Aging Parents, Adult Children: Dementia Care, Work, and Retirement

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Abstract

Care for a parent with dementia arrives exactly when adult children make largely irreversible decisions about work, retirement, and Social Security claiming. Using the Health and Retirement Study (HRS), I document that dementia care spells are long and escalating, and that the burden is unequally shared across gender and marital status. I develop a structural life-cycle model of singles and couples from age 55 in which parental care needs — distinguishing dementia from other care needs — arrive as stochastic shocks, and households choose labor supply, per-spouse benefit claiming, consumption, and how to meet the parent's need with time and money. Marriage provides insurance against the care shock through the intra-household allocation of care and work and through Social Security's spousal provisions. All structural parameters are estimated by simulated method of moments to match the data profiles of wealth, work, claiming, and the care and coordination margins. I use the model to quantify the hidden costs of dementia care by marital status and gender, and to evaluate policies including Social Security caregiver credits and formal-care subsidies.

JEL codes: D13, I14, J14, J22, J26, H55.

Keywords: dementia, long-term care, informal care, Social Security, claiming, marriage, household insurance.

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1 Introduction

More than six million Americans live with Alzheimer's disease or a related dementia, and as life expectancy rises, the number is expected to keep growing [Alzheimer's Association, 2025]. Most of the care they receive is informal and unpaid, and much of it is provided by their adult children [Van Houtven, Coe, and Skira, 2013, McGarry and Fahle, 2022, Mommaerts, 2025]. Those children are typically in their late fifties and early sixties [Fahle and McGarry, 2018], precisely the ages at which American workers decide how long to keep working and when to claim Social Security benefits, a decision that is largely irreversible and permanently changes retirement income. A care shock that pushes a worker out of the labor force earlier therefore does not just cost current earnings, but reducing retirement income in every remaining year of life due to low lifetime earnings and early claiming of the pension benefits.

This paper asks how caring for a parent with dementia affects adult children's labor supply and retirement decisions; how the answers differ by marital status and gender; and what they imply for the design of retirement and caregiving policy. Two ideas organize the analysis. First, dementia care is a heavier burden than other parental care. In the Health and Retirement Study (HRS) data I document below, a dementia care spell is long and escalating — an expected duration of about seven years, against under three years for other parental care needs — and more intensive, so that the cumulative time cost of a dementia spell is roughly three times that of a non-dementia spell. Remarkably, children respond to this costlier need by helping more: the probability that a child provides hands-on help is 46 percent when a parent has dementia versus 41 percent for other needs. Second, marriage provides insurance against the care shock. A couple can split the shock along two margins a single person does not have: one spouse can specialize in care while the other works more and delays claiming, and Social Security's spousal and survivor provisions partially insure the caregiver's own reduced earnings record.

The paper makes three contributions. First, using the RAND HRS longitudinal and family files, I document a set of facts about dementia caregiving over the pre-retirement life cycle. The share of adult children caring for a parent or parent-in-law with dementia rises through the fifties and peaks at 6.3 percent at age 63 — in the middle of the Social Security claiming window — before declining as parents die. Married children are about twice as likely to provide dementia care as single children (7.5 versus 3.5 percent at the peak), consistent with two sets of parents and shared resources. Conditional on providing care, however, singles bear the largest individual burden: single caregivers average 265 hours of help per year against 178 for married caregivers, and single women

316. Within couples the division is gendered — married women provide 213 hours to married men's 143 — and caregiving is associated with specialization: when one spouse is the sole dementia caregiver, the caregiver works 872 market hours per year while the non-caregiving spouse works 1,071, bracketing the 933 hours of otherwise-similar no-care couples. Event-study regressions with rich controls confirm the causal pattern the raw data suggest: dementia caregivers reduce full-time work by 9–10 percentage points in the years just before benefit eligibility (11–12 points for singles, who cannot share the shock), wives increase participation by 11–13 points when their husbands provide care, and spouses of dementia caregivers are 11 points *less* likely to have claimed by ages 62–63 — the couple's working spouse keeps her benefit growing while the caregiver's own attachment weakens.

Second, I develop and compute a structural life-cycle model in which these patterns are equilibrium responses to a parental-health shock process estimated from the same data. Households — singles and couples, entering at age 55 — face wage risk, mortality, medical spending, marriage and divorce shocks, and a parental care-need state for each spouse that distinguishes *no need*, a *non-dementia care need*, and *parental dementia*. The dementia state is absorbing until the parent dies. When a need is active, the household chooses how to meet it: give time (a fixed block of hours per provider, larger for dementia), send money, do both, or do neither, with either spouse able to serve either side's parents. Filial utility is a warm glow over care services delivered, scaled by a dementia weight λ_D identified by the fact that children do *more* of the costlier thing. Layered on a rich Social Security environment, the model lets caregiving distort labor supply on the intensive and extensive margins, crowd claiming forward or backward within the couple, and accumulate into permanently different benefit streams and wealth. A warm-glow bequest motive governs late-life saving, and all structural parameters are estimated jointly by the method of simulated moments against life-cycle and caregiving moments, including the profiles by caregiving status.

Third, I use the model to quantify the *hidden costs* of dementia care and how marriage insures them. Solving the model under the estimated dementia process versus the non-dementia care process isolates what the disease itself does to late-career behavior; comparing singles to couples within each solution prices the insurance value of the intra-household margins. Policy counterfactuals then ask which reforms reach the burdened: a Social Security caregiver credit that protects the earnings record during care spells, subsidies to paid home care, and the removal of spousal benefits, which shuts down part of the marriage insurance channel. Because claiming is modeled per spouse and separately

from retirement, the experiments speak directly to how caregiver-protection policies would interact with the actuarial structure of Social Security.

Related literature. The paper connects three strands. A reduced-form literature documents that caregiving reduces employment and hours, especially for women [Van Houtven et al., 2013, Fahle and McGarry, 2018, Maestas, Messel, and Truskinovsky, 2024, Truskinovsky and Maestas, 2022, Fevang, Kverndokk, and Røed, 2012], with Hurd, Martorell, Delavande, Mullen, and Langa [2013] showing that the largest component of dementia's social cost is unpaid family care. I add the claiming margin, the dementia/non-dementia contrast, and the within-couple see-saw, using linked respondent-spouse panels. My empirical companion paper [Bairoliya, Miller, and Yu, 2026] establishes the marriage-insurance patterns for general parental caregiving with individual fixed effects and instrumental-variable strategies and documents, in linked administrative benefit-type records, that sole married caregivers are about 10 points more likely to receive spousal benefits. This paper is distinct on four counts: it is about dementia, the care type whose incidence peaks inside the claiming window; it measures the care-need *process* rather than caregiving incidence alone; it documents how the standard life-cycle age profiles of work and claiming differ by caregiving status and by the parent's health, which reduced-form event studies do not trace out; and it builds and estimates the structural model that turns those facts into welfare and policy numbers.

A structural literature studies caregiving and labor supply in dynamic models. Skira [2015] estimates a dynamic discrete-choice model of a single daughter's care and work decisions with human-capital dynamics; Lee [2023] models wives' time allocation between market work and spousal care after husbands' disability and its implications for valuing disability insurance. Relative to these, I model *couples'* joint labor supply, care provision to *either side's* parents, and — new to this literature — the Social Security claiming decision of each spouse, which is where much of the permanent cost of caregiving is locked in. The family-macro literature on long-term care [Barczyk and Kredler, 2018, Mommaerts, 2025, Ko, 2022, Braun, Kopecky, and Koreshkova, 2017] models the parent-child care decision, typically from the parent's side or in unitary dynasties, with retirement behavior in the background. I take the adult child's late-career problem as the object of interest and put the claiming institution at the center. Finally, the model builds directly on the life-cycle framework of couples and singles of Borella, De Nardi, and Yang [2023], extended with parental-care shocks, unbundled per-spouse claiming through 70, and a bequest motive in the spirit of De Nardi, French, and Jones [2010] and Lockwood [2018].

The rest of the paper proceeds as follows. Section 2 describes the data and establishes the facts. Section 3 presents the model and Section 4 the estimation strategy and first-stage inputs. Section 5 reports model fit, the dementia-burden and marriage-insurance quantifications, and policy counterfactuals. Section 6 concludes.

2 Data and Empirical Facts

2.1 Data, sample, and definitions

I use the RAND HRS longitudinal file merged with the RAND family data files, 1992–2018 [RAND Center for the Study of Aging, 2023]. The HRS interviews respondents and their spouses every two years and asks about the respondent's and the spouse's parents: whether each parent is alive, whether the parents need help with basic personal needs, whether the respondent or the spouse provided personal care or help with errands, household chores, and transportation to a parent or parent-in-law, and the hours of that help since the previous wave. Beginning in 1998 the family files also record whether a doctor has ever diagnosed each parent with a memory-related disease (from 2010 onward, Alzheimer's disease or dementia).[1]

The analysis sample comprises the 1938–1949 birth cohorts. These cohorts face a normal retirement age of 65–66, can claim retirement benefits from 62, and their children-of-aging-parents years fall inside the window in which parental dementia is measured. Claiming analyses use ages 62–70 and exclude individuals whose benefits started before 62 (disability recipients).

Definitions. A *caregiver* is a respondent who reports providing personal-care or errand help to a parent or parent-in-law in the current wave. A *dementia caregiver* is a caregiver whose helped side's parent has a dementia diagnosis; a *general caregiver* is any other caregiver. For couples I observe both spouses' caregiving in the same household record. A *sole caregiver* is the only spouse providing dementia care in the couple, and I compare them with their own non-caregiving spouses.

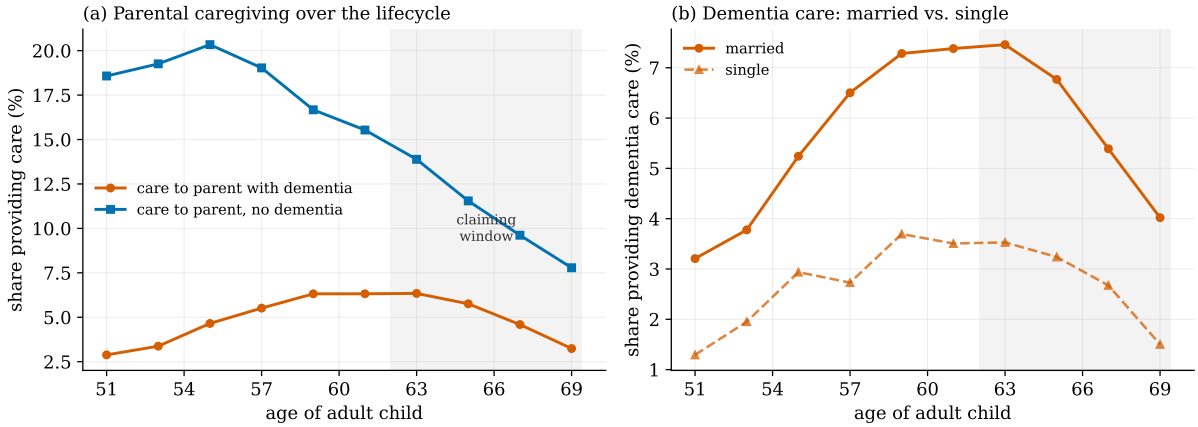


Figure 1: Parental caregiving over the life cycle. Panel (a): share of adult children providing care to a parent or parent-in-law, by parental dementia status. Panel (b): dementia-care share, married versus single. Two-year age bins, weighted. The shaded band marks the Social Security claiming window (62–70). Source: HRS.

2.2 The parental care-need process

Figure 1 shows the first fact. The share of adult children providing care to a parent with dementia rises through the 50s, peaks at early 60s— squarely inside the claiming window — and declines thereafter as parents die. Non-dementia parental care instead declines monotonically from age 55 on: ordinary care needs arrive earlier in the child's life and resolve faster. Panel (b) shows that married children are about twice as likely to provide dementia care as single children over ages. Compared to the singles, married couples have two sets of parents at risk, more resources, and two potential providers.

Table 1: Care technology and caregiving by parental care state

	Need (G)	Dementia (D)
Entry probability at age 55	0.076	0.063
Fresh dementia diagnosis at age 55	0.013	0.023
Helper hours per year	211	254
Expected spell (years)	2.8	7.2
Expected cumulative helper hours	581	1840
Probability child provides help	0.406	0.464

Notes: Entry probabilities refer to the initial distribution at age 55. Helper hours are annual averages conditional on caregiving. Expected cumulative helper hours equal annual helper hours multiplied by the expected spell length.

Table 1 characterizes the care-need process. I classify each person-wave by the state

[1]Because the question is asked as "ever diagnosed," the parental dementia indicator is absorbing while the parent is alive, which matches the clinical course of the disease.

Table 2: How children respond to a parental need: time and money, by parental health

		response composition					hours	transfer	
state	group	time only	money only	both	neither	any help	| give	$ | give	N
G	all	0.314	0.089	0.104	0.493	0.507	207	2,763	2,600
	married	0.320	0.098	0.105	0.477	0.523	189	2,507	1,938
	single	0.296	0.061	0.102	0.540	0.460	261	3,692	662
D	all	0.366	0.067	0.105	0.462	0.538	225	3,971	3,627
	married	0.375	0.070	0.098	0.458	0.542	213	4,085	2,789
	single	0.336	0.058	0.128	0.477	0.523	267	3,646	838

Notes: Person-waves ages 55–70 with an own-side active parental state (G: a living parent needs help, no dementia; D: a living parent with a dementia diagnosis), weighted. Time = personal-care or errand help to own parents; money = financial help to own parents (HRS $500+ threshold). Hours are annual helper means; transfer amounts are conditional on giving (1998 dollars not applied; nominal survey amounts). N = person-waves. Source: HRS.

of their own parents: no living parent with a care need (0); a living parent needing help without a dementia diagnosis (G); a living parent with a dementia diagnosis (D). Estimated from wave-to-wave transitions and converted to annual rates, the process has three features that make dementia a distinctive economic shock. First, onset is common: at age 55 the annual probability of a fresh dementia diagnosis in the family is 1.3 percent, on top of a 2.3 percent chance of a new non-dementia need. Second, dementia does not resolve. The expected remaining spell at 55 is 7.2 years for dementia against 2.8 years for other needs. Third, dementia care is more intensive: among children providing help to an own parent with an active need, helpers average 254 hours per year when the parent has dementia versus 211 otherwise. Combining intensity and duration, the cumulative expected time cost of a dementia spell is roughly 1,800 hours, about *three times* the 580 hours of a non-dementia spell. The final row of Table 1 shows that children are more likely to help a parent with dementia (46.4 percent) than needing help (40.6 percent), even though each unit of help costs more time and the spell lasts years longer.

Table 2 splits the response to an active own-parent need into time help, financial help, both, or neither. Dementia shifts the response toward the time margin: the share providing hands-on time (alone or with money) rises from 41.8 percent under G to 47.1 under D, while the money margin does not rise (19.3 versus 17.2 percent) — even though the children of dementia parents who do send money send more ($3,971 versus $2,763 conditional on giving). The marital split repeats the insurance theme: single children facing a dementia parent are the most likely of any group to do both time and money (12.8 percent), absorbing the shock on every margin at once.

2.3 Who carries the burden

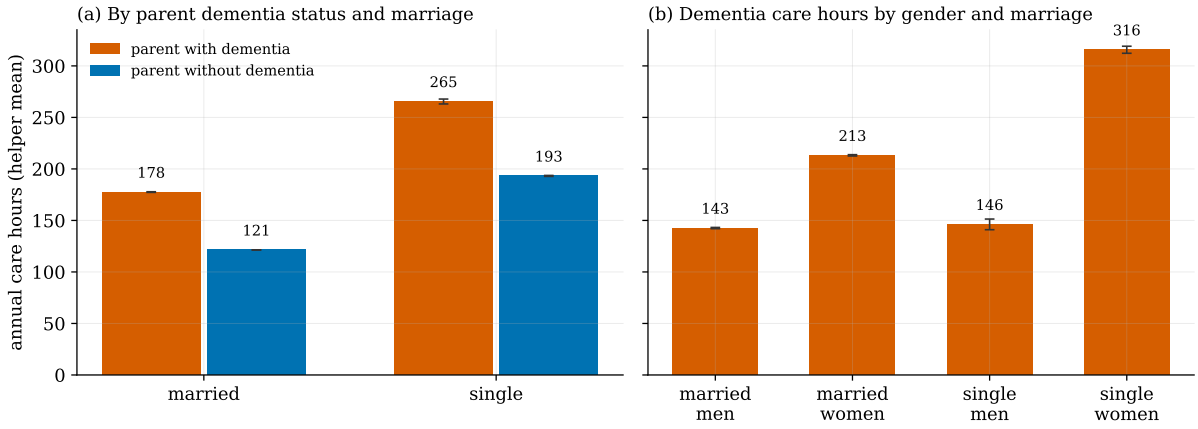


Figure 2: Annual care hours among caregivers with positive hours (weighted helper means; whiskers are 95% confidence intervals). Panel (a): by parental dementia status and marital status. Panel (b): dementia caregivers by gender and marital status. Source: HRS.

Figure 2 shows how the burden is distributed. Dementia care demands more hours than other parental care within every demographic group: 178 versus 121 annual hours for married caregivers, 265 versus 193 for singles. Two facts stand out. First, singles provide roughly 50 percent more hours than married caregivers facing the same type of need. As Figure 1(b) shows, married individuals are more likely to provide some care, but each married caregiver provides less, because the burden can be shared with a spouse, while singles have no one to share with. Second, among dementia caregivers, women care more hours, even within couples.

Table 3 asks directly who the caregivers are, testing dementia caregivers against other caregivers. Dementia caregivers are older, more often married, and more educated than other caregivers. The burden is visible in their work: dementia caregivers are 5.0 points less likely to work full-time and earn less than other caregivers, despite their higher education.

2.4 Care, work, and claiming within households

Figure 3 shows that, in couples where one spouse is the sole dementia caregiver, the caregiver works 872 annual market hours, their spouse 1,071, and otherwise-similar no-care couples 933. The same bracket appears in full-time rates (30 versus 39 percent, against 33) and participation (45 versus 53, against 48). The couple reallocates market work toward the non-caregiving spouse.

Table 3: Who are the caregivers? (HRS, ages 55–70, weighted)

	Dementia CG	Other CG	Not caregiving	dem − other
Female	51.5	51.8	53.1	-0.4
Age	61.7	60.8	62.5	+0.8***
Married	84.7	79.9	69.9	+4.7***
College	62.5	56.0	50.0	+6.5***
Bad health	18.3	17.6	25.0	+0.7
HH wealth ($1,000)	666.0	606.6	495.9	+59.4
Own earnings ($1,000)	18.4	20.9	16.9	-2.5*
Working (RAND)	54.6	58.6	50.7	-4.0**
Full-time (RAND)	36.3	41.3	34.6	-5.0***
Part-time (RAND)	18.2	17.3	16.1	+1.0
Parent alive	75.1	58.5	23.0	+16.6***
Lives within 10mi of parent	53.4	50.2	26.7	+3.1
Sibling also helps	33.9	23.5	17.8	+10.4***
Person-waves	2,573	7,472	43,765	

Notes: Weighted means; person-clustered standard errors; $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$ for the dementia-vs-other-caregiver difference. Work statuses use the RAND labor-force classification (full-time = works FT; part-time = works PT or partly retired). Wealth and earnings in thousands. Source: `empirics/08_caregivers.py`.

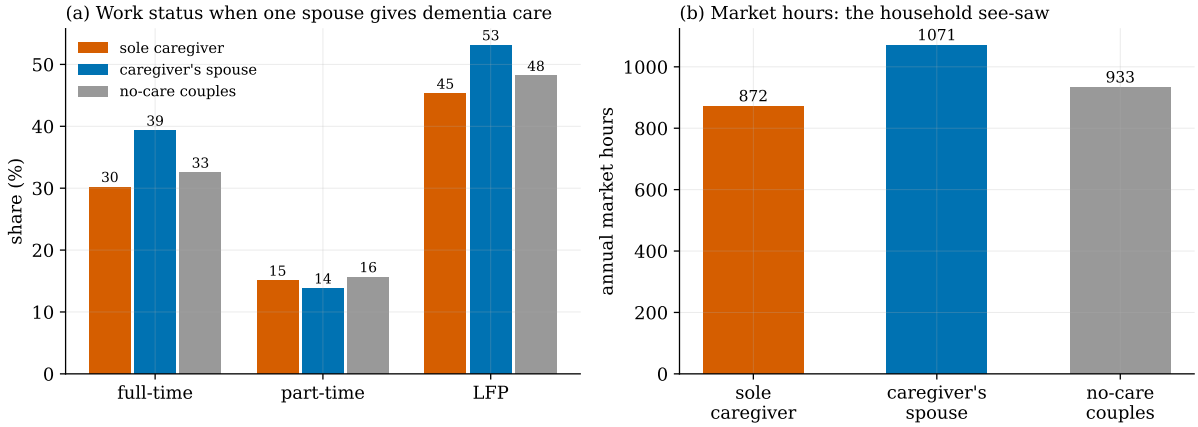


Figure 3: Within-couple specialization when one spouse is the sole dementia caregiver (married, ages 55–70, weighted). "No-care couples" are married couples in which neither spouse provides parental care. Source: HRS.

Table 4 confirms these patterns in linear probability models with age dummies, gender, education, health, and survey-wave fixed effects, weighted and clustered by person. Three results carry the paper's message. First, dementia caregiving crowds out full-time work before benefits are available: married dementia caregivers are 8.9 points less likely to work full-time at ages 55–58 and 9.8 points at 59–61, with the strongest effects among women; single dementia caregivers, who cannot share the shock, lose 11–12 points of

Table 4: LPM estimates: dementia caregiving, work, and claiming

Panel A: labor supply (pp), ages in bands					
	55–58	59–61	62–64	65–67	68–70
Married, full-time work					
dementia caregiver	-8.9** (4.3)	-9.8* (5.1)	-3.9 (4.7)	-0.5 (5.2)	-1.5 (3.6)
spouse is dementia CG	+4.3 (4.3)	+6.0 (5.0)	+2.7 (4.7)	+2.4 (5.2)	-1.1 (3.6)
Married women, LFP					
dementia caregiver	-9.6* (5.8)	-1.7 (6.9)	-6.4 (7.0)	-5.8 (7.4)	-6.4 (10.9)
husband is general CG	+0.4 (3.3)	-5.2 (4.1)	+10.7** (5.1)	+13.1** (5.9)	+8.1 (7.8)
Single, full-time work					
dementia caregiver	-11.9* (6.9)	-10.9* (5.9)	+2.8 (6.2)	+2.9 (5.9)	-3.1 (4.1)
Panel B: claimed Social Security (pp), ages 62–70					
	62–63	64–65	66–67	68–70	
Married (household-level caregiver definitions)					
dementia caregiver	+8.6 (6.1)	-3.3 (6.4)	+1.9 (5.0)	+4.0 (4.7)	
general caregiver	+3.6 (4.4)	+11.1** (4.5)	+4.1 (4.5)	-2.2 (3.8)	
spouse is dementia CG	-11.4* (5.9)	-0.7 (6.2)	-3.5 (5.5)	-3.5 (5.0)	
spouse is general CG	-3.0 (4.5)	-7.5 (4.6)	-2.6 (4.6)	+0.7 (3.8)	

Notes: Each panel-block is one weighted LPM with age dummies, female, college, bad health, and wave fixed effects; standard errors (in parentheses) clustered by person; $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$. Claiming sample excludes pre-62 benefit starters. Panel B uses the household-level caregiver definition (any care × any parent with dementia). Source: HRS.

full-time work at the same ages and 12 points of participation at 59–61. Second, the caregiver's spouse works more: wives' participation is 11–13 points higher at ages 62–67 when their husbands provide care. Third, claiming reallocates within the couple: spouses of dementia caregivers are 11 points less likely to have claimed by 62–63, while general caregivers themselves claim 11 points more by 64–65. The caregiver's own dementia-claiming coefficient is positive (about +9 points at 62–63) but imprecisely estimated in these smaller cells. The administrative-record evidence in Bairoliya et al. [2026] finds the same sign significantly for general parental care, together with a 10-point higher probability that sole married caregivers receive spousal benefits.

Taken together, dementia care is a large, long, gendered shock landing at the claiming ages. Married households absorb it by specializing, and single caregivers absorb it alone, cutting work exactly when work is most valuable for their future benefits.

3 The Model

The model is a life-cycle economy of single and married households from age 55 to the end of life, built on Borella et al. [2023] and extended along three dimensions: Social Security claiming is a separate, per-spouse choice at ages 62–70; households hold a warm-glow bequest motive; and each spouse carries a stochastic parental care-need state — distinguishing dementia from other needs — that triggers a choice of how to help.

It does not require human-capital accumulation through wages, own-health shocks before 70, or children's co-residence decisions. Relative to Skira [2015] (single women, care and work), the additions are the couple's joint problem and the claiming institution; relative to Borella et al. [2023], the model starts at 55 with the care block and per-spouse claiming added.

3.1 Environment, states, and choices

Time is annual; a period is an age $t = 55, \ldots$. Households are single men, single women, or married couples. The model has three stages:

- **Working stage, 55–61.** Everyone is alive; singles may meet a partner and couples may divorce. Households make decisions on consumption/savings and caregiving decisions, while each spouse choose own labor supply.
- **Claiming window, 62–69.** Mortality risk begins, so couples face widowhood. Additional decisions on Social Security claiming are chosen, separately, by each spouse.
- **Retirement, 70+.** Everyone has claimed and stopped working; households face survival risk and out-of-pocket medical spending, run down wealth, and leave bequests. The care state is integrated out at 70.

Spousal ages. Spouses are assumed to be the same age in the model. A couple carries one age index t, and each spouse's gender-specific wage profile, survival probability, and claiming eligibility are evaluated at that common age.

State variables. At the start of a period a *single* of gender g is described by

$$x^S \;=\; \big(t,\; g,\; a,\; \bar{y},\; \varepsilon,\; s,\; q\big),$$

where a is net worth, $\bar{y}$ average lifetime earnings (the AIME benefit base), ε the persistent wage shock, $s \in \{0, G, D\}$ the parental care-need state, and q the claiming status. A

couple's state is

$$x^C \;=\; \big(t,\; a,\; \bar{y}_m, \bar{y}_f,\; \varepsilon_m, \varepsilon_f,\; s_m, s_f,\; q_m, q_f\big),$$

with per-spouse care states (each spouse's own parents) and per-spouse claiming statuses. There is one household budget.

Choices. Each period a single chooses consumption c; market hours n from a three-point grid $\{0,\ 1000,\ 2000\}$; the care response to an active need $s \neq 0$; and, in the window if unclaimed, whether to file this year. The care response for a single is one of four bundles: *nothing*, *time only* (give $h(s)$ hours), *money only* (send the transfer T), or *both*. A couple chooses c, both spouses' hours, each unclaimed spouse's filing decision, and, *per active need* j, one of eight options: a time-provider set in $\{\text{none}, \text{husband}, \text{wife}, \text{both}\}$ crossed with the transfer $\tau_j^{\$} \in \{0, 1\}$. Either spouse may serve either side's parents (a wife may provide the time for her mother-in-law's need), and when both spouses' parents need help at once the two assignments are chosen jointly.

3.2 Preferences

Individuals value a CRRA composite of consumption and leisure,

$$u(c, \ell) \;=\; \frac{\big(c^{\omega}\, \ell^{1-\omega}\big)^{1-\gamma}}{1-\gamma}, \tag{1}$$

where leisure is the time endowment L net of market hours, of a group-specific fixed time cost of participation, of care time, and of a work-and-care friction:

$$\ell \;=\; L - n - \Phi_g(t)\,\mathbf{1}\{n > 0\} - h(s)\cdot\#\{\text{needs served with time}\} - \kappa\,\mathbf{1}\{n > 0 \text{ and provides time}\}. \tag{2}$$

The participation cost $\Phi_g(t)$ is quadratic in age separately for single men, single women, married men, and married women, and married women's leisure carries the shifters of Borella et al. [2023]. The cost is a *single* fixed time cost of working, paid whenever $n > 0$ and identical across part-time and full-time: part-time versus full-time is then an intensive-margin choice along the hours grid given wages and preferences. No separate part-time cost is imposed. Couples maximize the sum of spouses' utilities. A household dying with assets a earns the warm glow

$$v_{beq}(a) \;=\; \theta_b\, \frac{(a + \underline{k})^{\omega(1-\gamma)}}{1-\gamma}, \qquad \underline{k} = \$20{,}000, \tag{3}$$

and the future is discounted at β.

Filial utility from meeting an active need j is

$$U_j^{care} \;=\; \eta_{g(j)}\;\lambda(s_j)\;\ln\!\Big(1+\frac{S_j}{h(s_j)}\Big), \qquad S_j = h(s_j)\,|P_j| + \varphi\,\frac{T}{p}\,\tau_j^{\$}, \tag{4}$$

with $\lambda(G) = 1$ and $\lambda(D) = \lambda_D$: S_j aggregates the time block $h(s_j)$ per provider and the care hours money buys (T = \$1,880 at price p = \$22.6/hour, discounted by substitutability φ), and the weight $\eta_{g(j)}$ attaches to the *own child's* gender. Declining to help ($S_j = 0$) is always allowed and costs only the forgone glow. The log makes the second provider's marginal glow small, so "both provide" is selective; who provides is decided by comparative advantage. Dementia enters preferences only through λ_D, and technology only through $h_D > h_G$ and the estimated state process.

3.3 Wages, taxes, and Social Security

An individual of gender g earns hourly wage $w_{g,t}(\bar{y}, \varepsilon) = e^{\phi_{g,t}(\bar{y})}\varepsilon$: a gender-specific age profile shifted by the earnings base $\bar{y}$ (ten grid points), times a persistent shock. Working updates $\bar{y}$ by the highest-35 averaging rule. This is where caregiving becomes permanent: hours lost to care are earnings-record losses, not just current-income losses.

Households pay payroll taxes to the cap and progressive income taxes that depend on marital status; a means-tested floor guarantees minimal consumption. The Social Security rules are those facing the 1938–1949 cohorts: the PIA is a concave bend-point function of $\bar{y}$; claiming at 62–69 before (after) the normal retirement age carries the statutory reduction of about 6–7 percent per year (delayed credit of about 8 percent per year to 70); a claimed spouse receives the spousal top-up — up to 50 percent of the partner's PIA — once both have filed; and a widow(er) steps up to the larger record (survivor benefits). Claiming is irreversible. Because claiming and work are separate choices, all four work-claim combinations exist in the window, for each spouse.

3.4 The care-need process

The per-spouse care state $s \in \{0, G, D\}$ follows the age-varying Markov chain. Spouses' states are independent conditional on age, and the state is exogenous to the child's choices.

3.5 Recursive formulation

I state the couple's window problem; the working stage replaces the claiming choice with marital-transition shocks, and singles are the one-person analogue. Let $q' = (q'_m, q'_f)$ denote post-choice claiming statuses (filing is irreversible: $q'_j \geq q_j$), and let $B(\bar{y}_m, \bar{y}_f, q', t)$ be benefit income given the filing history, including the actuarial adjustment locked at each filing age and the spousal top-up once both have filed. The couple solves

$$\begin{aligned} V_t^C(x^C) \;=\; \max_{\substack{c,\, n_m,\, n_f,\, q' \geq q,\\ \{P_j, \tau_j^{\$}\}_{j:\, s_j \neq 0}}} \; & u(c, \ell_m) + u(c, \ell_f) + \sum_{j:\, s_j \neq 0} U_j^{care} \\ & + \beta \Big[\pi_{m,t}\pi_{f,t}\, \mathbb{E}\, V_{t+1}^C(x^{C\prime}) \;+\; \pi_{m,t}(1{-}\pi_{f,t})\, \mathbb{E}\left[V_{t+1}^S(x_m^{S\prime}) + v_{beq}\right] \\ & \quad + \; (1{-}\pi_{m,t})\pi_{f,t}\, \mathbb{E}\left[V_{t+1}^S(x_f^{S\prime}) + v_{beq}\right] \;+\; (1{-}\pi_{m,t})(1{-}\pi_{f,t})\, v_{beq}(a') \Big], \end{aligned} \tag{5}$$

subject to the budget constraint

$$a' \;=\; (1+r)\, a + w_m n_m + w_f n_f + B(\cdot) - \mathcal{T}(\cdot) - T \cdot \textstyle\sum_j \tau_j^{\$} - c \;\;\geq\;\; 0, \tag{6}$$

leisure as in (2), and $\bar{y}_j$ updating under work. The expectation is over wage shocks and the two care-state transitions; $\pi_{j,t}$ are survival probabilities; a widowed survivor carries their own $\bar{y}$, the survivor benefit right, their own care state, and the couple's assets into the single's problem. From 70 on, V depends only on $(t, a, \bar{y}$'s, q-history) with medical-expense risk and the floor; the terminal condition is v_{beq}.[2]

The insurance content of marriage. Equation (5) gives a couple four margins against the same shock that a single meets with two. The couple can (i) assign the time cost $h(s_j)$ to one spouse or split it; (ii) offset lost earnings with the other spouse's hours; (iii) reallocate claiming; and (iv) fall back on the spousal top-up and survivor benefit when the caregiver's own record stalls. A single facing $s = D$ chooses among working less, helping less, or paying T — every margin is self-financed.

[2]Computationally the model is solved by backward induction on discrete grids (32 asset points; per spouse: 10 $\bar{y}$, 5 shock, 3 care states; claiming statuses including who-filed-first; 6 hours points), with the couple's hours-care-claiming choice evaluated jointly and dominated care assignments pruned. One full solve of the couple-and-singles system takes about three minutes on 64 cores.

4 Estimation

Estimation is two-stage in the sense of French and Jones [2011]. The first stage estimates the input that is directly identified outside the model, such as wages, institutions, initial conditions, and the parental care-need process. The second stage estimates the remaining structural parameters jointly by the method of simulated moments.

4.1 First stage: model inputs

- **Care-need process.** The three-state process, the time technology $h_G = 211$, $h_D = 254$ hours per year, the transfer size $T =$ \$1,880, and the home-care price $p =$ \$22.6/hour, all estimated from the HRS sample of Section 2.
- **Wages.** Gender-specific age profiles and their $\bar{y}$ gradients from HRS workers, women's levels calibrated to observed working women's wages; persistent shocks with $\rho = 0.962$ (men) and 0.972 (women), Rouwenhorst discretization.
- **Demographics and health costs.** Marriage and divorce probabilities and new-spouse distributions (PSID); survival from 62 and out-of-pocket medical spending from 70 (HRS), with 70+ health heterogeneity integrated out.
- **Institutions.** Social Security bend points, actuarial adjustments, delayed credits, spousal and survivor provisions, and the payroll cap; marital income taxation; the consumption floor. All rules as faced by the 1938–1949 cohorts; dollars of 1998.
- **Initial conditions.** The age-55 joint distribution of wealth, $\bar{y}$, and wage shocks by household type, drawn from the HRS cohort sample.
- **Fixed preference constants.** $\gamma = 2.5$, $\underline{k} =$ \$20,000, $r = 4$ percent, and $\beta = 0.99$.[3]

4.2 Second stage: all parameters, one joint MSM

The parameter vector is

$$\theta = \big(\underbrace{\theta_b,\ \omega}_{\text{wealth/bequest}} , \underbrace{\{\Phi_g\}_{g=1}^{4}}_{\text{12 participation-cost coefficients}} , \underbrace{\ell_1, \ell_2, \ell_3}_{\text{leisure shifters}} , \underbrace{\eta_s,\ \eta_m,\ \eta_f,\ \lambda_D,\ \varphi,\ \kappa}_{\text{care block}} \big),$$

[3] β is held at a conventional value and the bequest strength θ_b is estimated: companion work on this architecture shows that without a bequest motive a single β cannot fit early claiming and rising late-life wealth simultaneously, while freeing θ_b at $\beta = 0.99$ resolves the tension and roughly halves the MSM objective. Letting β move as a twentieth parameter is a planned robustness run on the same code path.

Table 5: Moments in the MSM estimation

layer	moments	cells	cell definition
1. Baseline life-cycle (107 cells)			
wealth	mean net worth	15	{single men, single women, couples} × five 3-yr bands
participation	share working (RAND)	20	4 gender-marital groups × 5 bands
full/part-time	FT and PT shares	40	4 groups × 5 bands (fine-grid runs)
claiming	claimed share	32	4 groups × single years 62–69
2. Care responses (14 cells)			
help rates	Pr(gives time | state)	6	singles (pooled) $\times\{G, D\}$; husband-gives, wife-gives $\times\{G, D\}$. $\eta_s, \eta_m, \eta_f, \lambda_D$
composition	{time-only, time+money}	8	$\times\{G, D\}\times$ marital. φ
3. Couple coordination (10 cells), ages 55–61			
who cares	sole share among helpers	2	$\times\{G, D\}$
who works	LFP of sole; spouse-of-sole; both-help; no-helper	8	$\times\{G, D\}$. κ
Untargeted validation (reported, not fit): money-only response; 62–69 coordination; singles by gender × band; wealth gradient; spousal timing gaps.			

Notes: weighted HRS means, person-clustered standard errors, $1/SE^2$ weights. Care cells pool caregiver age (rates are age-flat conditional on the parent's state); coordination is targeted before benefit eligibility only. FT/PT cells are untargeted in coarse-grid searches (3-point hours grid) and targeted in fine-grid runs.

Table 6: Estimated parameters, current point of the ongoing search (care block from the stamped refinement point; preferences at the joint estimates and being re-estimated in the running 23-parameter search). Care utility differs by gender and marital status.

parameter	estimate
Wealth and bequests	
bequest strength θ_b	95.74
consumption weight ω	0.333
Leisure shifters	
$\ell_1,\ \ell_2,\ \ell_3$	$-5.44, -4.68, -1.67$
Care block (current best point; search continuing)	
filial weight, singles η_s ($\times 10^3$)	0.403
filial weight, husband side η_m ($\times 10^3$)	0.174
filial weight, wife side η_f ($\times 10^3$)	2.205
dementia premium λ_D	1.347
transfer productivity φ	0.892
care-while-working cost κ (hours/yr)	32.8
Pinned: $\beta = 0.99$, $\gamma = 2.5$, $\underline{k} =$ \$20,000.	

5 Preliminary Quantitative Results

5.1 The estimated dementia model

Table 6 reports the current estimates. Figures 4–6 show the complete fit: every targeted cell, model against data with 95 percent confidence bands.

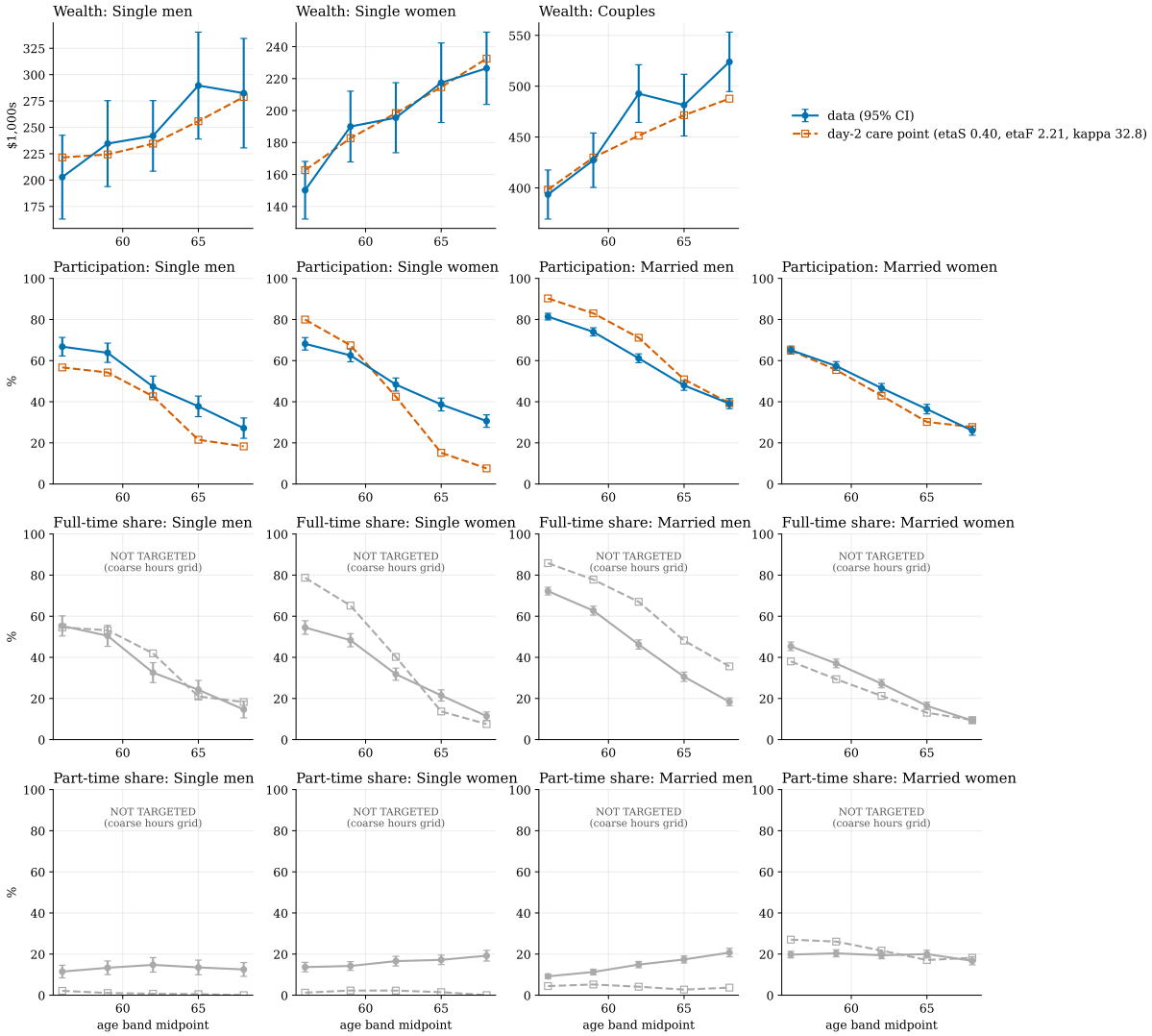


Figure 4: Complete fit, baseline cells (60 of 147): banded wealth, participation, full-time and part-time shares — data (dots, 95 percent CI) versus model (open squares) at the frozen estimates.

Source: `empirics/13_fit147.py`.

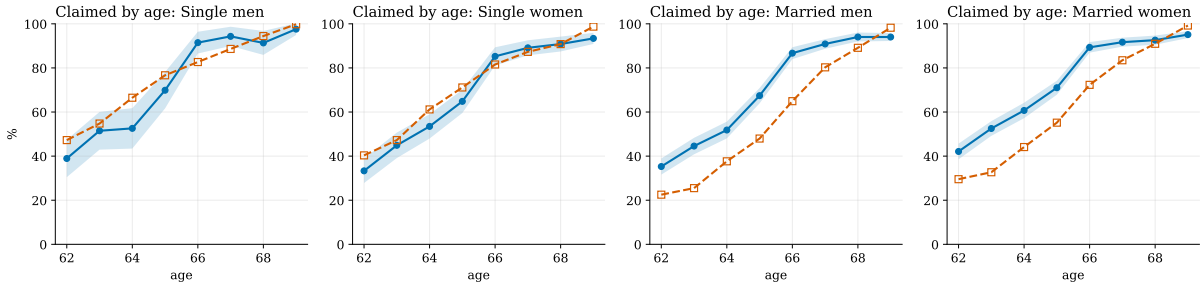


Figure 5: Complete fit, claiming cells (32 of 131): cumulative claimed shares by single year of age.

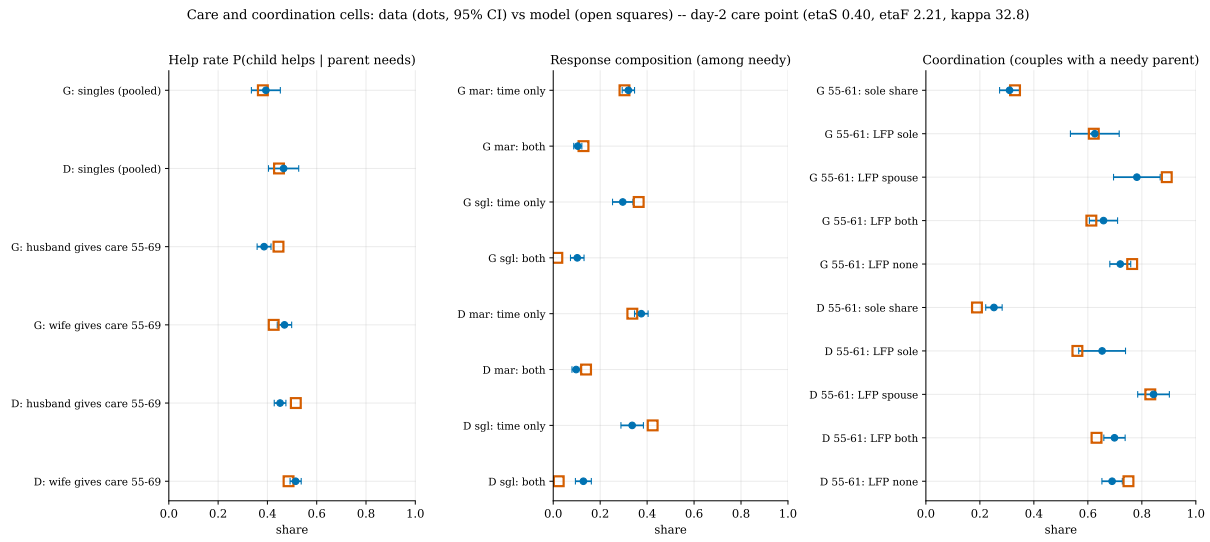


Figure 6: Complete fit, care and coordination cells (24 of 131): help rates, response composition, and within-couple coordination by parental state.

Table 7: The married benefit-switching structure at the baseline. Shares of each gender's filers by benefit type at and after filing, and the share of new widow(er)s who step up to the deceased spouse's record.

	husbands	wives
At filing (percent of filers)		
own record only	96.9	59.2
own + spousal top-up at filing	1.3	25.2
switches into the top-up later	1.8	15.6
At widowhood (percent of new widow(er)s)		
steps up to the deceased spouse's record	15.1	79.1

5.2 Policy counterfactuals (Preliminary)

Table 8: Policy counterfactuals at the current estimates

	baseline	no spousal	care subsidy	caregiver credit
Care provision (percent)				
singles help, needs help (G)	38.2	38.2	38.1	62.5
singles help, dementia (D)	44.7	44.8	44.7	61.7
husband gives time, D	51.5	51.4	49.3	68.8
wife gives time, D	48.6	48.1	47.4	58.1
one-spouse (sole) care share, D	18.9	19.9	21.5	25.4
informal share of parent care	50.8	49.8	54.9	45.6
Participation, before eligibility (55–61, percent)				
LFP 55–61, single men	55.5	55.4	55.5	54.2
LFP 55–61, single women	73.7	73.7	73.7	72.8
LFP 55–61, married men	86.6	87.0	86.6	86.2
LFP 55–61, married women	60.2	67.4	60.3	59.8
Participation, claiming window (62–69, percent)				
LFP 62–69, single men	19.9	19.9	19.9	20.6
LFP 62–69, single women	11.4	11.3	11.4	11.6
LFP 62–69, married men	45.1	47.2	45.1	45.6
LFP 62–69, married women	28.9	28.6	29.0	29.4
Participation: 55–61 with a dementia parent (%)				
LFP 55–61 | dementia parent, single men	54.5	54.4	54.5	46.0
LFP 55–61 | dementia parent, single women	70.4	70.4	70.4	64.5
LFP 55–61 | dementia parent, married men	84.8	85.3	84.8	81.4
LFP 55–61 | dementia parent, married women	52.8	60.1	52.8	51.9
Mean claiming age (years)				
mean claiming age, single men	63.89	63.89	63.89	63.96
mean claiming age, single women	64.22	64.20	64.22	64.28
mean claiming age, married men	65.34	65.63	65.34	65.39
mean claiming age, married women	64.93	64.38	64.92	64.97
Mean SS benefit income, 62–69 (dollars/year)				
SS benefit income 62–69, single men	10,719	10,714	10,719	10,757
SS benefit income 62–69, single women	8,383	8,435	8,383	8,417
SS benefit income 62–69, married men	12,131	12,003	12,131	12,170
SS benefit income 62–69, married women	7,773	6,366	7,772	7,787

Before the experiments, Table 7 reports the married benefit-switching of the baseline. The asymmetry is stark. Husbands file on their own record almost exclusively (96.9 percent own-only); 2/5 wives receive the spousal top-up — 25.2 percent already topped up when they file, another 15.6 percent switching into it later, when the husband files. At widowhood the switching goes the same direction: 79.1 percent of new widows step up to the husband's record, against 15.1 percent of widowers stepping up to the wife's. Married women are the program's switchers; married men are its record-holders.

Table 8 reports the experiments, each a full solve of the model at the current estimates with only the policy changed (each run carries an internal parameter stamp).

1. **A Social Security caregiver credit.** Years with an active dementia need in which the individual provides time count toward the earnings record at the economy-wide average wage.
2. **Formal-care subsidies.** A proportional subsidy to the price p of paid home care (equivalently, raising $\varphi T/p$) substitutes money for time on the care margin, protecting labor supply at the cost of the subsidy bill.
3. **Removing spousal benefits.** Shutting the spousal top-up (retaining survivor benefits) removes the public component of the marriage insurance channel. The experiment measures how much of couples' resilience in the baseline is self-insurance versus program design.

The policy conclusion the framework points toward is not that family care should be discouraged but that the social insurance system currently insures caregivers only through marriage. A caregiver credit that protects the earnings record during dementia spells, or subsidies that make paid care a real substitute at the care margin, would extend to single caregivers the insurance married ones already receive through the spousal top-up, at a fiscal cost the model can measure against solvency-driven proposals to trim those same spousal provisions.

6 Conclusion

Dementia converts a parent's aging into a long, escalating claim on an adult child's time — an expected seven years, three times the cumulative hours of ordinary parental care — and it arrives, more than any other type of parental care, exactly when work and Social Security claiming decisions set retirement income for life. This paper documents

who pays: caregivers are mostly women; married caregivers share the burden through a household division of labor in which the caregiver's work and claiming give way while the spouse's expand, backstopped by Social Security's spousal provisions; single caregivers — one in three of them — absorb the same shock alone, cutting full-time work by eleven to twelve percentage points in the years that would have built their benefit base. A life-cycle model of couples and singles with per-spouse claiming, an estimated dementia process, and an explicit family care choice rationalizes these patterns and prices what the facts cannot: the hidden, permanent cost of dementia care and the insurance value of marriage against it.

The policy conclusion the framework points toward is not that family care should be discouraged but that the social insurance system currently insures caregivers only through marriage. A caregiver credit that protects the earnings record during dementia spells, or subsidies that make paid care a real substitute at the care margin, would extend to single caregivers the insurance married ones already receive through the spousal top-up, at a fiscal cost the model can measure against solvency-driven proposals to trim those same spousal provisions.

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A Additional empirical results

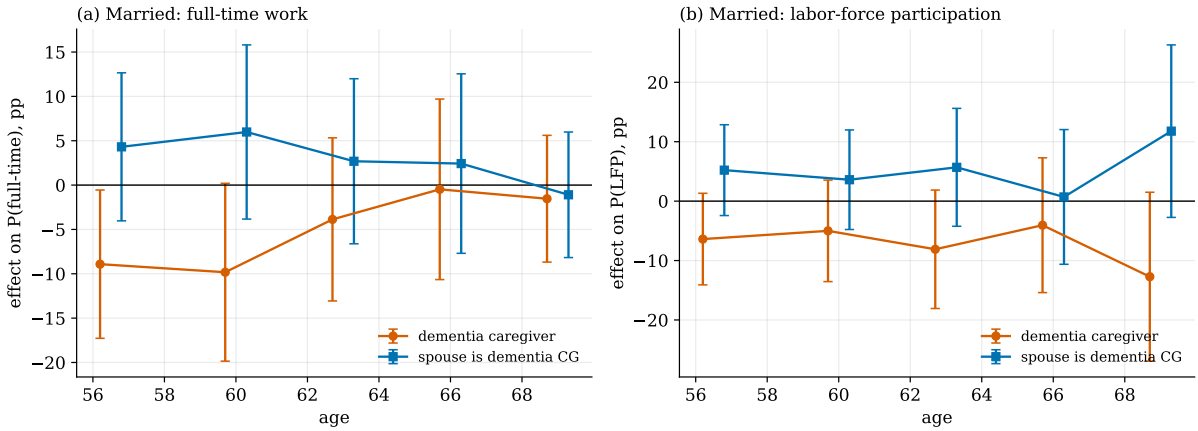


Figure 7: Event-study LPM coefficients (percentage points, 95% confidence intervals): effects of own dementia caregiving and of the spouse's dementia caregiving on married individuals' full-time work (a) and participation (b). Controls: age dummies, female, college, bad health, wave fixed effects; weighted; person-clustered standard errors. Source: HRS.

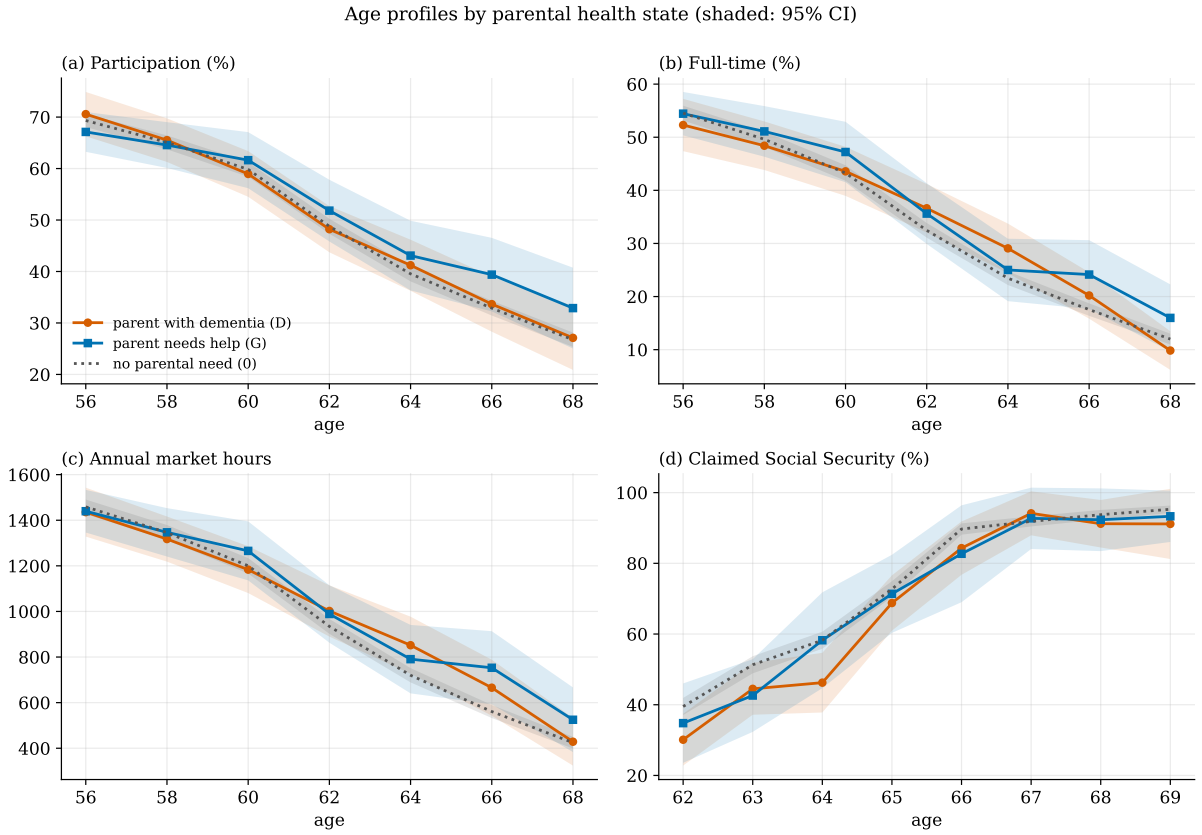


Figure 8: Age profiles of work and claiming by the *parent's* health state — a living parent with dementia (D), a living parent needing help without dementia (G), no living parent with a need (0) — irrespective of whether the child provides care. Weighted; claiming excludes pre-62 starters. Source: HRS.

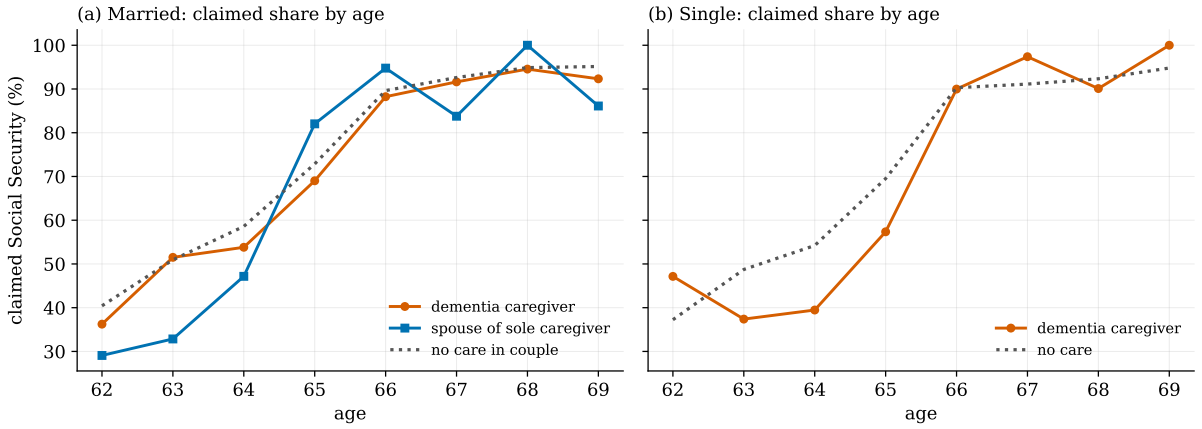


Figure 9: Raw claimed shares by age (weighted, excluding pre-62 starters). Panel (a): married dementia caregivers, spouses of sole dementia caregivers, and no-care couples. Panel (b): single dementia caregivers versus no-care singles. Cells are small at single ages; the regression estimates of Table 4 are the paper's evidence on claiming.

B The targeted moments

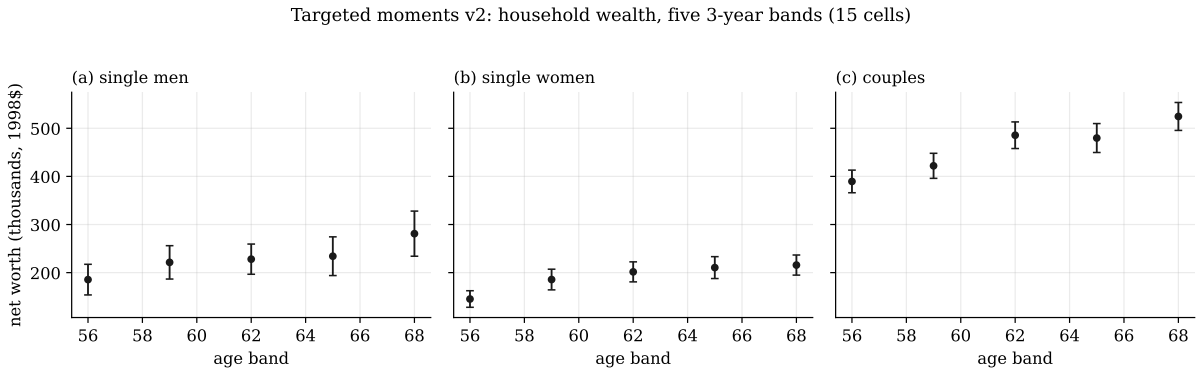


Figure 10: Targeted moments: household wealth, five 3-year bands (15 cells), with 95% CI.

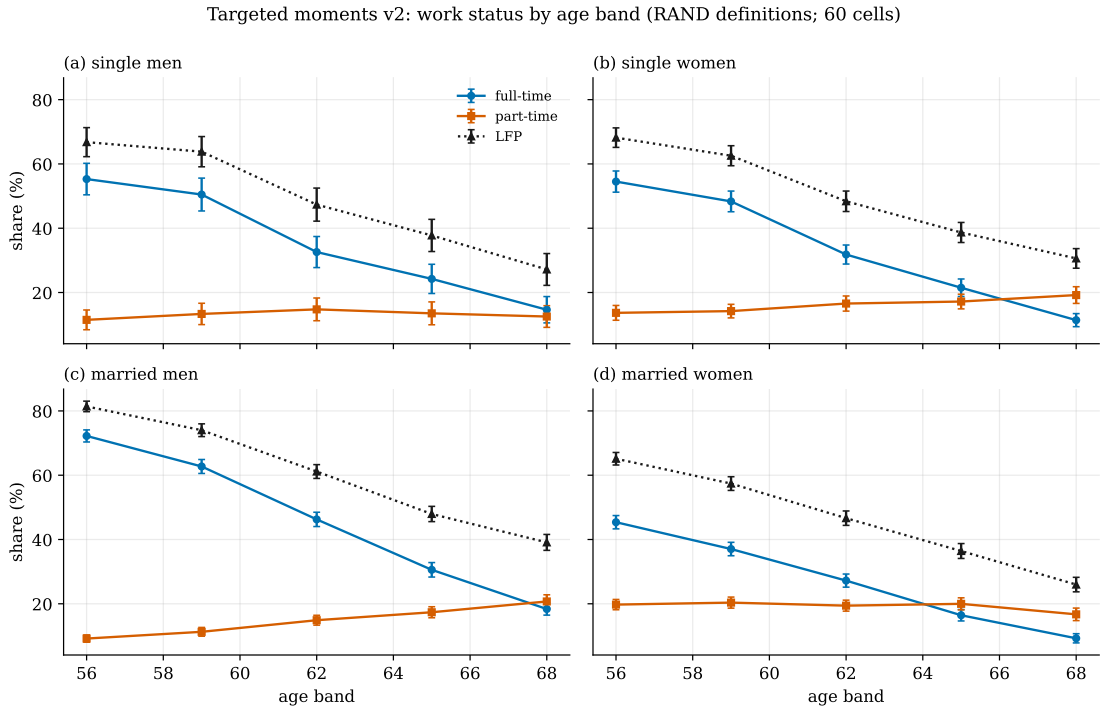


Figure 11: Targeted moments: participation, full-time, and part-time by age band and group (60 cells; RAND labor-force definitions), with 95% CI.

Source: HRS.

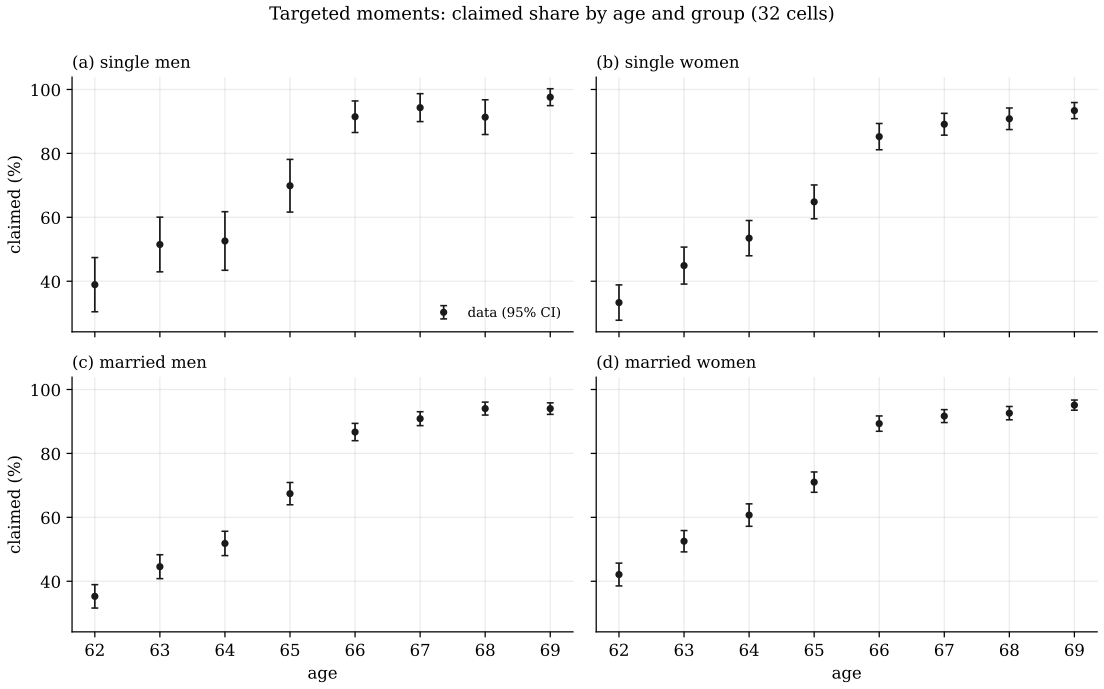


Figure 12: Targeted moments: claimed share by single year of age and group (32 cells).

Source: HRS.

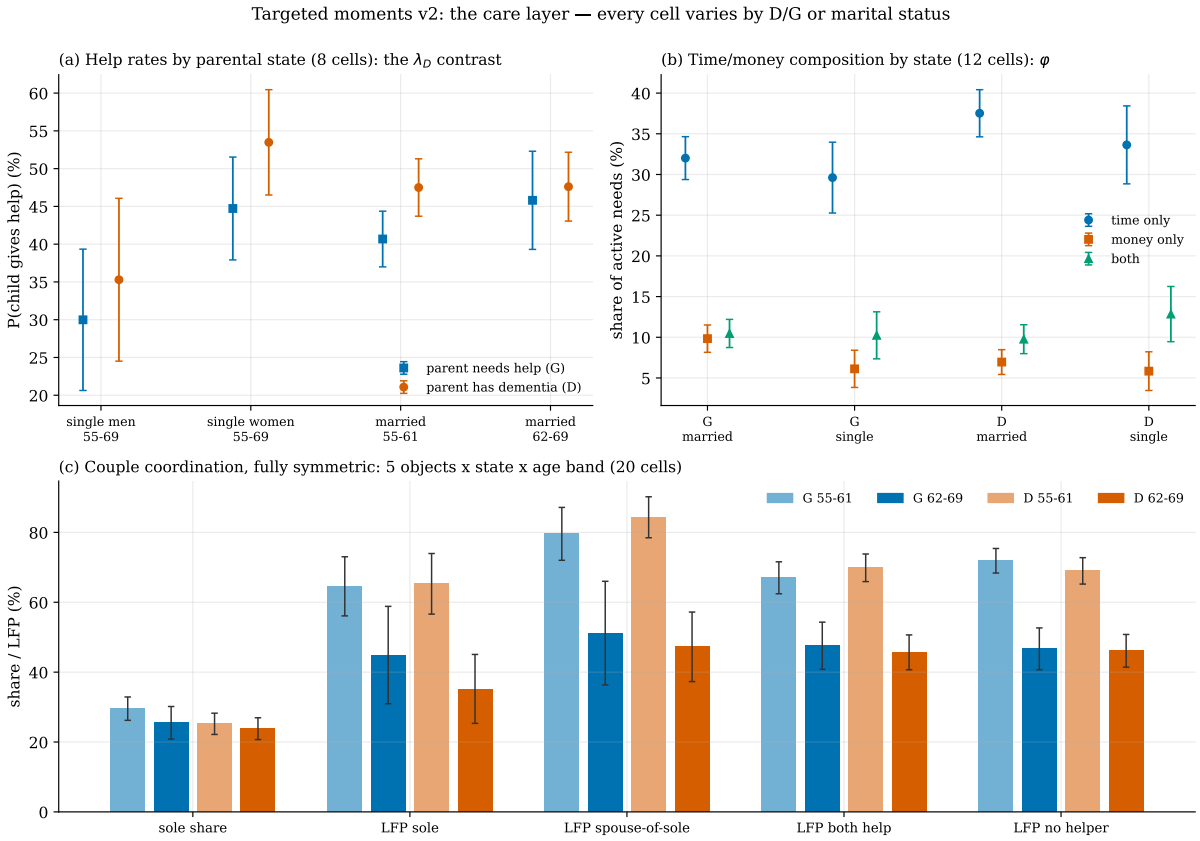


Figure 13: Targeted moments: the care and coordination layers (32 cells), every cell varying by parental state (G/D) or by gender/marital status. Panel (a): help rates by state (the λ_D contrast; singles by gender identify η_m, η_f). Panel (b): time/money composition by state (φ). Panel (c): couple coordination by state — the dementia see-saw widens into the claiming window.

Source: HRS.

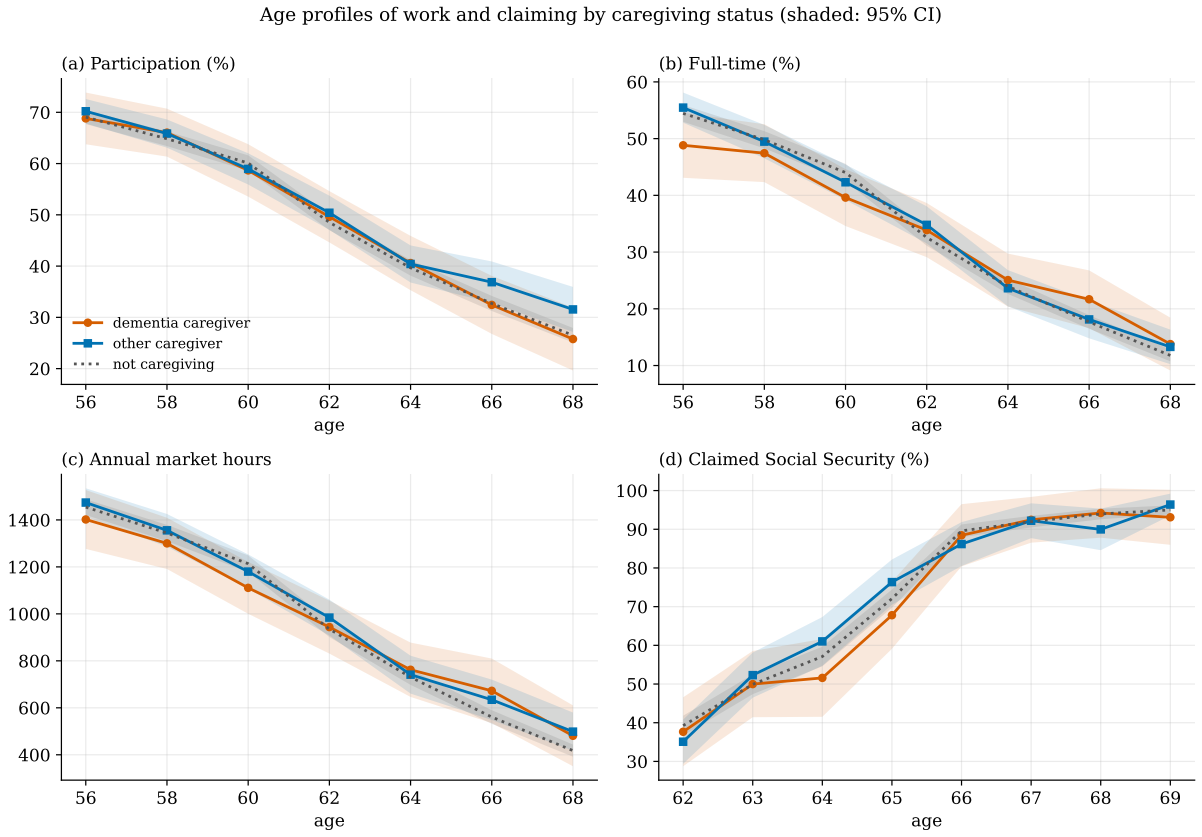


Figure 14: Age profiles of work and claiming by caregiving status: participation (a), full-time work (b), annual market hours (c), and the claimed share at 62–69 (d), for dementia caregivers, other parental caregivers, and non-caregivers. Shaded bands are 95% confidence intervals with person-clustered standard errors. Weighted; labor outcomes in two-year age bins; claiming excludes pre-62 starters. Source: HRS.