of stress, anxiety, and depression. In such a state of emotional vulnera-

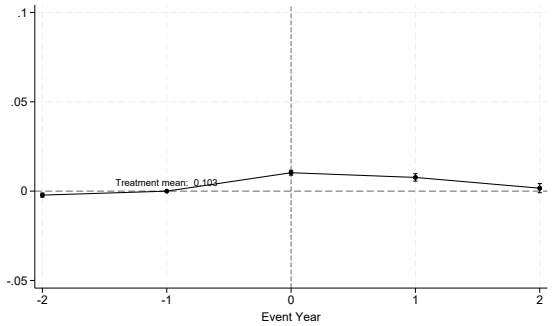
bility, it is increasingly plausible that routine household tasks, such as paying bills, may be neglected or compromised. It could also be the case that the deceased spouse was the one who used to manage the household's financial affairs, leaving the surviving spouse with an unfamiliar task. This turmoil may contribute to an increase in unpaid bills and a higher risk of receiving a debt claim.

Figure 4 provides key insights into the psychological impacts of spousal loss. Panel A displays the effect on the probability of being diagnosed with a mental disability, such as stress or depression, after the death of a spouse. The graph shows no statistically significant divergence in trends between the treatment and control groups before the event, but reveals an increase in the diagnosis rate at the year of the event, a surge that sustains throughout the post-shock period, albeit going down in magnitude. The immediate increase in the year of the shock signifies an increase of almost 10%, relative to a mean of 0.1 in the base period.

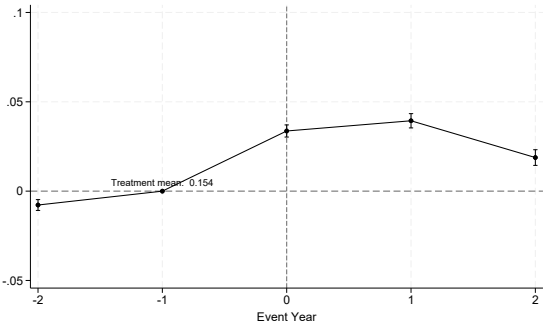
To some extent, the observed increase in mental disorder diagnoses after spousal loss could be mechanical. When a supportive partner is present, it may be less imperative to seek an official diagnosis, as informal care is available. However, after the death of a spouse, obtaining a diagnosis may become essential to qualify for in-home care services designed for the elderly. For this reason, we have deliberately excluded dementia from the categories of mental disorders in our analysis. Dementia generally has a slow onset and is less likely to manifest immediately after a stressful life event such as spousal loss.

To better understand the full spectrum of mental health impacts, we also examine the prescription of antidepressants and tranquilizers. Unlike conditions that might be managed to some extent through spousal support, the need for such medications is less likely to be replaced by informal care. Panels B and C in Figure 4 illustrate a pronounced increase in the prescription of antidepressants and tranquilizers in the year of the spouse's death. Specifically, antidepressant prescriptions increase by approximately 25%, while tranquilizer prescriptions increase by almost 40%. Although the rate of tranquilizer prescriptions decreases after two years, the use of antidepressants tends to be more lasting.

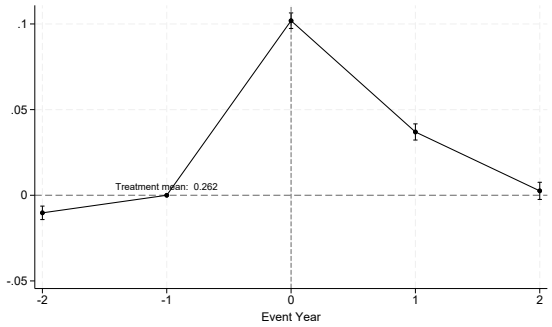
Figure 4: **The Effect of a Fatal Health Event on the Probability of Mental Disorder.** The figure plots the coefficient estimates of the effect of a fatal health shock on the probability of the surviving spouse A. being diagnosed with a mental disorder, B. being prescribed antidepressants, and C. being prescribed tranquilizers. Mental disorder is defined as the ICD-10-CM codes F10-F99. The regressions are specified as in Equation 1. Standard errors are clustered at the household level.



A. Diagnosed with Mental Disorder



B. Prescribed with Anti-Depressants



C. Prescribed with Tranquilizers

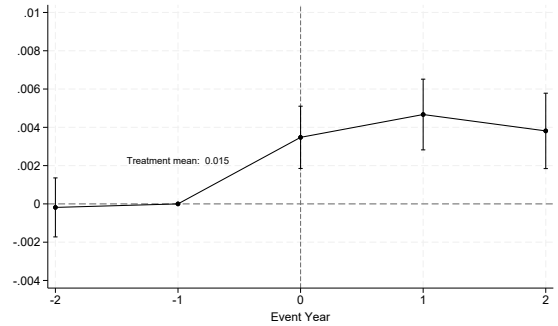
If inattention serves as the main channel through which households default on payments and debts, we would anticipate similar repayment behaviors for individuals after they receive a claim, regardless of the total amount that must be paid. On the contrary, if the issue is mainly the lack of resources, we would expect more pronounced effects for individuals with relatively larger amounts to pay. To differentiate between these two channels, we examine the probability that individuals with small and large debts repay the full amount after receiving a claim. Small and large debts are defined, respectively, as having a total amount of debt below or above the median debt size prior to the health shock. We examine these two outcomes along with the likelihood of immediate full debt repayment. Collectively, these three outcomes function as a decomposition of the main effect, namely the probability of receiving a claim. After receiving a claim, households either fully repay the debt or proceed to debt collection.

Panel A in Figure 5 presents the effect on the probability of receiving a claim, as described in Section 5.1. Panel B depicts the likelihood of immediate debt repayment, thus averting a negative impact on one's credit score. Panels C and D illustrate the

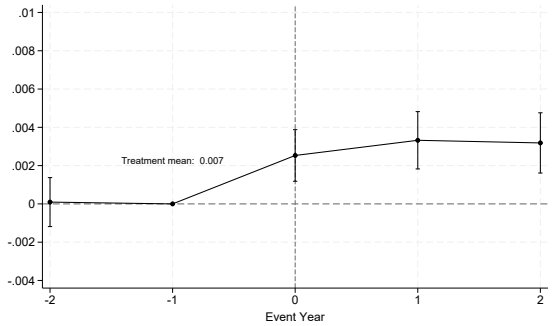
effects of incurring debt collection for individuals with relatively large and small debts, respectively. These analyses yield two important conclusions. First, while many manage to pay off their debts, this ability appears to be restricted to individuals with smaller debts. The significantly elevated risk of default for people with larger debts compared to those with smaller debts points to a lack of resources as the potential 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 tends to increase over time. This suggests that spouses are more likely to live on the financial edge after a spouse's death.

Table 2 presents the corresponding average post-event estimates. The coefficient estimates in columns 2-4 decompose the main effect presented in column 1. Out of the overall 0.4 percentage points increase in claims, 0.3 percentage points correspond to cases where the debt is immediately repaid, while the remaining portion is attributed to debt collection of large debts. A fatal shock results in a 25% increase in the probability of incurring debt collection of large debt. Notably, there is a precisely estimated zero effect on debt collection of small debts.

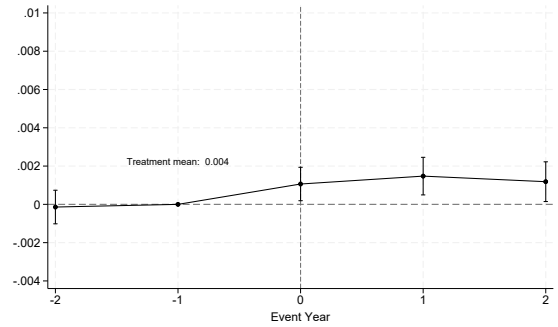
Figure 5: **The Effect of a Fatal Health Event on Default Behavior.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a fatal health shock on the probability to A. receive a claim, B. repaying the total amount and C. having enforced debt collection of relatively large claims and D. having enforced debt collection of relatively small claims. The regressions are specified as in Equation 1. Standard errors are clustered at the household level.



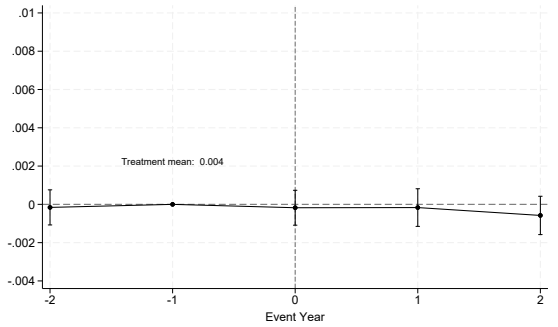
A. Receiving a Debt Claim



B. Repaying all Debts Associated with the Claim



C. Debt Collection of Large Debts



D. Debt Collection of Small Debts

Table 2: **The Effect of a Fatal Health Event on Debt Default of the Surviving Spouse.**

	(1)	(2)	(3)	(4)
	Receive Claim	Repaying All	Debt Collection (Large)	Debt Collection (Small)
Treat × Post	0.004***	0.003***	0.001***	-0.000
	(0.0007)	(0.0005)	(0.0004)	(0.0003)
R^2	0.014	0.005	0.007	0.004
Observations	494,986	494,986	494,986	494,986
Mean in t=-1	0.015	0.007	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. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.2.2 Resource Constraints and Default Behavior

Losing a spouse often involves a substantial decrease in available 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, as well as the total disposable income of the household. Our analysis aims to determine whether loss of income or pension of one spouse could lead to financial problems or whether this is, at least, partially compensated for by an increase in the labor supply of the surviving spouse, as suggested by Fadlon and Nielsen (2021).

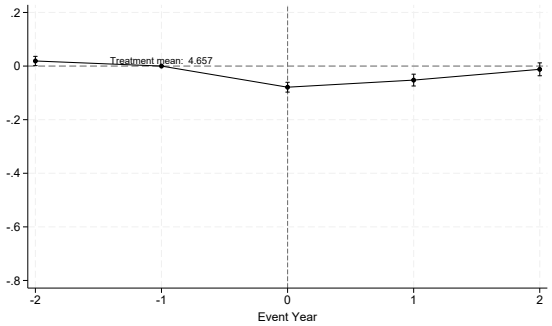
Figure 6 Panel A shows the impact on the logarithm of the surviving spouse's labor income. We observe a relatively modest decline of approximately 7.5% in the year of the health shock. Interestingly, this effect is transitory; it neutralizes back to zero after two years. This finding diverges from those in Fadlon and Nielsen (2021), which report a positive labor supply response from the surviving spouse.[11] Therefore, in the context of the Swedish setting, self-insurance through increased labor supply does not appear to be a crucial mechanism.

Panel B explores the ramifications on the surviving spouse's capital income. There is an increase of 40% in the year of the initial shock, which increases in the following year. Although part of this increase could be a mechanical effect, stemming from spousal inheritance, it could also signify the liquidation of assets to compensate for the loss of income. As Panel C indicates, because of this rise in capital income surpassing any decrease in labor income, the surviving spouse's disposable income experiences a net increase. However, Panel D reveals that this upswing in disposable income is insufficient to counterbalance the losses in labor and pension income triggered by the death of the spouse.

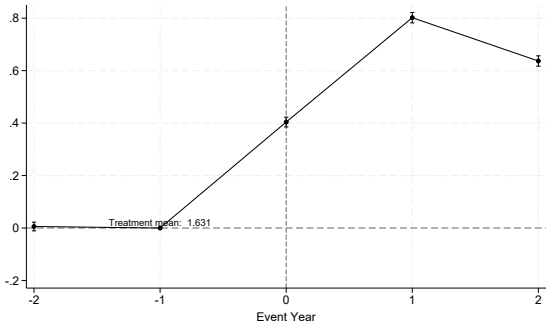
Table B.1 presents the average post-event treatment effects. Columns 1-4 show the estimates for each income measure. All estimates are significant at the 1% level. Although the spouse's disposable income increases by almost 27%, household disposable income decreases by 50%. This shows that the primary earner of the household tends to die first, in line with men on average having higher wages and shorter life expectancy. Furthermore, this finding lends credence to the notion that income loss could be a plausible driver for the observed increase in financial defaults following the loss of a spouse. In Appendix B.1, we further validate these findings by demonstrating that they are robust when outcomes are expressed at levels.

[11] The results are stable to using the same age restriction as in Fadlon and Nielsen (2021), where the deceased was between 45-80 years old at the time of death. In Appendix B.3 we further explore heterogeneity between age groups of the surviving spouse.

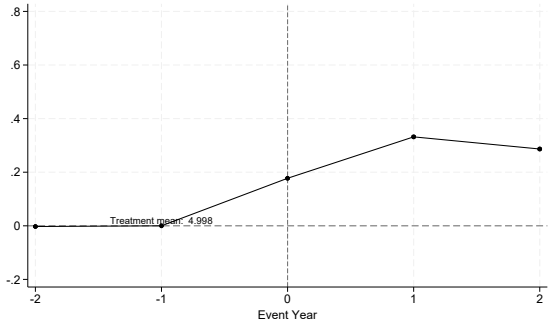
Figure 6: **The Effect on Labor, Capital and Disposable Income.** The figure plots the coefficient estimates of the effect of a fatal health shock on the logarithm of A. labor income of the spouse, B. capital income of the spouse, C. disposable income of the spouse, and D. household disposable income. 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.



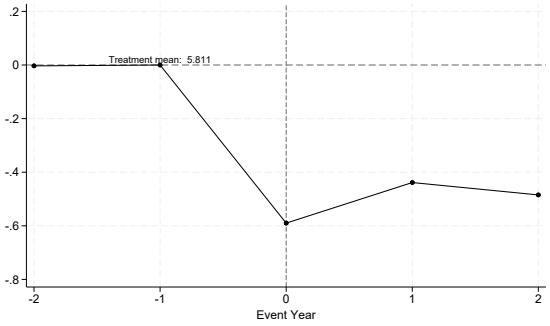
A. Log(Labor Income) (Spouse)



B. Log(Capital Income) (Spouse)



C. Log(Disposable Income) (Spouse)



D. Log(Disposable Income) (Household)

Table 3: **The Effect of a Fatal Health Event on the Income Change of the Surviving Spouse and the Household.**

	(1)	(2)	(3)	(4)
	Log(Labor Income)	Log(Capital Income)	Log(Disposable Income)	Log(Hh. Disposable Income)
Treat × Post	-0.059***	0.613***	0.265***	-0.504***
	(0.0084)	(0.0070)	(0.0012)	(0.0011)
R^2	0.441	0.073	0.270	0.325
Observations	349,676	979,981	1,773,771	1,778,291
Mean in t=-1	43.734	25.072	181.607	391.159

Note: This table provides estimates for the impact of a fatal health shock on the income of the surviving spouse and the household. Columns 1-4 present results on four metrics: 1) the logarithm of labor income of the spouse; 2) the logarithm of capital income of the spouse; 3) the logarithm of disposable income of the spouse and 4) the logarithm of the household disposable income. 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. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

To assess whether income loss is the driving factor behind our main findings, we examine households based on the extent of their income loss. Similarly to Fadlon and

Nielsen (2021), we categorize households into subgroups according to whether the surviving spouse was the primary or secondary earner. We anticipate that the financial impact will be greater in households where the surviving spouse was the secondary earner. A spouse is designated as the primary earner if they contribute more than 50% of the total average disposable income of both spouses in years $t = -3$ and $t = -2$.

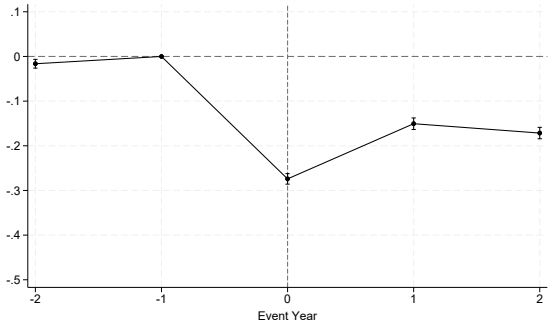
We employ a triple-difference estimator to calculate the difference in treatment effects between the two subgroups. Figure 7 Panel A illustrates that household disposable income decreases almost 30% more when the surviving spouse is a secondary earner compared to when they are the primary earner. Given this larger income loss for secondary earners, one might 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 between the two groups.

Does this mean that income loss or available financial resources, in general, are not an important factor in default risk? To further investigate this question, we examine the availability of other resources besides income. Those with less income might be more susceptible to default risk if they do not have access to other sources of wealth, namely housing, to insure against income loss. First, we investigate the likelihood of selling one's house and becoming a renter. Consistent with this notion, we find that spouses who experience greater income loss are significantly more likely to sell their homes. Specifically, Panel B shows that the probability of selling one's home is 5% higher for secondary earners compared to primary earners in the shock year. While selling a home may be a somewhat mechanical response to having one fewer person in the household, there is no reason to believe that there should be a mechanical difference in the probability of liquidating housing wealth between these two groups. The more likely scenario is that it indicates distinct behavioral responses. This suggests that wealth could be an important variable in understanding the likelihood of default, especially for those who lose more of their income resources.

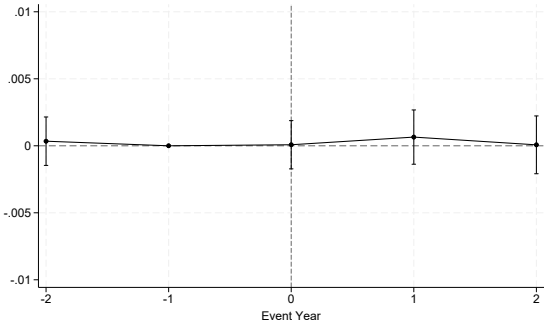
Table 4 presents the average treatment effects for spouses classified as secondary earner and primary earner in Columns 1-2. Furthermore,, Columns 3-4 presents the results for surviving spouses that are female or men. Secondary earners and women lose about 60% of household income when a spouse dies, while men and primary earners lose around 40% on average. Still, the effect on the probability of debt collection of large debts is similar across the groups. However, the probability of becoming a renter is almost twice as high for females and secondary earners, compared to men and primary earners.

Figure B.2 in Appendix B.2 presents the evolution of the differential effect for women and men and shows that the assumption of parallel trends is also plausible in these cases.

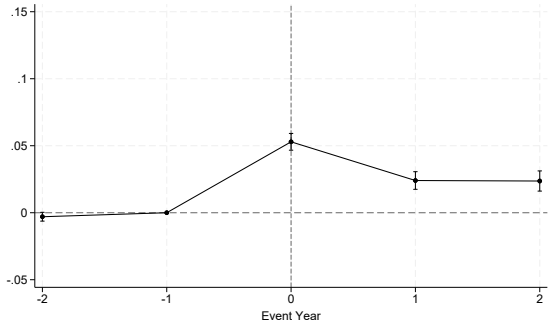
Figure 7: **The Differential Effects of Fatal Shocks on Primary and Secondary Earners.** The figure plots the triple coefficient estimates and 95% confidence intervals of the differential effect of a fatal health shock between spouses defined as secondary compared to primary earners in the household on A. the logarithm of household disposable income, B. the probability of enforced debt collection of relatively large claims and C. the probability of being a renter. Income is expressed in constant (2019) prices and thousand SEK. The regressions include the same controls and fixed effects as in Equation 1.



A. Log(Household Disposable Income)



B. Debt Collection of Large Debts



C. Being a Renter

Table 4: **The Effect of a Fatal Health Event on Subgroups of Surviving Spouses with Different Expected Income Loss.**

	(1) Secondary	(2) Primary	(3) Female	(4) Male
Panel A: Log(Hh. Disposable Income)				
Treat × Post	-0.588***	-0.398***	-0.556***	-0.406***
	(0.0030)	(0.0031)	(0.0027)	(0.0036)
R^2	0.311	0.268	0.306	0.271
Observations	282,273	211,381	335,235	158,419
Mean in t=-1	440.541	458.043	444.931	454.231
Panel B: Debt Collection Large				
Treat × Post	0.001***	0.001**	0.001***	0.002**
	(0.0004)	(0.0006)	(0.0004)	(0.0007)
R^2	0.007	0.008	0.007	0.007
Observations	283,189	211,797	336,103	158,883
Mean in t=-1	0.003	0.005	0.003	0.005
Panel C: Probability Being a Renter				
Treat × Post	0.090***	0.055***	0.092***	0.039***
	(0.0020)	(0.0022)	(0.0019)	(0.0024)
R^2	0.042	0.036	0.041	0.036
Observations	283,170	211,797	336,093	158,874
Mean in t=-1	0.256	0.240	0.253	0.242
Year and Age FE	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes

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-C presents results on three metrics: A. the logarithm of household disposable income, B. the probability of being subjected to debt collection of large claims, C. the probability of being a renter. 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) and thousand SEK. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.2.3 The Impact of Housing and Wealth

To delve deeper into the role of housing on default probability, we categorize households based on their homeownership status. Specifically, we classify households as renters if they were renting their home two years prior to the shock. Similarly, households are

classified as homeowners if they owned a home at that time.

Figure 8 displays the estimates derived from a dynamic triple difference estimation, illustrating the evolution of the differential effect between renters and homeowners on the probability of receiving a claim. The graph provides supporting evidence for the assumption of parallel trends, with no statistically significant pre-event trends observed in the first differences of each group. This implies that before the shock, there were no statistically significant trends in how the probability of receiving a claim changed over consecutive periods for both renters and homeowners. However, at the event year the effects differ significantly, indicating that spousal death increases default risk more for renters compared to homeowners.

Table 5 presents the average differential treatment effects for renters compared to homeowners. Specifically, columns 1-4 examine the probability of receiving a debt claim, the probability of immediately repaying the debt, and the risk of facing debt collection, segmented by large and small debts. Renters experience an increased likelihood of receiving a debt claim after the loss of a spouse of 4 percentage points, compared to homeowners. This is completely driven by an increased tendency of defaulting on large debts. The probability of debt collection of large debts increases by 4 percentage points for more for renters, whereas there is no differential effect in repaying the debt immediately or in debt collection of small debts. This stark difference in financial resilience between homeowners and renters adds weight to the argument that housing wealth serves as a crucial self-insurance mechanism by providing a financial buffer that significantly reduces the risk of severe financial difficulties in the wake of a spousal loss.

Figure 8: **The Differential Effects of Fatal Shocks on Debt Collection of Large Debts Between Renters and Homeowners.** The figure plots the triple coefficient estimates and 95% confidence intervals of the differential effect of a fatal health shock between spouses defined as renters compared to homeowners on the probability of enforced debt collection of relatively large claims. The regressions include the same controls and fixed effects as in Equation 1.

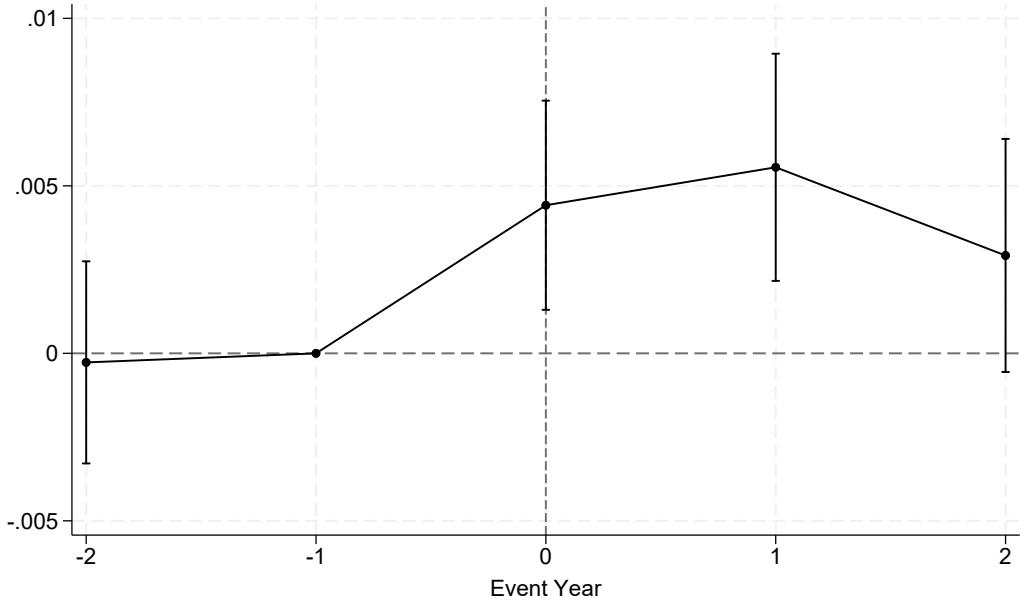


Table 5: **The Differential Effect of a Fatal Health Event on Debt Default for Renters Compared to Homeowners.**

	(1) Receive Claim	(2) Repaying All	(3) Debt Collection (Large)	(4) Debt Collection (Small)
Renter × Treat × Post	0.004*	-0.001	0.004***	-0.000
	(0.0020)	(0.0013)	(0.0013)	(0.0011)
R^2	0.016	0.006	0.009	0.005
Observations	494,986	494,986	494,986	494,986
Mean in t=-1	0.015	0.007	0.004	0.004

Note: This table provides estimates for the differential impact of a fatal health shock on renters compared to homeowners. A surviving spouse is defined as renter/homowner if they rented/owned their home two years before the death. 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. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Furthermore, our analysis demonstrates that both homeowners and renters respond to the spousal loss by relocating to different neighborhoods. These results are presented in Appendix B.2.1 Even those who maintain their homeownership status throughout the observed period are more likely to relocate (Figure B.3 and Table B.2). This behavior suggests a strategy of downsizing; renters may be seeking to reduce their monthly rental payments, while homeowners could be aiming to liquidate a portion of their housing

wealth. This moving pattern further supports the idea that housing assets serve as an important self-insurance mechanism for households facing financial vulnerabilities after a spousal loss.

To dig deeper into the role of wealth as a factor in default rates, we segment households based on net wealth percentiles. Due to the abolishment of the Swedish wealth tax, net wealth data is only available for the years 1999-2007. We opt to focus on the year 2006, as the data for this year are known to be of higher quality than those for 2007. Using this information, we calculate percentiles for the surviving spouses' net wealth, employing this as an approximation for household wealth. The percentages are calculated within the larger population of individuals who share birth years with those in our sample.[12] Given that household wealth tends to remain stable over time, it is reasonable to assume that these 2006 figures offer a robust proxy for households' financial positions in later years.

Table 6 presents estimates divided between renters and homeowners (Columns 1-2) and further segmented by median net wealth (Columns 3-4). Panel A focuses on log(Household Disposable Income). Interestingly, the average income loss across these contrasting groups is relatively similar, around 50%. Panel B reveals the effect on the likelihood of facing debt collection for relatively large debts. For both renters and low-wealth households, the estimates show a noticeable increase of 0.4 percentile points. This corresponds to an increases of 50% for renters and 31% for spouses with wealth below the median. In contrast, the effects are zero for homeowners and high-wealth households. This suggest that not just housing wealth but wealth in general are important for households self-insurance purposes.

[12] We get a slight over-representation of spouses above the median. This is because we have relatively few young households in the sample and younger cohorts tend to hold less wealth. However, our results are robust to computing percentiles in the whole population or in the sample; these results are available upon request.

Table 6: **The Effect of a Fatal Health Event on Subgroups of Surviving Spouses by Homeownership Status and Net Wealth.**

	(1) Renter	(2) Homeowner	(3) Net Wealth < P50	(4) Net Wealth > P50
Panel A: Log(Hh. Disposable Income)				
Treat × Post	-0.552***	-0.495***	-0.493***	-0.515***
	(0.0038)	(0.0026)	(0.0040)	(0.0026)
R^2	0.335	0.288	0.356	0.310
Observations	105,993	387,661	127,877	360,547
Mean in t=-1	359.391	475.048	444.065	450.378
Panel B: Debt Collection of Large Debts				
Treat × Post	0.004***	0.000	0.004***	0.000*
	(0.0012)	(0.0003)	(0.0012)	(0.0002)
R^2	0.016	0.005	0.008	0.002
Observations	106,218	388,768	128,256	361,147
Mean in t=-1	0.008	0.003	0.013	0.001

Note: This table provides estimates for the impact of a fatal health shock on subgroups of surviving spouses. Columns 1-4 show the effects for each subgroup: 1) renters; 2) homeowners, 3) surviving spouses with below median net wealth and 4) surviving spouse with above median net wealth. A surviving spouse is defined as renter/homowner if they rented/owned their home two years before the death. We define net wealth groups based on the net wealth of the surviving spouse in 2006. Median net wealth is defined in the population of individuals with the same birth cohort as the surviving spouses in the sample. Panel A-B presents results on two metrics: A. the logarithm of household disposable income, and B. the probability of being subjected to debt collection of large claims. 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. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.3 Impact on Children

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

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

Having established that the main effect is driven by those with less wealth, and es-

pecially renters, we analyze the effect on the children of these two groups of surviving spouses. Table 7 presents the triple difference results comparing the children of renters to those of homeowners. The data reveal that children of renters experience a 0.4 percentile points higher probability of receiving a claim as compared to children of homeowners. There is no significant difference in the probability of immediately repaying a due, however, the probability of facing debt collection increases by 0.3 percentage points more for children of renters compared to children of homeowners. With a baseline difference of 2.4 percentage points between the two groups, the effect corresponds to an increase of close to 13%. These findings suggest a transmission of financial distress between generations, particularly within families where the surviving spouse has less access to financial resources.

Table 7: **The Differential Effect of a Fatal Health Event on Debt Default of the Children of Renters Compared to Homeowners.**

	(1)	(2)	(3)
	Have Claim	Repaying All	Debt Collection
Renter × Treat × Post	0.004**	0.001	0.003**
	(0.0019)	(0.0015)	(0.0015)
R^2	0.013	0.003	0.012
Observations	976,335	976,335	976,335
Mean in t=-1	0.047	0.023	0.024

Note: This table provides estimates for the differential impact of a fatal health shock on the children of surviving spouses that were renters compared to homeowners. Columns 1-3 present results on three metrics: 1) the probability to receive a financial claim from the SEA; 2) the probability of immediately repaying the claim; 3) the probability of being subjected to enforced debt collection. 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 Default Responses to Nonfatal Health Events

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

6.1 Income Loss

We start by investigating whether the loss of income following a nonfatal health shock could lead to defaults by comparing the results between households where the person who is exposed to the shock is working age to those where that person is likely retired i.e. older than 65 years in the event year, with no labor income in the two years before. We make

this distinction because working-age individuals typically transition from regular income to a lower sickness insurance benefit when experiencing a health shock, as opposed to retired individuals who continue receiving pension payments when ill, and hence have no change in income. We focus on two key metrics: household disposable income and the likelihood of receiving a debt claim from the SEA.

Table 8 displays the estimates. Panel A presents results for the working-age population, while Panel B focuses on retirees. Column 1 reveals that disposable income for the working-age population decreases by roughly 5%, while for retirees, the change is statistically insignificant and very close to zero. Consequently, there is an increased probability of receiving a debt claim only for households of working age. This strongly suggests that a nonfatal health shock increases the risk of default, but only when the household experiences a negative income shock. Based on this finding, we focus on households where the sick spouse was under the age of 65 years when the shock occurred.

Table 8: **The Effect of a Fatal Health Event on Household Income and Default by Age.**

	(1)	(2)	(3)
	Log(Household Disp. Inc.)	Receive a Claim	Debt Collection Large
Panel A: Age Below 65			
Treat × Post	-0.053***	0.005***	0.003***
	(0.0032)	(0.0016)	(0.0010)
R^2	0.106	0.018	0.009
Observations	231,764	232,549	232,549
Mean in t=-1	769.723	0.067	0.018
Panel B: Age Above 65			
Treat × Post	-0.001	-0.000	-0.000
	(0.0041)	(0.0012)	(0.0006)
R^2	0.079	0.006	0.005
Observations	107,840	108,340	108,340
Mean in t=-1 (kSEK)	455.865	0.012	0.003

Note: This table provides estimates for the impact of a nonfatal health shock on the household. Panel A-B show the effects for each subgroup: A. households where the sick individual was below age 65 at the time of the shock, and B. households where the sick individual was at least age 65 at the time of the shock. 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; and 3) the probability of being subjected to enforced debt collection of large claims. 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. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

When someone is exposed to a health shock, they may temporarily or permanently withdraw from the labor market, leading to a decrease in labor income. This financial stress on a household can be exacerbated if the spouse also reduces working hours to provide care. However, the spouse may also opt to increase labor supply as a form of self-insurance to offset the income loss.

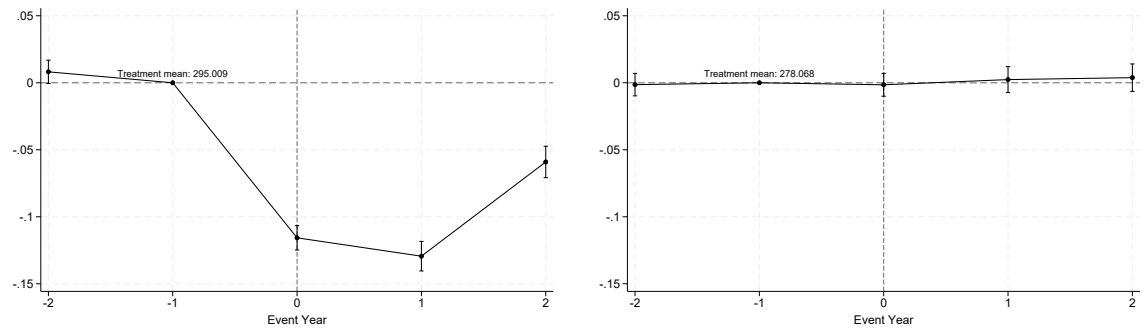
Figure 9 delineates the impact of a nonfatal health event on labor income. Panel A

focuses on the individual who undergoes the health event, revealing a significant reduction in labor income - approximately a 10% decrease in the year immediately after the health episode. Importantly, this decline shows signs of recovery two years after the event when the size of income reduction is halved, indicating a return to labor market activities.

Panel B, which focuses on the spouse, shows no sign of any labor market response. However, this finding appears to be sensitive to the choice of functional form. When labor income is studied in levels, a small positive effect on labor income emerges for the spouse (see Appendix Figure C.1). This implies that spouses who did not work before the shock increase their labor supply, but not those who were already working. This is indicative of a self-insurance mechanism for spouses that can increase labor supply.

Table 9 analyzes the average impact on various types of income for both the sick individual and the spouse during the first two years after the health shock. Columns 1-3 presents results on labor income, capital income, disposable income at the individual level, and Column 4 on household disposable income. Household disposable income can differ between spouses, since not all couples are married throughout the period. For the sick individual, the health event significantly reduces labor income and disposable income. For the spouse, there is no significant effect on labor income; however, there is a positive effect on disposable income. This could be indicative of the spouse liquidating wealth to compensate for the income loss of the sick individual; correspondingly, the estimate on capital income is positive. However, this result is not stable to the choice of functional form, as it is insignificant when disposable income is expressed in levels (see Appendix Figure C.1). For both spouses, household disposable income experiences a decrease of 4%, primarily attributed to the decrease in the labor earnings of the individual who experienced the health event. Compared to the drastic 50% reduction in income observed after fatal health events, this is a relatively modest decrease.

Figure 9: **The Effect of a Nonfatal Health Shock on Log(Labor Income).** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a nonfatal health shock on the logarithm of labor income of A. the sick individual, B. the household. Income is expressed in constant (2019) prices and thousand SEK. The regressions are specified as in Equation 1. Standard errors are clustered at the household level.



A. Labor Income (Sick Individual)

B. Labor Income (Spouse)

Table 9: **The Effect of a Fatal Health Event on the Income Change of the Sick Individual and the Spouse.**

	(1) Log(Labor Income)	(2) Log(Capital Income)	(3) Log(Disposable Income)	(4) Log(Hh. Disposable Income)
Panel A: Sick Individual				
Treat × Post	-0.106***	-0.015	-0.004**	-0.040***
	(0.004)	(0.014)	(0.002)	(0.002)
R^2	0.083	0.077	0.106	0.144
Observations	846,927	274,014	1,047,035	1,056,109
Mean in t=-1	295.009	24.137	303.342	636.430
Panel B: Spouse				
Treat × Post	0.002	0.023	0.021***	-0.041***
	(0.004)	(0.014)	(0.002)	(0.002)
R^2	0.181	0.085	0.143	0.148
Observations	860,475	271,336	1,049,221	1,058,708
Mean in t=-1	278.068	36.253	297.173	636.372

Note: This table provides estimates for the impact of a nonfatal health shock on the income of the sick individual and the spouse. Columns 1-4 present results on four metrics: 1) the logarithm of labor income of the spouse; 2) the logarithm of capital income of the spouse; 3) the logarithm of disposable income of the spouse and 4) the logarithm of the household disposable income. 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. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

6.2 Effects on Debt Default

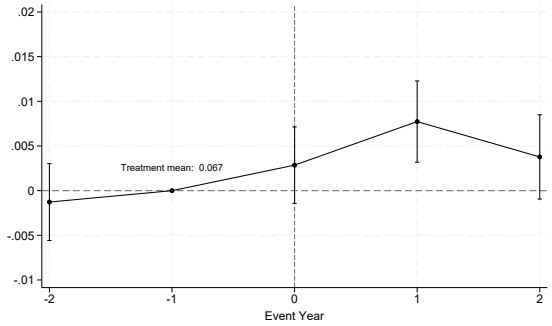
Figure 10 presents the effects of a nonfatal health event on the probability that the household, that is any spouse, receives a claim, repays it all immediately, and has enforced debt collection of relatively small or large dues. The graph in Panel A confirms our previous finding that there is an increased risk of receiving a claim from the SEA following a nonfatal health event, and supports the parallel trend assumption. Moreover, just as with fatal shocks, households typically manage to repay small dues promptly (see Panel B), thereby avoiding any enforced debt collection (see Panel D). However, as shown in Panel C, for larger debts, repayment is not as straightforward, resulting in an increased risk of enforced debt collection actions. This again speaks against inattention as a driving mechanism, as the repayment behavior should be similar across small and large debts for this channel to be plausible. Interestingly, unlike the aftermath of fatal health events, the financial consequences of nonfatal health events appear to be temporary. This is in line with the effects on labor income, which is also temporary, and supports that income loss is the key driver of default.

Table 10 shows the average treatment effects on these four outcomes, shown not only for the household but also separately for each spouse. Panel A presents results at the household level, Panel B for the sick individual, and Panel C for the spouse. At the household level, the probability of receiving a claim increases by 0.5 percentage points. Interestingly, this effect appears to be driven both by the sick individual and by the spouse, as these estimates of 0.3 and 0.2 percentage points perfectly sum up to the household effect, although the estimate for the spouse is not measured with precision.

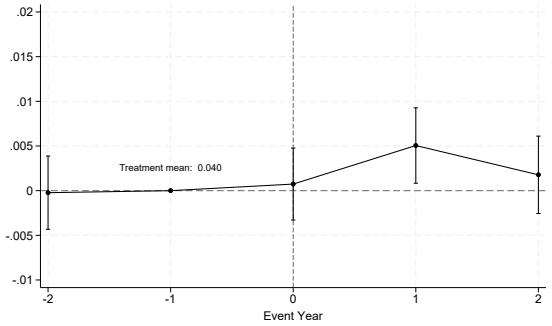
The risk of incurring debt collection of large debts increases by 0.3 percentage points. Again, it is driven by both the sick individual (0.1 pp) and the spouse (0.2 pp), although the effect is not measured with precision for the sick individual. Small debts are repaid and do not pose a risk of debt collection.

Compared to a fatal health shock, the risk of default after a nonfatal shock is smaller, which is in line with the income loss also being less pronounced. A nonfatal shock increases the risk of receiving a claim by 6%, compared to 27% for a fatal shock. The effect on the risk of debt collection of large debts increases by 17% after a nonfatal shock, compared to 25% after a fatal one.

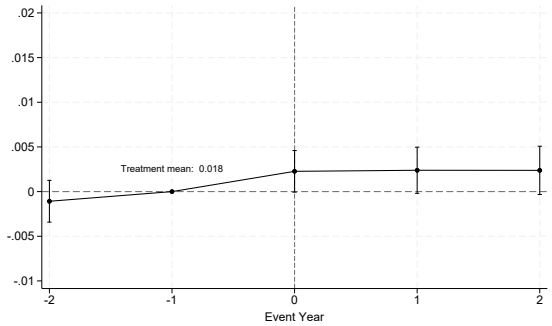
Figure 10: **The Effect of a Nonfatal Health Event on Debt Default.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a nonfatal health shock on the probability to A. receive a claim, B. repaying the total amount and C. having enforced debt collection of relatively large claims and D. having enforced debt collection of relatively small claims. The regressions are specified as in Equation 1. Standard errors are clustered at the household level.



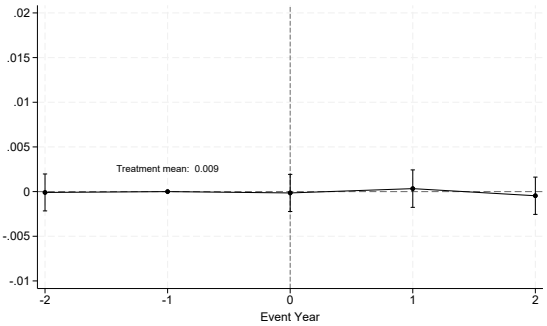
A. Receiving a Debt Claim (Household)



B. Re-paying all Debt (Household)



C. Debt Collection of Large Debts (Household)



D. Debt Collection of Small Debts (Household)

Table 10: **The Effect of a Nonfatal Health Event on Debt Default of the Household and Individual Spouses.**

	Receive Claim	Repaying All	Debt Collection (Large)	Debt Collection (Small)
Panel A: Household				
Treat × Post	0.005***	0.003*	0.003***	-0.000
	(0.0016)	(0.0015)	(0.0010)	(0.0007)
R^2	0.018	0.008	0.009	0.003
Observations	232,549	232,549	232,549	232,549
Mean in t=-1	0.067	0.040	0.018	0.009
Panel B: Sick Individual				
Treat × Post	0.003**	0.002**	0.001	0.000
	(0.0014)	(0.0012)	(0.0009)	(0.0007)
R^2	0.014	0.005	0.007	0.004
Observations	232,549	232,549	232,549	232,549
Mean in t=-1	0.047	0.024	0.014	0.009
	(1)	(2)	(3)	(4)
Panel C: Spouse				
Treat × Post	0.002	0.001	0.002**	-0.001
	(0.0013)	(0.0011)	(0.0008)	(0.0006)
R^2	0.013	0.005	0.006	0.003
Observations	232,549	232,549	232,549	232,549
Mean in t=-1	0.038	0.020	0.010	0.008

Note: This table provides estimates for the impact of a nonfatal health shock on the household. 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 natural logarithm of the total size of all claims made during the year. 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 natural logarithm of the total size of all claims subjected to enforced debt collection during the year. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

6.3 The Role of Housing and Wealth

Previously, we established that housing and wealth are crucial insurance mechanisms for households struggling with a fatal health shock. In this section, we inquire whether these factors are also important in the context of a nonfatal health event.

Table **??** provides a deeper look at these dynamics. Columns 1-2 present the effects on renters and homeowners, while Columns 3-4 focus on households with relatively low and high net wealth. Panel A reveals that both renters and low-wealth households experience a comparatively larger drop in disposable income than their counterparts. Although in all cases the income drop is relatively modest compared to the response after a fatal health shock, at most, household disposable income drops by 8% for renters. Still, the shock significantly increases the risk of default, but, consequently, the risk is lower compared to a fatal shock. For most groups, a nonfatal shock increases the risk of default by 14-

17%. Quite surprisingly, the only exception is the high-wealth group, which actually has a higher risk of defaulting after a nonfatal health event. This group, although it has the lowest coefficient estimate, shows the largest increase in percentage terms of 50%, due to an exceptionally low baseline average. However, given the relatively small sample size and the relatively low coefficient estimate, the number of affected individuals is still the lowest in this group. That housing is less predictive of default following a nonfatal health shock could potentially be due to the transitory nature of the shock; households might be less prone to sell their home to pay the bills today if income is expected to recover in the next year.

Panel C introduces an additional channel of interest, the risk of divorce. Following a nonfatal health shock, the likelihood of divorce increases in all demographic groups. This factor might also explain why housing and wealth are less predictive of default following a nonfatal health event compared to fatal ones. It is worth noting that the distribution of wealth following a divorce can be complex, influenced by factors such as prenuptial agreements, making it less straightforward for a divorcing homeowner to retain half of the household's assets.

Table 11: **The Effect of a Nonfatal Health Event on Subgroups of Households by Homeownership Status and Net Wealth.**

	(1) Renter	(2) Homeowner	(3) Net Wealth < P50	(4) Net Wealth > P50
Panel A: Log(Hh. Disposable Income)				
Treat × Post	-0.081***	-0.048***	-0.060***	-0.042***
	(0.0091)	(0.0033)	(0.0038)	(0.0048)
R^2	0.071	0.097	0.102	0.110
Observations	41,232	190,532	120,371	91,733
Mean in t=-1	528.482	822.968	732.457	909.627
Panel B: Debt Collection of Large Debts				
Treat × Post	0.006*	0.002**	0.004**	0.002*
	(0.0038)	(0.0009)	(0.0016)	(0.0009)
R^2	0.012	0.006	0.010	0.003
Observations	41,506	191,043	120,578	91,911
Mean in t=-1	0.044	0.012	0.026	0.004
Panel C: Probability of Divorce				
Treat × Post	0.111***	0.061***	0.078***	0.046***
	(0.0048)	(0.0017)	(0.0024)	(0.0022)
R^2	0.059	0.052	0.040	0.091
Observations	41,506	191,043	120,578	91,911
Mean in t=-1	0.000	0.000	0.000	0.000

Note: This table provides estimates for the impact of a nonfatal health shock on subgroups of households. Columns 1-4 show the effects for each subgroup: 1) renters; 2) homeowners, 3) households with below median net wealth and 4) households with above median net wealth. A households is defined as renter/homowner if the spouse rented/owned their home two years before the shock. We define net wealth groups based on the net wealth of the spouse in 2006. Median net wealth is defined in the population of individuals with the same birth cohort as the spouses in the sample. Panel A-C presents results on three metrics: A. the logarithm of household disposable income, B. the probability of being subjected to debt collection of large claims, C. the probability of divorcing. 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 Claims in the Pre-Shock Period

In our main analysis of fatal health shocks, we have included all households in our analysis, regardless of their financial well-being in the pre-period. One might argue that fatal shocks only exacerbate the situation for those who already suffer from financial difficulties or that some of the observed effects might be mechanical, since the surviving spouse might have to honor the dues of the dying one.

In this section, first, 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 12. This restriction does not change the point estimates nor the significance levels, but they show a much larger relative effect compared to the baseline mean levels. For this group, a fatal health shock increases the risk of defaults in old age by 60%, and debt collections of large debts by 100%. This suggests that what we show in the main analysis is not simply a reflection of transferring financial obligations from the deceases spouse to the surviving one.

Table 12: **The Effect of a Fatal Health Event on Debt Default of the Surviving Spouse 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
	(0.0005)	(0.0004)	(0.0002)	(0.0002)
R^2	0.006	0.004	0.003	0.001
Observations	482,021	482,021	482,021	482,021
Mean in t=-1	0.007	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. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Next, we limit the sample to households where none of the spouses had any claims in the pre-event period. These are households that supposedly have the least amount of financial troubles when the shock happens. The results in Table 13 indicate that loss of a spouse has significant and economically meaningful effects on the financial well-being of the surviving spouse. The significance levels remain, and the point estimates are slightly larger or the same as the previous ones. Even in households that have shown no recent indications of financial troubles, a nonfatal health shock drastically increases the risk of default.

Table 13: **The Effect of a Fatal Health Event on Debt Default of the Surviving Spouse 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	0.007	0.005	0.002	0.001
Observations	476,358	476,358	476,358	476,358
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. Regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

8 Conclusion

This paper provides the effects of fatal and severe nonfatal health shocks on households' financial well-being, proxied by default on financial obligations in an environment where there is no strategic reasons for doing that.

We show that in the aftermath of a fatal health event, there is a notable increase of approximately 25-30% in the likelihood of default by the surviving spouse. Importantly, our research indicates that this surge in default persists for at least a few years and is not driven by a mechanical transfer of financial difficulties from the deceased spouse and is not limited to households where default behavior exists prior to the health shock.

It is worth emphasizing that this behavior cannot be solely attributed to factors such as inattention or grief. We discern differential behavior on 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 indicate that varying degrees of changes in income cannot account for this disparity in default rates differences on their own. Instead, variations in wealth levels play a pivotal role. We observe that defaults are primarily driven by surviving spouses who are renters, lacking the housing wealth that could serve as a financial buffer, and possess limited net wealth. 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 non-fatal health shocks for those below the age of retirement, underscoring that the escalation of financial distress is rooted in a deficiency of resources subsequent to an adverse health shocks.

Collectively, our results indicate that households, especially older ones with limited

wealth, are inadequately shielded against the financial repercussions of health crises, resulting in enduring adverse consequences for their economic well-being.

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A Descriptives

A.1 Summary statistics

We present summary statistics for the pre-event period for both the sample experiencing a fatal and non-fatal health event by year of the event, as indicated in the column header. Tables A.1 and A.1 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.1: **Summary Statistics for the Fatal Health Event Sample.**

	2016	2017	2019	2020
Age, Deceased Spouse	77	77	74	75
	(10.08)	(9.95)	(9.60)	(9.54)
Age, Surviving Spouse	75	75	72	73
	(10.08)	(10.01)	(9.71)	(9.80)
Female, Deceased Spouse	0.32	0.33	0.33	0.32
	(0.47)	(0.47)	(0.47)	(0.46)
Female, Surviving Spouse	0.68	0.67	0.67	0.68
	(0.47)	(0.47)	(0.47)	(0.47)
Some Higher Education, Surviving Spouse	0.22	0.22	0.24	0.25
	(0.41)	(0.42)	(0.43)	(0.43)
Some Higher Education, Surviving Spouse	0.22	0.22	0.24	0.25
	(0.41)	(0.42)	(0.43)	(0.43)
Disposable Income, Deceased Spouse	217.30	227.97	233.70	234.08
	(373.35)	(671.85)	(783.90)	(443.96)
Disposable Income, Surviving Spouse	203.44	209.41	214.15	231.25
	(371.03)	(497.68)	(302.09)	(2757.66)
Disposable Income, Household	433.23	449.57	459.57	478.17
	(593.18)	(887.92)	(879.35)	(2808.09)
Have a Claim, Deceased Spouse	0.02	0.02	0.02	0.02
	(0.13)	(0.13)	(0.13)	(0.13)
Have a Claim, Surviving Spouse	0.02	0.01	0.01	0.02
	(0.12)	(0.12)	(0.12)	(0.12)
Number of Claims, Deceased Spouse	0.04	0.04	0.04	0.05
	(0.46)	(0.46)	(0.51)	(0.51)
Number of Claims, Surviving Spouse	0.03	0.03	0.04	0.04
	(0.40)	(0.40)	(0.50)	(0.51)
Total Debt, Deceased Spouse	489.71	572.48	716.64	710.47
	(17527.09)	(16125.50)	(21149.99)	(25814.99)
Total Debt, Surviving Spouse	578.06	449.30	538.72	596.23
	(21521.79)	(13953.48)	(16474.13)	(18956.03)
Observations	51,421	49,671	47,935	52,308

Note: The table presents summary statistics in the pre-event period 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 is expressed in constant (2019) prices and kSEK. Debts are expressed in constant (2019) prices and SEK.

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

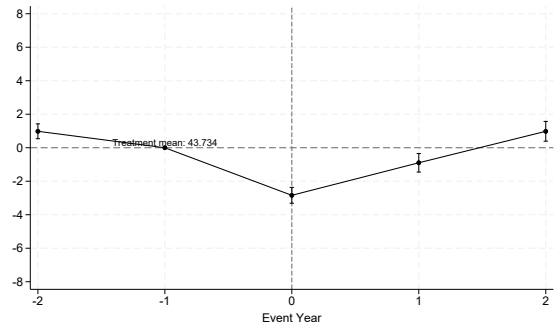
	2016	2017	2019	2020
Age, Sick Individual	60	61	59	60
	(13.51)	(13.47)	(13.43)	(13.57)
Age, Spouse	59	60	58	59
	(13.57)	(13.46)	(13.46)	(13.57)
Female, Sick Individual	0.37	0.37	0.37	0.37
	(0.48)	(0.48)	(0.48)	(0.48)
Female, Spouse	0.63	0.63	0.63	0.63
	(0.48)	(0.48)	(0.48)	(0.48)
Some Higher Education, Sick Individual	0.35	0.37	0.36	0.37
	(0.48)	(0.48)	(0.48)	(0.48)
Some Higher Education, Spouse	0.37	0.38	0.39	0.39
	(0.48)	(0.48)	(0.49)	(0.49)
Disposable Income, Sick Individual	308.13	323.00	335.21	334.91
	(505.78)	(873.08)	(1750.60)	(1144.19)
Disposable Income, Spouse	302.56	303.44	299.81	305.09
	(2682.77)	(604.88)	(1189.23)	(447.88)
Household Disposable Income, Sick Individual	637.67	654.36	661.37	662.31
	(2743.72)	(1102.41)	(2763.48)	(1266.12)
Household Disposable Income, Spouse	637.76	654.41	660.73	662.12
	(2743.70)	(1102.53)	(2762.95)	(1266.91)
Have a Claim, Sick Individual	0.03	0.03	0.03	0.03
	(0.17)	(0.17)	(0.16)	(0.16)
Have a Claim, Spouse	0.03	0.02	0.02	0.02
	(0.16)	(0.15)	(0.15)	(0.15)
Number of Claims, Sick Individual	0.09	0.08	0.07	0.07
	(0.79)	(0.72)	(0.62)	(0.70)
Number of Claims, Spouse	0.07	0.06	0.06	0.06
	(0.72)	(0.59)	(0.59)	(0.65)
Total Debt, Sick Individual	1177.89	1306.96	1191.96	1186.58
	(36240.29)	(36158.94)	(28148.44)	(31279.05)
Total Debt, Spouse	976.80	899.61	838.41	948.13
	(36565.88)	(25709.73)	(19370.39)	(28120.55)
Observations	45,687	40,212	40,865	40,627

Note: The table presents summary statistics in the pre-event period 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 is expressed in constant (2019) prices and kSEK. Debts are expressed in constant (2019) prices and SEK.

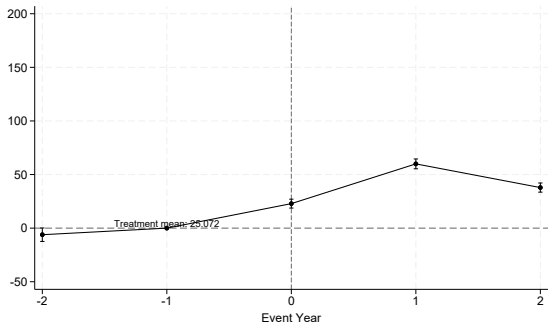
B Additional Analyses

B.1 Effects on Income in Levels.

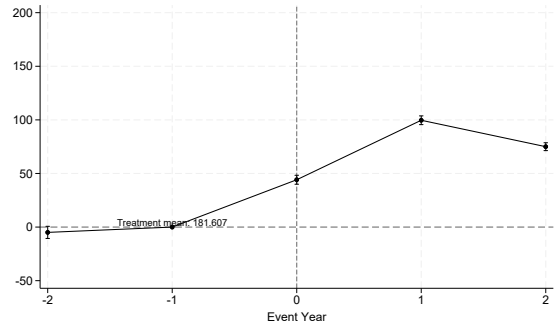
Figure B.1: **The Effect of a Fatal Health Shock on Labor, Capital and Disposable Income in kSEK.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a nonfatal health shock on A. labor income of the spouse, B. capital income of the spouse, C. disposable income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



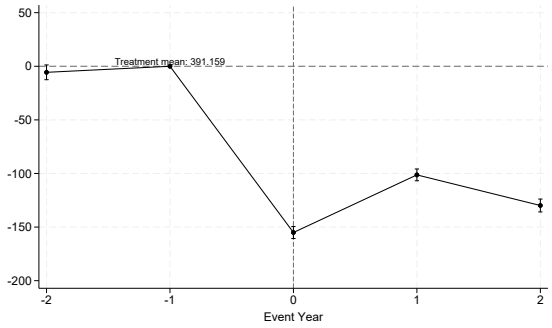
A. Labor Income (Spouse)



B. Capital Income (Spouse)



C. Disposable Income (Spouse)



D. Disposable Income (Household)

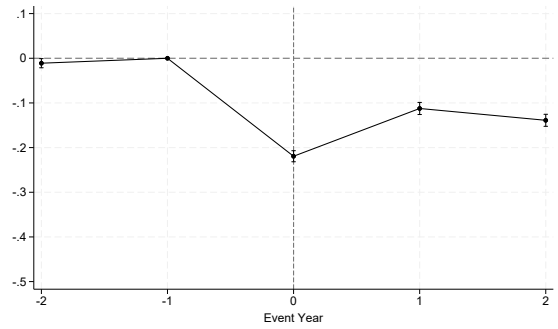
Table B.1: **The Effect of a Fatal Health Event on the Income Level of the Surviving Spouse and the Household.**

	(1) Labor Income	(2) Capital Income	(3) Disposable Income	(4) Hh. Disposable Income
Treat × Post	-1.455***	43.059***	74.954***	-126.350***
	(0.230)	(1.973)	(1.892)	(2.370)
R^2	0.425	0.001	0.011	0.017
Observations	1,782,702	1,782,702	1,782,702	1,782,702
Mean in t=-1	43.734	25.072	181.607	391.159

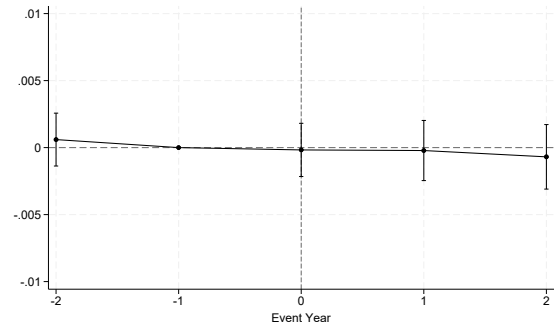
Note: This table provides estimates for the impact of a fatal health shock on the income of the surviving spouse and the household. Columns 1-4 present results on four metrics: 1) labor income of the spouse; 2) capital income of the spouse; 3) disposable income of the spouse and 4) the household disposable income. 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 Differential Effect by Woman and Men.

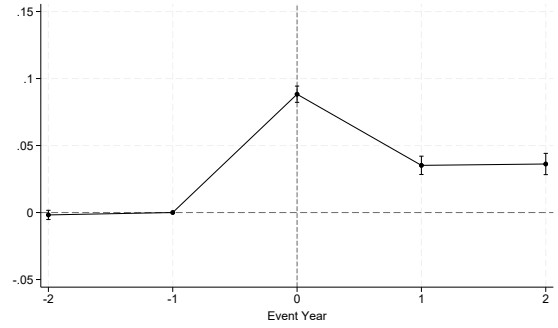
Figure B.2: **The Effect of a Fatal Health Shock, Comparing Women to Men.** The figure plots the triple difference coefficient estimates and 95% confidence intervals of the differential effect of a fatal health shock between spouses that are female compared male on A. the logarithm of household disposable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



A. Log(Household Disposable Income)



B. Debt Collection of Large Debts



C. Probability being a renter

B.2.1 Downsizing of Homeowners

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

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

Table B.2 presents the average treatment effects. Column 1 shows results for renters, Column 2 for homeowners, and Column 3 for households that remain homeowners throughout the period. In all cases the effect is positive and significant, although the change in percentage terms is about twice as large for both groups of homeowners compared to renters, which could reflect the overall low mobility of renters and the low potential gains of moving due to the rent-controlled system in Sweden.

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

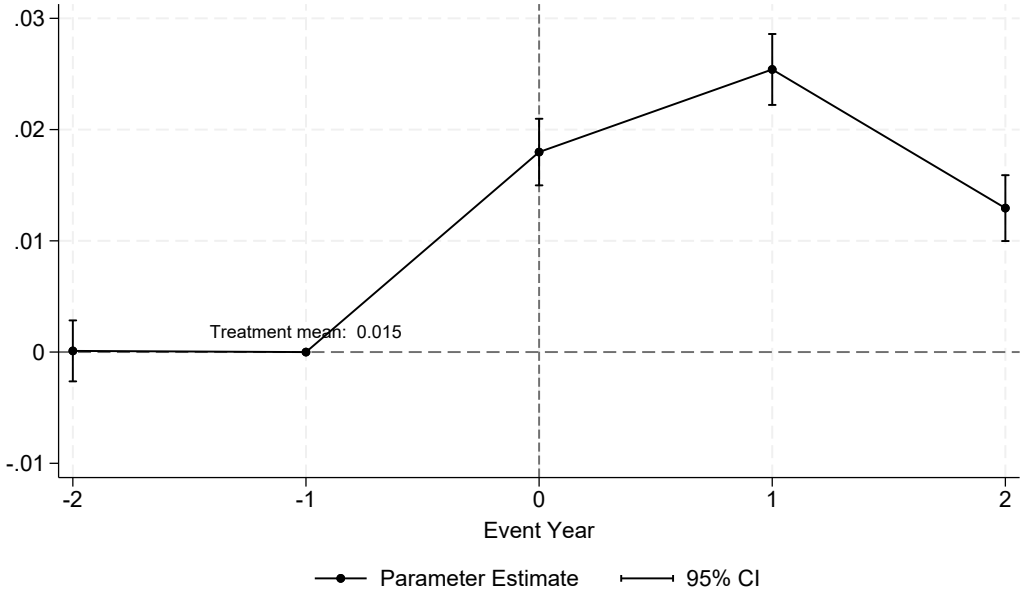


Table B.2: **The Effect of a Fatal Health Event on the Probability to Move to Another Neigborhood.**

	Renters	Homeowners	Households that Remain Homeowners
Treat × Post	0.028***	0.040***	0.019***
	(0.0028)	(0.0012)	(0.0010)
R^2	0.010	0.014	0.006
Observations	106,156	388,555	328,081
Mean in t=-1	0.045	0.032	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) household that remain homeowners. A surviving spouse is defined as renter/homowner if they rented/owned their home two years before the death. Household that remain homeowners are those households that remain homeowners throughout the period of analysis. The regressions are specified as in Equation 2. Standard errors are clustered at the household level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

B.3 Adjustment Pension Eligibility

In this section, we investigate whether surviving pensions is important for default responses after a fatal health shock. Being entitled to surviving pension, so-called adjustment pension, depends crucially on the age of the surviving spouse. To explore this we study groups of surviving spouses that are either eligible for adjustment pension (below age 66 at the time of death) or not, and furthermore that are not entitled for widow's pension (born after 1944). To get more similar groups in terms of age, we restrict the groups to those being five years below or above the age limit for eligibility but exclude those aged 65 as this is the legal retirement age in Sweden; hence the eligible group is aged 60-64, and the non-eligible group is aged 66-70.

Figure B.4 shows that for the group entitled to pension in the first year after death, there is no clear effect on the probability of receiving a claim when the spouse is eligible for a year of survivors pension. The estimates are not zero, but are imprecisely measured. For the group that is not eligible to pension, the fatal shock has a clear effect on the default probability.

Figure B.5 shows zero estimates for the eligible group in the first two years after death, but a positive but insignificant estimate in the last year, which could indicate that the survivial pension only temporarily alleviates the financial problems of the household. Again, for the non-eligable households the effect is positive and significant directly after the shock.

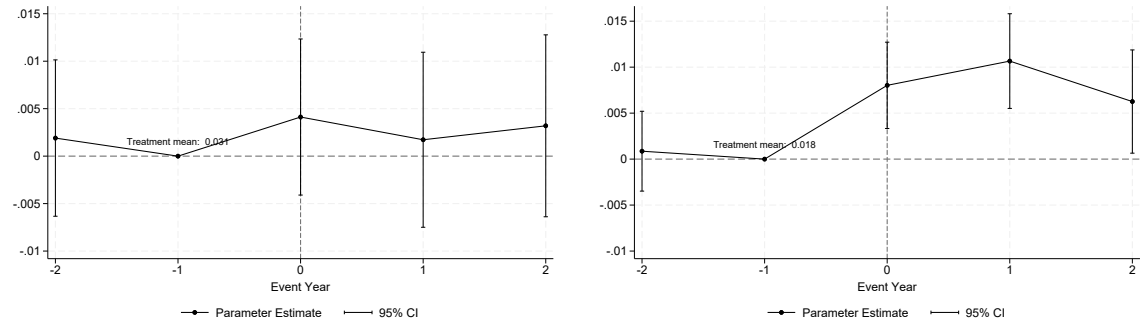
Being that the groups are on different sides of the retirement age, the responses could also depend on different labor supply responses. The eligible group is below retirement age and, therefore, might have a stronger labor market attachment and easier to increase labor supply. At the same time, if most of them already work 100%, it could be hard to increase the labor supply more; in that sense, we could expect a higher response to labor supply for the group above retirement age.

Figures B.6-B.7 shows effects on labor income and log(labor income). In both groups, labor income decreases with similar magnitude at the event year; therefore, an increase in labor supply of the eligible group is not likely driving the different effects between the groups. Moreover, the eligible group increases their labor supply after the event year, when they are no longer entitled to the adjustment pension. The effect is most obvious in event year 2, which could be because some spouses still receive an adjustment pension in event year 1. Lastly, those who still work in the eligible group have a permanent decrease in labor income after the shock; this could also explain why they have a higher risk of defaulting.

Table B.3 confirms that the effect on default (Columns 1-2) is only significant for the group that is not eligible for the adjustment pension. For this group, the probability of receiving a claim increases by around 40% and the probability of debt collection on large claims increases by 60%. The effects on labor income are not significantly measured for the eligible sample, reflecting the opposite responses, an immediate decrease and a later increase. For the non-eligible group, labor income decrease by almost 14%.

Overall, the analysis suggest that pension eligibility could be important for default responses, but we cannot definitely determine it's impact as the eligible and non-eligible groups differ also in terms of age, labor market attachment and sample size.

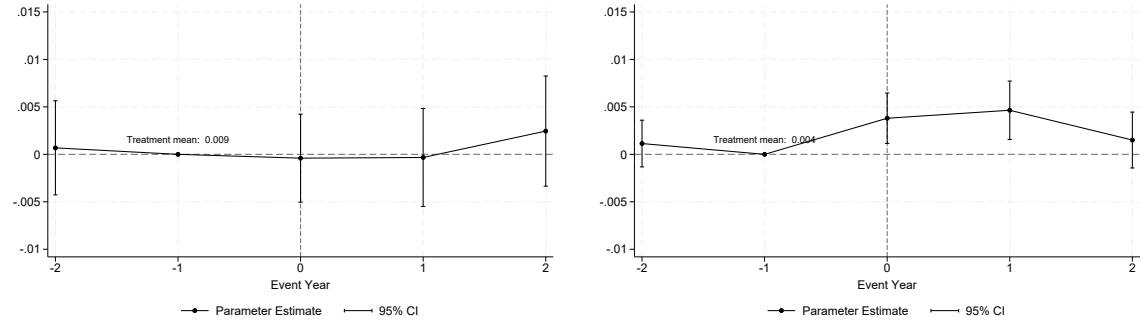
Figure B.4: **The Effect on the Probability of Receiving a Claim for Spouses by Eligability of Adjustment Pension.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a fatal health shock on the probability of receiving a claim from the SEA. The regressions are specified as in Equation 1. Standard errors are clustered at the household level.



A. Eligible (Age 60-65)

B. Not Eligible (Age 66-70)

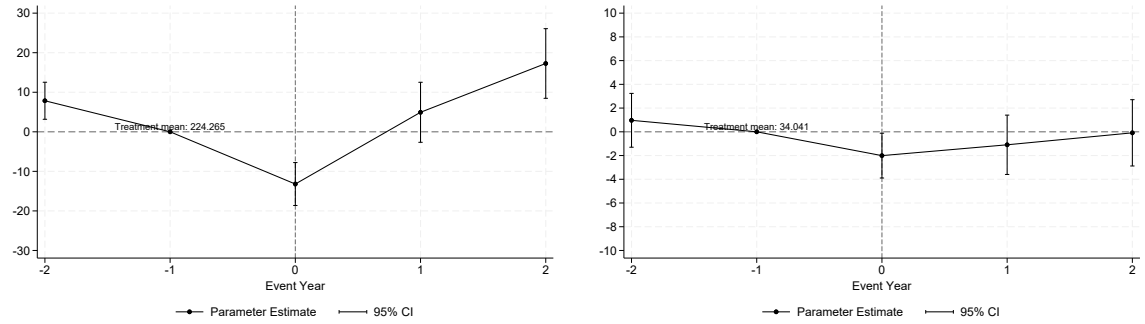
Figure B.5: **The Effect on the Probability of Debt Collection of Large Claims for Spouses by Eligability of Adjustment Pension.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a fatal health shock on the probability of debt collection of large debts. The regressions are specified as in Equation 1. Standard errors are clustered at the household level.



A. Eligible (Age 60-65)

B. Not Eligible (Age 66-70)

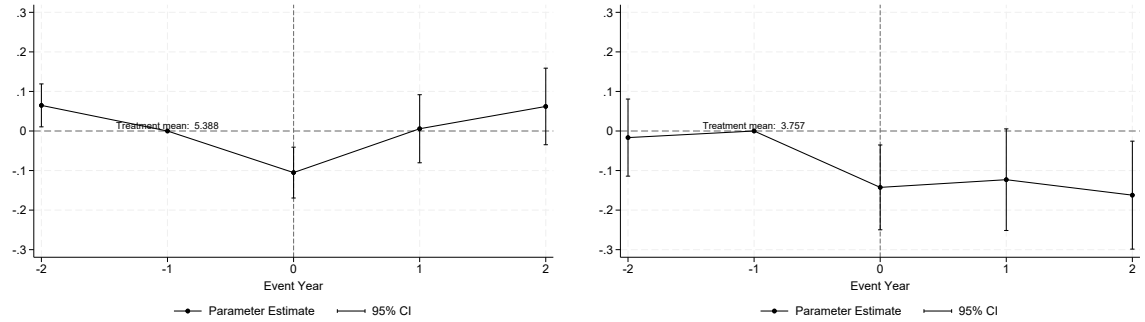
Figure B.6: **The Effect on the Labor Income for Spouses by Eligability of Adjustment Pension.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a fatal health shock on labor income of the surviving spouse. Labor income is expressed in constant (2019) prices and thousand SEK. The regressions are specified as in Equation 1. Standard errors are clustered at the household level.



A. Eligiable (Age 60-65)

B. Not Eligiable (Age 66-70)

Figure B.7: **The Effect on Log(Labor Income) for Spouses by Eligability of Adjustment Pension.** The figure plots the coefficient estimates and 95% confidence intervals of the effect of a fatal health shock on log(labor income) of the surviving 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. Eligiable (Age 60-65)

B. Not Eligiable (Age 66-70)

Table B.3: **The Effect of Fatal Health Events on Debt Default by Eligability for Adjustment Pension.**

	Receive Claim	Debt Collection (Large)	Labor Income	Log(Labor Income)
Panel A: Eligable for Adjutment Pension				
Treat × Post	0.002	0.000	-0.785	-0.051
	(0.0034)	(0.0020)	(3.4749)	(0.0308)
R^2	0.003	0.002	0.175	0.116
Observations	35,455	35,455	35,455	23,096
Mean in t=-1	0.031	0.009	224.265	224.265
Panel B: Not Eligable for Adjutment Pension				
Treat × Post	0.008***	0.003***	-1.556	-0.135***
	(0.0019)	(0.0011)	(1.2795)	(0.0483)
R^2	0.003	0.002	0.080	0.079
Observations	71,002	71,002	71,002	17,570
Mean in t=-1	0.018	0.004	34.041	34.041

Note: This table provides estimates for the impact of a fatal health shock on subgroups of surviving spouses. Panel A shows results for surviving spouses that were eligable for adjustment pension (Age 61-65) and Panel B for those that are not (Age 66-70). The sample includes spouses born after 1944. Eligability is limited to spouses below age 66, we include spouses around this threshold (+/- 5 years). Columns 1-2 presents results on two metrics: 1) the probability to receive a financial claim from the SEA; and 2) the probability of being subjected to enforced debt collection of large claims. 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 Non-Fatal Health Shocks

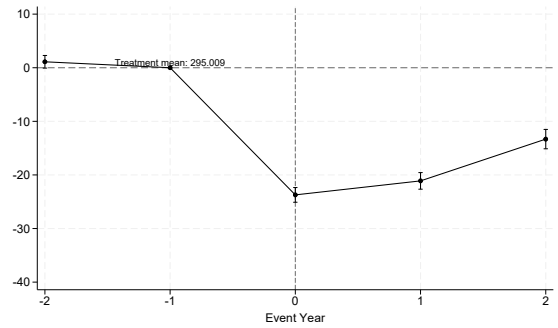
C.1 Income

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

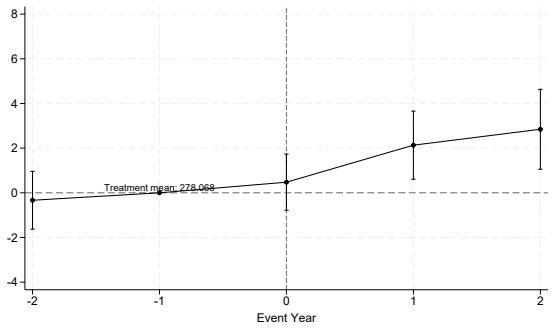
	(1) Labor Income	(2) Capital Income	(3) Disposable Income	(4) Hh. Disposable Income
Panel A: Sick Individual				
Treat × Post	-19.918***	2.986	-0.280	-16.357**
	(0.690)	(3.291)	(2.660)	(6.702)
R^2	0.100	0.001	0.007	0.002
Observations	1,063,289	1,063,289	1,063,289	1,063,289
Mean in t=-1	295.009	24.137	303.342	636.430
Panel B: Spouse				
Treat × Post	1.986***	2.554	4.222	-16.942**
	(0.587)	(8.900)	(6.115)	(6.666)
R^2	0.189	0.000	0.001	0.002
Observations	1,063,289	1,063,289	1,063,289	1,063,289
Mean in t=-1	278.068	36.253	297.173	636.372

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

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



A. Labor Income (Sick Individual)



B. Labor Income (Spouse)