Household Labour Supply Dynamics Following Health Shocks: Evidence from Canada

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Abstract

Health shocks impose substantial economic costs on individuals, but within-household spillovers on unaffected spouses are less well understood. Spouses can increase work to replace lost income ("the added worker effect") or reduce work to provide care, and gender norms may play an important role in these responses. I study how serious health shocks affect household labour supply using administrative data linking hospital records with tax returns for Canadian married couples from 2004 to 2019. Exploiting variation in the timing of cancer diagnoses, strokes, and acute hospitalizations, I find asymmetric spousal responses by gender. Following a partner's health shock, wives reduce earnings by 4 percent in the first year, with losses persisting at 3.5 percent through year five. Husbands reduce earnings by 1.5 percent initially but recover to baseline within three years. The gender gap widens with shock severity. For strokes, which generate intensive caregiving needs, wives' earnings fall by 7 percent while husbands' earnings *increase* by 5 percent. The probability of permanent labour force exit rises by 2.0 percentage points for wives compared to 1.6 percentage points for husbands. These patterns emerge despite universal healthcare coverage that eliminates medical cost concerns. The results reveal that when formal long-term care is limited, households respond to binding caregiving constraints through gender specialization, with women bearing disproportionate and lasting economic costs.

JEL–Classification: I12, J22, J16.

Keywords: health shocks, labour market outcomes, household labour supply, gender differences.

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1 Introduction

Health shocks are a major economic risk for households. In Canada, about one in three adults lives with a chronic condition, and hundreds of thousands are hospitalized each year for acute illnesses (Public Health Agency of Canada, 2018). These events have large and lasting effects on earnings (Dobkin et al., 2018; García-Gómez, 2011). But illness affects families as well as patients. When a partner becomes seriously ill, other household members often face a choice between working more to replace lost income and working less to provide care. I study how families make that adjustment and whether men and women respond differently.

I use Canadian administrative data linking hospital records with tax returns for all married couples from 2004 to 2019 to examine how serious health shocks affect both patients and their spouses. The analysis follows earnings, employment, and benefit claims for five years after major illnesses such as cancer, stroke, or extended hospitalizations. Canada provides a clean setting for studying these responses. Universal healthcare removes concerns about medical costs or loss of insurance that complicate U.S. evidence, while limited public funding for long-term and home care leaves families exposed to the time and income costs of caregiving. I show that even with universal healthcare, the economic burden of illness remains large and falls disproportionately on women.

Men and women who experience a serious illness face similar earnings losses, but their spouses respond very differently. Wives' earnings fall by about 4 percent in the first year after a partner's health shock and remain roughly 3.5 percent below baseline five years later. Husbands' earnings fall by about 1.5 percent initially but return to baseline within three years. The gap widens with illness severity. After strokes, which create lasting care needs, wives' earnings fall by around 7 percent and show no recovery, while husbands' earnings rise by about 5 percent. For less severe hospitalizations, the gap is smaller but still present. These patterns show that caregiving demands, rather than income replacement, drive how households adjust to illness. When facing binding time constraints, families tend to fall back

on traditional roles: women provide care while men maintain or expand paid work.

These labour supply effects have lasting economic consequences. The probability of never returning to employment rises by roughly two percentage points for wives of affected individuals, compared to 1.6 points for husbands. Among wives of cancer patients, Canada Pension Plan disability and early retirement benefits increase by about 12 percent within five years, showing how health shocks widen gender gaps in pension income. Employment Insurance claims surge immediately after health shocks but drop quickly once benefits expire after about six months. By the second year, most households with ongoing care needs have left the labour force rather than cycling through temporary programs. This pattern reveals a mismatch between short-term income support and long-term caregiving needs, forcing many households, and especially women, into permanent labour market exits that shape their financial trajectories for years to come.

Cross-country evidence shows that spousal labour supply responses depend on the structure of social insurance. In high-insurance settings such as Denmark and the Netherlands, spouses change paid work little after a partner's illness (Fadlon and Nielsen, 2021; Arteaga et al., 2024). In the United States, where access to health insurance depends on employment, adjustments reflect both caregiving needs and incentives to maintain coverage (Coile, 2004; Bradley, 2013). In countries with universal healthcare but limited long-term care support, including the United Kingdom, families often respond through informal care rather than changes in paid work (Macchioni Giaquinto et al., 2022). Canada fits this last group. It combines universal healthcare with partial long-term care coverage, which leaves households to absorb much of the care burden. Earlier Canadian work shows that cancer diagnoses reduce spouses' labour supply (Jeon and Pohl, 2017), but focuses on a single illness and a cohort anchored to a specific census year. I extend this evidence using linked administrative data that cover all major causes of serious illness, and capture both partners' outcomes. This scope makes it possible to document how differences in the severity and type of illness correspond with persistent and gendered changes in employment, earnings, and social assistance

use.

A central finding is that the pattern of responses varies systematically with the severity of illness. Stroke, which often produces lasting disability and substantial care needs (García-Gómez, 2011; García-Gómez et al., 2013), generates the sharpest adjustments within households. The earnings gap between wives and husbands is more than three times larger for stroke cases than for extended hospitalizations, which is consistent with the greater demands these conditions place on families. Only husbands of stroke patients show clear increases in earnings, while wives experience large and persistent losses. Earlier work compares labour supply responses across more and less severe health shocks (e.g. Fadlon and Nielsen, 2021; Arteaga et al., 2024), but typically in settings with extensive income support and long-term care coverage, where informal care plays a smaller role. In contrast, the Canadian setting allows me to study how the balance between income-replacement and informal care responses varies with severity in an environment where familial caregiving is central and formal support is partial. The evidence indicates that these channels operate with different intensity across genders (Van Houtven and Norton, 2004). This pattern is consistent with gender specialization emerging when shocks are severe and formal support is limited.

A further contribution is to place these results within the broader evidence on gendered labour market penalties. The widening gap under severe illness mirrors the child penalty documented by Kleven et al. (2019) and the elder-care penalty observed when daughters reduce paid work to care for aging parents (Bolin et al., 2008; Maestas et al., 2024). The evidence here adds spousal illness as another major family event that produces persistent and unequal changes in paid work. Taken together, these patterns are consistent with households relying on established caregiving roles when formal care options are incomplete, which reinforces gendered differences in employment and earnings over time.

A final contribution is to show how short-term income support interacts with long-term care needs in ways that can produce lasting labour market penalties. Employment Insurance provides only temporary assistance, with sickness and caregiver benefits lasting 15 to 26

weeks, yet many households confronting serious illness face care needs that extend well beyond this period. When benefits expire but care demands remain, families are often left with limited options, and many end up leaving the labour force. These exits are associated with lasting earnings losses that are consistent with the scarring effects documented in earlier work on career interruptions and job displacement (Bertrand et al., 2010; Jacobson et al., 1993). They also correspond with higher uptake of disability and early retirement benefits, in line with evidence that health events can trigger movement onto such programmes (García-Gómez et al., 2013). Among wives of cancer patients, Canada Pension Plan benefit claims rise by about 12 percent within five years, reflecting a mix of survivor benefits and caregiving-related early exits. Prior work has examined short-run adjustments, but less is known about how the structure of temporary income support shapes these longer-run outcomes. The evidence here suggests that gaps in formal support can turn short-term shocks into persistent and gendered inequality by pushing families, especially women, toward permanent labour market exits.

The remainder of this paper proceeds as follows. Section 2 describes the Canadian institutional context, emphasizing how the combination of universal healthcare coverage and limited long-term care support creates an ideal setting for identifying caregiving responses. Section 3 describes the administrative data linking hospital records to tax returns and explains the sample construction. Section 4 outlines the event study methodology and identification strategy. Section 5 presents the main results, documenting effects on both patients and spouses and examining heterogeneity by shock severity and gender. Section 6 concludes with a discussion of implications for social insurance design and gender equality policy.

2 Institutional Background

Canada provides a useful setting to study how households adjust labour supply following serious health shocks because it removes common confounds while preserving caregiving de-

mands. The key institutional feature is a sharp split in public insurance: the system offers full, first-dollar coverage for acute medical care, but excludes nearly all long-term and home-based care. This creates a structural gap. Once the acute episode ends, households face persistent care needs with little public support. Any ongoing assistance, whether in-home help, supervision, or daily care, must be provided or financed privately. This setup removes the insurance channel that complicates U.S. studies, where maintaining employer-sponsored health coverage can drive spousal labour supply. It also contrasts with the Nordic model, where formal care is widely available and household adjustment is often unnecessary. In Canada, the caregiving channel remains active because someone must fill the gap left by public programs. How that burden is shared reflects underlying patterns in how families allocate time and income, especially along gender lines. This section outlines three institutional pillars relevant for interpreting the results: the scope and limits of public healthcare coverage, income support programs for workers and caregivers, and the broader safety net, including disability pensions and tax credits.

2.1 Healthcare Coverage and Its Limits

Since 1984, the Canada Health Act has required provinces to provide universal coverage for medically necessary hospital and physician services without user fees at the point of care (Library of Parliament, 2018; Health Canada, 2023). Throughout my observation period, this guaranteed full coverage for all treatments related to the health shocks I study: chemotherapy and radiation for cancer, cardiovascular surgeries, stroke rehabilitation, and intensive care. Unlike in the United States, where a health shock can jeopardize both employment and access to employer-sponsored insurance (e.g. Cullen and Gruber, 2000; Dobkin et al., 2018), both spouses in Canadian households retain full healthcare access regardless of work status . This removes the insurance channel that commonly confounds estimates of spousal labour supply responses in U.S. studies.

However, this universal coverage has clear limits. The Canada Health Act applies only to

acute hospital and physician services. Outpatient prescription drugs, medical equipment, rehabilitation, home care, and long-term care fall outside its scope (Flood and Thomas, 2016). Provinces may provide some of these services, but most costs fall to households. Home care, in particular, is not federally insured, and provinces are not required to provide it. While most provinces offer some public home care for individuals with medical needs, often following hospital discharge or for chronic conditions, these programs are tightly rationed. Access depends on assessed need, and service hours are capped within fixed provincial budgets. Public home care programs remain limited across provinces, reflecting long-standing capacity and funding constraints. Availability varies by region and by assessed medical need, and many households face unmet demand for in-home support. When public care is unavailable or insufficient, families must either hire private providers or deliver the care themselves. Private services are often prohibitively expensive, leading informal caregiving to become the predominant source of support; unpaid caregivers provide 70 to 80 percent of all home care in Canada (Lilly et al., 2010).

Canada's system becomes clearer in the international context. Denmark provides both universal healthcare and comprehensive public long-term care, including generous home support and residential services. Evidence from Denmark shows little spousal labour response to non-fatal health shocks, consistent with formal systems absorbing the care burden (Fadlon and Nielsen, 2021). The United Kingdom, like Canada, provides universal healthcare through the National Health Service but relies on a separate, means-tested system for social care. Studies from the UK similarly document strong caregiving responses by spouses (Macchioni Giaquinto et al., 2022). The United States lacks both universal healthcare and comprehensive long-term care coverage. Canada thus occupies an intermediate position: full public coverage for acute care, limited support for long-term care, and a persistent role for households in bridging the gap.

2.2 Income Support for Sick Workers and Caregivers

Canada's primary federal support for workers and caregivers operates through Employment Insurance (EI). Two programs are central to understanding household responses to health shocks: EI Sickness Benefits and EI Compassionate Care Benefits, later expanded into Family Caregiver Benefits.

EI Sickness Benefits provided up to 15 weeks of income replacement at 55% of average weekly earnings throughout my study period (2004–2019). Eligibility required at least 600 hours of insurable employment and an earnings loss of at least 40% (Employment and Social Development Canada, 2018, 2023b). Most claimants used fewer than 15 weeks. In 2016, the average claim lasted seven weeks, although 36% of claimants exhausted the full entitlement (Employment and Social Development Canada, 2018). The duration later increased to 26 weeks in 2022, after my study period ended.

For family caregivers, Canada introduced Compassionate Care Benefits on January 4, 2004. Initially, the program offered six weeks of income support within a 26-week window for those providing end-of-life care to a family member with a significant risk of death within that period (Government of Canada, 2004; Williams et al., 2008). On January 3, 2016, the program expanded substantially: maximum benefits rose to 26 weeks and the claiming window to 52 weeks. The reform also introduced the EI Family Caregiver Benefit for Adults, which provided up to 15 weeks of income support for those caring for an adult family member with a serious medical condition not requiring imminent death. The benefit structure remained consistent across these programs, covering 55% of average weekly earnings up to a legislated maximum, with the same 600-hour and 40% earnings-loss requirements. Benefits could be shared among family members, though the first claimant faced a one-week waiting period (Employment and Social Development Canada, 2023b).

Despite these expansions, program uptake remained very low. Only 6,003 people received Compassionate Care Benefits in fiscal year 2013–14. Low participation likely reflects limited awareness, restrictive eligibility, and a structural mismatch between short-term program

design and the long-term care needs that many families face. These features left most households outside the system of formal support, forcing them to rely on informal caregiving or exit the labour force altogether.

Three institutional features are key to interpreting my results. First, all benefits are temporary. When health shocks generate prolonged caregiving needs, affected spouses must choose between exhausting benefits and returning to work, reducing hours without income support, or leaving the labour force entirely. Second, eligibility rules require substantial employment attachment. The 600-hour threshold excludes part-time workers, recent labour-force entrants, and anyone already out of work. Because women are more likely to hold part-time or precarious jobs, this rule disproportionately limits their eligibility, reinforcing the gendered adjustment patterns I observe. Third, the 40% earnings-loss requirement discourages marginal work reductions. To qualify, a worker must experience a large income drop, which makes gradual adjustments financially unattractive and may contribute to the sharp earnings declines I find. Finally, EI provides income support but not job protection. The right to unpaid leave is governed by provincial legislation, and these leaves are also temporary. When both income support and job protection expire while care needs persist, households face strong pressure to exit the labour force.

These institutional features align closely with the patterns in my results. The temporary nature of EI benefits produces sharp spikes in claims immediately following health shocks, followed by rapid declines once benefits are exhausted. As benefits end, households must make discrete adjustments: return to work or withdraw from employment. The persistence of earnings losses, particularly among women, reflects this structural mismatch between temporary formal support and chronic caregiving demands.

2.3 Disability Pensions

Between 2004 and 2019, the Canada Pension Plan (CPP) provided disability benefits to contributors under age 65 who had a severe and prolonged disability preventing regular work at

any substantially gainful occupation (Employment and Social Development Canada, 2023a; Disability Credit Canada, 2024). Eligibility requires contributions in four of the last six years, or three of the last six for those with 25 or more years of contributions. Disabilities had to be both severe and prolonged, meaning long-term, indefinite, or likely fatal (Disability Credit Canada, 2024). Benefits began four months after approval, with initial payments including retroactive amounts for up to twelve months before application. At age 65, disability benefits converted automatically to retirement pensions (Disability Credit Canada, 2024). CPP disability marks a permanent labour force exit, unlike temporary EI sickness benefits. In my data, increases in CPP payments following health shocks indicate transitions into long-term disability or early retirement rather than temporary work interruptions. Among spouses, these payments capture two distinct forms of adjustment: their own permanent labour force exit, often through early retirement or disability claims, and, in the case of a fatal shock, the receipt of survivor benefits.

2.4 Tax Credits and Home Care Access

The federal Canada Caregiver Credit offered a non-refundable tax credit for supporting a dependent with a physical or mental impairment. In 2019, the credit allowed a $7,140 deduction for a spouse, worth roughly $1,071 in federal tax reduction at the lowest bracket (Canada Revenue Agency, 2020). The non-refundable design created a clear limitation: caregivers who reduced or left paid work to provide full-time care often had too little income to benefit. As a result, the credit primarily supported higher-income households while providing no relief to those most affected by care responsibilities. This design helps explain why the earnings losses I document are concentrated among caregivers least able to access formal financial support.

Because formal care options are limited, the failure of fiscal supports leaves households to absorb the full cost of ongoing care. When families cannot access affordable substitute care, the healthy spouse faces a binding time constraint. Hours devoted to caregiving must come

from either market work or leisure. In the literature, this is known as the informal carer effect (Bolin et al., 2008). The strength of this constraint depends on the severity of the health shock. Mild shocks can often be managed through modest adjustments, while severe or chronic conditions, such as stroke, bind tightly and frequently force large reductions in labour supply or complete exit.

3 Data and Sample

The analysis uses three linked Canadian administrative datasets covering the years 2004 to 2019. I measure labour market outcomes and family structure using the T1 Family File (T1FF), a near-universal tax dataset maintained by Statistics Canada. Health shocks are identified using two hospital datasets from the Canadian Institute for Health Information (CIHI): the National Ambulatory Care Reporting System (NACRS) and the Discharge Abstract Database (DAD). NACRS includes hospital-based ambulatory visits, such as emergency department and outpatient clinic visits. DAD records all inpatient stays in acute care hospitals, including discharges, deaths, and transfers. Quebec is excluded from the analysis, as it does not participate in the CIHI system. Emergency department coverage in NACRS varies across provinces, but Ontario and Alberta provide consistent data throughout the study period. I account for provincial differences in coverage using province-by-year fixed effects. Data linkage was performed by Statistics Canada through the Social Data Linkage Environment (SDLE), using probabilistic matching across health and tax records. Linkage rates exceed 90 percent. The sample includes married couples identified in the T1FF between 2004 and 2019. I define couples using Statistics Canada's census family concept, which links spouses and their co-residing children based on tax return information. I fix spousal linkages at the time of the health shocks and trace affected spouses and patients over time. If patients get separated and remarry after the event, the most recent spouses are not included in the spouses sample. I restrict the sample to individuals aged 18 and older who can be linked to

hospital records in the CIHI data.

I define health shocks as acute medical events that disrupt both health status and labour market capacity. The goal is to capture events that are serious enough to affect work and common enough to support gender-specific analysis. I identify shocks using the primary diagnosis field in hospital records from the Discharge Abstract Database (DAD) and the National Ambulatory Care Reporting System (NACRS). These two sources jointly cover inpatient admissions and emergency department visits across most of Canada during the study period.

The analysis includes three categories. Cancer diagnoses include all malignant neoplasms (C00–C97). Stroke cases are identified using codes I60–I64, which cover subarachnoid hemorrhage (I60), intracerebral hemorrhage (I61), other non-traumatic intracranial hemorrhage (I62), cerebral infarction (I63), and stroke not specified as hemorrhage or infarction (I64). The final category includes other acute events that result in inpatient hospitalizations of at least three consecutive days. To exclude planned procedures and chronic condition management, I drop individuals with any overnight hospital stay in the three years before admission and exclude obstetric admissions (ICD-10 code O). These three categories span a range of severity and recovery trajectories, from short-term illness to more permanent disability.

The T1FF provides annual, near-universal tax records for Canadian individuals. I use it to measure labour market outcomes at both the individual and family levels. Although filing is not mandatory for all adults, refundable tax credits and child benefits create strong incentives to file, even for those with low earnings. I convert all income variables to 2019 constant dollars using the national Consumer Price Index. For the intensive margin, I use total wages and salaries reported on T4 slips. For the extensive margin, I define employment as any positive T4 earnings in a given year. I also track net self-employment income, which includes business, professional, commission, farming, and fishing income reported on the tax return.

In addition to earnings, I track social insurance income. I observe Employment Insur-

ance (EI) benefits, which include regular, sickness, parental, and caregiving payments. I also include income from the Canada/Quebec Pension Plan (CPP/QPP), which aggregates retirement, disability, and survivor benefits. For both programs, I record the total amount received and whether the individual received any benefits in a given year. These variables capture additional channels of adjustment following a health shock, though they reflect a mix of income support types.

4 Methodology

I study how acute health shocks affect individual and household labour market outcomes using an event-study framework. The empirical design leverages variation in the timing of the health shock, which I define as the first occurrence of a serious medical event such as a stroke, cancer diagnosis, or extended hospitalization. Identification relies on the assumption that, conditional on observed characteristics and calendar year, the precise timing of the health shock is uncorrelated with unobserved changes in labour market outcomes. This is plausible for acute, unplanned health events that are difficult to schedule around anticipated income shifts. I assess its validity by examining event-time coefficients for the pre-shock years. The baseline specification is:

$$y_{it} = \sum_{\substack{k=-3 \\ k\neq -1}}^{5} \beta_k \mathbf{1}[k = t - t_i^*] + \lambda_{pt} + X_{it}\gamma + \varepsilon_{it} \tag{1}$$

where y_{it} is the labour market outcome of individual i in year t, and t_i^* is the year in which i experiences a health shock. The event-time indicators $\mathbf{1}[k = t - t_i^*]$ equal one if year t is k years before or after the shock. I omit $k = -1$ as the reference period, so each coefficient β_k captures the difference in outcomes relative to the year before the shock. The specification includes province-year fixed effects λ_{pt}, along with a vector of time-varying controls X_{it}, which includes age-sex fixed effects and family size fixed effects. I limit the event window

to three years before and five years after the shock to ensure sufficient support across event times.

For the outcomes are measured in dollars, I estimate the model in levels. For interpretation, I express the event-time coefficients as percentage changes. For each event time k, I first use the estimated model to obtain the predicted mean outcome $\hat{y}_k$. I then construct the corresponding counterfactual mean in the absence of the shock as $\hat{y}_k - \widehat{\beta}_k$, and scale the coefficient by this counterfactual level:

$$\widehat{\beta}_k^{\%} = \frac{\widehat{\beta}_k}{\hat{y}_k - \widehat{\beta}_k},$$

so that $\widehat{\beta}_k^{\%}$ can be interpreted as the proportional change in the outcome at event time k relative to its counterfactual value.

4.1 Gender-Specific Analysis

To explore gender differences, I examine how impacts vary across four distinct groups: male patients, female patients, male spouses, and female spouses. This breakdown distinguishes effects on individuals directly experiencing a health shock from responses by their partners, while allowing the patterns to vary with gender roles and household dynamics. Gendered responses may operate through different channels. Among patients, men and women may differ in how their labour market outcomes evolve after a shock, particularly in earnings recovery and employment attachment. Among spouses, behavioural responses may reflect caregiving or financial roles within the household. For example, female spouses may reduce labour supply to provide informal care, while male spouses may increase work effort in response to lost income.

I estimate a pooled event-study specification with gender-specific coefficients and fixed

effects. For gender $g \in \{\mathrm{M}, \mathrm{F}\}$, the model is

$$y_{itg} = \sum_{\substack{k=-3 \\ k \neq -1}}^{5} \beta_k^g \mathbf{1}[k = t - t_i^*] + \lambda_{pt}^g + X_{it}\gamma^g + \varepsilon_{itg}, \tag{2}$$

where y_{itg} is the labour market outcome of individual i of gender g in year t, and t_i^* is the year of the health shock. The indicators $\mathbf{1}[k = t - t_i^*]$ equal one if year t is k years before or after the shock, and the coefficients β_k^g trace the event-time profile for gender g relative to the year just before the shock. The terms λ_{pt}^g are province–year fixed effects that are allowed to differ by gender, and X_{it} is a vector of time-varying controls (age and family size fixed effects), with coefficients γ^g that may also vary by gender. As with the main model, I limit the event window to three years before and five years after the shock and use the resulting estimates to compare gender-specific patterns over time.

5 Results

5.1 Overview

This section presents estimates of how health shocks affect labour market outcomes for both patients and their spouses over a five-year horizon. The discussion follows three questions. The first asks whether health shocks generate comparable earnings and employment losses for men and women who experience them. Both sexes experience large and persistent earnings reductions, with only modest gender differences. The second asks whether spouses adjust their labour supply when their partners experience a health shock, and whether these adjustments differ by gender. Wives reduce labour supply sharply and persistently, while husbands show limited responses except in the most severe cases, where an added worker effect appears for men. The third question concerns mechanisms. The results show that gender differences widen with shock severity, consistent with caregiving demands outweighing income effects. Early labour supply reductions often lead to permanent labour force exits

and lower pension income.

The event-study plots, estimated from Equation 2, confirm flat pre-trends and trace the adjustment path after the shock. The summary tables complement these figures by reporting the average effect across the five years following the shock, based on Equation 1. I first pool results across cancer, stroke, and long-term hospitalization, and then examine heterogeneity by condition to identify the mechanisms behind these patterns. When an individual experiences more than one qualifying health event, I assign the date of the earliest event as the shock date in order to avoid overlapping exposures and ensure a single event window for each person. The following subsections present results by condition and show how differences in severity help explain the patterns observed in the pooled sample.

5.2 Effects on Patients

5.2.1 Earnings

Health shocks cause large and lasting earnings losses for both men and women. The average effect over the five years following the shock, summarized in Table 1, is a mean annual loss of about 12% of pre-shock earnings. Figure 1 illustrates how this average emerges over time. The pre-shock coefficients are flat, confirming that the timing of health shocks is uncorrelated with underlying earnings trends. Earnings fall sharply at the time of the shock, decline by 15–20%in the first year, and recover only partially in subsequent years. Women's earnings fall slightly more than men's at first, but both sexes experience similar long-run reductions. By year five, earnings remain roughly 10% below baseline for both sexes, showing that losses are large, lasting, and broadly symmetric across gender.

The results are consistent with prior evidence. Dobkin et al. (2018) finds 20 percent earnings losses following hospitalizations in the United States, similar to my pooled estimate of 17.5% at year one. García-Gómez et al. (2013) document 13% earnings reductions after urgent hospitalizations in the Netherlands. The similarity across countries with different healthcare systems suggests that direct productivity effects, rather than medical costs or

Table 1: Effects of Health Shocks on Patient Labor Market Outcomes

	Cancer	Stroke	Long Term Hospitalization	All
Earnings	-0.114***	-0.207***	-0.069***	-0.121***
	(0.004)	(0.011)	(0.002)	(0.003)
Employment	-0.026***	-0.042***	-0.025***	-0.029***
	(0.001)	(0.002)	(0.001)	(0.001)
Perm. Labour Force Exit	0.033***	0.052***	0.034***	0.037***
	(0.001)	(0.002)	(0.001)	(0.001)
Self-employment Income	-0.049*	-0.282	-0.062***	-0.109***
	(0.027)	(0.209)	(0.015)	(0.028)
CPP Claims	0.055***	0.063***	0.173***	0.058***
	(0.002)	(0.003)	(0.002)	(0.001)
EI Claims	-0.026*	-0.059*	0.214***	-0.006
	(0.014)	(0.030)	(0.006)	(0.010)

Notes: Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01

insurance coverage, drive most of the loss. Workers cannot work at full capacity while ill or recovering, regardless of how healthcare is financed. Earnings losses vary predictably with condition severity. Stroke, the most severe shock and often causing permanent disability, generates persistent 23–24% losses at year one with minimal recovery, as shown in Panel B of Figure 1. Cancer shows distinct gender patterns: women experience larger initial losses (23.1% versus 16.9%) but stronger recovery, ending at 9.4% below baseline by year five, compared to 5.5% for men, as shown in Panel A. This pattern likely reflects treatment intensity. Women's cancers, such as breast cancer, often involve more aggressive initial treatment but better long-term prognosis, while men's cancers, such as prostate cancer, typically require less intensive treatment but have worse long-term outcomes. Long-term hospitalizations, the mildest shocks in my sample, produce smaller losses that persist at 5–8% below baseline through year five, as shown in Panel C. Even these milder shocks, which still involve at least three days of inpatient care, lead to lasting earnings losses, underscoring how severe the underlying health events are.

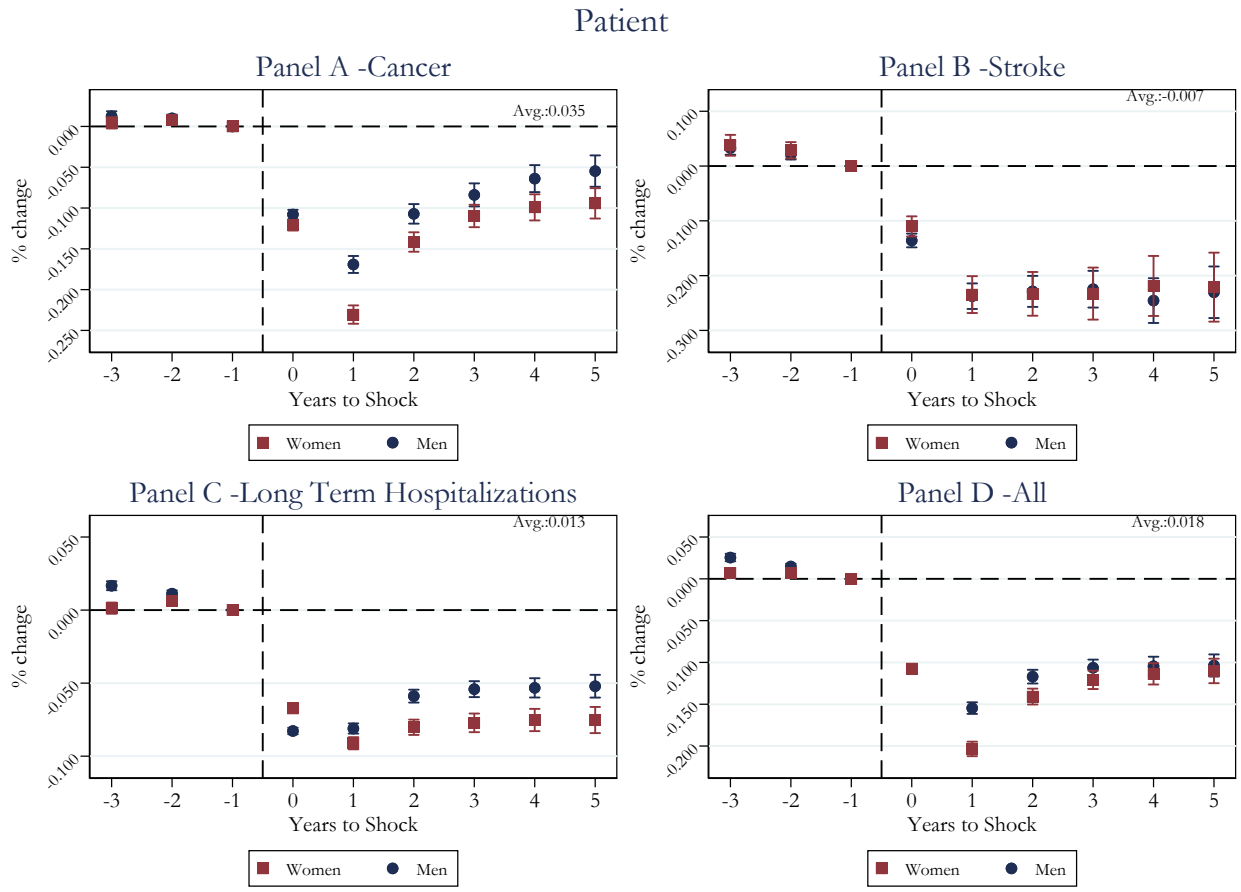

Figure 1: Earnings

Note:Figure shows event study coefficients from Equation 2 estimated separately by gender. The dependent variable is T4 earnings normalized by the mean earnings in year −1. Year −1 is omitted, so coefficients represent percentage changes relative to the pre-shock baseline. The sample includes patients who experienced a health shock between 2004-2019. Error bars show 95% confidence intervals. Standard errors clustered at the individual level. All regressions include province-year, age, and family size fixed effects.

5.2.2 Employment and Labour Force Exit

Employment probability declines mirror the earnings patterns. Table 1 reports an average post-shock employment decline of 2.9 percentage points across all conditions, equivalent to a 9.6% reduction relative to pre-shock employment. The effect is modest but persistent, with similar magnitudes for men and women over the five-year horizon. These averages conceal important differences across health conditions, which are shown in the dynamic estimates below. Figure 2 traces employment adjustments from three years before to five years after the shock. The pre-shock coefficients are flat, confirming that the timing of

health shocks is unrelated to prior employment trends. Employment drops immediately by 3.8 percentage points for women and 3.4 percentage points for men, corresponding to about a 9.6% reduction in employment probability. These declines persist with little recovery over the following years. For stroke patients, the effects are much larger. Employment falls by 4 percentage points in the first year, roughly a 15% decline, and continues to worsen to 21% below baseline by year five. The continued deterioration, even as earnings stabilize, suggests composition effects: those able to return to work recover earnings, while those with lasting impairments gradually exit the labour force.

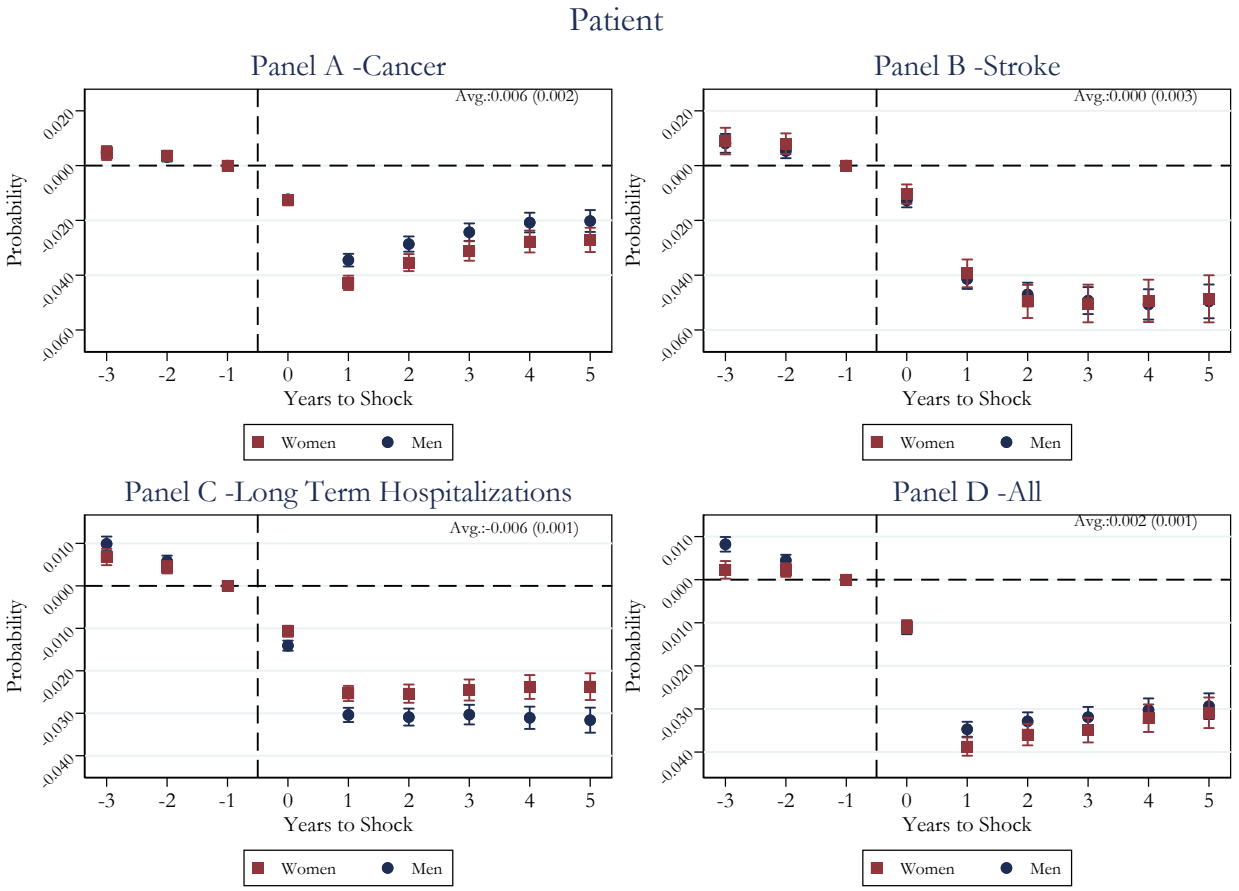

Figure 2: Employment Probability

Note:Figure shows event study coefficients from Equation 2 estimated separately by gender. Dependent variable equals 1 if the individual has any positive T4 earnings in the year, 0 otherwise. Year −1 is the omitted baseline. Coefficients represent percentage point changes in employment probability relative to the pre-shock baseline. The sample includes patients who experienced a health shock between 2004-2019. Error bars show 95% confidence intervals. Standard errors clustered at the individual level. All regressions include province-year, age, and family size fixed effects.

Permanent labour force exit represents a more severe margin of adjustment. Table 1 shows an average increase of 3.7 percentage points in permanent exits within five years after the shock. Figure 3 indicates that this increase is stronger among men. One year after the shock, permanent exits rise by 4.7 percentage points for men and 3.9 percentage points for women. By year five, the gap widens: 4.3 percentage points for men and 3.2 percentage points for women which are equivalent to 7.1 and 5.5% increases in exit probability, respectively.

These gender differences are not uniform across conditions. The gap in permanent exit is largest for hospitalizations and smallest for cancer. Cancer treatments, though often intensive, do not typically cause lasting physical impairment, allowing partial re-entry. By contrast, strokes and long-term hospitalizations often lead to enduring physical limitations that increase the likelihood of permanent labour force withdrawal, particularly among men.

5.3 Effects on Spouses

Spousal labour supply responses reveal strong and persistent gender asymmetries that contrast with the broadly similar patterns observed among patients themselves. This contrast is the paper's central finding: while men and women experience comparable labour market consequences when they fall ill, the spillover effects on their partners are highly asymmetric. Wives bear substantially larger economic costs from their partners' health shocks than husbands do, a pattern that endures for at least five years and often leads to permanent labour force exits.

5.3.1 Earnings

Table 2 shows that the average post-shock earnings effect for all spouses is a modest but statistically significant 1.9% reduction from pre-shock earnings. This small average conceals the paper's main result: a clear and persistent gender asymmetry. Figure 4 shows that when a partner experiences a health shock, wives' earnings fall by 3.7% in the first year and remain 3.5% below baseline through year five. Husbands' earnings decline by 1.5% initially

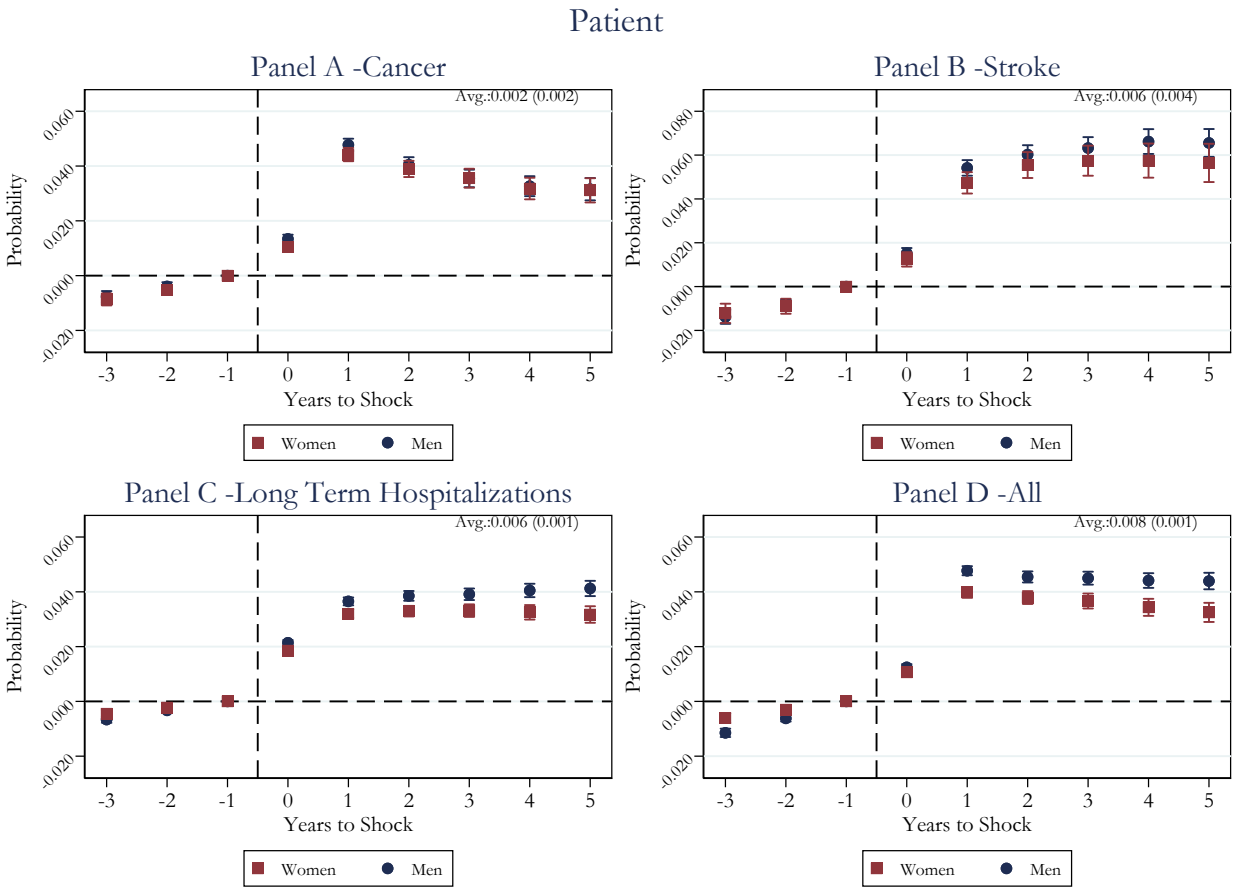

Figure 3: Permanently Leaving Workforce

Note:Figure shows event study coefficients from Equation 2 estimated separately by gender. Dependent variable equals 1 if the individual has no employment in the current year or any subsequent year through 2019, 0 otherwise. Year −1 is the omitted baseline. Coefficients represent percentage point changes in permanent exit probability relative to the pre-shock baseline. The sample includes patients who experienced a health shock between 2004-2019. Error bars show 95% confidence intervals. Standard errors clustered at the individual level. All regressions include province-year, age, and family size fixed effects.

but recover to baseline within three years. The 2.2 percentage point difference means wives experience about two and a half times the earnings loss of husbands, a gap that is both economically and statistically significant.

The divergence widens with the severity of the shock. When a partner suffers a stroke, wives' earnings fall by 6.6% in the first year and reach 7.2% below baseline after five years, while husbands' earnings rise to 4.7% above baseline. This 11.9 percentage point difference suggests increased household specialization following severe illness. The pattern helps

Table 2: Effects of Health Shocks on Spouses' Labor Market Outcomes

	Cancer	Stroke	Long Term Hospitalization	All
Earnings	-0.010***	-0.030***	-0.005***	-0.019***
	(0.003)	(0.008)	(0.002)	(0.003)
Employment	-0.004***	-0.008***	-0.004***	-0.006***
	(0.001)	(0.002)	(0.001)	(0.001)
Perm. Labour Force Exit	0.015***	0.019***	0.017***	0.017***
	(0.001)	(0.002)	(0.001)	(0.001)
Self-employment Income	0.006	-0.143**	-0.021	-0.027
	(0.024)	(0.072)	(0.015)	(0.023)
CPP Claims	0.057***	0.030***	0.045***	0.045***
	(0.002)	(0.003)	(0.002)	(0.001)
EI Claims	-0.025*	0.015	0.013**	-0.013
	(0.015)	(0.032)	(0.006)	(0.011)

Notes: Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01

distinguish between two adjustment mechanisms. If the response were driven by income replacement, the effects would be similar across all conditions, since patient earnings losses on average are comparable across shock types as shown in Table 1. Instead, the response scales with caregiving intensity: strokes create prolonged and demanding care needs that a short hospitalization does not. The results therefore point to caregiving responsibilities, not income replacement, as the main driver of spousal labour supply responses.

The 3.7% average earnings loss among wives also fits into a broader international pattern. Fadlon and Nielsen (2021) finds almost no spousal labour supply response in Denmark, where generous social insurance and long-term care coverage offset both income and caregiving pressures. Macchioni Giaquinto et al. (2022) document large increases in informal care hours in the United Kingdom, where universal acute care but limited long-term care support place heavy caregiving demands on families. Canada shares this institutional structure but appears to absorb these demands partly through reduced paid work rather than leisure, producing measurable earnings losses. Together, these findings show how institutional design shapes whether families adjust to illness through time or income. The comparison with Denmark further clarifies the mechanism. Universal healthcare eliminates direct medical expenses but does not protect households from income losses when long-term care remains

privately financed. Canada's experience shows that even in the absence of an insurance motive, caregiving demands can generate persistent and unequal earnings effects. Finally, an added worker effect appears only for male spouses of stroke patients. Coile (2004) report similar findings for the United States, though partly influenced by insurance incentives. In the Canadian setting, where coverage is universal, the increase in husbands' earnings likely reflects income replacement within households facing severe and lasting constraints. Wives' caregiving duties limit their ability to maintain employment, prompting husbands to increase work effort as a compensating response.

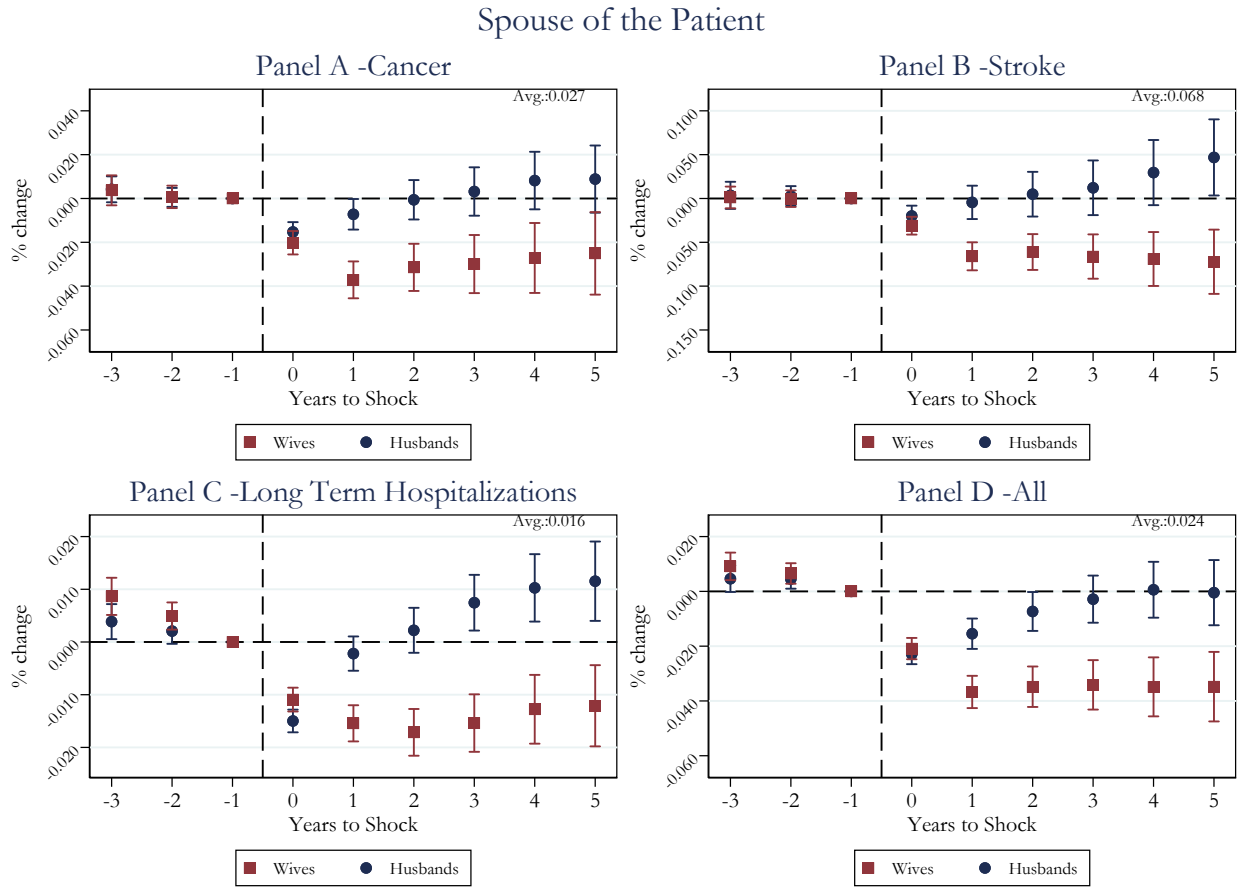

Figure 4: Earnings

Note:Figure shows event study coefficients from Equation 2 estimated separately by gender. The dependent variable is T4 earnings normalized by the mean earnings in year −1. Year −1 is omitted, so coefficients represent percentage changes relative to the pre-shock baseline. The sample includes spouses whose partner experienced a health shock between 2004-2019. Error bars show 95% confidence intervals. Standard errors clustered at the individual level. All regressions include province-year, age, and family size fixed effects.

5.3.2 Employment and Labour Force Exit

Turning to the extensive margin, spousal employment responses are modest compared to the large earnings effects. Table 2 shows a small but statistically significant average employment decline of 0.6 percentage points across all conditions. Figure 5 Panel D shows how this effect evolves over time: employment probability falls by 0.6 percentage points for wives and 0.4 percentage points for husbands in the year following the shock. The 0.2 percentage-point gender gap, relative to baseline employment probabilities, is small but consistent with the caregiving pattern observed in earnings. For stroke cases (Panel B), the difference widens. Wives' employment falls by 1.1 percentage points, while husbands' declines by only 0.3 percentage points, a pattern suggesting that caregiving demands, rather than income replacement, drive the gender gap in adjustment. Overall, most of the response occurs on the intensive margin rather than the extensive one.

While these effects on employment are modest, a more permanent and costly adjustment emerges in labour force exits. Table 2 reports an average increase in permanent exits of 1.7 percentage points. Figure 6 (Panel D) shows that one year after the shock, the probability of permanent exit rises by 1.9 percentage points for wives and 1.6 percentage points for husbands. These effects persist throughout the five-year horizon: by year five, exits remain about 2.0 percentage points higher for wives and 1.6 percentage points higher for husbands. Although modest in size, these margins represent rare but irreversible exits from the labour force. These estimates suggest that health shocks can permanently push some spouses, particularly women, out of the labour force.

These permanent exits reflect two mechanisms operating simultaneously. First, caregiving demands push some spouses, especially wives, out of the labour force when care needs are intensive and formal care is unavailable or unaffordable. Second, complementarity in leisure creates incentives for joint retirement. When one spouse exits work due to illness, the other faces a higher opportunity cost of continued employment, as working means sacrificing shared time. Jolly and Theodoropoulos (2023) find evidence of this joint leisure mechanism in

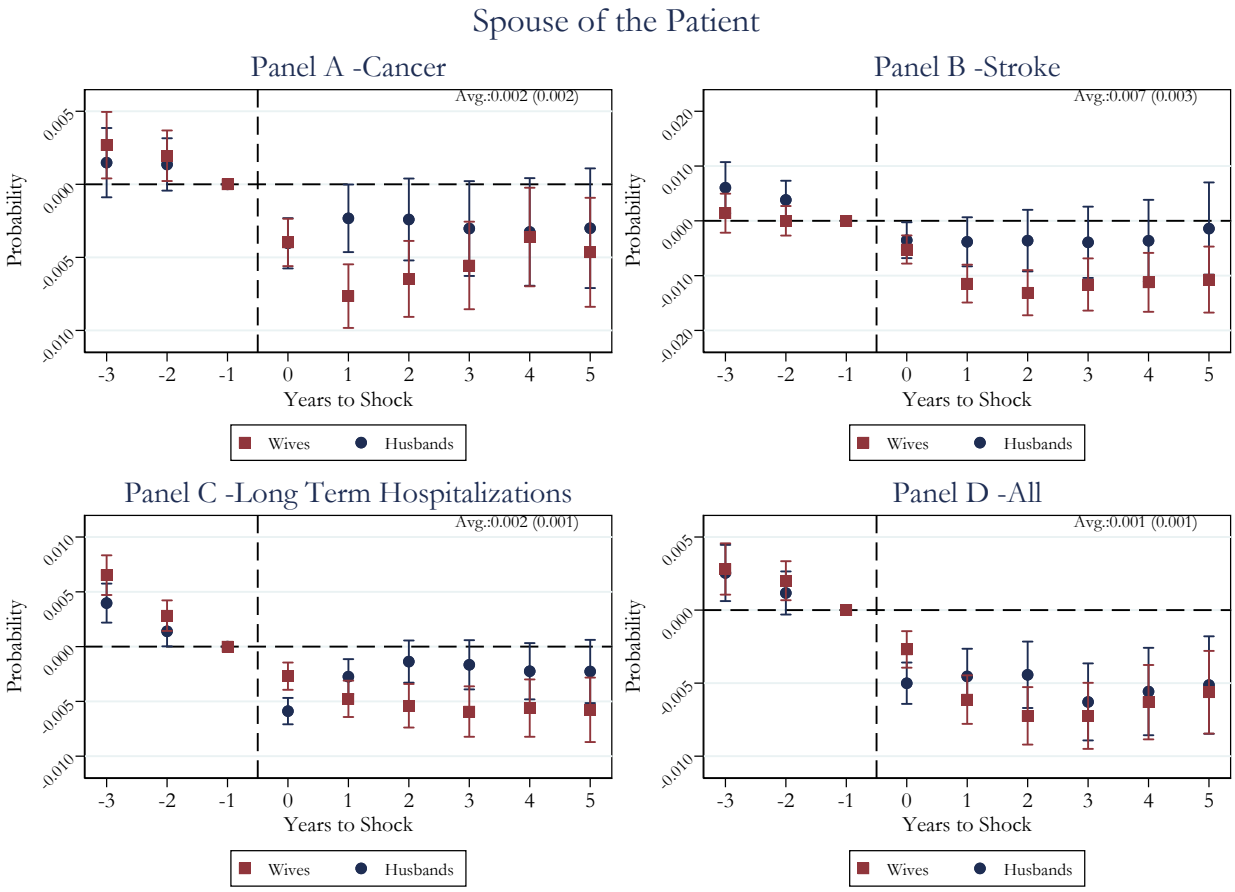

Figure 5: Employment Probability

Note:Figure shows event study coefficients from Equation 2 estimated separately by gender. Dependent variable equals 1 if the individual has any positive T4 earnings in the year, 0 otherwise. Year −1 is the omitted baseline. Coefficients represent percentage point changes in employment probability relative to the pre-shock baseline. The sample includes spouses whose partner experienced a health shock between 2004-2019. Error bars show 95% confidence intervals. Standard errors clustered at the individual level. All regressions include province-year, age, and family size fixed effects.

European data, where wives increase retirement probability following husband health shocks even in settings with comprehensive social insurance. The balance between these mechanisms likely varies by shock severity and household age. For younger couples facing severe health shocks such as stroke, the caregiving channel dominates, consistent with wives' large earnings reductions and persistent employment declines. For older couples near retirement facing milder shocks, the joint leisure mechanism may be more relevant.

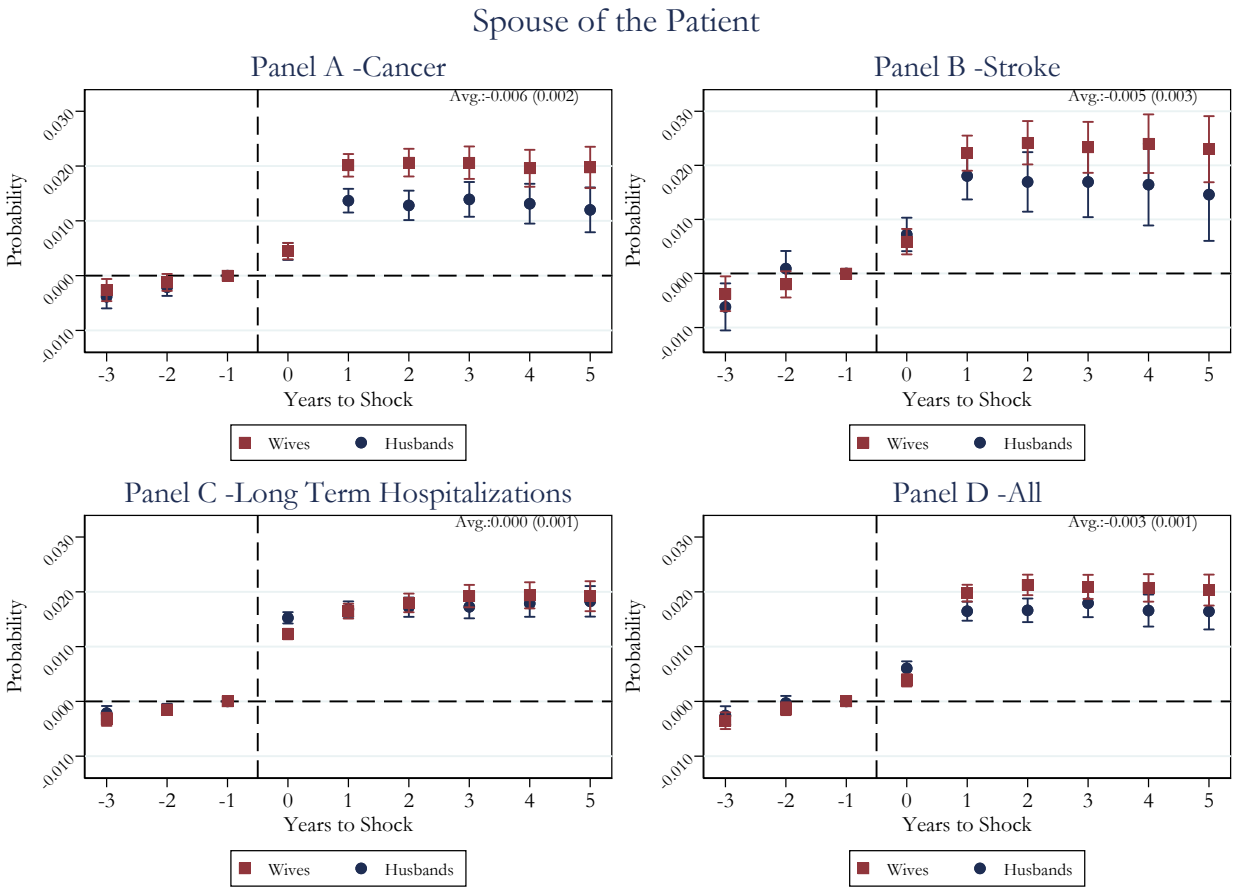

Figure 6: Permanently Leaving Workforce

Note:Figure shows event study coefficients from Equation 2 estimated separately by gender. Dependent variable equals 1 if the individual has no employment in the current year or any subsequent year through 2019, 0 otherwise. Year −1 is the omitted baseline. Coefficients represent percentage point changes in permanent exit probability relative to the pre-shock baseline. The sample includes spouses whose partner experienced a health shock between 2004-2019. Error bars show 95% confidence intervals. Standard errors clustered at the individual level. All regressions include province-year, age, and family size fixed effects.

5.4 Mechanisms and Heterogeneity

The results presented above document substantial gender asymmetries in spousal labour supply responses to partner health shocks. This section explores three questions about underlying mechanisms. First, what explains the divergence between wives and husbands? Second, why does the gender gap widen with shock severity? Third, what pathways connect initial labour supply reductions to permanent labour force exits?

5.4.1 Why Do Wives and Husbands Respond Differently?

I explore several mechanisms that can explain why wives reduce labour supply substantially while husbands show minimal responses. (1) revealed preferences shaped by social norms, (2) comparative advantage in caregiving, (3) relative wages and opportunity costs, or (4) household optimization under binding constraints.

First, social norms about caregiving can explain the gender asymmetry. Several studies show women bear a larger burden of the costs associated with household production (e.g., Moyser and Burlock, 2018; Besporstov and Sinclair, 2022) and with childcare needs (e.g., Kleven et al., 2019). Statistics Canada estimates women performed 50% more unpaid housework than men, averaging 820 hours annually compared to 540 hours for men. Notably, this gap persists even among single individuals without children, suggesting the pattern reflects social norms rather than rational household specialization based on comparative advantage (Moyser and Burlock, 2018). The disproportionate caregiving response to a partner's health shock among wives is consistent with these broader, well-documented patterns of gendered time allocation in Canada.

Pure preference explanations, however, cannot account for the heterogeneity by shock severity. If preferences alone determined caregiving behaviour, the gender gap in labour supply responses would be constant across conditions. Instead, the gap widens sharply with severity, tripling from 2 percentage points for hospitalizations to 6 percentage points for cancer and 12 percentage points for stroke. This pattern suggests that norms become binding only when care needs are intensive. Mild shocks allow both spouses to remain in the labour market, while severe shocks force specialization.

A comparative advantage framework (e.g., Becker, 1985; Chiappori, 1992) also fails to explain the full set of patterns. If caregiving human capital accumulated through prior childcare or household experience determined who provides care, wives would reduce work and husbands would increase earnings across all shock types. Yet, Figure 4 shows that husbands increase earnings only after stroke, the most severe and care-intensive shocks,

while showing little or no response to cancer or hospitalization. This is inconsistent with a static comparative advantage model in which households adjust smoothly to income losses. Most couples in my sample, who are beyond prime child-rearing years, are unlikely to retain caregiving-specific human capital from earlier stages of life.

Relative wage differences between spouses could also contribute. If wives typically earn less than husbands, the opportunity cost of wives providing care may be lower, making household specialization along traditional gender lines more efficient. However, this mechanism also predicts constant gender gaps across shock severity, not the widening pattern I observe.

Third, a household's optimization under binding constraints can explain this pattern. Consider a household facing a severe health shock that creates both large income losses and intensive caregiving needs. If formal care is unavailable or unaffordable, the household faces a discrete choice: one spouse must reduce work to provide care. Gender norms likely determine which spouse makes this sacrifice. For mild shocks, care needs are manageable without full-time attention, so both spouses maintain work with modest reductions. For severe shocks, the care needs of the household bind; someone must exit or substantially reduce work. Traditional norms determine that wives provide care while husbands increase earnings to compensate.

The key question is which spouse adjusts. The emergence of an added worker effect only for male spouses of stroke patients suggests households facing the most severe constraints specialize along traditional gender lines: wives provide intensive care while husbands increase earnings to compensate. This specialization does not emerge for less severe shocks where either care needs are manageable or income losses are small enough to absorb.

5.4.2 From Temporary Shock to Permanent Exit

The employment and social insurance patterns reveal how initial labour supply reductions following health shocks translate into permanent labour force exits. Three pathways emerge.

First, EI exhaustion forces a discrete choice. Figure A4 shows sharp spikes in EI claims immediately following shocks, but these decline rapidly as benefits are exhausted after 15-26 weeks. Workers who cannot return to full-time employment when benefits end can either continue working part-time without support or exit the labour force entirely. For spouses whose partners need ongoing care, the latter may be optimal. The fact that earnings losses persist for five years while EI spikes are temporary shows that temporary benefits are insufficient for chronic care needs.

Second, initial reductions can create lasting scarring effects. As shown by Bertrand et al. (2010), short career interruptions lead to large, enduring earnings penalties through lost experience and slower advancement. The persistent earnings losses among wives are consistent with this mechanism: a temporary absence to provide care often results in lasting detachment from prior career trajectories.

Third, access to CPP creates an exit option from difficult situations. Figure A5 shows spousal CPP payments rise substantially, particularly for wives. While some of this reflects survivors' benefits, the magnitude suggests many spouses claim early retirement benefits. For wives of cancer patients, CPP payments rise 11.6% by year five, far more than survivor's benefits alone could explain given cancer mortality rates. This suggests spouses experiencing labour market difficulties due to care responsibilities claim CPP benefits when eligible, showing that temporary shocks will lead to reduced lifetime benefits.

Together, these pathways reveal how Canada's social insurance system, designed for temporary disruptions, is not sufficient for households with chronic care needs. Temporary EI benefits exhaust while care needs persist, forcing difficult choices. CPP provides a permanent exit option, but at the cost of reduced lifetime benefits. The gender asymmetry in these patterns, wives showing larger increases in both permanent exit and CPP uptake, demonstrates that women disproportionately bear these costs.

6 Conclusion

This paper examines how serious health shocks affect labour market outcomes for patients and their spouses using comprehensive Canadian administrative data. I find that while men and women experience similar earnings losses after a health shock, spousal responses are highly asymmetric. Wives reduce paid work for several years following their partner's illness, while husbands show much smaller and temporary adjustments. The gap widens with the severity of illness, consistent with differences in caregiving intensity. These results suggest that even with universal healthcare, households continue to bear substantial uninsured time costs that fall disproportionately on women.

The evidence also shows that these adjustments can lead to permanent labour force exits and increased uptake of public benefits. Employment Insurance provides short-term coverage, but many families face long-term care needs that extend well beyond the duration of benefits. Over time, these constraints contribute to widening gender gaps in employment and retirement income.

Future work can extend this analysis in two ways. First, studying how adult children respond to parental illness would help identify intergenerational spillovers. Second, combining administrative records with time-use data would allow direct observation of caregiving intensity and clarify how formal and informal care interact. Together, such work can deepen our understanding of how social insurance design shapes household responses to health risks.

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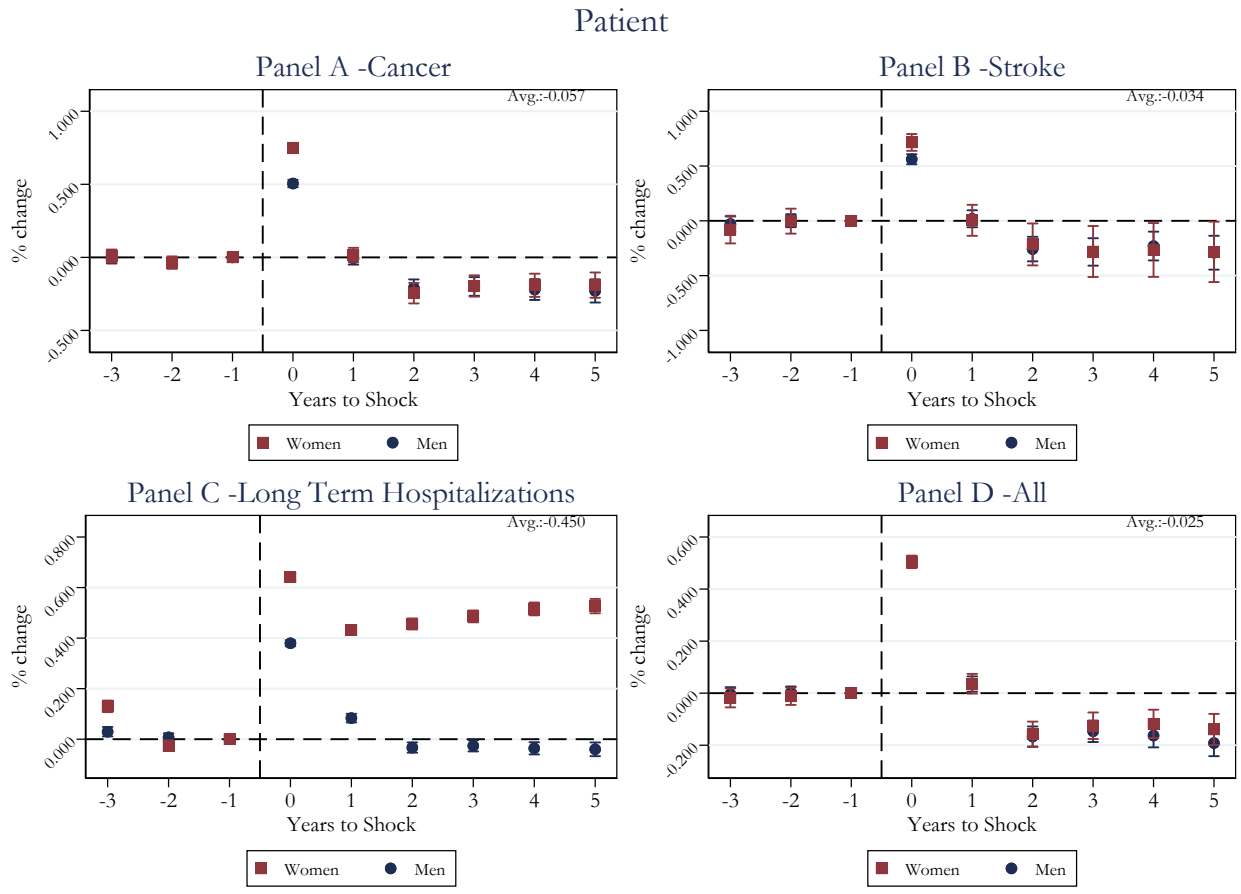

Figure A1: Employment Insurance Claims

Note:Figure shows event study coefficients from Equation 2 estimated separately by gender. Dependent variable is EI payments in 2002 dollars normalized by mean payments in year −1. Year −1 is omitted baseline. Coefficients represent percentage changes in benefit payments relative to pre-shock baseline. Sample includes patients who experienced a health shock between 2004-2019. Error bars show 95% confidence intervals. Standard errors clustered at individual level. All regressions include province-year, age, and family size fixed effects.

A Additional Results

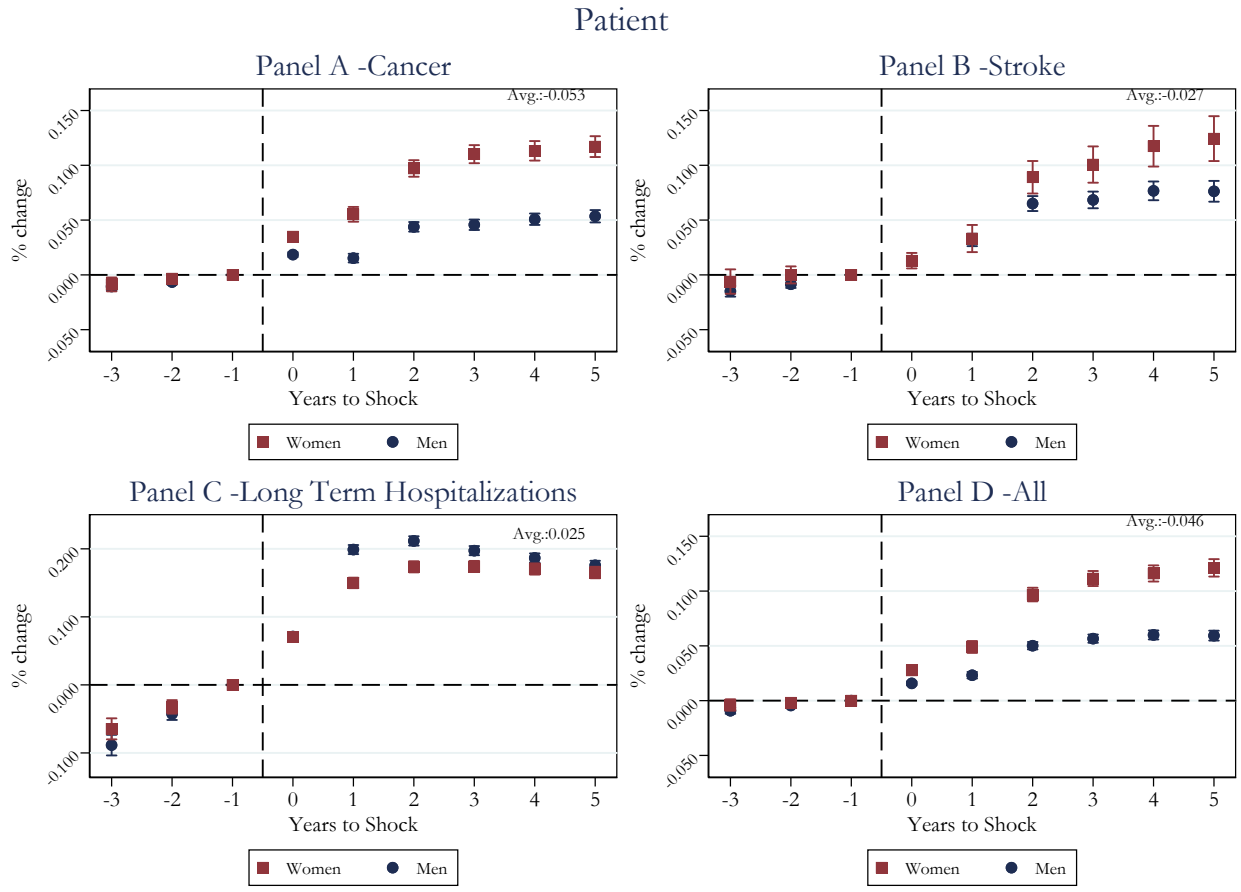

Figure A2: Pension Claims

Note:Figure shows event study coefficients from Equation 2 estimated separately by gender. Dependent variable is CQPP payments in 2002 dollars normalized by mean payments in year −1. Year −1 is omitted baseline. Coefficients represent percentage changes in benefit payments relative to pre-shock baseline. Sample includes patients who experienced a health shock between 2004-2019. Error bars show 95% confidence intervals. Standard errors clustered at individual level. All regressions include province-year, age, and family size fixed effects.

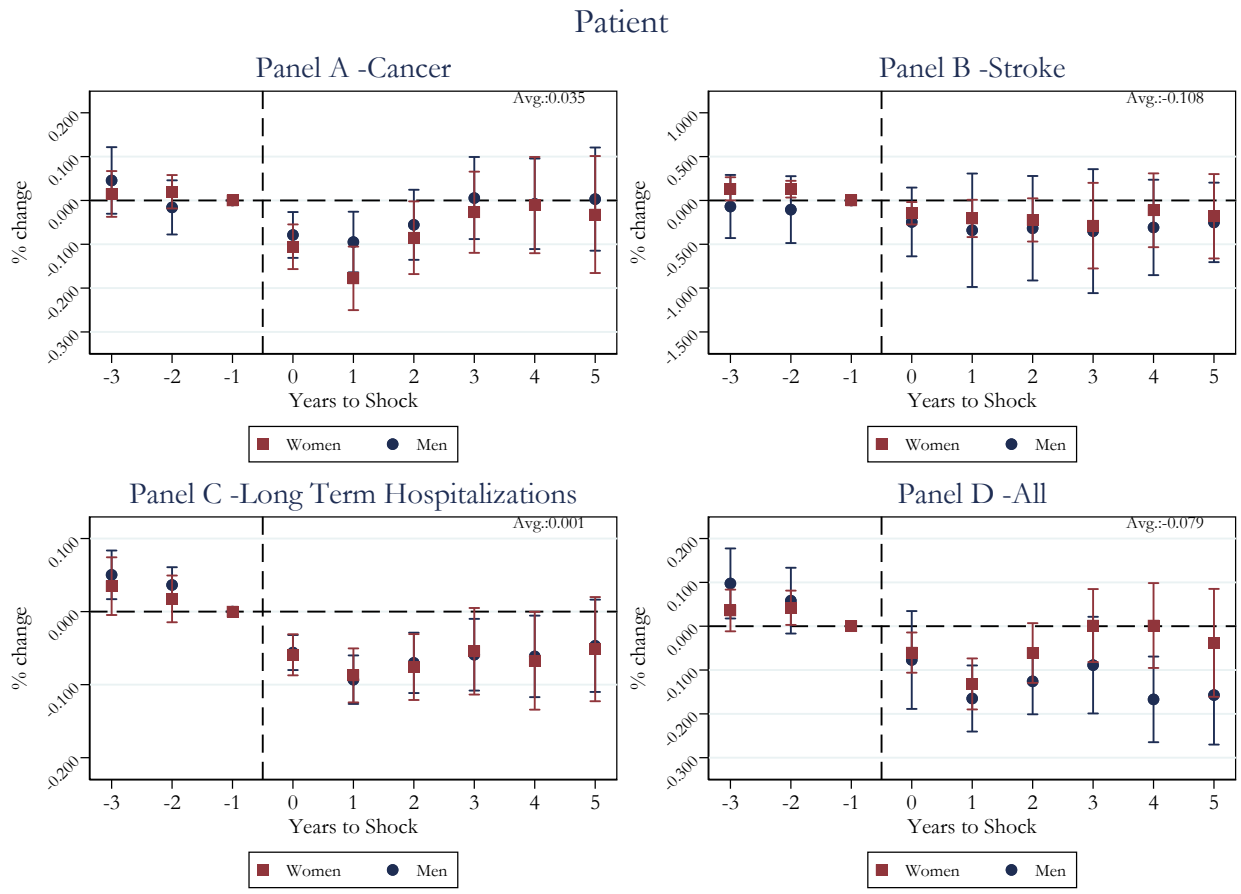

Figure A3: Self Employment Income

Note:Figure shows event study coefficients from Equation 2 estimated separately by gender. Dependent variable is self employment earnings normalized by mean earnings in year −1. Year −1 is omitted, so coefficients represent percentage changes relative to pre-shock baseline. Sample includes patients who experienced a health shock between 2004-2019. Error bars show 95% confidence intervals. Standard errors clustered at individual level. All regressions include province-year, age, and family size fixed effects.

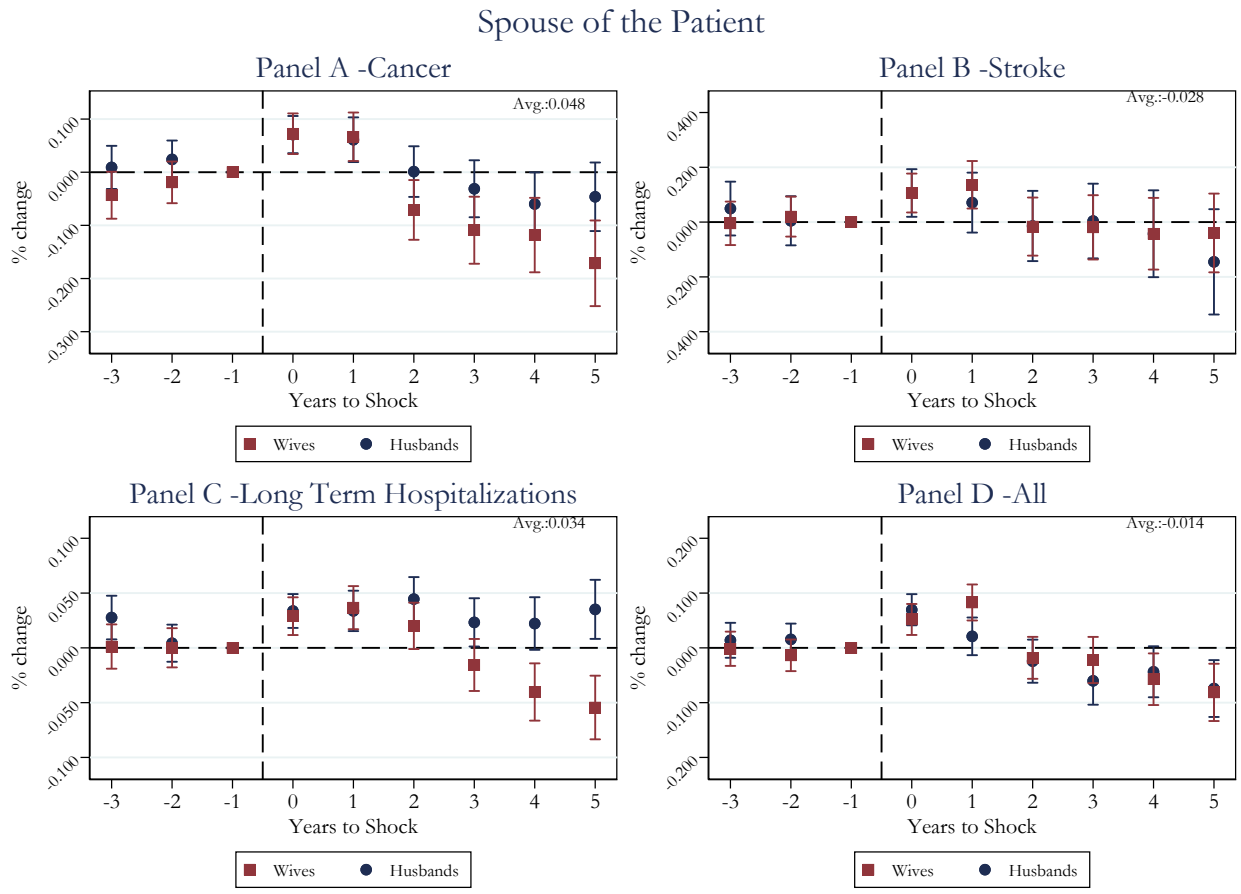

Figure A4: Employment Insurance Claims

Note:Figure shows event study coefficients from Equation 2 estimated separately by gender. Dependent variable is EI payments in 2002 dollars normalized by mean payments in year −1. Year −1 is omitted baseline. Coefficients represent percentage changes in benefit payments relative to pre-shock baseline. Sample includes spouses whose partner experienced a health shock between 2004-2019. Error bars show 95% confidence intervals. Standard errors clustered at individual level. All regressions include province-year, age, and family size fixed effects.

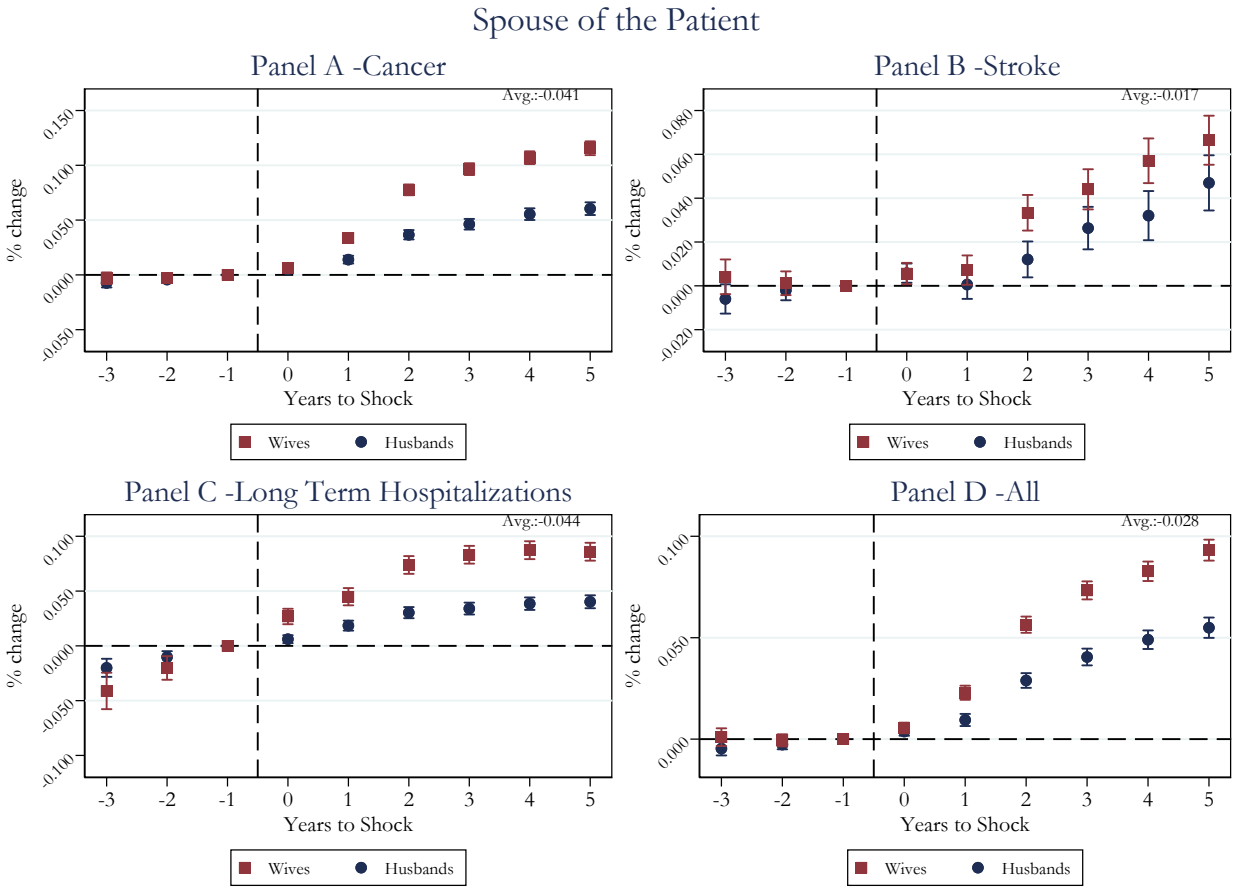

Figure A5: Pension Claims

Note:Figure shows event study coefficients from Equation 2 estimated separately by gender. Dependent variable is CQPP payments in 2002 dollars normalized by mean payments in year −1. Year −1 is omitted baseline. Coefficients represent percentage changes in benefit payments relative to pre-shock baseline. Sample includes spouses whose partner experienced a health shock between 2004-2019. Error bars show 95% confidence intervals. Standard errors clustered at individual level. All regressions include province-year, age, and family size fixed effects.

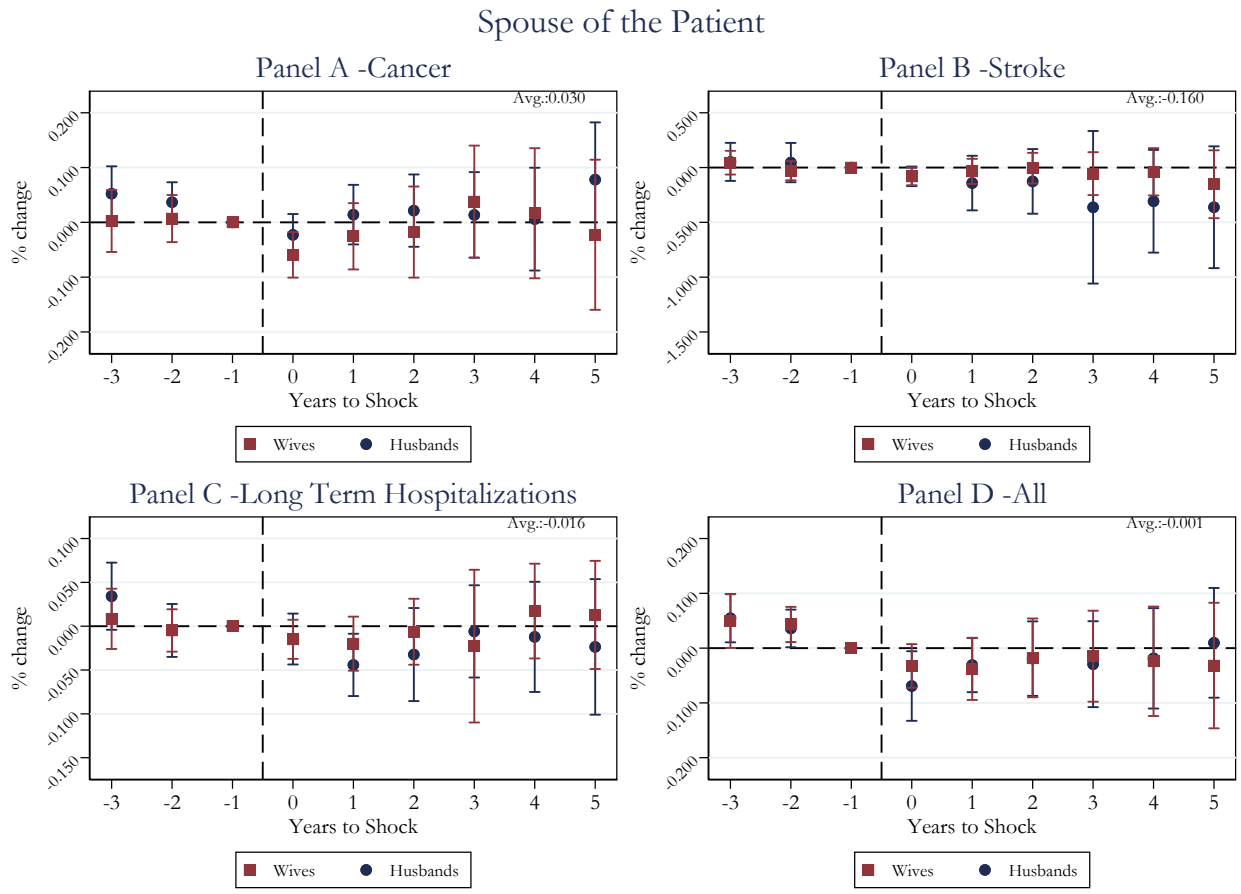

Figure A6: Self Employment Income

Note:Figure shows event study coefficients from Equation 2 estimated separately by gender. Dependent variable is self employment earnings normalized by mean earnings in year −1. Year −1 is omitted, so coefficients represent percentage changes relative to pre-shock baseline. Sample includes spouses whose partner experienced a health shock between 2004-2019. Error bars show 95% confidence intervals. Standard errors clustered at individual level. All regressions include province-year, age, and family size fixed effects.