Kinship by Marriage: The Impact of In-Law Mortality on Labor Market Outcomes *

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Abstract

This paper examines the economic role of marriage-based kinship networks by analyzing how an in-law's death affects individual labor market outcomes. Using Swiss administrative data (2010–2022) and a matched difference-in-differences design, I exploit the premature mortality of parents-in-law (ages 40–65) as a quasi-experimental shock. I find that an in-law's death causes a persistent 5.5% decline in annual earnings, concentrated almost entirely among women: daughters-in-law suffer earnings losses of 15.6% following a mother-in-law's death. Mechanism analysis attributes most of these declines to the loss of informal childcare rather than grief or eldercare burdens. The penalty disappears upon the death of a high-earning father-in-law, suggesting that the accompanying wealth transfer relaxes household liquidity constraints and enables more efficient labor market reallocation within the couple. These findings reveal the distinct socioeconomic roles of in-laws—maternal time-intensive support versus paternal financial stability—and underscore that female labor force participation is deeply embedded in the stability of extended family structures.

JEL Classification: J12, J16, J13

Keywords: Kinship Networks, Social Networks, Labor Supply, Child Panelty; Informal Childcare, Inheritance, Mortality Shocks

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1 Introduction

Social networks are fundamental determinants of labor market outcomes, shaping how individuals find jobs, negotiate wages, and insure against shocks (Montgomery, 1991; Calvo-Armengol and Jackson, 2004). While an extensive literature has documented the role of biological parents (Kramarz and Skans, 2014; Deng et al., 2023; Shen, 2019), neighbors (Bayer et al., 2008), and professional contacts (Gee et al., 2017; Barwick et al., 2023; Heath, 2018), one critical dimension of the adult social fabric remains largely unexplored: the kinship networks formed through marriage. As individuals transition into adulthood, they do not only rely on their own lineage but also acquire an entire "shadow" network of parents-in-law. These ties are institutionally stable and often serve as essential providers of job referrals, financial transfers, and, perhaps most crucially, informal childcare.

This paper investigates the economic significance of marriage-based kinship networks by examining the labor market consequences of the premature death of a parent-in-law. Identifying the causal effect of family networks is traditionally difficult due to the endogenous nature of social ties and the "reflection problem". To overcome these challenges, I exploit the premature mortality of in-laws (occurring between ages 40 and 65) as a quasi-experimental shock. Such deaths are typically unexpected and represent a sudden severance of the supportive functions of the extended family. Using rich Swiss administrative data from 2010 to 2022, I link individuals to their in-laws and implement a matched difference-in-differences design. By comparing individuals who experience an in-law's death to "statistical twins" with similar baseline characteristics, I isolate the role of these networks in shaping individual labor income.

The analysis yields several striking results regarding the impact of in-law mortality. First, the death of a parent-in-law leads to a significant and persistent decline in annual earnings, averaging 5.5%. Second, this average effect displays a profound gender asymmetry: the labor market penalty is almost entirely concentrated among women. Following the death of a mother-in-law, daughters-in-law experience an earnings contraction of 15.6%. Third, the shock appears to operate primarily on the intensive margin of labor supply. While earnings drop significantly, the probability of unemployment increases only slightly, suggesting that affected individuals—primarily women—reduce their hours or shift to less demanding roles rather than exiting the workforce entirely.

Regarding the underlying mechanisms, my analysis reveals a striking functional specialization within the extended family based on the gender of the deceased in-law. The negative shock following a mother-in-law's death is primarily driven by a critical informal childcare channel; the earnings decline is most severe for women with young children, identifying the mother-in-law as a vital provider of time-intensive support. In contrast, the father-in-law functions as a pillar of economic and professional support. While his death generally penalizes the household, high-earning fathers-in-law provide a substantial wealth buffer—likely through inheritance—that mitigates labor supply reductions by allowing households to relaxes household liquidity constraints and enables more efficient labor market reallocation within the couple. Furthermore, I document a significant and resilient career premium associated with high-earning fathers-in-law; unlike the time-bound care services of the mother-in-law, the professional spillovers and social capital acquired through the father-in-law's network become internalized and persist even after his death. Collectively, these findings demonstrate that mothers-in-law facilitate labor supply through domestic support, while fathers-in-law sustain career trajectories through financial stability and professional leverage.

This paper makes two primary contributions to the literature, providing new evidence on the intersection of family economics and social network theory. First, I contribute to the literature on the child penalty and the determinants of female labor supply. While previous research has established that formal policies, such as parental leave and subsidized childcare, are crucial for mitigating the professional costs of motherhood (Kleven et al., 2025, 2019) my results provide further empirical evidence on the extent to which female labor force participation remains dependent on informal kinship support. By documenting that the earnings penalty is most severe for women with young children following the death of a mother-in-law, I show that maternal-line support represents a vital, yet fragile, functional infrastructure. Focusing on Switzerland—a high-income country with exceptionally high childcare costs—allows me to demonstrate that even in advanced institutional contexts, the stability of a mother's career trajectory is deeply embedded in the availability of informal family assistance.

Second, this paper adds to the body of work on social networks in the labor market by shifting the focus toward marriage-acquired ties. While the importance of kinship networks has been documented in developing or traditional economies—such as the role of in-laws in job search in China (Wang, 2013) or informal insurance in Kenya (Luke and Munshi, 2006)—

evidence from high-income, Western settings is often limited to biological parents. I extend this research by distinguishing between the types of social capital provided by different in-laws. I demonstrate that while mothers-in-law facilitate labor supply through flow of services (domestic childcare support), fathers-in-law sustain career paths through stock assets (professional spillovers). My findings suggest that the career premium associated with high-status fathers-in-law may remain resilient after their death, hinting that these marriage-based advantages could be internalized as permanent career assets rather than serving merely as temporary job referrals.

The study most closely related to this paper is Jensen and Zhang (2026), which examines the labor market consequences of parental death and finds that declines in labor income are largely driven by deteriorations in individuals' mental health. This paper differs in two important respects. First, it focuses on the death of parents-in-law rather than biological parents, a distinction that shifts attention away from early-life investments and toward adult social networks. Second, rather than emphasizing psychological channels, this paper adopts a social network perspective, viewing the death of parents-in-law as a shock to extended family connections that may shape access to labor market opportunities in adulthood. By documenting that the earnings penalty is concentrated among daughters-in-law with young children, I show that the disruption of functional support is a primary driver of the observed economic outcomes.

The remainder of the paper is organized as follows. Section II describes the data. Section III outlines the empirical strategy. Section IV presents the main results. Section V investigates the potential channels, and Section VI concludes.

2 Data and descriptive analysis

2.1 Data and Key Variables

This paper utilizes rich swiss administrative datasets to examine the research question, drawing on two key sources: STATPOP, and AVS. STATPOP, also known as the Population and Households Statistics, serves as Switzerland's population registry and covers all residents, both permanent and non-permanent, from 2010 to 2022. It includes detailed demographic information such as date of birth, sex, nationality, place of residence, and

household composition, as well as data on foreigners' residence permits, length of stay, and life events such as births and deaths. AVS, Switzerland's social security database, records information on all individuals who have worked and contributed to the public pension system, including earnings, employers, and pension fund contributions.

2.2 Treatment Group

We restrict our sample to individuals active in the labor market between 2010 and 2022, aged 16 to 65, who are married and successfully linked to their in-laws in the administrative data. Furthermore, we focus on cases where a parent-in-law died between the ages of 40 and 65. To isolate the impact of a singular network shock, we further refine the sample by excluding individuals who experienced the death of a biological parent or a second in-law during the same observation period [1]. This ensures that the estimated effects are not confounded by multiple bereavement shocks or overlapping caregiving burdens within the extended family structure.

This specific age threshold serves as a proxy for unexpected or "quasi-exogenous" mortality. Since our data lacks detailed causes of death, we target in-laws who were likely active in the labor market prior to their passing. By focusing on this age bracket, we aim to capture deaths resulting from accidents or sudden-onset illnesses rather than long-term age-related decline. The year distribution of these treatment events is presented in Appendix Figure A1. While this method may still include some individuals who experienced prolonged illness—potentially affecting their children-in-law differently—the data suggests this is a minor concern. On average, the in-laws in our sample were highly active, over 80% of father-in-law and 60% mother-in-law worked 12 months of the year two years prior to their death (see Appendix table A.3). Furthermore, our findings remain robust when restricting the sample to in-laws who maintained full-time employment (see Appendix Table A1) and those whose earnings did not decline by more than 50% during the observation period (see Appendix Table A2).

Nevertheless, we acknowledge that labor market activity is an imperfect proxy for the provision of informal support. Even if a parent-in-law remained economically active until

[1] In practice, this exclusion criterion affects an negligible number of individuals. Only 2 individuals in our sample experienced the death of a second in-law during the observation period and were therefore excluded. As such, any potential selection bias arising from conditioning on this post-treatment event is inconsequential for our results.

death, their capacity to provide childcare or other forms of support may have gradually diminished in the period preceding mortality. To the extent that such support loss occurs prior to the event, our estimates capture the effect of a mortality event that may already be partially anticipated, and should therefore be interpreted as a lower bound of the causal effect of a fully unanticipated removal of in-law support.

Additionally, we cannot retrieve information for in-laws residing outside of Switzerland. However, we anticipate that the impact of this missing data is negligible. Given the geographical distance, these individuals would likely have provided minimal labor market assistance (such as childcare or professional assistance) to their children-in-law; therefore, their passing is unlikely to have a significant effect on the labor market outcomes we measure.

2.3 Descriptive Statistics

Table 2.1 presents the descriptive statistics for the treated sample, differentiated by the gender of the deceased parent-in-law. The two groups—those experiencing the death of a father-in-law ($N = 11,501$) and a mother-in-law ($N = 9,204$)—exhibit high degrees of demographic and socioeconomic symmetry. On average, treated individuals are approximately 36 to 37 years old at the time of the mortality event, with a predominant Swiss nationality (over 84%) and a high prevalence of Swiss spouses (98%). Household structures are similarly comparable, with an average of 1.45–1.49 children and roughly one-third of the sample caring for children under the age of three. Economically, the sample demonstrates robust labor market attachment prior to the shock, averaging over 11.5 months worked per year and long-term annual earnings between 65,000 and 68,000 CHF. While most baseline characteristics are balanced across columns, a notable divergence appears in relative earnings: 70% of individuals in the mother-in-law sample earned more than the deceased, compared to only 49% in the father-in-law sample. This likely reflects the broader gender-based earnings gap prevalent in the older generation. Overall, the stability of earnings and employment levels between the pre-event $(t-2, t-1)$ and post-event $(t+1, t+2)$ windows suggests that the sample represents a socio-economically established cohort at the onset of the mortality shock.

Table 2.1: Descriptive Statistics of Treated Individuals

Variables	(1) Father-in-law	(2) Mother-in-law
Age at in-law's Death	35.55	37.16
	(5.88)	(6.34)
Number of Children	1.45	1.49
	(1.12)	(1.12)
Having kids below age 3	0.36	0.33
	(0.48)	(0.47)
Female	0.43	0.43
	(0.49)	(0.50)
Swiss Nationality	0.84	0.85
	(0.36)	(0.35)
Swiss Spouse	0.98	0.98
	(0.14)	(0.13)
Had immigrant background	0.18	0.17
	(0.38)	(0.37)
Marriage Years at in-law's Death	6.32	7.36
	(4.80)	(5.34)
Being unemployed at that year	0.11	0.12
	(0.31)	(0.32)
Long-term Average Earnings	65893.08	67446.28
	(47277.02)	(57549.76)
Spousal long-term Average Earnings	59770.32	60765.14
	(45636.69)	(45268.73)
Average Earnings $[-2, -1]$	65541.10	66811.46
	(47985.63)	(57106.32)
Average Months Worked $[-2, -1]$	11.56	11.58
	(1.49)	(1.49)
Average Earnings $[1, 2]$	67297.30	68478.47
	(54882.72)	(61315.57)
Average Working Months $[1, 2]$	11.59	11.61
	(1.50)	(1.44)
Earning > In-law's Earning	0.49	0.70
	(0.50)	(0.46)
Obs.	11,501	9,204

Notes: This table reports descriptive statistics for the sample of treated individuals—defined as the children-in-law of the deceased—whose parents-in-law experienced premature mortality (ages 40–65) between 2011 and 2022. Column (1) corresponds to individuals whose father-in-law died, and Column (2) to those whose mother-in-law died. Values represent sample means, with standard deviations reported in parentheses. "Average Annual Earnings" and "Average Months Worked" denote the labor market outcomes of the treated individuals themselves, averaged over the two years preceding ($t-2$ to $t-1$) and following ($t+1$ to $t+2$) the mortality event. "Long-term Average Earnings" refers to the mean earnings of treated individuals across the full sample period (2010–2022). The final row, "Earning > In-law's Earning," reports the proportion of treated individuals whose long-term average income exceeded that of their respective deceased parent-in-law. These statistics characterize the socio-economic profile of the affected generation and establish their labor market standing relative to the mortality shock.

3 Empirical Strategy

3.1 Matching

Since the early death of parents-in-law (age 40-65) is relatively a rare event, treated individuals are few relative to the large untreated population. Simple comparisons risk selection bias, as treated individuals may differ systematically from untreated ones in characteristics that also influence the outcomes. Appendix Table A1 and Table A2 reveal substantial baseline imbalances between the treated group and the full pool of non-treated individuals, particularly regarding age, family composition, and socioeconomic status. The treated individuals are significantly younger (35.87 years) than the non-treated sample (47.53 years) and exhibit distinct household profiles, such as a higher prevalence of children under age three. These statistically significant differences across nearly all covariates highlight a strong selection bias in the raw data, thereby justifying the necessity of a formal matching procedure to construct a valid control group.

This paper performs *exact matching* on gender and an earnings dummy (above or below the median), resulting in four distinct matching groups. Within each group, I apply three-nearest-neighbor Mahalanobis distance matching with replacement, utilizing a caliper of 0.5 to ensure high-quality matches. The Mahalanobis distance is calculated based on age, annual earnings, spousal earnings, nationality, the age of the deceased parent-in-law, the number of children, and the presence of children under age three, all measured two years prior to the mortality event. Mahalanobis distance matching offers an advantage over propensity score matching because it directly captures the multivariate distance between units while accounting for correlations among covariates. This allows for more precise covariate balance, particularly when the number of covariates is small, whereas propensity score matching reduces all covariates to a single probability, which can overlook imbalances in specific covariates (King and Nielsen, 2019).

For the control group, matched individuals are assigned the same year of death as their corresponding treated units. It is worth noting that the matching procedure is conducted with replacement, meaning that the same control individual may be matched to multiple treated individuals.

3.1.1 Matching Performance

Table 3.1 and Table 3.2 present the summary statistics for targeted and non-targeted variables and characterize a socio-economically established cohort in the midst of their early career and family-building years. The matched sample represents a group with an average age of approximately 33 to 35 years, predominantly composed of Swiss nationals (over 83%) who have been married for an average of 6 to 7 years. Economically, these individuals are well-integrated into the labor market, evidenced by log annual earnings of approximately 10.15 and an 11% annual incidence of unemployment. Notably, the sample captures a period of high household demand, as individuals have an average of 1.2 to 1.3 children, with over 40% caring for young kids under age three. All these variables, including spousal earnings and the in-law's age at death (averaging 61–62 years), were measured two years prior to the event ($t-2$) to ensure the profile reflects a baseline state unaffected by the mortality shock. Column (3) confirms that the matching procedure effectively neutralized the significant demographic and economic disparities found in the raw data. The year distribution of treated individuals and their matched controls can be found in Appendix Figure A2.

It is also worth noting that because some individuals could not find suitable matches within the specified caliper, we lost a small portion of the treated sample, specifically 332 individuals in the father-in-law group and 511 individuals in the mother-in-law group. Consequently, the subsequent analysis is based strictly on these remaining treated individuals and their corresponding matched controls.

Table 3.1: Summary statistics after matching: father-in-law

	(1) Treated Individuals	(2) Matched Controls	(3) Diff
Targeted Variables:			
Age	33.36	33.54	0.18
	(5.83)	(5.78)	
Female	0.43	0.43	-0.00
	(0.50)	(0.50)	
Swiss Nationality	0.83	0.83	-0.00
	(0.38)	(0.38)	
Number of Children	1.19	1.22	0.03
	(1.07)	(1.06)	
Having kids below age 3	0.43	0.44	0.01
	(0.50)	(0.50)	
Log(1+Annual Earnings)	10.15	10.14	-0.01
	(2.86)	(2.87)	
Log(1+Spousal Annual Earnings)	9.96	9.99	0.03
	(2.93)	(2.89)	
In-law's Age at Death	61.57	61.72	0.16
	(3.33)	(3.44)	
Non-targeted Variables:			
Had immigrant background	0.19	0.19	0.00
	(0.39)	(0.39)	
Swiss Spouse	0.98	0.97	-0.01
	(0.14)	(0.17)	
Marriage years at in-law's death	6.06	5.81	-0.25
	(4.75)	(5.14)	
Being unemployed at that year	0.11	0.11	-0.00
	(0.31)	(0.31)	
Log(1+In-Law's Averge Earnings)	10.66	11.01	0.35
	(1.13)	(0.90)	
Obs.	11,169	31,946	

Notes: This table reports the means and standard deviations (in parentheses) for treated individuals and their corresponding matched controls, specifically for the sample where the **father-in-law** experienced premature mortality. The sample is constructed using exact matching on gender and an earnings dummy (relative to the median), followed by three-nearest-neighbor Mahalanobis distance matching within each exact matching cell. The Mahalanobis distance is calculated based on the "Targeted Variables" listed above, measured two years prior to the father-in-law's death ($t-2$). "Non-targeted Variables" are additional baseline characteristics provided to assess the overall comparability of the groups. The "Diff" column reports the mean difference between treated individuals and controls; the negligible values across both targeted and non-targeted dimensions confirm that the matching procedure successfully produced a balanced control group for the subsequent analysis. 332 treated observations (11501-11169) were excluded due to a lack of suitable matches within the exact matching cells.

Table 3.2: Summary statistics after matching: mother-in-law

	(1) Treated Individuals	(2) Matched Controls	(3) Diff
Targeted Variables:			
Age	34.95	35.11	0.16
	(6.32)	(6.26)	
Female	0.43	0.43	-0.00
	(0.50)	(0.50)	
Swiss Nationality	0.84	0.84	-0.00
	(0.37)	(0.37)	
Number of Children	1.31	1.34	0.03
	(1.09)	(1.08)	
Having kids below age 3	0.40	0.41	0.01
	(0.49)	(0.49)	
Log(1+Annual Earnings)	10.06	10.06	-0.01
	(3.02)	(3.03)	
Log(1+Spousal Annual Earnings)	9.90	9.96	0.05
	(3.05)	(2.97)	
In-law's Age at Death	60.98	61.11	0.13
	(3.75)	(3.81)	
Non-targeted Variables:			
Had immigrant background	0.18	0.18	0.00
	(0.38)	(0.39)	
Swiss Spouse	0.98	0.97	-0.01
	(0.14)	(0.16)	
Marriage years at in-law's death	7.04	6.88	-0.16
	(5.32)	(5.64)	
Being unemployed at that year	0.11	0.11	-0.00
	(0.32)	(0.32)	
Log(1+In-Law's Averge Earnings)	9.75	10.01	0.26
	(1.02)	(0.95)	
Obs.	8,693	21,698	

Notes: This table reports the means and standard deviations (in parentheses) for treated individuals and their corresponding matched controls, specifically for the sample where the **mother-in-law** experienced premature mortality. The sample is constructed using exact matching on gender and an earnings dummy (relative to the median), followed by three-nearest-neighbor Mahalanobis distance matching within each exact matching cell. The Mahalanobis distance is calculated based on the "Targeted Variables" listed above, measured two years prior to the mother-in-law's death ($t-2$). "Non-targeted Variables" are additional baseline characteristics provided to assess the overall comparability of the groups. The "Diff" column reports the mean difference between treated individuals and controls; the negligible values across both targeted and non-targeted dimensions confirm that the matching procedure successfully produced a balanced control group for the subsequent analysis. 511 treated observations (9204-8693) were excluded due to a lack of suitable matches within the exact matching cells.

In Appendix Figures A2a and A2b, we present event study graphs illustrating earnings trajectories before and after the death of an in-law, disaggregated by gender. The pre-event earnings for both the treated and control groups follow a closely parallel trend, suggesting

that our matching strategy effectively identifies a comparable control group. This alignment in the pre-treatment period provides strong support for the parallel trends assumption required for our identification strategy.

3.2 Event study

Building upon the balanced sample constructed through the matching procedure, we employ a dynamic event study design to identify the causal impact of an in-law's death on labor market outcomes, specifically focusing on annual earnings and unemployment status[2]. By utilizing the remaining treated individuals and their matched controls, we are able to compare the trajectories of "statistical twins" who were in near-identical socio-economic positions two years prior to the shock. This approach allows us to formally test for the presence of parallel trends in the pre-treatment period and to trace the evolution of earnings and employment in the years following the mortality event. Specifically, using this refined longitudinal sample, we estimate the following event study specification for both father-in-law and mother-in-law deaths:

$$Y_{iyp} = \sum_{k=-5,\, k\neq -1}^{5} \Big(\delta_k \cdot \mathbf{1}[t=k] \cdot D_i + \theta_k \cdot \mathbf{1}[t=k]\Big) + \alpha \cdot X_{iyp} + \gamma_i + \gamma_y + \gamma_p + \varepsilon_{iyp} \quad (3.1)$$

where t denotes the number of years relative to the in-law's death, with $t = 0$ indicating the year of death. The coefficients are estimated for event-time indicators $k \in [-5, 5]$, excluding $k = -1$, which serves as the omitted reference period. To improve precision, event times $[-11, -5]$ and $[5, 11]$ are binned and captured by the indicators $k = -5$ and $k = 5$, respectively.

The indicator variable D_i equals one for treated individuals who experience the premature death of a parent-in-law and zero for their matched control counterparts. The coefficients δ_k measure the dynamic treatment effects at each relative event year t, capturing deviations in outcomes for treated individuals relative to controls, normalized to the year immediately preceding the in-law's death.

[2] We define unemployment as a dummy indicating whether an individual experienced any spell of unemployment during the given year.

The coefficients θ_k capture common relative-year effects and flexibly control for event-time-specific shocks that affect both treated and control individuals symmetrically. Including these terms ensures that identification of δ_k relies on differential changes between treated individuals and their matched controls at each relative event year.

As in the baseline specification, we include individual fixed effects γ_i, year fixed effects γ_y, and postal code fixed effects γ_p, as well as a vector of time-varying controls X_{iyp}: age group (16-25, 26-35,...56+), number of kids, whether they have kids under age three.

The key identifying assumption is that, absent the in-law's death, the earnings and employment trajectories of treated individuals would have evolved in parallel with those of their matched controls. This parallel trends assumption can be assessed by examining the pre-event coefficients δ_k for $k < 0$, which should be statistically indistinguishable from zero. The corresponding event-study graphs are presented in Section 4.

3.3 Difference-in-Difference with matched control

To get the average effect of in-law's death on earnings and employment, i use the same time window as event study to estimate the matched difference-in-differences specification separately for father-in-law and mother-in-law's death:

$$Y_{iyp} = \beta D_i \cdot Post_i + \alpha \cdot X_{iyp} + \gamma_i + \gamma_y + \gamma_p + \varepsilon_{iyp} \tag{3.2}$$

In this equation, i indexes individuals, y denotes calendar years, and p refers to the postal code of residence. The outcome variable Y_{iyp} captures individual labor market outcomes and is measured alternatively as $\log(1 + \text{earnings})$ and an indicator for experiencing unemployment during year y. The variable D_i is an indicator equal to one for treated individuals, defined as those who experience the premature death of a parent-in-law (father-in-law or mother-in-law), and zero otherwise. The indicator $Post_i$ equals one for all observations after the in-law's death and zero in the pre-death period. We estimate the specification separately for father-in-law and mother-in-law deaths. The specification of fixed effects, control variables, and standard errors in this estimation remains identical to those utilized in the event study analysis in section 3.1.

The coefficient of interest β measures the average change in the outcome variable for treated individuals after the death of a parent-in-law, relative to untreated individuals over the same

period. If the standard parallel trends assumption holds, β identifies the causal effect of in-law death on individual labor market outcomes.

4 Main Results

In this section, we present the empirical results of our analysis, integrating both dynamic event study and Difference-in-Differences (DID) specifications. Utilizing the matched control sample, the event study first allows us to examine the dynamics of labor market responses and verify the parallel trends assumption by comparing the trajectories of treated individuals and their matched controls. We then employ the DID framework to estimate the average treatment effect, quantifying the aggregate impact of an in-law's death on earnings and employment over the post-event period. Together, these complementary approaches provide a robust assessment of both the immediate impact and the long-term persistence of the mortality shock.

4.1 Dynamic effect

We begin our analysis by presenting event study estimates to validate our identification strategy. This approach allows us to empirically test the parallel trends assumption—a prerequisite for causal inference in a Difference-in-Differences framework—by verifying the absence of differential pre-trends. Furthermore, the event study allows us to trace the dynamic trajectory of earnings and employment following the death of an in-law, revealing how the shock impacts both over time. Figure 4.1a and 4.1b presents the event study analysis of the impact of parents-in-laws' death on earnings. It is clear in both figures that prior the death of father-in-law/mother-in-law, there is no difference between the treated individuals and their matched controls are very similar in terms of earnings evolution. This provides support for our parallel trend and validity to the later analysis.

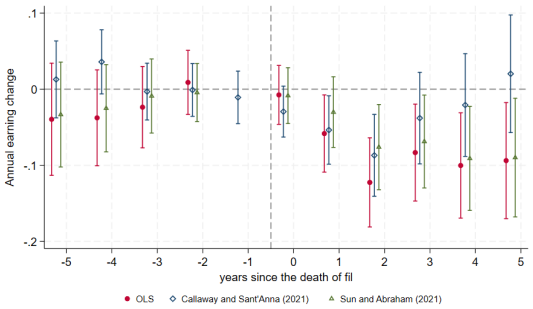
Following the death of a father-in-law, annual earnings decrease in the first year and remain negative (approximately -10%) according to OLS estimates. The estimates from Callaway and Sant'Anna (2021) exhibit a similar pattern but yield smaller coefficients (around -8%) compared to the OLS results. However, using the Sun and Abraham (2021) estimator, the effect is significantly negative only two years after the death.

In contrast, following the death of a mother-in-law, annual earnings do not decrease immediately. Instead, OLS estimates show a flat trend in the first two years, becoming significantly negative (reaching approximately -12%) starting from the third year. The results from Callaway and Sant'Anna (2021) display the same delayed pattern, with coefficients closely tracking the OLS estimates in magnitude. For Sun and Abraham (2021), while the point estimates suggest a downward trend in the long run, the effects are not statistically significant across most post-treatment periods.

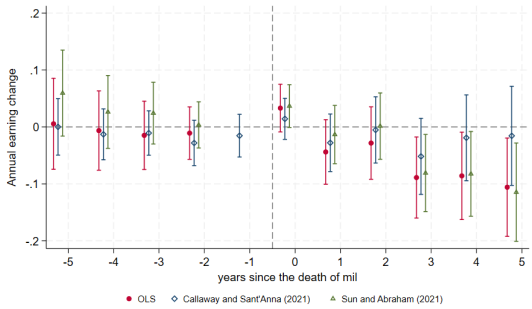
The delayed earnings response following a mother-in-law's death—with effects emerging only around year three—has two plausible interpretations. First, if informal childcare had already partially decreased before the mortality event, the immediate post-death period would capture only the residual loss, with the full earnings penalty appearing later as households run out of ways to compensate. Second, the delay may reflect a transitional period in which the surviving father-in-law temporarily scales back his own work to cover caregiving, before the household settles into a new steady state without maternal support.

Figure 4.1: Dynamic effects of in-law's death on individual annual earnings

(a) Father-in-law's death



(b) Mother-in-law's death



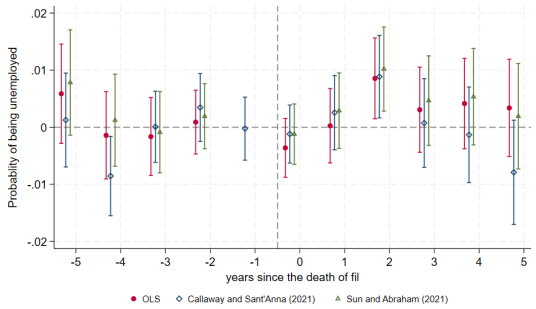
Notes: This figure plots the dynamic changes in individual earnings following the death of a father-in-law (Panel a) and a mother-in-law (Panel b). The coefficients are estimated using the event study specification detailed in Section 4.2. The sample comprises all treated individuals and their three nearest neighbors matched via Mahalanobis distance matching (1:3 ratio). The x-axis represents time relative to the treatment event, with $t = -1$ serving as the omitted reference category, and y-axis measures the percentage point change of annual earnings following the death of an in-law. The series display estimates from three different estimators: (1) Standard Two-Way Fixed Effects (OLS); (2) Callaway and Sant'Anna (2021) using the *csdid* package; (3) Sun and Abraham (2021) using the *eventstudyinteract* package. All models include individual, postal code, and year fixed effects. It also controlled for the number of kids, presence of kids under age 3, and age group (5-year brackets). Standard errors are clustered at the individual level.

We also examine the extensive margin of labor supply by analyzing the probability of

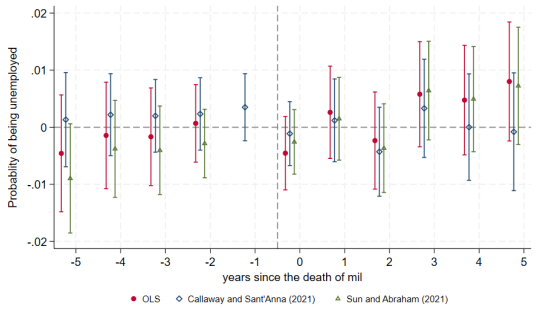
unemployment. Using the same specification, we present the event study estimates in Figure 4.2. The results confirm that there are no differential pre-trends prior to the death of an in-law. Following the death of a father-in-law, the probability of being unemployed increases by approximately 1 percentage point in the second year. However, the effect is not significant in other years. In the case of a mother-in-law's death, while the estimates are positive from the third year, they remain statistically insignificant across all three estimators.

Figure 4.2: Dynamic effects of in-law's death on individual employment

(a) Father-in-law's death



(b) Mother-in-law's death

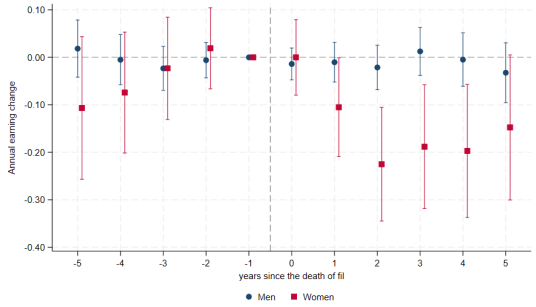


Notes: This figure plots the dynamic changes in the probability of individual unemployment following the death of a father-in-law (Panel a) and a mother-in-law (Panel b).The coefficients are estimated using the event study specification detailed in Section 4.2. The sample comprises all treated individuals and their three nearest neighbors matched via Mahalanobis distance matching (1:3 ratio). The x-axis represents time relative to the treatment event, with $t = -1$ serving as the omitted reference category, and y-axis measures the probability change of being unemployed following the death of an in-law. The series display estimates from three different estimators: (1) Standard Two-Way Fixed Effects (OLS); (2) Callaway and Sant'Anna (2021) using the *csdid* package; (3) Sun and Abraham (2021) using the *eventstudyinteract* package. All models include individual, postal code, and year fixed effects. It also controlled for the number of kids, presence of kids under age 3, and age group (5-year brackets). Standard errors are clustered at the individual level.

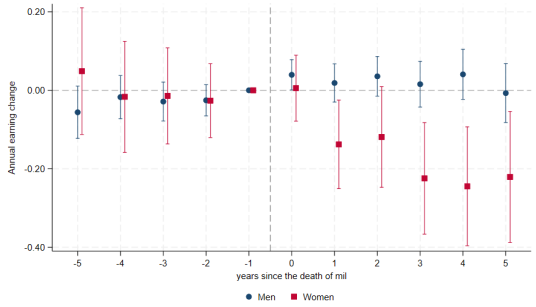
We also estimate the event study specification separately for male and female subsamples; the results are presented in Figures 4.3. It is evident that the negative earnings effect as well as positive unemployment effect are both driven primarily by women, while no significant effect is observed for men. This disparity suggests that caregiving responsibilities—whether for children or the elderly—may be the underlying mechanism. However, it is worth noting that our model already controls for the presence of children under age 3. We investigate these mechanisms in greater detail in Section 5.

Figure 4.3: Gender differences in the effects of in-law's death on earnings and employment

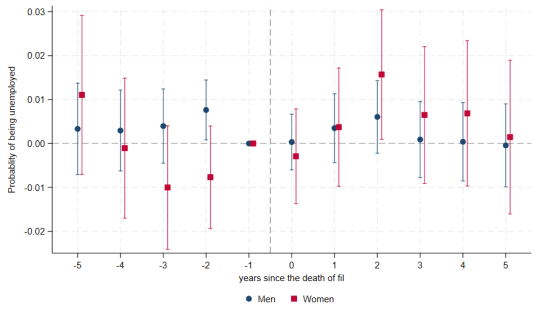
(a) Father-in-law's death (Earnings)



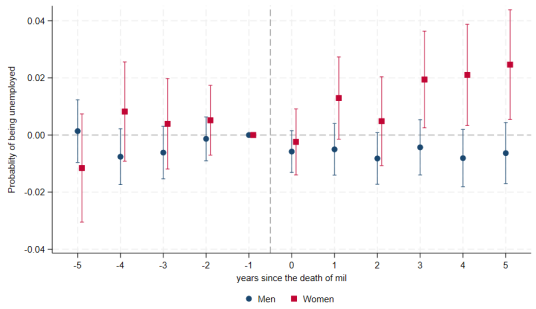
(b) Mother-in-law's death (Earnings)



(c) Father-in-law's death (Unemployment)



(d) Mother-in-law's death (Unemployment)



Notes: This figure plots the dynamic changes in individual earnings (Panels A and B) and the probability of unemployment (Panels C and D) following the death of a father-in-law and a mother-in-law, separately for male and female samples. The coefficients are estimated using the same event study specification detailed in Section 4.2. The sample comprises all treated individuals and their three nearest neighbors matched via Mahalanobis distance matching (1:3 ratio). The x-axis represents time relative to the treatment event, with $t = -1$ serving as the omitted reference category. Earnings effects are expressed in percentage point changes, while unemployment effects are expressed as changes in probability. All specifications use standard Two-Way Fixed Effects (OLS), including individual, postal code, and year fixed effects, and control for the number of children, presence of children under age 3, and age group (5-year brackets). Standard errors are clustered at the individual level.

4.2 Average effect

Having validated the parallel trends assumption in previous section, we now present the results for average effect of in-law's mortality shock.

Table 4.1 presents the estimated effects of an in-law's early death on individual labor market outcomes. Columns (1) and (2) show the impact on log annual earnings, while Columns (3) and (4) examine the probability of being unemployed. The results indicate that the death of a father-in-law is associated with a statistically significant decline in earnings of approximately 5.5 percent (Column 1). Similarly, the death of a mother-in-law leads to a comparable reduction in earnings of about 5.6 percent (Column 2). In contrast, the estimated effects on unemployment are small in magnitude and statistically insignificant (Column 3 and 4). This pattern suggests that the adverse labor market consequences of losing an in-law primarily operate through reduced earnings rather than increased unemployment. The inclusion of individual, year, and zipcode fixed effects, along with demographic controls, ensures that these estimates reflect within-individual changes over time relative to matched controls. Overall, the findings provide evidence that in-law networks play an economically meaningful role in supporting earnings, but their loss does not appear to significantly affect employment status.

Table 4.1: Effect of early death of in-law on earnings and employment

Dependent Variable:	Log(1+Annual Earning)		Being Unemployed	
	(1)	(2)	(3)	(4)
Post Father-in-law's Death	-0.055**		0.003	
	(0.024)		(0.003)	
Post Mother-in-law's Death		-0.056**		0.005
		(0.026)		(0.003)
Mean	10.15	10.08	0.10	0.11
Obs	518,964	422,195	518,968	422,196
Individuals	43,080	35,122	43,080	35,122
Year and ID FE	Yes	Yes	Yes	Yes
Zipcode FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
R^2	0.640	0.671	0.451	0.486

Notes: This table presents the estimation results regarding the effects of in-laws' deaths on individual labor market outcomes using equation 3.2. The dependent variables are the log of (1 + annual earnings) in columns (1)–(2) and an indicator for being unemployed in columns (3)–(4). Columns (1) and (3) report estimates for the sample experiencing a father-in-law's death, while columns (2) and (4) report estimates for the sample experiencing a mother-in-law's death. The sample comprises all treated individuals and their three nearest neighbors matched via Mahalanobis distance matching (1:3 ratio). All specifications include individual controls: indicators for children under age three, the total number of children, a marriage indicator, and age group fixed effects. All models account for individual, calendar year, event-time, and zipcode (locality) fixed effects. Standard errors, clustered at the individual level, are reported in parentheses. Statistical significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Table 4.2 and table 4.3 present the estimated gendered effects of an in-law's premature death on individual labor market outcomes. Columns (1) and (2) in both tables report the impact on log annual earnings for males and females, respectively, while Columns (3) and (4) examine the probability of being unemployed.

The results reveal a stark gender asymmetry in the economic consequences of these mortality shocks. Following a father-in-law's death, females experience a statistically significant earnings decline of approximately 9.8 percent (Table 4.2, Column 2), whereas the effect for males is small and statistically insignificant (Column 1). This gender gap is even more pronounced following the death of a mother-in-law: female earnings drop by a significant 15.6 percent (Table 4.3, Column 2), while males actually see a modest, statistically significant earnings increase of 4.3 percent (Column 1).

Regarding employment status, the impact of a father-in-law's death is statistically insignif-

icant for both genders (Table 4.2, Columns 3 and 4). However, the loss of a mother-in-law leads to a statistically significant 1.4 percentage point increase in the probability of unemployment for females (Table 4.3, Column 4), with no significant effect observed for males (Column 3).

Consistent with the event study framework, these specifications include individual, year, and zipcode fixed effects, along with time-varying demographic controls. Collectively, these findings suggest that the adverse labor market consequences of losing an in-law are heavily concentrated among women, particularly following the death of a mother-in-law, where the impact operates through both substantial earnings reductions and a increased risk of unemployment.

Table 4.2: Gendered effect of death of in-law on earnings and employment: father-in-law

Dependent Variable:	Log(1+Annual Earning)		Being Unemployed	
	(1)	(2)	(3)	(4)
	Male	Female	Male	Female
Post Father-in-law's Death	-0.011	-0.098**	-0.000	0.006
	(0.018)	(0.047)	(0.003)	(0.005)
Mean	11.05	8.95	0.06	0.17
Obs	297,547	221,292	297,547	221,296
Individuals	24,546	18,540	24,546	18,540
Ids & Year FE	Yes	Yes	Yes	Yes
Zipcode FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
R^2	0.541	0.630	0.364	0.488

Notes: This table presents the estimation results regarding the effects of a father-in-law's death on individual labor market outcomes using Equation 3.2. The dependent variables are the log of (1+annual earnings) in columns (1)–(2) and an indicator for being unemployed in columns (3)–(4). Columns (1) and (3) report estimates for the male sample, while columns (2) and (4) report estimates for the female sample. The sample comprises all treated individuals and their three nearest neighbors matched via Mahalanobis distance matching (1:3 ratio). All specifications include individual controls: indicators for children under age three, the total number of children, a marriage indicator, and age group fixed effects. All models account for individual, calendar year, event-time, and zipcode (locality) fixed effects. Standard errors, clustered at the individual level, are reported in parentheses. Statistical significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Table 4.3: Gendered effect of death of in-law on earnings and employment: mother-in-law

Dependent Variable:	Log(1+Annual Earning)		Being Unemployed	
	(1)	(2)	(3)	(4)
	Male	Female	Male	Female
Post Mother-in-law's Death	0.043**	-0.156***	-0.003	0.014**
	(0.020)	(0.052)	(0.003)	(0.006)
Mean	11.02	8.83	0.06	0.18
Obs	239,573	182,491	239,573	182,492
Individuals	19,842	15,283	19,842	15,283
Ids & Year FE	Yes	Yes	Yes	Yes
Zipcode FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
R^2	0.599	0.661	0.394	0.524

Notes: This table presents the estimation results regarding the effects of a mother-in-law's death on individual labor market outcomes using Equation 3.2. The dependent variables are the log of (1+annual earnings) in columns (1)–(2) and an indicator for being unemployed in columns (3)–(4). Columns (1) and (3) report estimates for the male sample, while columns (2) and (4) report estimates for the female sample. The sample comprises all treated individuals and their three nearest neighbors matched via Mahalanobis distance matching (1:3 ratio). All specifications include individual controls: indicators for children under age three, the total number of children, a marriage indicator, and age group fixed effects. All models account for individual, calendar year, event-time, and zipcode (locality) fixed effects. Standard errors, clustered at the individual level, are reported in parentheses. Statistical significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

5 Channels

Having established that the labor market penalties following an in-law's premature death are primarily concentrated among women, we now investigate the underlying mechanisms driving this gendered disparity. Several competing channels—including the loss of informal childcare, increased eldercare responsibilities, inheritance effects, and the severance of professional networks—may explain these results. This section systematically evaluates these pathways to determine whether the observed decline reflects a labor supply response to increased domestic demands or a loss of family-mediated socioeconomic resources.

5.1 Child care

Grandparents (especially grandmothers) serve as vital providers of informal childcare (Rupert and Zanella, 2018; Garcia-Moran and Kuehn, 2017; Bick, 2016), a role intensified by the high costs and limited supply of formal childcare services in Switzerland (e.g *Kita*). The premature death of an in-law represents a significant shock to a household's childcare arrangements, potentially triggering divergent labor market responses within the couple. On one hand, the sudden loss of informal support may compel men to increase their labor supply to finance the high costs of formal childcare. On the other hand, the caregiving burden may push a parent withdraws from the workforce to provide direct care. Given Switzerland's institutional environment and the high prevalence of female part-time employment, this caregiving burden frequently falls on women, leading them to either exit the labor market or further reduce their working hours to balance family responsibilities.

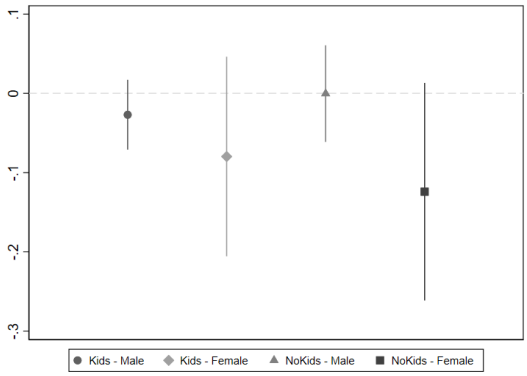
To evaluate the childcare mechanism, we examine the interaction between household childcare burdens and the specific roles of fathers- and mothers-in-law. We construct a dummy variable indicating the presence of a child under age three within the two years preceding the in-law's death, which serves as a proxy for intensive childcare needs. The sample is then partitioned into four distinct groups based on gender and childcare status (Male/Female with or without young children). Using these categories, we re-estimate the Difference-in-Differences specification separately for the father-in-law and mother-in-law samples. The resulting coefficients, which capture the heterogeneous labor market responses across these groups, are plotted in Figure 5.1.

The results in Figure 5.1a suggest that fathers-in-law do not serve as primary childcare

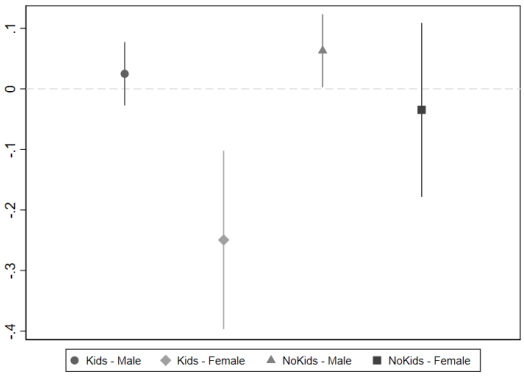
providers, as all four coefficients remain statistically insignificant regardless of the individual's gender or household childcare needs. In contrast, Figure 5.1b reveals a striking divergence following the death of a mother-in-law. Females with young children suffer the most substantial earnings loss. Among fathers, the picture is more nuanced: those with young children (Kids – Male) show no statistically significant earnings change, likely because the pressure to increase labor supply is counteracted by a greater caregiving burden at home. The significant earnings increase is instead found among males without young children (NoKids – Male), consistent with a forward-looking response to anticipated childcare costs should the couple have children in the future.

Figure 5.1: Parents-in-Law as the Childcare Provider

(a) Father-in-law's death



(b) Mother-in-law's death

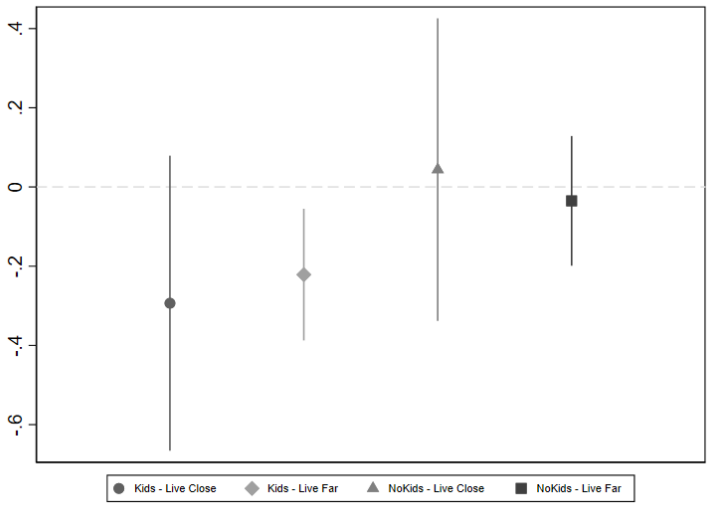


Notes: This figure presents the sub-sample DID estimates of the effect of in-laws' deaths on individual log earnings, corresponding to the empirical specification in Equation 3.2. The total sample is stratified into four groups based on gender and childcare demand at the time of the shock. "Kids" refers to individuals who had at least one child below age 3 within the two years preceding the death of a father-in-law (Panel a) or a mother-in-law (Panel b), representing the period of highest demand for informal childcare. The first two coefficients in each panel report the estimates for males and females with such childcare needs, respectively. The subsequent two coefficients report the estimates for males and females without children under age 3 during the same period. All models include the full set of individual controls and fixed effects as specified in the main analysis. Vertical lines represent 95% confidence intervals.

Due to data limitations, we cannot directly observe whether the deceased mother-in-law actually provided childcare prior to her death. To address this, we exploit geographic proximity as a proxy for informal childcare provision, narrowing our focus to the interaction between residential proximity and the death of a mother-in-law within the female sample. We construct a proximity dummy indicating whether the individual resided in the same municipality as her mother-in-law within the two years preceding the death. To isolate

the childcare channel of the individual's own mother, we additionally control for an indicator variable for whether the individual resides in the same municipality as her biological mother. We then stratify the female sample into four groups based on childcare demand and proximity: those with or without young children, living either "close" to or "far" from their mother-in-law. The estimated coefficients for these subgroups are plotted in Figure 5.2. The results indicate that women are negatively affected by the loss of a mother-in-law regardless of geographic proximity, though the magnitude of the impact varies. Among women with young children, those residing in the same municipality as their mother-in-law experience a larger earnings decline than those living farther away (-30%), although this difference is not statistically significant. Women living far from their mother-in-law experience a statistically significant earnings reduction of approximately 20%. Among women without young children, residential proximity to the mother-in-law has no discernible effect on earnings. These findings suggest that while physical distance may shape the nature of the support provided, the economic disruption caused by the death of a mother-in-law represents a substantial burden for women across the sample.

Figure 5.2: Mother-in-Laws as Important Childcare Providers: Residence



Notes: This figure presents the sub-sample DID estimates of the effect of a mother-in-law's death on female log earnings, corresponding to the empirical specification in Equation 3.2. The sample is restricted to females and stratified into four groups based on childcare demand and residential proximity to their mother-in-law (MIL) at the time of the shock. "Kids" refers to individuals who had at least one child below age 3 within the two years preceding the death. The first two coefficients report the estimates for females with such childcare needs who resided in the same municipality as their mother-in-law and those who did not, respectively. The subsequent two coefficients report the estimates for females without young children. All models include the full set of individual controls and fixed effects as specified in the main analysis. All specifications additionally control for an indicator variable for whether the individual resides in the same municipality as her own mother. Vertical lines represent 95% confidence intervals.

In Appendix Figure A2, we also examine the relationship between an in-law's death and changes in fertility, using the total number of children as the dependent variable. These specifications include individual, year, and locality (zipcode) fixed effects, with five-year age group brackets as the sole control variable. The results indicate that the death of a mother-in-law is associated with a reduction (-0.02) in future fertility relative to the matched control group. While these estimates describe a significant correlation, they should be interpreted as descriptive rather than strictly causal, suggesting that the loss of maternal support may disrupt long-term family planning.

5.2 Elderly Care Responsibilities

The earnings decline following an in-law's death may alternatively stem from increased eldercare responsibilities for the surviving parent, a burden traditionally borne by women

(Arrieta and Li, 2023; Rellstab et al., 2020). To evaluate this, we present summary statistics for surviving in-laws in Table 5.1. The data show that surviving mothers-in-law are, on average, five years younger than surviving fathers-in-law. While both groups exhibit declining labor supply and earnings, the share of surviving in-laws residing near their children decreases slightly from 53% to 50%. Notably, these individuals remains robustly attached to the labor market, averaging approximately 11 months of work per year. Given their high level of functional independence and continued professional activity, intensive eldercare requirements are unlikely to be the primary driver of the observed negative labor market outcomes for women.

Table 5.1: Descriptive Statistics of Surviving Parents-in-laws

Variables	(1) Surviving mil (fil died)	(2) Surviving fil (mil died)
Age of Surviving In-law	59.65	64.48
	(4.52)	(5.23)
Number of Children	2.52	2.43
	(1.15)	(1.16)
Swiss Nationality	0.94	0.87
	(0.23)	(0.34)
Immigrant Background	0.10	0.17
	(0.30)	(0.38)
Average Earnings [-2, -1]	30514.80	49122.61
	(31933.36)	(67803.85)
Average Months Worked [-2, -1]	11.51	11.22
	(1.65)	(1.99)
Average Earnings [1, 2]	27441.47	31792.36
	(33148.44)	(62089.43)
Average Months Worked [1, 2]	11.12	10.72
	(2.12)	(2.62)
Long-term Average Earnings	34934.72	67633.92
	(28073.49)	(59988.53)
Earning > Kids-in-law's Earning	0.32	0.58
	(0.47)	(0.49)
Live close to kid before spouse's death	0.53	0.53
	(0.50)	(0.50)
Live close to kid after spouse's death	0.50	0.50
	(0.50)	(0.50)
Observations	8,316	6,222

Notes: This table presents descriptive statistics (means and standard deviations) for surviving parents-in-law at the time of their spouse's premature death (ages 40–65) between 2011 and 2022. Column (1) reports characteristics for fathers-in-law who survived their wives, while Column (2) reports for mothers-in-law who survived their husbands. "Age at Death" refers to the age of the deceased spouse at the time of the shock. Labor market variables for the surviving in-laws are captured across three distinct periods: the two-year window prior to the spouse's death ($[-2, -1]$), the two-year window following the death ($[1, 2]$), and a long-term average covering the entire observation period. The indicator "Earning > Kids-in-law's Earning" identifies surviving in-laws whose long-term average labor income exceeds that of the primary respondent (the son-in-law or daughter-in-law). "Live close to kid before" is an indicator for residing in the same two-digit zip code as the kids during the two years prior to the death ($[-2, -1]$). "Live close to kid after" is similarly defined for the two years following the death ($[1, 2]$). All monetary values are denominated in Swiss Francs (CHF).

An alternative hypothesis is that the earnings impact reflects the cessation of eldercare for the deceased in-law. If the deceased had been suffering from a long-term illness, their death should theoretically reduce the caregiving burden, allowing individuals to increase their labor supply and earnings.

To test this channel, we restrict our sample to individuals whose deceased in-law was robustly attached to the labor market—specifically, those who worked 12 months per year and maintained stable earnings (defined as a decline of less than 50%) in the two years preceding their death. Because these in-laws were functionally independent and economically active, they likely required minimal to no caregiving from their children-in-law.

We present the results for this "high-functioning" subsample in Appendix Tables A1 and A2. Interestingly, the estimated effects are even more negative than those in the primary specification. This finding suggests that the observed labor market penalties are not driven by the relief of caregiving burdens; rather, it implies that other mechanisms play a more dominant role.

5.3 Inheritance

Beyond its impact on domestic responsibilities (most notably childcare), the death of a parent-in-law may influence labor market behavior through the transfer of inherited wealth. According to standard life-cycle theory, a substantial inheritance represents a positive wealth shock that may induce an "income effect", leading individuals to reduce their labor supply or opt for less demanding, lower-paying roles (Joulfaian and Wilhelm, 1994; Kindermann et al., 2020). To test this, we examine whether the observed earnings decline is driven by households receiving large inheritances rather than by the loss of domestic support.

However, a limitation of our dataset is the absence of direct information on household net wealth or tax records. To address this, we use the father-in-law's long-term labor earnings as a proxy for potential inheritance, focusing on those whose earnings exceed the median (CHF 70,000) and the 90th percentile (CHF 130,000). Given that inheritance typically triggers a near-term shift in economic status, we examine total household earnings as our primary outcome, allowing us to assess whether the death of a high-earning father-in-law results in a significant change in the affected household's income.

Table 5.2 examines whether the father-in-law's pre-death earnings level shapes the household's labor market response to the mortality shock, and whether this effect operates through a childcare channel. Columns (1) and (3) present the baseline DDD estimates, while columns (2) and (4) augment these specifications with a childcare need interaction.

In column (1), the baseline group experiences a post-death earnings decline of 3.8%, while the interaction with the top-50% earnings dummy yields a differential of 3.6% relative to the baseline, implying a near-zero net effect for this subgroup. Column (3) raises the threshold to the 90th percentile (CHF 130,000): the baseline group faces a decline of 3.4%, and the interaction with the top-10% dummy yields a differential of 8.9%, translating into a net earnings gain of approximately 5.5%. Taken together, these estimates suggest a positive relationship between the father-in-law's pre-death earnings level and the post-death change in household labor earnings, contrary to the standard income-effect prediction.

To test whether this effect operates through a childcare channel, columns (2) and (4) interact father-in-law's earnings percentile dummies with an indicator for the presence of a child under age three within the two years preceding the death. Column (2) shows the baseline group faces a decline of 3.4%, while households with young children bear an additional penalty of 2.7%, and the interaction term is negative but not significant. In column (4), the baseline group faces a decline of 1.7%, while households with young children bear an additional penalty of 2.9%, consistent with the interpretation that fathers-in-law provide financial subsidies toward childcare costs and that their death interrupts this support. The interaction with the top-10% earnings dummy yields a differential of 11.7%, corresponding to a net earnings gain of approximately 10.0% for households with a high-earning father-in-law without kids. The quadruple interaction term is again statistically insignificant: the earnings gain associated with a high-earning father-in-law is no larger for households with young children than for those without. This suggests that the inherited wealth improves the household's financial position broadly rather than compensating specifically for childcare costs, reinforcing the view that the father-in-law's contribution is financial rather than caregiving in nature.

Table 5.2: Inheritance as a Buffer: Earnings Effects and Childcare Heterogeneity

Dependent Variable:	Log(1+Household Annual Earning)			
	(1)	(2)	(3)	(4)
Post fil's Death	-0.038***	-0.022**	-0.034***	-0.017**
	(0.008)	(0.010)	(0.006)	(0.008)
Post × High-income fil (top 50%)	0.036***	0.050***		
	(0.010)	(0.015)		
Post × High-income fil (top 10%)			0.089***	0.117***
			(0.014)	(0.025)
Post × Young Kids		-0.027**		-0.029***
		(0.013)		(0.010)
Post × Young Kids × High-income fil (top 50%)		-0.022		
		(0.019)		
Post × Young Kids × High-income fil (top 10%)				-0.048
				(0.030)
Mean	11.62	11.62	11.62	11.62
Obs	518,766	518,201	518,766	518,201
Individuals	43,080	42,982	43,080	42,982
Year and ID FE	Yes	Yes	Yes	Yes
Zipcode FE	Yes	Yes	Yes	Yes
Locality FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
R^2	0.567	0.566	0.567	0.566

Notes: This table presents Triple-Difference (DDD) and higher-order interaction estimates of the impact of a high-earning father-in-law's death on household income. The dependent variable is the logarithm of household annual earnings. Columns (1) and (3) utilize a DDD framework to examine the change in household income following the death for individuals whose father-in-law's long term earning was in the top 50% ($> 70,000$ CHF) and top 10% ($> 130,000$ CHF) of the annual income distribution, respectively. Columns (2) and (4) further interact these variables with a dummy "Young Kids" indicating the presence of young children (under age 3) in the household within the two years preceding the death. All specifications include individual, year, and locality (zip code) fixed effects, alongside the standard set of control variables used in previous analyses. Standard errors, clustered at the individual level, are reported in parentheses. Statistical significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

5.4 Grief

As documented in Jensen and Zhang (2026) and Park (2010), the sudden death of a parent can substantially deteriorate the mental health of the surviving child, leading to a persistent decline in labor market earnings. In our context, this implies that the death of a parent-in-law may reduce the spouse's earnings through a grief channel, which in turn could induce the directly treated individual to compensate by increasing their own labor supply.

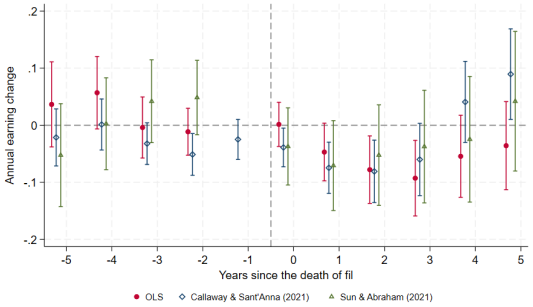
We cannot directly test this channel, as our administrative data does not contain information on mental health outcomes—such as psychological assessment scores or records of mental health consultations. Nevertheless, our findings on household total earnings provide suggestive evidence consistent with this mechanism. As reported in Appendix A3, the death of a father/mother-in-law leads to an approximate 2% decline in total household earnings. Given that the directly treated female individual experiences a earnings decline of approximately 15.6%, this modest household-level reduction implies that the spouse partially offsets the shock through compensatory increases in labor supply—a pattern consistent with the grief channel operating through the spouse.

Importantly, however, this channel does not operate uniformly across households. Female individuals face a compounded burden: they simultaneously suffer the loss of informal childcare support and bear the consequences of their spouse's grief-induced earnings decline. This dual shock helps explain why the labor market penalties are substantially larger for women than for men. Male individuals, by contrast, are primarily exposed to the spousal grief channel alone, without the additional burden of childcare loss, which is consistent with the more modest and less persistent earnings effects observed in the father-in-law sample.

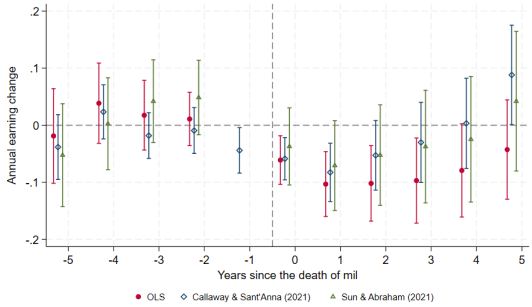
While we cannot decompose the precise contribution of the grief channel to the total observed earnings decline, it is unlikely to confound our subsequent mechanism analysis. Within each subsample, all individuals are exposed to the same mortality shock and thus face a comparable grief component. Any heterogeneity analysis within the same subsample therefore effectively differences out the grief channel, allowing us to cleanly identify the structural mechanisms of interest.

Figure 5.3: Dynamic Effects of In-law's Death on Spousal Labor Market Outcomes

(a) Father-in-law



(b) Mother-in-law



Notes: This figure plots the dynamic changes in spousal labor market outcomes following the death of a father-in-law (Panels a) and a mother-in-law (Panels b). Panels (a)–(b) use the log of (1 + annual spousal earnings) as the dependent variable. The coefficients are estimated using the event study specification detailed in equation 3.1. The sample comprises all treated individuals and their three nearest neighbors matched via Mahalanobis distance matching (1:3 ratio). The x-axis represents time relative to the treatment event, with $t = -1$ serving as the omitted reference category, and y-axis measures the percentage point change of annual earnings following the death of an in-law. The series display estimates from three different estimators: (1) Standard Two-Way Fixed Effects (OLS); (2) Callaway and Sant'Anna (2021); and (3) Sun and Abraham (2021). All models include individual, postal code, and year fixed effects, and control for the number of children, presence of children under age 3, and age group. Standard errors are clustered at the individual level.

5.5 Professional Spillovers

In this section, we examine whether individuals benefit from the labor market status of their fathers-in-law, specifically focusing on those whose fathers-in-law are high earners—defined as having a long-term average annual income exceeding CHF 130,000 (representing the 90th percentile). The underlying hypothesis is that high-status (high earnig) in-laws possess superior labor market information and extensive social networks, which they may leverage to assist their children-in-law after the marriage (Kramarz and Skans, 2014).

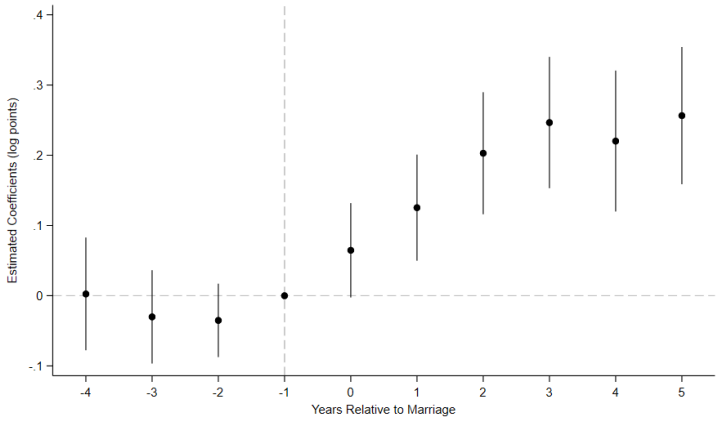
To test this, we first analyze earnings dynamics surrounding marriage. We employ a diff-in-difference (DID) event study framework by interacting the standard event study specification with an indicator for high-earning fathers-in-law. The model is specified as follows:

$$Y_{iyp} = \sum_{\substack{k=-5 \\ k\neq -1}}^{5} \Big(\beta_k \, \mathbf{1}\{t = k\} \cdot H_i + \theta_k \, \mathbf{1}\{t = k\} \Big) + \alpha X_{iy} + \gamma_i + \gamma_y + \gamma_p + \varepsilon_{iyp}. \tag{5.1}$$

where H_i is an indicator equal to 1 if the father-in-law's average earnings are in the top 10% (above CHF 130,000 annually). The vector X_{iy} includes the same set of individual controls as in the previous specifications 3.1. We include fixed effects for individuals (γ_i), calendar years (γ_y), and localities (γ_p). Standard errors are clustered at the individual level.

In this specification, the relative time periods k represent years relative to the year of marriage: $\mathbf{1}\{t = k\}$. The coefficients of interest are β_k, which capture the differential change in earnings before and after marriage for individuals with a high-earning father-in-law relative to those whose father-in-law is not in the top decile. The results are presented in Figure 5.4.

Figure 5.4: Premium from High-Earning Fathers-in-Laws: the Top 10%



Notes: This figure presents the estimated coefficients (β_k) and 95% confidence intervals from the diff-in-diff (DiD) event study specification described in Equation 5.1. The dependent variable is the log of annual earnings. The horizontal axis represents years relative to the year of marriage, with the year prior to marriage ($k = -1$) serving as the omitted reference period. The vertical axis displays the estimated coefficients in log points. The sample comprises treated individuals—defined as those who had father-in-law died—and their three nearest neighbors identified through Mahalanobis distance matching (1:3 ratio). The reported coefficients measure the differential change in earnings before and after marriage for individuals with a high-earning father-in-law relative to treated individuals with a non-high-earning father-in-law. All specifications include individual, calendar year, and locality fixed effects, alongside individual-level controls. Standard errors are clustered at the individual level.

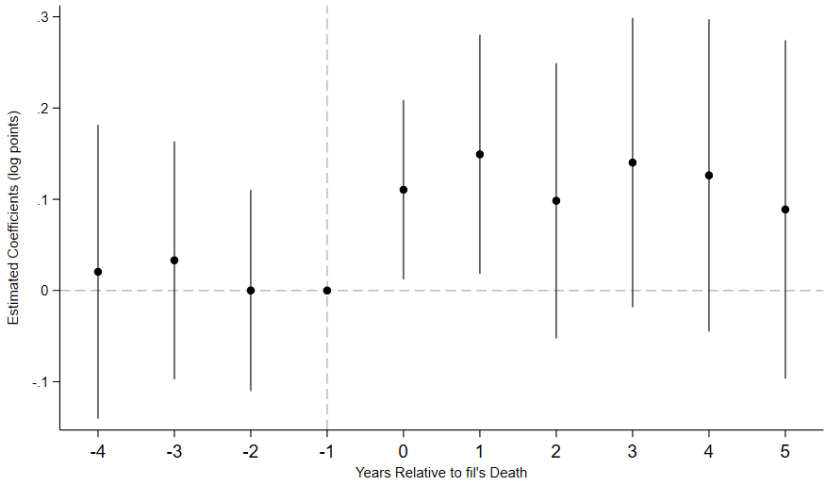
Interestingly, we find no significant difference in earnings trajectories between individuals with high-earning fathers-in-law and those without prior to marriage, supporting the parallel trends assumption. However, following marriage, a notable divergence emerges: individuals linked to high-status family networks begin to significantly outpace their counterparts. This earnings premium exhibits a growing trend over time, eventually reaching an average of approximately 20%. This dynamic suggests that the labor market advantages associated with high-earning in-laws do not manifest as a one-time jump, but rather as an accelerating career trajectory facilitated by the ongoing benefits of the marriage-acquired social network.

Having established a significant earnings premium associated with high-status marriage, we next examine how the loss of such family resources affects individual labor market outcomes. Specifically, we investigate the impact of the death of a high-earning father-in-law. To isolate this effect, we employ a triple-difference (DDD) event study framework, which allows us to compare the earnings trajectories of treated individuals across different levels of in-law social capital. The empirical specification is as follows:

$$Y_{iyp} = \sum_{\substack{k=-5 \\ k\neq -1}}^{5} \Big(\beta_k \, \mathbf{1}\{t = k\} \cdot D_i \cdot H_i + \delta_k \, \mathbf{1}\{t = k\} \cdot D_i + \theta_k \, \mathbf{1}\{t = k\} \cdot H_i + \lambda_k \, \mathbf{1}\{t = k\} \Big) + \alpha X_{iyp} + \gamma_i + \gamma_y + \gamma_p + \varepsilon_{iyp} \tag{5.2}$$

where D_i is an indicator for the treatment group (those who experienced the death of a father-in-law), and H_i is a dummy variable identifying high-earning fathers-in-law (average annual earnings above CHF 130,000). All other variables and fixed effects remain as previously defined. Our primary coefficients of interest are β_k, the DDD estimates. These coefficients measure the differential change in earnings following the death of a high-earning father-in-law relative to the change observed upon the death of a father-in-law who was not in the top income decile. This approach effectively nets out the general effect of a family bereavement, isolating the specific impact of losing a high-status professional resource. The results are illustrated in Figure 5.5.

Figure 5.5: When high earning father-in-laws died: the Top 10%



Notes: This figure presents the estimated coefficients (β_k) and 95% confidence intervals from the triple-Difference (DDD) event study specification described in Equation 5.2. The dependent variable is the log of annual earnings. The horizontal axis represents years relative to the year of father-in-law's death, with the year prior to death ($k = -1$) serving as the omitted reference period. The vertical axis displays the estimated coefficients in log points. The sample comprises treated individuals—defined as those who had father-in-law died—and their three nearest neighbors identified through Mahalanobis distance matching (1:3 ratio). The reported coefficients measure the differential change in earnings before and after death of father-in-law for individuals with a high-earning father-in-law relative to those in the control group. All specifications include individual, calendar year, and locality fixed effects, alongside individual-level controls. Standard errors are clustered at the individual level.

Figure 5.5 illustrates the dynamic impact of a high-earning father-in-law's death on individual annual earnings. Prior to the event, the estimated coefficients are statistically indistinguishable from zero, indicating that the pre-death earnings trends were parallel between individuals with high-earning fathers-in-law and those whose fathers-in-law were not in the top income decile, across both the treated and matched control groups. This supports the validity of the DDD identifying assumption.

Following the father-in-law's death ($t \geq 0$), the coefficients β_k which capture the earnings response of individuals with high-earning fathers-in-law relative to those with non-high-earning fathers-in-law, conditional on bereavement are consistently positive across the post-event window. Statistical significance is achieved in the first two years following the death, while the remaining point estimates are positive but imprecisely estimated, likely due to the small sample size of the top-earning subgroup. Overall, this pattern supports a financial buffering hypothesis: the wealth transferred upon the high-earning father-in-law's

death appears to have offset a substantial part of the negative earnings shock, allowing individuals to better maintain their labor market position relative to otherwise similar bereaved households.

6 Conclusion

This paper investigates the economic significance of extended kinship networks by examining how the premature death of a parent-in-law affects individual labor market outcomes. While the literature has extensively documented the role of biological parents and immediate social circles, the role of relatives acquired through marriage—who often provide critical support in adulthood—has remained largely unexplored.

To identify the causal impact of these mortality shocks, I utilize rich Swiss administrative data from 2010 to 2022, linking individual employment records with family registries. Exploiting the quasi-exogenous nature of premature deaths (occurring between ages 40 and 65), I implement a matched difference-in-differences design. This approach compares the earnings and employment trajectories of affected individuals to a control group of "statistical twins" identified via Mahalanobis distance matching.

The empirical analysis reveals three primary findings. First, the death of a parent-in-law leads to a significant and persistent decline in annual earnings, averaging approximately 5.5%. Second, these labor market penalties exhibit a stark gender asymmetry: the negative effects are almost entirely concentrated among women, particularly following the death of a mother-in-law, where earnings drop by over 15%. Third, while earnings decline substantially, the impact on the extensive margin of employment is modest, suggesting that the shock primarily triggers a reduction in labor supply or a shift toward less demanding work rather than complete labor market exit.

The investigation of underlying mechanisms suggests that the “mother-in-law penalty” is predominantly driven by the loss of informal childcare. The earnings decline is most severe for women with young children, regardless of geographic proximity, highlighting the unique role of grandmothers in sustaining female labor supply in Switzerland’s high-cost childcare environment. Conversely, when a high-earning father-in-law dies, the evidence suggests the presence of a financial buffer, although the underlying mechanism is not directly observed in the data. Rather than offsetting a decline, household labor earnings increase in these cases.

One plausible explanation is that additional financial resources, potentially in the form of wealth transfers, enable households to substitute informal support with market-based alternatives, thereby sustaining or even increasing labor supply.

In conclusion, this paper demonstrates that marriage-based kinship networks are a vital component of the social infrastructure supporting adult economic life. The findings underscore that the "family gap" in the labor market is not merely a function of immediate household dynamics but is deeply embedded in the availability of extended family support. Policy interventions aimed at increasing female labor force participation must therefore consider the fragility of these informal networks and the significant economic disruption caused by their loss.

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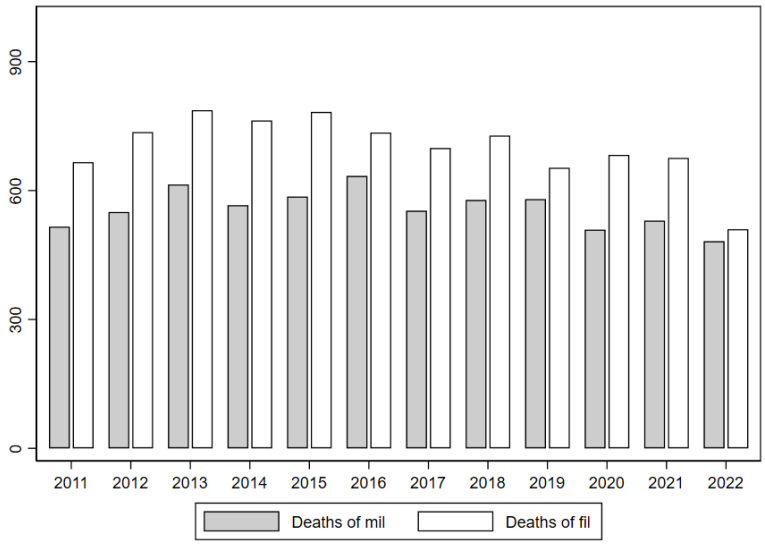
Appendix

A Information on in-laws

A.1 Treatment by year

Figure A1: Yearly Distribution of Early Deaths Among Parents-in-Law (Ages 40–65)



Notes: This figure plots the distribution of premature deaths (ages 40–65) among parents-in-law between 2011 and 2022 in Switzerland. The x-axis denotes the specific calendar year in which the premature death of the parent-in-law occurred. Early mortality is notably more prevalent among men than women. Furthermore, while the trend for women has remained stable, premature deaths among men show a slight decline over the decade.

A.2 Summary Stats of Deceased In-Laws

Table A1: Descriptive Statistics of Deceased Parents-in-law

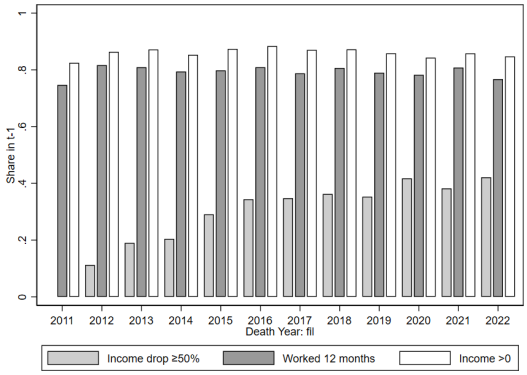
Variables	(1) Father-in-law	(2) Mother-in-law
Age at Death	61.58	61.02
	(3.35)	(3.75)
Number of Children	1.45	1.49
	(1.12)	(1.12)
Swiss Nationality	0.96	0.98
	(0.21)	(0.14)
Had immigrant background	0.09	0.07
	(0.28)	(0.25)
Married at death	0.71	0.61
	(0.45)	(0.49)
Average Earnings $[-2, -1]$	53735.32	18595.37
	(119800.35)	(24980.33)
Average Months Worked $[-2, -1]$	11.58	11.14
	(1.42)	(1.89)
Long-term Average Earnings	68768.21	26533.46
	(143868.37)	(27908.38)
Earning > Kids-in-law's Earning	0.51	0.30
	(0.50)	(0.46)
Obs.	8419	6698

Notes: This table presents summary statistics (means and standard deviations) for the treatment group of parents-in-law who died prematurely (ages 40–65) between 2011 and 2022. All monetary values are reported in Swiss Francs (CHF). The data show that the deceased were primarily in their early 60s and maintained high labor market attachment, averaging over 11 months of work per year prior to death. While a significant gender earnings gap exists, a substantial portion of in-laws—particularly fathers—earned more than their children. These figures suggest that the deceased were active economic contributors, confirming that their death represents a significant and sudden loss of financial resources and human capital.

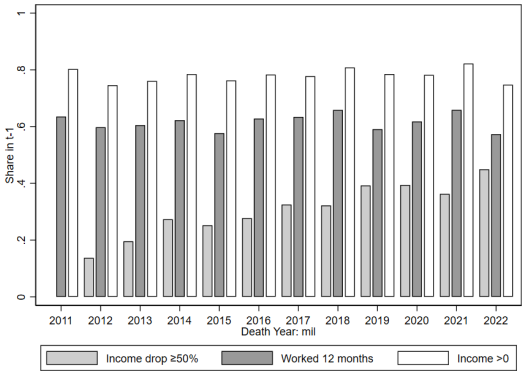
A.3 Pre-death Labor Market Participation of Parents-inlaw

Figure A2: Pre-death Labor Market Participation and Income Stability of Parents-in-law

(a) Father-in-law



(b) Mother-in-law



Notes: This figure illustrates the labor market status of parents-in-law in the year prior to their premature death ($t-1$) across the 2011–2022 cohorts. (1) Income > 0: indicates the proportion of in-laws with positive earnings in the year before death; (2) Worked 12 months: shows the share of individuals in full-year employment during $t-1$; (3) Income drop $\geq 50\%$: measures the share of individuals whose income in $t-1$ fell by at least half compared to their historical average. The high and stable rates of employment (approx. 60–80%) across both genders suggest that most in-laws remained active in the labor force until shortly before death. This evidence supports the identification of these deaths as sudden shocks rather than the result of long-term health declines or protracted caregiving periods. Also fathers-in-law (Panel a) exhibit higher rates of both positive earnings and full-year employment compared to mothers-in-law (Panel b). This reflects higher baseline labor force participation among men in these age cohorts.

B Matching in details

To ensure comparability, we employed Mahalanobis distance matching with a caliper of 0.5.

B.1 Balance of Covariates Before Matching

Table A1: Descriptive Statistics Before Matching: Father-in-Law Sample

Variables	(1) Treated	(2) Not-Treated	(3) Diff
Age	35.87	47.53	11.66***
	(7.30)	(12.41)	
Number of Children	1.45	1.69	0.24***
	(1.12)	(1.17)	
Having kids below age 3	0.36	0.15	-0.21***
	(0.48)	(0.36)	
Female	0.43	0.49	0.06***
	(0.49)	(0.50)	
Swiss Nationality	0.84	0.91	0.06***
	(0.36)	(0.29)	
Swiss Spouse	0.98	0.98	0.00***
	(0.14)	(0.13)	
Had immigrant background	0.18	0.13	-0.05***
	(0.38)	(0.33)	
Marriage lengths at in-law's Death: yrs	6.32	.	.
	(4.80)		
Being unemployed at that year	0.11	0.18	0.07***
	(0.31)	(0.39)	
Long-term Average Earnings	65893.08	67523.83	1630.74***
	(47277.02)	(92068.00)	
Spousal long-term Average Earnings	59770.32	71875.88	12105.56***
	(45636.69)	(93070.74)	
Earning > In-law's Earning	0.49	0.17	-0.32***
	(0.50)	(0.37)	
FIL's Age	61.91	73.80	11.89***
	(5.59)	(11.43)	
Obs.	11,501	1,715,418	

Notes: This table presents baseline descriptive statistics for the treated group—defined as individuals experiencing the premature death of a father-in-law—and the full pool of non-treated samples prior to matching. Values represent sample means, with standard deviations reported in parentheses. The "Diff" column reports the mean difference between the two groups, with significance stars reflecting results from a standard t-test ($^{*}p < 0.1, ^{**}p < 0.05, ^{***}p < 0.01$). The substantial differences across demographic and labor market characteristics—most notably the large gaps in age and earnings—highlight the significant selection bias present in the raw data, justifying the use of a formal matching procedure to construct a comparable control group.

Table A2: Descriptive Statistics Before Matching: Mother-in-Law Sample

Variables	(1) Treated	(2) Not-Treated	(3) Diff
Age	37.22	47.43	10.21***
	(7.64)	(12.41)	
Number of Children	1.49	1.69	0.19***
	(1.12)	(1.17)	
Having kids below age 3	0.33	0.15	-0.18***
	(0.47)	(0.36)	
Female	0.43	0.49	0.06***
	(0.50)	(0.50)	
Swiss Nationality	0.85	0.91	0.05***
	(0.35)	(0.29)	
Swiss Spouse	0.98	0.98	0.00
	(0.13)	(0.13)	
Had immigrant background	0.17	0.13	-0.04***
	(0.37)	(0.33)	
Marriage lengths at in-law's Death: yrs	7.36		
	(5.34)		
Being unemployed at that year	0.12	0.18	0.07***
	(0.32)	(0.39)	
Long-term Average Earnings	67446.28	67588.49	142.21
	(57549.76)	(92337.78)	
Spousal long-term Average Earnings	60765.14	71956.84	11191.70***
	(45268.73)	(93375.54)	
Earning > In-law's Earning	0.70	0.28	-0.42***
	(0.46)	(0.45)	
MIL's Age	61.08	74.24	13.16***
	(5.82)	(12.55)	
Obs.	9,204	1,696,967	

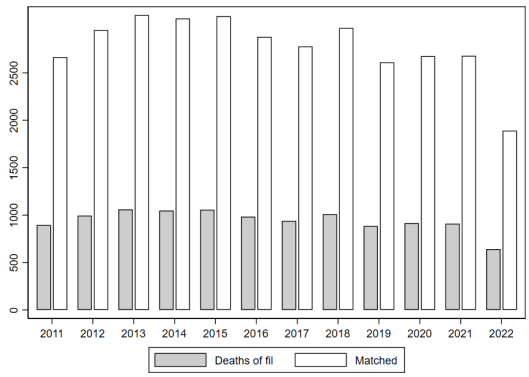
Notes: This table presents baseline descriptive statistics for the treated group—defined as individuals experiencing the premature death of a mother-in-law—and the full pool of non-treated samples prior to matching. Values represent sample means, with standard deviations reported in parentheses. The "Diff" column reports the mean difference between the two groups, with significance stars reflecting results from a standard t-test ($^{*}p < 0.1, ^{**}p < 0.05, ^{***}p < 0.01$). The substantial differences across demographic and labor market characteristics—most notably the large gaps in age and earnings—highlight the significant selection bias present in the raw data, justifying the use of a formal matching procedure to construct a comparable control group.

B.2 Year distribution of Samples After Matching

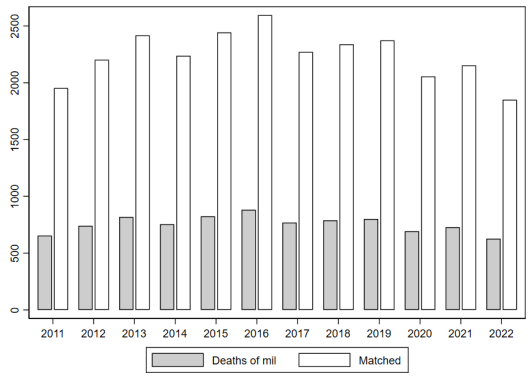
The resulting distribution of treated individuals and their corresponding matched controls across the sample period is presented below:

Figure A1: Treated individuals and their matched controls

(a) Father-in-law



(b) Mother-in-law

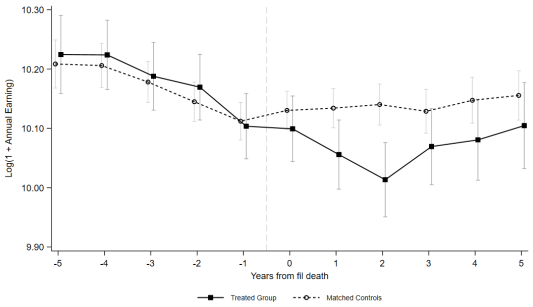


Notes: This figure plots the distribution of treated individuals who experienced the premature death (ages 40–65) of a parent-in-law between 2011 and 2022 in Switzerland (grey bar), along with their three nearest matched controls (white bar) using Mahalanobis distance matching. The x-axis denotes the specific calendar year in which the premature death of in-laws occurred. The higher incidence of father-in-law mortality is consistent with broader demographic trends indicating that men generally have a lower life expectancy than women.

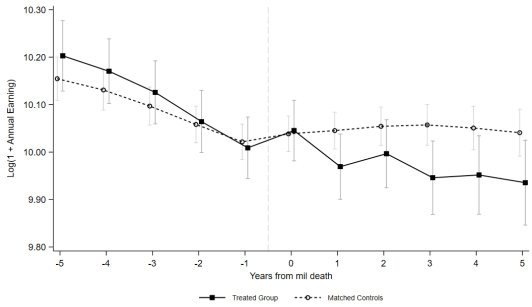
B.3 Earning Change Before and After Death of In-Laws

Figure A2: Loglized Annual Earning Change

(a) Father-in-law



(b) Mother-in-law

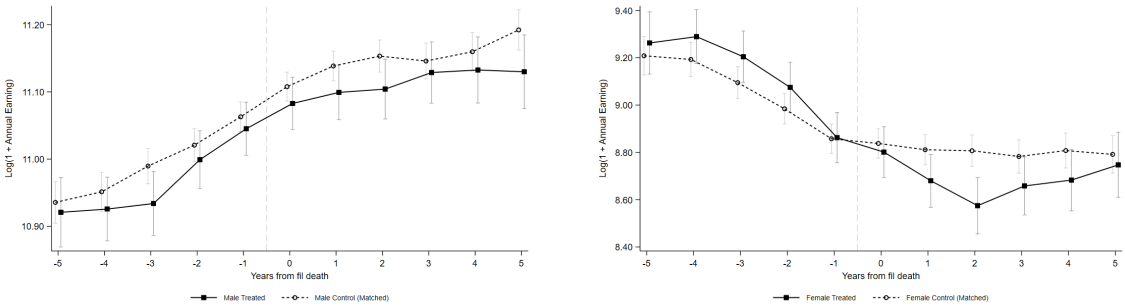


Notes: This figure illustrates the dynamic changes in log(1 + annual earnings) for treated individuals and their matched controls over a ten-year event window centered on the death of an in-law ($t = 0$). Panel (a) presents the results for the father-in-law sample and Panel (b) for the mother-in-law sample. The control group is constructed using three-nearest-neighbor Mahalanobis distance matching within exact matching cells (gender and earnings dummy). Points represent sample means for each year relative to the death, and vertical bars indicate 95% confidence intervals.

Figure A3: Loglized Annual Earning Change by In-Law and Gender

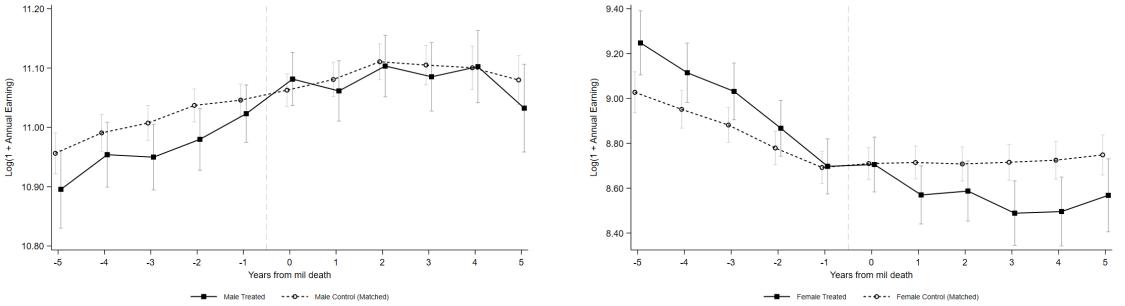
(a) Father-in-Law: Male

(b) Father-in-Law: Female



(c) Mother-in-Law: Male

(d) Mother-in-Law: Female



Notes: This figure illustrates dynamic changes in log(1 + annual earnings) for treated individuals and matched controls over a ten-year window centered on the death of an in-law ($t = 0$). The top row presents results for father-in-law deaths and the bottom row for mother-in-law deaths, categorized by the gender. The control group is constructed using three-nearest-neighbor Mahalanobis distance matching within exact matching cells (gender and earnings dummy). Points represent sample means, and vertical bars indicate 95% confidence intervals.

C Other Outcomes

C.1 Robustness: Main regression

Table A1: Effect of early death of in-law on earnings and employment: robustness check 1

	Log(1+Annual Earning)		Being Unemployed	
	(1)	(2)	(3)	(4)
Post Father-in-law's Death	-0.050**		0.002	
	(0.025)		(0.003)	
Post Mother-in-law's Death		-0.060**		0.006*
		(0.029)		(0.003)
Mean	10.16	10.08	0.10	0.11
Obs	460,346	345,508	460,349	345,509
Individuals	38,417	28,983	38,417	28,983
Ids. FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Zipcode FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
R^2	0.641	0.671	0.453	0.486

Notes: This table presents the estimation results for the effects of an in-law's death on individual labor market outcomes based on Equation 3.2. The analysis is restricted to a **subsample** where the deceased in-law was active in the labor market, defined as having worked an average of 12 months per year two years prior to their death. The dependent variables are the log of (1 + annual earnings) in columns (1)–(2) and an indicator for being unemployed in columns (3)–(4). Columns (1) and (3) report estimates for the sample experiencing a father-in-law's death, while columns (2) and (4) refer to a mother-in-law's death. The sample comprises all treated individuals and their three nearest neighbors identified via Mahalanobis distance matching (1:3 ratio). All specifications include individual-level controls (indicators for children under age 3 and 6, total number of children, and marriage status) alongside age group, individual, calendar year, event-time, and zipcode (locality) fixed effects. Standard errors, clustered at the individual level, are reported in parentheses. Statistical significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Table A2: Effect of early death of in-law on earnings and employment: robustness check 2

Dependent Variables:	Log(1+Annual Earning)		Being Unemployed	
	(1)	(2)	(3)	(4)
Post Father-in-law's Death	-0.059**		0.002	
	(0.027)		(0.003)	
Post Mother-in-law's Death		-0.077**		0.005
		(0.031)		(0.003)
Mean	10.16	10.09	0.10	0.11
Obs	431,324	320,491	431,328	320,491
Individuals	35,691	26,647	35,691	26,647
Ids. FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Zipcode FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
R^2	0.645	0.674	0.458	0.488

Notes: This table presents the estimation results for the effects of an in-law's death on individual labor market outcomes based on Equation 3.2. The analysis is restricted to a **subsample** where the deceased in-law was active in the labor market, defined as mean annual earnings did not decrease by 50% of their long-term earning two years prior to their death. The dependent variables are the log of (1 + annual earnings) in columns (1)–(2) and an indicator for being unemployed in columns (3)–(4). Columns (1) and (3) report estimates for the sample experiencing a father-in-law's death, while columns (2) and (4) refer to a mother-in-law's death. The sample comprises all treated individuals and their three nearest neighbors identified via Mahalanobis distance matching (1:3 ratio). All specifications include individual-level controls (indicators for children under age 3 and 6, total number of children, and marriage status) alongside age group, individual, calendar year, event-time, and zipcode (locality) fixed effects. Standard errors, clustered at the individual level, are reported in parentheses. Statistical significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

C.2 Household Earnings

Table A3: Household Earning Change after the Death of In-Laws

Dependent Variable:	Log(1+Annual Household Earning)	
	(1)	(2)
Post Father-in-law's Death	-0.022***	
	(0.006)	
Post Mother-in-law's Death		-0.018***
		(0.007)
Mean	11.62	11.63
Obs	518,766	422,047
Individuals	43,080	35,122
ID and Year FE	Yes	Yes
Zipcode FE	Yes	Yes
Controls	Yes	Yes
R^2	0.567	0.593

Notes: This table presents the estimation results regarding the effects of in-laws' deaths on total household labor market outcomes using Equation **??**. The dependent variable is the log of (1 + annual household earnings), defined as the combined labor income of both spouses. Column (1) reports the estimate for the sample experiencing a father-in-law's death, while column (2) reports the estimate for the sample experiencing a mother-in-law's death. All specifications include the full set of individual controls (indicators for children under age 3 and age 6, total number of children, marriage status, and age group fixed effects) and account for individual, calendar year, event-time, and zipcode (locality) fixed effects. Standard errors, clustered at the individual level, are reported in parentheses. Vertical lines in corresponding figures represent 95% confidence intervals. Statistical significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

C.3 Spousal Earnings

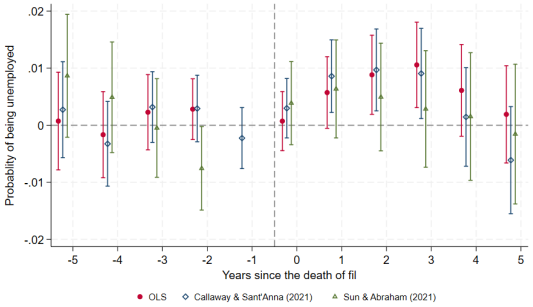
Table A4: Spousal Labor Market Outcome after the Death of In-Laws

	Log(1+Annual Income)		Being Unemployed	
	(1)	(2)	(3)	(4)
Post Father-in-law's Death	-0.072***		0.004	
	(0.025)		(0.003)	
Post Mother-in-law's Death		-0.085***		0.004
		(0.027)		(0.003)
Mean	9.97	9.96	0.11	0.11
Obs	517,383	420,888	517,582	421,036
Individuals	43,047	35,091	43,047	35,091
Ids. FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Zipcode FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
R2	0.642	0.661	0.455	0.476

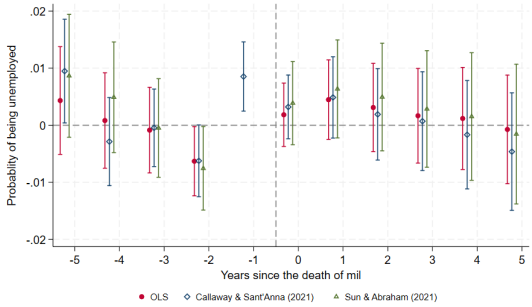
Notes: This table presents the estimation results regarding the effects of in-laws' deaths on spousal labor market outcomes using Equation **??**. The dependent variable is the log of (1+annual earnings) of the spouse. The dependent variables are the log of (1 + annual spousal earnings) in columns (1)–(2) and an indicator for the spouse being unemployed in columns (3)–(4), where columns (1) and (3) report estimates for the sample experiencing a father-in-law's death, while columns (2) and (4) report estimates for the sample experiencing a mother-in-law's death. All specifications include the full set of individual controls (indicators for children under age 3 and age 6, total number of children, marriage status, and age group fixed effects) and account for individual, calendar year, event-time, and zipcode (locality) fixed effects. Standard errors, clustered at the individual level, are reported in parentheses. Vertical lines in corresponding figures represent 95% confidence intervals. Statistical significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Figure A1: Dynamic Effects of In-law's Death on Spousal Labor Market Outcomes

(a) Father-in-law



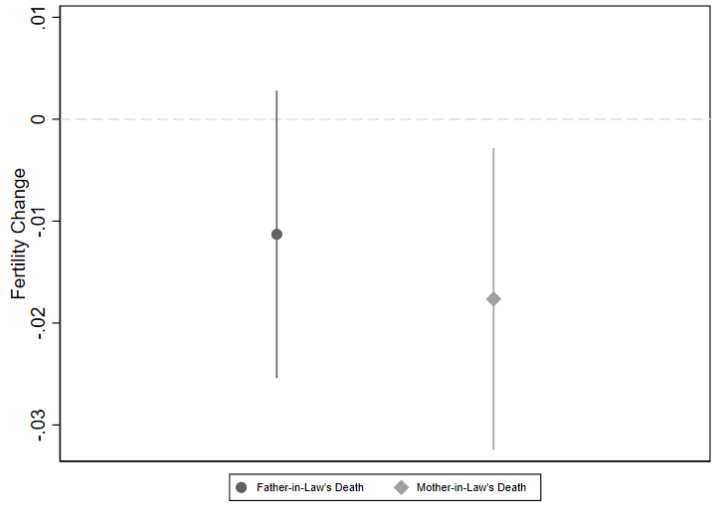
(b) Mother-in-law



Notes: This figure plots the dynamic changes in spousal labor market outcomes following the death of a father-in-law (Panels a) and a mother-in-law (Panels b). Panels (a)–(b) use the dummy of being unemployed as the dependent variable. The coefficients are estimated using the event study specification detailed in equation 3.1. The sample comprises all treated individuals and their three nearest neighbors matched via Mahalanobis distance matching (1:3 ratio). The x-axis represents time relative to the treatment event, with $t = -1$ serving as the omitted reference category, and y-axis measures the percentage point change of annual earnings following the death of an in-law. The series display estimates from three different estimators: (1) Standard Two-Way Fixed Effects (OLS); (2) Callaway and Sant'Anna (2021); and (3) Sun and Abraham (2021). All models include individual, postal code, and year fixed effects, and control for the number of children, presence of children under age 3, and age group. Standard errors are clustered at the individual level.

C.4 Fertility

Figure A2: Fertility Change



Notes: This figure reports the DID estimates of the impact of an in-law's death on fertility, using the number of children as the outcome variable. The analysis is conducted separately for the father-in-law's death (FiL) and mother-in-law's death (MiL) samples, each consisting of treated individuals and their three nearest neighbors matched via Mahalanobis distance matching. The reported coefficients measure the post-death difference in the number of children between the treated and control groups. All specifications include individual, year, and locality fixed effects, and control for age groups (categorized into 5-year brackets). Standard errors are clustered at the individual level, and vertical lines represent 95% confidence intervals.