# The Value of Family Care: Couples, Singles, and Medicaid in Old Age

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**Abstract**

Families and friends provide most of the home care that older Americans receive, and future retirees are projected to have fewer spouses and children to provide it. I ask what this care is worth to households, who absorbs its loss, and how it changes their gains from an expansion of Medicaid. Using Health and Retirement Study data, I estimate a life-cycle model of retired couples and singles that distinguishes spousal care from care provided by children, other relatives, and friends, which lets me measure how much a spouse's care protects a couple when help from outside the household falls. To remain as well off as with continued family care, households would need a one-time payment averaging $58,719 (in 2018 dollars), or about 19 percent of their average wealth, when all family care is removed for the rest of their lives. When care from children and others is cut in half, couples need 42 percent less compensation with spousal care than without it. To assess the consequences of declining family support, I consider a scenario based on demographic projections for 2060 in which total family-care hours fall by 37.7 percent. Households buy more paid care, but the added hours replace only 11.9 percent of the lost family hours. They receive less care overall and reduce consumption and saving, while Medicaid transfers change little. Existing family care also reduces households' gains from more generous Medicaid support by 28.5 percent.

**JEL Classification:** D13, D15, H51, I13, J14.
**Keywords:** long-term care, family care, Medicaid, couples, aging, household structure.

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# 1 Introduction

Older households' ability to meet long-term care needs depends on the support available from their families as well as on their own resources and public insurance. Care provided by spouses, children, other relatives, and friends can reduce the amount of paid care households need to purchase and leave more resources for consumption and saving. Future retirees are projected to have fewer spouses and children, which may reduce this support and leave households to decide how much additional care to buy and how to finance it. Medicaid provides support to those with limited resources, so changes in family care may also affect public spending. This paper asks what family care is worth to older households, who absorbs its loss, and how it changes their gains from public insurance.

I first document patterns of home care in the Health and Retirement Study (HRS). Among home-care users aged 70 or older, family members and friends provide about two-thirds of the care hours received by singles and more than four-fifths of those received by people living with a spouse. Spouses provide most of couples' family-care hours, and the amount they provide varies with the health of both partners. These patterns motivate distinguishing spousal care from help provided by children and others (Figures 1 and 2).

I develop and estimate a life-cycle model of retired couples and singles using HRS data on wealth, Medicaid receipt, and paid care. Households choose consumption, paid home care, and saving while facing health risks, medical expenses, and uncertain lifespans. Couples also face the risk of widowhood. The hours of family care available to them follow relationships estimated from the data. Spousal care depends on both partners' health. Care from children and others depends on the recipient's health, whether the household is a couple or a single person, and its fixed support type, which captures how much help it receives from these caregivers. Households take these hours as given. In the model, Medicaid provides a minimum bundle of consumption and paid care to households with insufficient resources. The bundle depends on their health. The analysis covers care provided at home. Separating the two sources allows me to compare the same loss of outside help for the same couples with and without existing spouse care.

To value a reduction in family care, I calculate the hypothetical one-time payment that would leave a household as well off with reduced care as with its original care

arrangements. I add this payment to wealth at each household's starting age in the model, which ranges from 70 to 100. Households can use this payment for consumption, paid care, or saving, so the valuation allows them to adjust their choices. Their welfare includes the value they place on leaving bequests, and the calculation excludes the costs borne by caregivers. I separately simulate how households respond to losing care with their original wealth and no compensating payment.

Compensating households for losing all family care for the rest of their lives requires an average one-time payment of $58,719, about 19 percent of average wealth at entry. The average is $80,289 for couples and $50,881 for singles, 15.9 and 22.0 percent of their average wealth. All amounts are in 2018 dollars. If care from both sources is reduced by half, the average required payment is $9,377. Both calculations restore the welfare households would have with their original family-care arrangements. Retaining some family help remains valuable because households can combine it with paid care.

To measure the protection provided by spousal care, I compare the same couples facing the same 50 percent reduction in care from children and others. In one case, spousal care remains close to its current level; in the other, it is unavailable. Removing spousal care leaves the spouse present, and the comparison holds initial resources and the paths of health and survival fixed. In each case, I calculate the payment needed to restore the couple's welfare before the reduction in care from children and others under that spousal-care arrangement. The required payment is 42 percent lower when spousal care is available (Figure 6). This protection comes from care already available within the household. Spouses do not increase the hours they provide in response to the loss of other help.

A separate decomposition measures the contribution of each source to couples' total value of family care. Spousal care accounts for 46.6 percent of that value, with the largest share among couples receiving little help from children and others (Table 7). Distinguishing the two sources therefore helps explain both how much care from a spouse is worth and how it protects a couple when help from outside the household declines.

I next examine how households would adjust if demographic changes reduced the care available from their families. Using projections of family availability, I construct a scenario for 2060 in which total family-care hours fall by 37.7 percent. I compare the same initial households under current and reduced family care, keeping their health and survival paths, support types, prices, and Medicaid rules unchanged. The

one-time payment needed to compensate households for this loss over their remaining lives averages $8,061. Without compensation, households buy more paid care, but the additional hours amount to only 11.9 percent of the family-care hours lost. They receive less care overall and finance most of the additional spending through lower consumption and saving. Medicaid transfers increase by only $140 per household in present value over 20 years, about 1 percent of their baseline level, and the share of households ever on Medicaid rises by half a percentage point (Table 8). Households themselves therefore absorb most of the loss, through less care and fewer resources available for other uses.

Family care also affects how much households gain from more generous Medicaid support. I increase by 10 percent the consumption floors for healthy couples and singles, which are used to set Medicaid's minimum utility guarantees in the model. I evaluate the same policy change with current family care, with the reduced care in the 2060 scenario, and with no family care. I value the expansion by calculating the one-time payment that would make a household as well off under the existing Medicaid rules as under the more generous rules. The expansion is worth 28.5 percent less to households when current family care is available than when it is absent. Reducing family care in the 2060 scenario also increases the value of the expansion to households. The fiscal cost of the policy change varies across these care arrangements (Table 9), and the welfare calculations exclude the cost of financing it.

The paper is organized as follows. Section 2 discusses the related literature. Section 3 describes the data and presents the motivating facts. Sections 4 and 5 present the model, its estimation, and its fit to the data. Section 6 measures the value of family care, examines households' responses to reductions in care, and evaluates their gains from expanding Medicaid. Section 7 concludes.

## 2 Related literature

Research on family care and public insurance examines how relatives' support affects saving and the value of public assistance. Bueren (2023) studies retired singles who take family-care hours as given and finds that care needs are an important saving motive for retired singles with limited family support. Accounting for family care lowers the estimated gains from expanding means-tested care. Capatina, Hansen, and Hsu (2024) study couples and singles and allow family-care availability to depend

on spousal health. They evaluate how family care and shared consumption protect couples and how anticipated widowhood encourages saving. Chang and Ko (2021) allow wives to choose whether to provide care and explain how spousal care, bequests, and Medicaid's treatment of housing shape homeownership in retirement. My paper complements these studies by valuing existing care arrangements to recipients and distinguishing spousal care from help provided by children and others. I compare the same reduction in outside help for the same couples, with and without spouse care, to measure the protection provided by existing spouse care. I also examine how declining family support changes household adjustment and the recipient value of Medicaid.

My paper also connects to the research on retirement saving. De Nardi, French, and Jones (2010) show how medical expenses and longevity risk sustain saving among retired singles. De Nardi, French, and Jones (2016) measure Medicaid's insurance value across income groups while allowing medical spending and saving to adjust. De Nardi, French, Jones, and McGee (2025) explain how medical risk, widowhood, and bequests at each spouse's death shape saving. I examine how family care changes these decisions and the gains from public support. Medicaid guarantees minimum utility, as in De Nardi, French, and Jones (2016). I compute the spending floor at zero family care, so family care affects transfers through spending and saving.

The recipient value measured in this paper complements research on caregiving decisions. Barczyk and Kredler (2018) model family bargaining over care and transfers to evaluate care subsidies. Mommaerts (2025) shows how family care reduces private insurance demand and how cash benefits can improve family welfare. Ko (2022) links private information about children's future care to adverse selection and insurance pricing. Skira (2015) quantifies caregivers' losses from foregone earnings, reduced experience, and difficulty returning to work. I value care to recipients, allowing consumption, paid care, and saving to adjust while family hours follow estimated schedules. Caregivers' costs and responses are excluded, and warm-glow bequests (De Nardi, 2004) do not induce additional care.

Empirical studies show that substitution between family and formal care depends on the service and the recipient's needs. Van Houtven and Norton (2004) and Charles and Sevak (2005) find lower nursing-home use with informal care; the former also finds lower use of home health care. Bonsang (2009) finds weaker substitution for paid domestic help at higher disability and weak complementarity with nursing care at home. Channeling's expansion of formal services produced limited displacement

of unpaid care (Christianson, 1986). I complement this evidence on service use by measuring recipients' welfare gains from care at home. I calibrate how family-care effectiveness varies with health, while family hours follow prescribed schedules in the counterfactuals.

# 3 Data and family-care patterns

I use the Health and Retirement Study (HRS) to document the care older people receive and how it varies with their health and household composition. The interviews also provide the information on wealth, income and Medicaid coverage used to estimate the model. I focus on respondents aged 70 or older in the AHEAD (Asset and Health Dynamics Among the Oldest Old) cohort. I compare those living with a spouse with singles, who include never-married, divorced and widowed respondents.

I measure care by summing the hours reported for each helper. Family care includes help from spouses, children, other relatives and friends, with spouse care distinguished from care provided by children and others. Help from people outside family and friends is classified as paid care.[1] Hours in this section are per recipient per week. The model measures hours per day, and household totals add the care received by its members.

The care patterns below use HRS respondent weights and describe people living in the community, since nursing-home residents receive zero weight. Care hours are available from 1998 onward, and hours provided by the respondent's own spouse from 2000. Appendix A reports the sample counts and explains how I construct the care measures.

I measure care needs using limitations in activities of daily living (ADLs), such as bathing and dressing, and instrumental activities of daily living (IADLs), such as preparing meals and shopping. For the care patterns below, I classify respondents as impaired if they have at least three ADL limitations or a qualifying recent nursing-home stay. Among the remaining respondents, any ADL or IADL limitation indicates bad health, and no limitations indicates good health. Appendix A.2 gives the thresholds.

To compare households with different resources, I use permanent income estimated from Social Security benefits, pensions, annuities and veterans' benefits. Appendix A.2

[1] This descriptive classification uses the helper's relationship to the recipient and does not independently verify payment. Appendix E.3 defines the paid-helper measure used in estimation.

describes the permanent-income measure, which accounts for age and household composition. Medicaid receipt refers to reported coverage at the interview.

## 3.1 Fact 1. Family care provides most help at home

Figure 1 compares care hours by source among home-care users who are single or living with a spouse. Family and friends provide most of these hours, accounting for 65.7 percent for singles and 83.2 percent for people living with a spouse. I define home-care users as respondents who receive more than 0.5 hours of family or paid help a day. The comparison covers interviews from 1998 to 2018 for singles and from 2000 to 2018 for couples.

Singles and people living with a spouse receive similar total hours of care, although a larger share comes from family and friends for those living with a spouse. Total care averages 54.7 hours per recipient per week for singles and 57.6 for people living with a spouse, with both totals exceeding a 40-hour work week. Appendix A.2 explains the construction of these recorded hours.

Family members also provide 60 percent of care hours in a broader sample of Americans aged 65 and older (Belbase, Chen, and Munnell, 2021, Figure 1).[2] Losing this help can change how much paid care recipients buy and how much of their resources they devote to care (Section 4).

## 3.2 Fact 2. Spouse care depends on both spouses' health

Spouses provide most of couples' family care, supplying an average of 38.6 hours per recipient per week. Their help accounts for 66.9 percent of total care and 80.4 percent of family care (Figure 1). I therefore examine how these hours vary with the caregiving spouse's health.

Figure 2 compares spouse-care hours among impaired recipients according to their spouse's health. The sample contains 346 interviews from 2000 to 2018 in which both spouses are interviewed and aged 70 or older. Impaired recipients receive 56.0 hours per week from healthy spouses, compared with 31.0 from spouses in bad health and 8.3 from impaired spouses. The largest difference is between healthy and impaired caregivers.

[2]This share includes children, spouses and other relatives. Including unpaid non-relatives raises it to 64 percent.

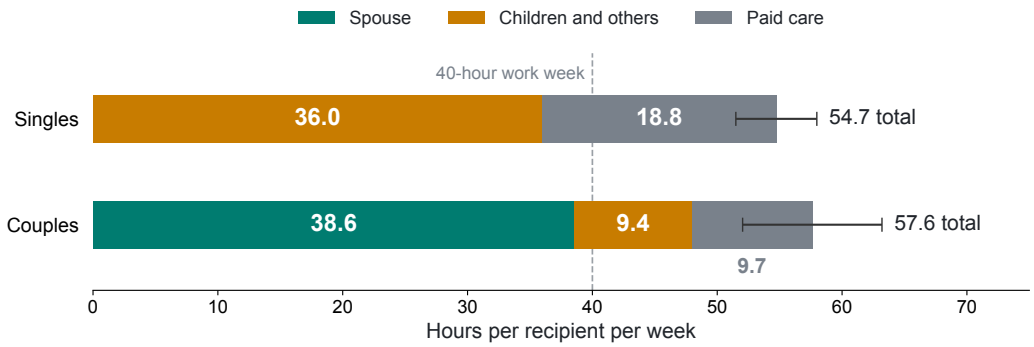



**Figure 1:** Hours of care per week among home-care users, by source of care and household type

Notes: HRS, interviews from 1998 to 2018 for singles and from 2000 to 2018 for couples. Appendix A.4 describes the construction of early-wave hours. Home-care users are respondents aged 70 or older who receive more than 0.5 hours of family or paid help a day. Respondents living in a nursing home have zero weight. Couples are respondents living with a spouse (775 interviews of 489 respondents). Singles are all other respondents (2,969 interviews of 1,623 respondents). Children and others are children, other relatives and friends. Means use respondent weights. Whiskers are 95 percent intervals for total hours, with standard errors clustered by respondent.

These patterns motivate allowing the spouse's care to depend on both partners' health and to end when the caregiving spouse dies (Section 4.3).

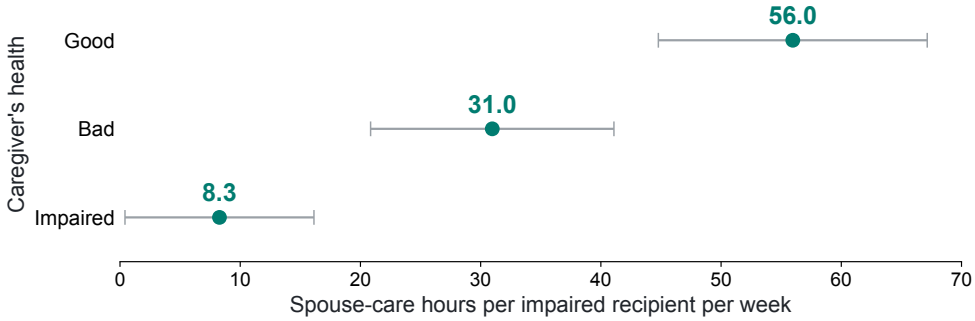



**Figure 2:** Spouse care received by impaired recipients, by the health of the caregiving spouse

Notes: HRS, interviews from 2000 to 2018. The 1998 wave does not record the hours of the respondent's own spouse (Appendix A.4). Couples in which both spouses are interviewed and aged 70 or older, with the recipient in the impaired health state. Hours of care from the spouse per week, means with respondent weights. The groups have 171 interviews (caregiver in good health), 127 (bad health) and 48 (impaired). Bars are 95 percent intervals, with standard errors clustered by respondent.

The importance of family help and its dependence on both spouses' health motivate a model that distinguishes spouse care from care provided by children and others.

Appendix B.2 reports an additional descriptive comparison of age at first observed Medicaid receipt.

# 4 Model

## 4.1 Overview

I use a life-cycle model of retired couples and singles to measure how much recipients value family care over their remaining lives. Households value consumption, effective care and bequests. They choose consumption, paid home care and saving while facing risks to health, survival and medical spending.

As in Bueren (2023), households take family hours as given when choosing paid care. Singles receive help from children and others, including relatives and friends. Couples also receive spouse care. I distinguish these sources because their availability depends on different aspects of household health and family support. The counterfactuals change the family-care hours available to recipients.

When a spouse dies, the survivor may leave a bequest after paying end-of-life costs and continues as a single person. Widowhood changes income, family help and the public support available to the survivor. The couple's saving decision accounts for these changes.

Medicaid provides a consumption and paid-care bundle when household resources are low. The model covers care at home.

## 4.2 Households, health and survival

Periods last two years, with $t = 1, \ldots, T$ corresponding to ages $70 + 2(t-1)$ through 102. Households enter at their first interview at age 70 or older (Section 5.1). Type $j \in \{S, C\}$ distinguishes singles and couples, and $g \in \{1, 2\}$ distinguishes men and women. For couples, $t$ indexes the husband's age, and the wife is one period younger. Couples remain together until one spouse dies. There is no divorce or remarriage.

Health $h_t^g \in \{G, B, I\}$ is good, bad or impaired (Section 3). Each person also has permanent-income tercile $\pi^g \in \{1, 2, 3\}$. Health follows a Markov process, and $s_t^g$ is the probability of surviving to $t+1$. The spouses' health and survival transitions are independent of one another, conditional on their own states. Assets, support type and care affect neither health nor survival. Appendix D.2 specifies the processes.

## 4.3 Family care

Care from children and others depends on the recipient's health and household support type $F$. I classify support as low, middle or high using HRS care histories. The type remains fixed, including after widowhood, while hours vary with health and household status. Spouse care depends on both partners' health. Section 5.2 explains how I construct and impute support types.

The daily family care received by person $g$ combines care from children and others with spouse care when the person is married.

$$\ell_t^{\text{fam},g} = \begin{cases} \ell_S^{\text{ch}}\big(h_t^g, F\big), & j_t = S, \\ \ell_{C,g}^{\text{ch}}\big(h_t^g, F\big) + \ell_g^{\text{sp}}\big(h_t^1, h_t^2\big), & j_t = C, \end{cases} \tag{1}$$

Here $\ell^{\text{ch}}$ denotes care from children and others and $\ell_g^{\text{sp}}$ denotes spouse care. Care from children and others depends on recipient health and support type $F$, while spouse care depends on both spouses' health, as in Fact 2 (Section 3.2). In the model, only spouse care changes directly with the other spouse's health. Each spouse may both give and receive care.

Family hours are estimated from the HRS as described in Section 5.1. They vary with health and widowhood and do not respond to resources, household choices or Medicaid. After a spouse dies, the survivor retains type $F$ and receives care under the singles schedule, estimated from people never observed in a couple (Appendix C.4). This change in schedules increases care from children and others in bad and impaired health.

Family hours contribute to effective care without a payment from the recipient. The model does not measure caregivers' costs.

## 4.4 Utility from consumption and effective care

Households value consumption and the assistance each member receives. I combine paid and family hours into a measure of effective care, allowing their contributions to differ with the recipient's health. Period utility is

$$u^j\big(c_t, \{LTC_t^g\}_{g\in j}; H_t\big) = \frac{(c_t/\eta_j)^{1-\sigma}}{1-\sigma} + \sum_{g\in j} \mu(h_t^g)\, \frac{(LTC_t^g)^{1-\nu}}{1-\nu}, \tag{2}$$

Household consumption $c_t$ is divided by the scale $\eta_S = 1$ for singles and $\eta_C = \eta$ for couples, and its utility has curvature $\sigma$. Utility from effective care $LTC_t^g$ has curvature $\nu$ and health-dependent weight $\mu(h)$. Household health $H_t$ is $h_t$ for singles and $(h_t^1, h_t^2)$ for couples. Couples share one consumption term but have a care term for each spouse. Care contributes no utility in good health and receives a greater weight in impaired health, $\mu(I) > \mu(B) > \mu(G) = 0$.

Effective care combines paid and family hours through a CES technology, as in Bueren (2023).

$$\begin{aligned} LTC_t^g &= \left[\tau \left(\ell_t^{\text{paid},g}\right)^{\omega} + (1-\tau)\left(\chi(h_t^g)\,\ell_t^{\text{fam},g}\right)^{\omega}\right]^{1/\omega}, \\ \chi(G) &= \chi(B) = 1, \qquad \chi(I) < 1. \end{aligned} \tag{3}$$

Paid hours $\ell_t^{\text{paid},g}$ are chosen and family hours follow equation (1). The weight on paid hours is $\tau \in (0,1)$, and the elasticity of substitution between paid and family hours is $1/(1-\omega)$. The factor $\chi(h)$ reduces the effectiveness of both sources of family care in impaired health, consistent with the pattern in Bonsang (2009).

I calibrate $\omega$ between zero and one. When paid care is positive, the marginal product of family hours becomes unbounded as those hours approach zero. This feature matters when valuing the complete removal of family care. The corresponding property for paid care implies that every person in bad or impaired health buys some care. I estimate $\sigma$, $\nu$, $\tau$, $\mu(B)$ and $\mu(I)$, and calibrate $\eta$, $\omega$ and $\chi(I)$ (Section 5).

Households receive warm-glow utility from bequests. Bequests may be left when the first spouse dies and when the last household member dies, as in De Nardi, French, Jones, and McGee (2025). For a bequest $e \geq 0$, utility is

$$\mathcal{B}_n(e) = \phi_n \frac{(e+\kappa_n)^{1-\sigma}}{1-\sigma}, \qquad n \in \{0,1\}, \tag{4}$$

The index $n = 0$ applies when no spouse survives and $n = 1$ when one survives. The parameter $\phi_n$ governs the strength of the bequest motive, while $\kappa_n$ makes bequests a luxury good. The curvature of bequest utility equals that of consumption utility. I estimate $\phi_0$, $\phi_1$, $\kappa_0$ and $\kappa_1$ jointly with the other second-step parameters (Section 5.4).

## 4.5 Medicaid

Medicaid provides a bundle of consumption and paid care when household resources fall below the required minimum. The cost of the bundle depends on household composition and health, and transfers cover the shortfall between that cost and the household's resources. A household receiving the prescribed bundle saves nothing in that period.

I determine the bundle through a minimum-utility guarantee, as in De Nardi, French, and Jones (2016). Separate consumption floors set the guarantees for healthy singles and couples. In bad or impaired health, the bundle includes the consumption and paid care needed to attain the same utility level.

$$\underline{u}^S = \frac{\underline{c}_S^{1-\sigma}}{1-\sigma}, \qquad \underline{u}^C = \frac{(\underline{c}_C/\eta)^{1-\sigma}}{1-\sigma}, \qquad \underline{c}_C = \varrho\, \underline{c}_S. \tag{5}$$

The healthy-state consumption floors are $\underline{c}_S$ for singles and $\underline{c}_C$ for couples. I estimate the single floor and calibrate the ratio $\varrho$ of the couple floor to the single floor. Model flows cover two years, while reported floors are annual.

For each health state, minimum spending $x^j(H_t)$ is the least expenditure on consumption and paid care that delivers the household's utility guarantee. I compute this spending with family care set to zero.

$$\begin{aligned} x^j(H_t) = \min_{c\geq 0,\ \{\ell^{\text{paid},g}\geq 0\}_{g\in j}} \quad & c + p\sum_{g\in j}\ell^{\text{paid},g} \\ \text{subject to} \quad & u^j\big(c, \{LTC^g\}_{g\in j}; H_t\big) \ \geq\ \underline{u}^j, \\ & \ell^{\text{fam},g} = 0 \ \text{ for all } g \in j, \end{aligned} \tag{6}$$

The paid-care price is $p$. Setting family care to zero makes minimum spending depend only on household type and health. At given resources, family care therefore does not change the transfer directly. It can change transfers by affecting household spending and saving. This stylized rule does not represent how states assess available family help. Appendix G.2 examines alternative floor rules that count family hours.

I determine the transfer by comparing health-dependent minimum spending with household resources $R_t$, defined as assets with interest plus income, net of medical spending. The transfer $b_t$ fills any shortfall.

$$R_t = (1+r)\,a_t + y_t - \sum_{g \in j} m_t^g, \qquad b_t = \left[x^j(H_t) - R_t\right]_+, \tag{7}$$

Here $a_t$ denotes start-of-period assets, $r$ the interest rate, $y_t$ nonasset income, $m_t^g$ medical spending and $[z]_+ = \max\{z, 0\}$. Receipt means $b_t > 0$. There is no separate asset test, spousal-impoverishment rule or state variation.

When its resources fall below minimum spending, a household receives the consumption and paid-care bundle that solves problem (6), denoted $c^{\min,j}$ and $\ell^{\text{paid},\min,j,g}$. It makes no allocation choices and saves nothing.

$$\begin{aligned} \text{if } R_t < x^j(H_t): \qquad \left(c_t, \{\ell_t^{\text{paid},g}\}_{g\in j}\right) &= \left(c^{\min,j}(H_t), \{\ell^{\text{paid},\min,j,g}(H_t)\}_{g\in j}\right), \\ a_{t+1} &= 0. \end{aligned} \tag{8}$$

The household retains its family care, so utility from this prescribed bundle is at least the guarantee.

The model has no nursing-home state or separate housing choice. Wealth is held in the single asset, so these counterfactuals allow no adjustment through a change in care setting or housing holdings.

## 4.6 Budget constraint

Households cannot borrow. Their assets evolve according to

$$a_{t+1} = R_t + b_t - c_t - p\sum_{g \in j} \ell_t^{\text{paid},g}, \qquad c_t > 0, \quad \ell_t^{\text{paid},g} \geq 0, \quad a_{t+1} \geq 0. \tag{9}$$

Above the floor, households choose consumption, paid care and saving with $b_t = 0$. The price $p$ is the cost of one hour of care each day over a model period. The same price applies to all households, health states and the floor problem (6).

Income $y_t$ is a deterministic function of age, permanent income, sex and household type. Medical spending includes a persistent shock $\psi_t^g$ and is paid before the household chooses consumption, paid care and saving. The budget constraint records $a_{t+1}$ before end-of-life costs. If member $g$ dies before the next period, the cost $d^g(h_t^g)$ is deducted

before any bequest or survivor allocation, as shown in equation (10) and Appendix D.6. Appendix D.2 gives these processes and Section 5.1 estimates them. I calibrate $r$ and $p$.

## 4.7 The couple's problem

Above the Medicaid floor, the couple jointly chooses household consumption, paid care for each spouse and saving. These uses draw on a common budget after both spouses' medical expenses have been paid. Buying care for one spouse leaves fewer resources for the other spouse's care, household consumption or saving. Family hours follow the schedules in Section 4.3. Below the floor, equation (8) fixes the allocation and saving.

The couple makes these choices before learning who will survive to the next period. If both spouses survive, they continue as a couple. If only the husband or only the wife survives, the survivor chooses a bequest and continues as a single person with the assets retained. If both die, assets remaining after end-of-life costs provide bequest utility. Saving therefore provides for the couple's future needs, the needs of a surviving spouse and bequests.

The state $X_t^C$ records household assets, each spouse's health, medical-spending shock and permanent-income group, and the household's support type.

$$X_t^C = \left(a_t, h_t^1, h_t^2, \psi_t^1, \psi_t^2, \pi^1, \pi^2, F\right),$$

Survival probabilities are $s_t^1$ for the husband and $s_t^2$ for the wife. The value $W_{t+1}^g$ applies when spouse $g$ survives alone, before choosing the bequest. Appendix D.6, equation (D.3), defines this bequest choice and the survivor's value.

The couple's value satisfies

$$
\begin{aligned}
V_t^C(X_t^C) = \max_{c_t,\, \ell_t^{\text{paid},1},\, \ell_t^{\text{paid},2},\, a_{t+1}} \Big\{ & u^C\big(c_t, LTC_t^1, LTC_t^2; H_t\big) \\
& + \beta\, s_t^1 s_t^2\, \mathbb{E}_t V_{t+1}^C(X_{t+1}^C) \\
& + \beta\, s_t^1 (1 - s_t^2)\, \mathbb{E}_t W_{t+1}^1\big([a_{t+1} - d^2(h_t^2)]_+, h_{t+1}^1, \psi_{t+1}^1, \bar{\pi}, F\big) \\
& + \beta\, (1 - s_t^1) s_t^2\, \mathbb{E}_t W_{t+1}^2\big([a_{t+1} - d^1(h_t^1)]_+, h_{t+1}^2, \psi_{t+1}^2, \bar{\pi}, F\big) \\
& + \beta\, (1 - s_t^1)(1 - s_t^2)\, \mathcal{B}_0\big([a_{t+1} - d^1(h_t^1) - d^2(h_t^2)]_+\big) \Big\},
\end{aligned}
\tag{10}
$$

subject to (1), (3), (7), (8) and (9). The continuation terms follow the survival outcomes described above, weighted by their probabilities and the calibrated discount factor $\beta$. Expectations integrate over each surviving spouse's next health state and medical shock. Below the floor, the constraints fix the current allocation and saving.

At the first death, the deceased spouse's end-of-life cost is deducted from savings before the survivor chooses a bequest. The survivor weighs the utility of this bequest, $\mathcal{B}_1$, against the value of retaining assets for consumption, care and later bequests. The value $W_{t+1}^g$ incorporates this choice and the survivor's subsequent decisions as a single person. If both spouses die, the remaining assets after both end-of-life costs enter $\mathcal{B}_0$.

Widowhood also changes the survivor's care and resources. Spouse care ends, and care from children and others follows the singles schedule at the inherited support type $F$. The survivor faces the single-person floor, health and survival processes. Income and mean medical spending follow the widowed profiles at permanent-income group $\bar{\pi} = \max\{\pi^1, \pi^2\}$. Thus, the couple's saving decision accounts for the resources and family help available to a survivor.

A single person's problem contains one care term and allows for survival or death in the next period. Appendix D gives this problem in equation (D.2). It also provides the timing of events, the computation of the floor, the units of the care weights, and the terminal condition. Appendix H describes how I solve and simulate the model.[3]

[3]The couple and survivor problems build on the widowhood and bequest structure in De Nardi, French, Jones, and McGee (2025) and the public-insurance framework in De Nardi, French, and Jones (2016). I add paid care, separate family-care schedules and minimum spending computed at zero family care.

# 5 Estimating the model

I estimate the model in two steps. The first uses the HRS to describe the income, health risks, medical expenses and family help that households face. Holding these processes and the calibrated parameters fixed, I then estimate the remaining model parameters by matching wealth, Medicaid receipt and paid-care hours (Gourinchas and Parker, 2002). The second-step parameters are estimated jointly.

## 5.1 First-step estimates

The first step describes households' resources, health risks and family care. I estimate income and medical-spending profiles, health and survival probabilities, and family-care hours. These inputs determine the needs households face and the resources and help available when they choose consumption, paid care and saving. Health and survival depend on age, current health and permanent income, with separate processes for single men, single women, husbands and wives. Appendix E.1 reports the specifications and estimates.

Single-person health, survival and care hours are estimated from respondents never observed in a couple and are also assigned to surviving spouses. Income and mean medical spending follow separate widowed profiles after a spouse dies. The descriptive facts count widowed respondents as singles, and survivors enter the singles targets in the second step. Appendices C and E.1 give the first-step samples, and Appendix E.3 defines the targets.

**Income.** I estimate income profiles by age, permanent-income tercile and household group, including separate profiles for surviving spouses. These profiles determine the non-asset resources available to households. The income measure combines the annuitized sources defined in Section 3. Appendix E.1 reports the profiles.

**Medical spending.** Medical expenses reduce the resources available for consumption, paid care and saving. Log out-of-pocket spending depends on age, health, income and household group, together with a persistent shock that takes three values. Spouses draw independent shocks. The spending measure includes home health. Appendix E.1 describes the spending regression and shock distribution.

At death, the household pays a one-time cost of \$13,174–\$19,463, depending on sex and health at the last interview. This cost combines medical spending before death with funeral expenses net of insurance, using HRS exit interviews.

**Family care.** I estimate daily care schedules for community residents with an ADL or IADL difficulty (Table 1). Appendix C.1 describes the sample and treatment of missing hours.

Spouse care depends on the health of both spouses, as in Fact 2 (Section 3.2). I estimate separate schedules for husbands and wives using recipient weights and interviews from 2000 onward. Recipients whose spouses live in nursing homes are excluded.

I estimate care from children and others separately for singles, husbands and wives, conditioning on the recipient's health and support type. Section 5.2 explains the construction of these types. Within the same health and support group, couple members receive fewer hours than singles. Table 1 shows how hours vary with health and outside support.

**Households at entry.** I initialize simulations from 3,606 HRS households, using their observed states at the first interview at age 70 or older. I assign support types from household care histories when those histories reveal support and draw types from predicted probabilities otherwise. Appendix H.2 describes initialization and simulation.

## 5.2 Support from children and others

Households with similar care needs receive different amounts of help from children and others. I use their care histories to assign low, middle and high support types. This lets me compare family-care value across households and study how spouse care protects couples with little outside help. Each household keeps its type over remaining life, including after widowhood, while its hours vary with health and household status. Spouse care is modeled separately.

I construct types before estimating household choices. An interview is informative when a community resident needs help and has known hours from children and others. A confirmed absence of help counts as zero, while unknown hours do not enter the classification. For couples, I add the hours received by both spouses. Within health

**Table 1:** Family care taken as given in the model

*A. Spouse care, by both spouses' health (hours per day)*

| | | Health of the spouse who gives care | | |
|---|---|---|---|---|
| Recipient | Recipient's health | Good | Bad | Impaired |
| Husband | Bad | 3.17 | 2.16 | 1.05 |
| | Impaired | 8.51 | 7.05 | 1.68 |
| Wife | Bad | 3.07 | 2.33 | 0.29 |
| | Impaired | 8.05 | 4.02 | 1.00 |

*B. Care from children and others, by health and support type (hours per day)*

| | | Support type | | |
|---|---|---|---|---|
| Recipient | Recipient's health | Low | Middle | High |
| Single person | Bad | 0.18 | 0.65 | 5.04 |
| | Impaired | 1.20 | 2.05 | 11.61 |
| Husband in a couple | Bad | 0.11 | 0.22 | 2.62 |
| | Impaired | 0.44 | 0.30 | 3.84 |
| Wife in a couple | Bad | 0.15 | 0.39 | 3.25 |
| | Impaired | 0.20 | 0.68 | 4.90 |

Notes. HRS respondents aged 70 or older who live in the community and report an ADL or IADL difficulty. Estimates use respondent weights. Hours are measured per recipient and capped at 24 a day. An interview in which the person needs help and no one helps counts as zero, and an interview with unrecorded hours is left out. A recipient in good health has no need and receives no care in either panel. Panel A covers couples with both spouses interviewed, in the interviews from 2000 to 2018, and leaves out recipients whose spouse lives in a nursing home. In Panel B, care from children and others is family hours minus spouse hours, in the interviews from 1998 to 2018 that define the support types (Appendix C), and single people are respondents never observed in a couple. Seven cells contain fewer than 50 interviews. In Panel A they are the two cells in which both spouses are impaired, with 21 interviews each. In Panel B they are husbands with middle support in bad health and husbands and wives with middle or high support in impaired health, with 37 to 46 interviews. For impaired husbands, the low-support mean exceeds the middle-support mean. The middle-support cell contains 37 interviews. The table shows hours before the model multiplies those of an impaired recipient by $\chi(I) = 0.15$.

**Table 2:** Support shares and hours of care from children and others

| | Low support | Middle support | High support |
|---|---|---|---|
| Share of households at entry | 45.2% | 26.8% | 27.9% |
| *Hours per day from children and others* | | | |
| Mean | 0.12 | 0.90 | 7.43 |
| Median | 0.00 | 0.58 | 5.16 |
| 10th to 90th percentile | 0.00–0.07 | 0.13–1.97 | 1.61–17.10 |
| Histories that reveal support | 725 | 478 | 566 |
| Households | 1,911 | 613 | 1,082 |

Notes. The sample consists of the 3,606 HRS households that start the simulation, observed at their first interview at age 70 or older. Shares are survey weighted, and a household that reveals no support counts in each type with its predicted probability. Hours are survey-weighted averages over interviews that reveal the household's support. They exclude spouse care and, for couples, add the hours of both spouses. Observed hours can overlap across types because classification conditions on health and uses the most frequent class over the household's history. The last two rows are unweighted counts. In the last row a household that reveals no support counts once, in its most likely type.

and household groups, zero hours define the low class, positive hours up to the median define the middle class, and hours above the median define the high class. The household's most frequent class becomes its fixed type (Appendix C.2).

The type summarizes the household's care history. The model assigns the mean hours received by households with that type, health and household status, as reported in Table 1. A low type can therefore receive positive hours even though zero hours define the low class at an individual interview. Table 2 reports the type shares and observed hours.

Care histories do not reveal a type for 1,837 of 3,606 initial households, or 50.9 percent. These households either have no observed need for help or have unknown hours whenever help is needed. I estimate separate multinomial logits for singles and couples using households with informative histories. Their characteristics predict the type probabilities of the remaining households. Each simulated copy draws one type at entry, and I keep that draw in every counterfactual (Appendix C.3).

The classification summarizes received care. In the model, health and survival follow processes common across support types, while the counterfactuals change family hours without changing type. Appendix C describes the construction and a separate finite-mixture alternative.

## 5.3 Calibrated inputs

I set the annual discount factor to 0.96 and the two-year interest rate to 0.02, about 1.0 percent annually. The consumption scale for couples is $\eta = 1.53$, using the estimate in De Nardi, French, Jones, and McGee (2025). The couple-to-single floor ratio is calibrated separately at $\varrho = 1.6$. Appendix E.2 lists the calibrated parameters.

The price of paid care is $12 per hour in 2018 dollars. This is close to the May 2018 mean wages of home health and personal care aides, $12.18 and $12.06 (U.S. Bureau of Labor Statistics, 2019). Agency medians were $21 for homemaker services and $22 for an aide (Genworth Financial, 2018). The wage calibration therefore provides a lower price benchmark than agency charges, which include payroll costs and overhead.

I calibrate the curvature of the care technology at $\omega = 0.50$, implying an elasticity of substitution of 2 in equation (3). The effectiveness of family care in impaired health is $\chi(I) = 0.15$. Both parameters affect how much paid care replaces lost family hours. Evidence of lower substitutability in severe disability (Bonsang, 2009) motivates allowing family-care effectiveness to vary with health. I treat its value as a calibrated input. Appendix G.9 examines alternative curvatures, effectiveness factors and paid-care prices. These are calibrated care-technology inputs. The second step jointly estimates the weight on paid care and care preferences, using the family hours estimated from the HRS.

## 5.4 Second-step estimation

**Estimation targets.** To value family care, I need to describe how households use their resources and when they rely on public support. I therefore match wealth, Medicaid receipt and paid-care hours jointly. I choose 10 parameters to match 422 HRS moments using the method of simulated moments (Pakes and Pollard, 1989; Duffie and Singleton, 1993). The parameters govern consumption, care and bequest preferences, the weight on paid care and the Medicaid floor for singles. For each bequest motive, I estimate how much it matters and how its value changes with the amount left. Each parameter can affect more than one set of targets (Appendix E.3).

Saving lets households pay for care later, maintain consumption and leave bequests. I use wealth profiles across ages, incomes and household types to estimate how much they want to retain for these uses. The two bequest motives apply at different points. When the first spouse dies, the survivor chooses how much to give away and how

much to keep. When the last member dies, the remaining assets become a bequest. Both motives are estimated from wealth, including the wealth of surviving spouses.

Medicaid changes how much of their care and consumption households must finance themselves. I match receipt by age, income and household type to help determine this support alongside wealth and paid care. The HRS records reported coverage and includes nursing-home residents. The model records a household receiving a transfer for care at home (Appendix E.3).

Paid-care purchases help determine how much households value extra care relative to consumption and saving. I match average hours by health and household type, including people who buy no care. Among impaired recipients, I also compare low- and high-income singles and couple members with little and much help from children and others. These differences provide information on purchases across resources and family support. Together with wealth and Medicaid receipt, they help estimate care preferences and the weight on paid care, taking the calibrated curvature and effectiveness of family care as given.

**Parameter estimates.** The estimates imply a much higher weight on care in impaired health than in bad health, with a ratio of 21.0 and the impaired weight constrained to exceed the bad-health weight. The estimated paid-care weight in the technology is $\tau = 0.40$, giving family hours the larger weight before the adjustment for their effectiveness in impaired health. How readily purchased care replaces lost family help also depends on the calibrated curvature and effectiveness parameters. Appendix E.6 reports the parameter estimates.[4]

The estimated Medicaid floor for singles is \$2,913 per year, and the calibrated ratio implies a couple floor of \$4,660. These floors describe minimum consumption in good health. For a recipient in bad or impaired health, the guarantee also requires paid care, so the corresponding minimum spending is higher. Computed with family care set to zero, minimum annual spending for singles is \$5,506 in bad health and \$12,311 in impaired health. Bottom-tercile singles have average annual income of

[4]I use the bootstrap variances of the four paid-care level targets as the primary convention because they estimate the sampling precision of these moments. The alternative uses the search minimum standard error of 0.25 daily hours for each level. This minimum is approximately 1.6 to 9.6 times the corresponding bootstrap standard errors. Both conventions retain the existing wealth and receipt variance floors, a diagonal moment covariance, and the same estimation weights. Standard errors condition on first-step estimates and calibrated inputs. Appendix E.7 gives both conventions and their intervals.

$8,832, above the good- and bad-health minima but below the impaired minimum. At that income and without assets, a single person receives transfers when impaired and otherwise only with large medical expenses.

Bequest preferences also affect family-care value because additional paid-care spending can reduce the resources available for bequests. The compensation measure includes the resulting change in bequest utility, using estimated bequest strengths and shifts that are common across support types.

## 5.5 Model fit

Figures 3, 4 and 5 compare wealth, Medicaid receipt and paid care in the HRS and the estimated model. The reported fit uses 21,000 simulated households.[5] Wealth and receipt are shown by permanent income, separately for couples and singles, and paid care by health and household type.

The model reproduces the ordering of median wealth across income groups and the higher wealth of couples (Figure 3). It also follows the rising wealth profile of high-income couples. Among singles, it predicts faster wealth depletion in the low- and middle-income groups and a stronger increase in high-income wealth at older ages than the data show.[6]

The model also captures the concentration of Medicaid receipt among low-income households and the higher receipt rates of low-income singles relative to couples (Figure 4). Receipt is much lower in the middle- and high-income groups. For low-income singles, the model starts below the data and predicts a steeper increase with age, bringing the two closer at older ages.[7] For low-income couples, receipt increases with age in both the model and the data, although the model's increase is steeper. Its middle-income singles' profile also rises more than in the HRS. Appendix F.2 reports the corresponding cells.

Paid care rises with impairment and is higher for singles than couple members in both the HRS and the model (Figure 5). The model underpredicts all four targeted

[5]The initial states come from 3,606 observed HRS households. Survey weights determine how many copies of each household enter the simulated population. These initial states fix entry wealth, so its entry-year fit partly reflects initialization. The parameter search uses 3,000 simulated households, while the fit and counterfactuals use 21,000. Appendix H.2 describes the construction.

[6]Table F.2 reports later targeted cells. By 2002, the model understates median wealth at low and middle income and overstates it at high income for both household types.

[7]Model receipt rises from 14.6 percent at ages 70–74 to 29.6 percent at ages 85–89, compared with 33.3 and 31.0 percent in the HRS.

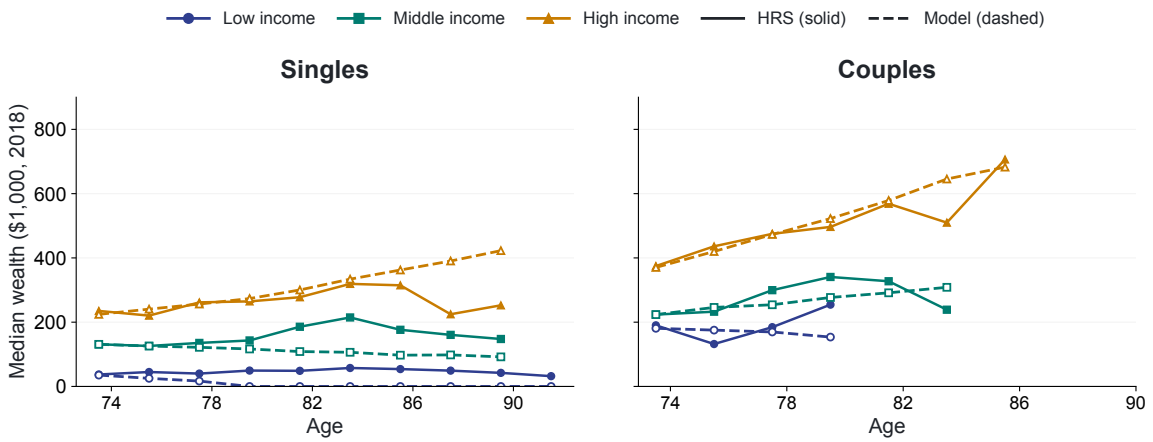



**Figure 3:** Median wealth by age and permanent income in the data and the estimated model

Notes: HRS (solid lines with points) and the estimated model (dashed lines). Median household wealth in thousands of 2018 dollars, for the cohort aged 71 to 76 in 1996. Blue, green and orange lines are the bottom, middle and top terciles of permanent income. Singles include surviving spouses. Each line ends at the last targeted cell.

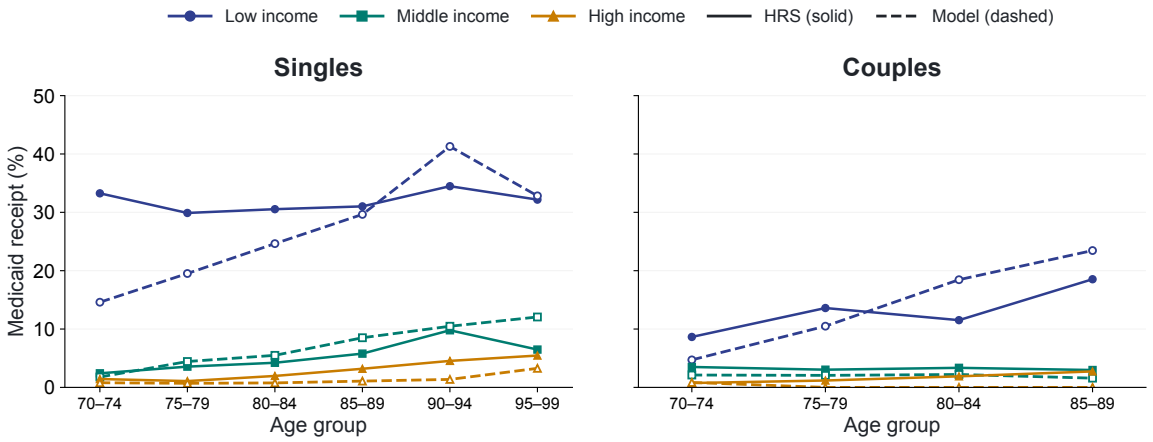



**Figure 4:** Medicaid receipt by age and permanent income in the data and the estimated model

Notes: HRS (solid lines) and the estimated model (dashed lines). Percent of households on Medicaid by five-year age group. A cell by cohort and survey year is assigned the midpoint age of its cohort in that year, and the cells are averaged within five-year groups of that age. The group 70 to 74 is the youngest cohort in 1996. The data are reported Medicaid coverage and count nursing-home residents, while the model counts households that receive a transfer. Blue, green and orange lines are the bottom, middle and top terciles of permanent income. Singles include surviving spouses. The targets pool couples and singles by cohort, survey year and tercile, and the figure shows the two household types separately.

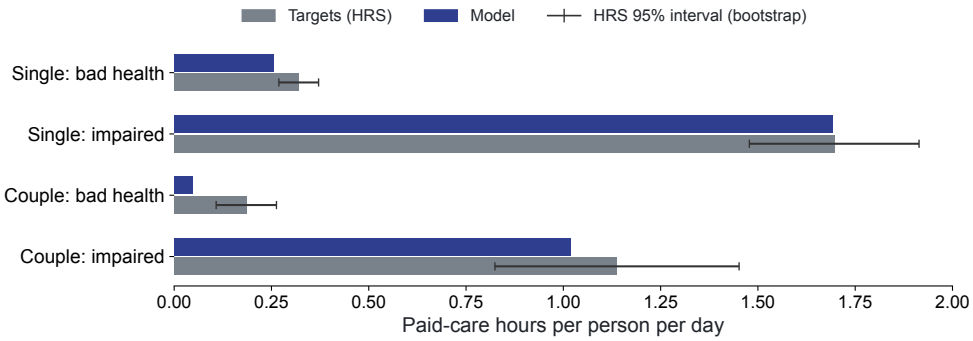



**Figure 5:** Paid-care hours by health and household type in the targets and the estimated model

Notes. Mean daily hours of paid care per person, including people who receive no paid care, within each health state. Gray bars are the four HRS targets used in the second step, with intervals of plus and minus 1.96 bootstrap standard errors. Blue bars show the estimated model.

levels and comes closest for impaired singles.[8] Appendix F reports the full comparisons, including the contrasts by income and support type and participation in paid care.[9]

Appendix F.3 compares care adjustments after a spouse's health declines and Medicaid receipt around widowhood.

# 6 The value of family care

This section returns to the three questions of the introduction. What is family care worth to the households that receive it (Sections 6.2 and 6.3)? Who absorbs its loss when it declines (Sections 6.4 and 6.5)? And how does the family care that exists change what households gain from a more generous Medicaid (Section 6.6)?

[8] In the simulations used to calculate uncertainty, the bad-health levels are 2.37 and 3.50 bootstrap standard errors below the HRS targets for singles and couple members. Each paid-care target receives 54 times the weight of a comparably standardized wealth target, and every parameter has its largest local response to a paid-care moment (Appendix E.8).

[9] The model reproduces the direction of the income contrast among impaired singles. Among impaired couple members, the low-minus-high-support difference is −0.36 daily hours in the HRS (bootstrap standard error, 0.4133), against 0.39 in the model, so this contrast has opposite signs. The model also predicts positive purchases for everyone in bad or impaired health, compared with HRS participation rates of 11.4 and 39.5 percent.

## 6.1 Counterfactuals and the welfare measure

Family care is the help spouses, children, other relatives and friends provide. To put a dollar value on a loss of care, I ask how large a one-time payment, added to a household's wealth when it enters the model at 70 or older, would leave it as well off as with the care it has now. The payment is hypothetical. The household can spend it on consumption, paid care or saving, so the value allows for its choices among these uses. To see who bears the loss when nobody pays, I also simulate the same households with their own wealth and no payment.

$$\begin{aligned} \lambda_i(\xi, \xi^{\text{ref}}) &= \min\Big\{\lambda \geq 0 : \; V_0\big(a_{0i} + \lambda,\, X_{0i};\, \xi\big) \;\geq\; V_0\big(a_{0i},\, X_{0i};\, \xi^{\text{ref}}\big)\Big\}, \\ \bar{\lambda}_k(\xi, \xi^{\text{ref}}) &= \frac{1}{N_k} \sum_{i \in k} \lambda_i(\xi, \xi^{\text{ref}}). \end{aligned} \tag{11}$$

Equation (11) finds the smallest non-negative payment, $\lambda_i$, then averages across households. Here $a_{0i}$ is starting wealth, $X_{0i}$ the other starting circumstances, and $V_0$ how well off the household is with the care and policy being considered.

The index $\xi$ identifies the care and Medicaid rules, and $\xi^{\text{ref}}$ identifies the comparison arrangement. Appendix D.4 defines the multipliers.

For losing all family care, I call this payment the value of family care. It covers remaining life from starting ages 70 to 100, in 2018 dollars. It counts the value households place on bequests, but excludes caregivers' costs and health or survival gains. This calculation follows Conesa et al. (2018) and Herkenhoff and Raveendranathan (2025).

To compare like with like, I use the same 21,000 households, 5,597 couples and 15,403 singles. Starting resources, income, preferences, care prices and random draws stay fixed within each comparison. Health and widowhood follow the same paths. The benchmark has current family care and Medicaid rules.

Family hours vary with health and widowhood, but nobody adds hours because care is cut. I use care histories to group households as receiving little, some or a lot of help from children and others, then call them low-, middle- and high-support. Income groups are set at the start. A couple counts once. Care and spending averages cover periods with at least one member alive; payments and transfer present values average across all starting households.

The model covers care at home. The wealth grid ends at \$3,000,000. If the payment

available at that limit cannot leave a household as well off as before, its reported value is a lower bound. This affects about 1.5 percent in the 2060 scenario and none in the expansion (Appendix H).

## 6.2 Family care is worth about a fifth of wealth at entry

If a household lost all its family care for the rest of its life, it would need a one-time payment of $58,719, on average, to be as well off as with the care it has (Table 3).[10] The median payment is $56,079. To put this in perspective, households enter the model with $304,215 on average, so the payment is 19.3 percent of their wealth; for low-income singles it is almost half (Table 4). Couples need $80,289 and singles $50,881. The comparison in Section 6.3 holds the couples fixed to measure how existing spouse care changes the cost of losing help from children and others. Within couples and singles, both mean and median payments rise with help from children and others.

The payment is 46.6 percent of mean wealth for low-income singles and 9.9 percent for high-income singles. For couples, the corresponding shares are 30.1 and 10.9 percent. High support is also more common among lower-income households (Table C.3).

Households already receiving Medicaid need a payment of $70,623, against $57,722 for the rest, and make up 7.7 percent of the sample. For these households, extra wealth first replaces public support. While the household remains on Medicaid, an additional dollar reduces transfers by a dollar while leaving consumption and paid care unchanged. The payment must therefore replace this support before it can improve what the household receives. These households remain in the average.

To see how much the value depends on losing every family hour, I also reduce care from both sources by 25, 50 and 75 percent, starting when households enter. Each cut is compared with their current care. The payments are $4,806, $9,377 and $17,310 over the rest of life. Even a 75 percent cut costs 29.5 percent of complete removal (Table 5).

Keeping some family help makes a large difference because households can combine it with paid care. Clock hours measure time spent helping. Effective care combines

[10] Conditional standard errors are $22,629 with bootstrap paid-care moment variances and $44,541 with floored variances. The untruncated local normal 95 percent intervals are $14,366 to $103,072 and minus $28,581 to $146,018. Appendix Table E.9 reports couple and single errors, and Appendix E.7 gives the conditioning assumptions.

**Table 3:** The value of all family care to households and the Medicaid saving, by household type and support type at entry

| | | Value ($) | | Medicaid |
|---|---|---|---|---|
| | N | Mean | Median | saving ($) |
| *Initial singles* | | | | |
| Low support | 5,330 | 35,798 | 33,580 | 249 |
| Middle support | 4,879 | 48,550 | 46,017 | 542 |
| High support | 5,194 | 68,547 | 64,471 | 1,085 |
| All | 15,403 | 50,881 | 46,633 | 624 |
| Off the floor at entry | 13,996 | 49,160 | 45,820 | 691 |
| *Initial couples* | | | | |
| Low support | 4,074 | 76,291 | 74,183 | 709 |
| Middle support | 773 | 85,551 | 82,789 | 1,334 |
| High support | 750 | 96,582 | 95,645 | 1,939 |
| All | 5,597 | 80,289 | 76,971 | 960 |
| Off the floor at entry | 5,381 | 79,990 | 76,799 | 984 |
| *All households* | | | | |
| Low support | 9,404 | 53,341 | 46,909 | 448 |
| Middle support | 5,652 | 53,611 | 48,684 | 650 |
| High support | 5,944 | 72,084 | 66,238 | 1,193 |
| All | 21,000 | 58,719 | 56,079 | 713 |
| Off the floor at entry | 19,377 | 57,722 | 55,518 | 772 |

Notes: The estimated model, in 2018 dollars per initial household. N counts initial households. Value is mean or median wealth at entry that compensates for removing all family care over remaining life (equation 11). Medicaid saving is transfers without family care minus transfers with it, discounted at $\beta$ over 20 years and including nonrecipients (equation G.2). Support type refers to children and others. Household type is fixed at entry. Off the floor means no transfer at entry. The fiscal column describes the uncompensated comparison in Section 6.4. Valuations reaching the asset ceiling are lower bounds; Appendix H gives the numerical conventions.

**Table 4:** Assets at entry and the value of family care, by permanent income and household type

| | | Assets at entry ($) | | Value of family care | |
|---|---|---|---|---|---|
| Permanent income | Households | Mean | Median | Mean ($) | % of mean assets |
| *Initial singles* | | | | | |
| Low | 6,651 | 126,168 | 35,611 | 58,732 | 46.6 |
| Middle | 4,679 | 228,302 | 110,394 | 48,896 | 21.4 |
| High | 4,073 | 408,312 | 199,513 | 40,340 | 9.9 |
| All | 15,403 | 231,800 | 86,890 | 50,881 | 22.0 |
| *Initial couples* | | | | | |
| Low | 1,232 | 274,745 | 111,106 | 82,631 | 30.1 |
| Middle | 2,038 | 400,316 | 205,118 | 81,538 | 20.4 |
| High | 2,327 | 714,984 | 358,957 | 77,955 | 10.9 |
| All | 5,597 | 503,502 | 236,456 | 80,289 | 15.9 |
| All households | 21,000 | 304,215 | 119,652 | 58,719 | 19.3 |

Notes: The estimated model. Households is the number of simulated initial households (N). Assets at entry are the assets of the simulated households in their first model period. Households enter at different ages, so this is not a tabulation at age 70. Households with negative assets are included. The value of family care is mean compensation per initial household from Table 3, expressed as a one-time addition to wealth at entry. Values capped by the asset ceiling are lower bounds. The last column divides the mean value by mean assets at entry and is computed before rounding. The tercile of permanent income is the one at entry, and for a couple it is the higher of the two spouses' terciles. 2018 dollars.

**Table 5:** Compensation for partial and complete losses of family care

| Family care removed | Compensation ($) | Primary S.E. ($) | Alternative S.E. ($) |
|---|---|---|---|
| 25% | 4,806 | 878 | 1,980 |
| 50% | 9,377 | 2,068 | 4,684 |
| 75% | 17,310 | 4,474 | 9,942 |
| 100% | 58,719 | 22,629 | 44,541 |

Notes. The full sample of 21,000 initial households. A couple counts once. Compensation is the mean addition to entry wealth required to restore welfare under current family care, in 2018 dollars over remaining life. Both care sources are reduced by the same percentage from entry. Valuations are constrained to be non-negative and limited by the numerical asset ceiling. Primary standard errors use bootstrap paid-care variances; alternative errors use floored variances. The errors are local and conditional on the model, first-step estimates and calibrated inputs (Appendix E.7). Appendix Table G.15 reports the corresponding compensation per lost hour.

paid and family hours, first scaling family hours by 0.15 in impaired health, the group with greatest care needs. At a given amount of paid care, a family hour adds more when fewer family hours remain. This is why removing the last quarter accounts for about 70 percent of the $58,719 payment, while a cut by half costs $9,377. Because this pattern depends on how paid and family care combine, I also re-estimate the other parameters at $\omega = 0.40$ and 0.60. The payments are $59,590 and $56,253. All these versions retain the same behavior when family care is close to zero (Appendix G.9).

Pricing the hours at $12 makes differences between groups look much larger than these payments do, because the first few family hours are especially valuable in the model (Appendix G.3).

## 6.3 A spouse's care cuts the cost of losing outside help by 42 percent

I ask how much a spouse protects a couple when help from children and others falls, then how much each source contributes to total value.

**The same cut for the same couples.** To measure the protection provided by existing spouse care, I cut care from children and others in half for the same 5,597 couples. I compare the loss with spouse care kept at 0.98 of its usual hours and with spouse care absent. The spouse remains present in both cases. This small reduction is also used in the 2060 counterfactual and applies before and after the outside-care cut. In each case, the payment makes the couple as well off as before the cut under that care arrangement. It averages $6,502 (standard error $1,902) with spouse care and $11,231 (standard error $3,943) without it. Existing spouse care lowers the payment by 42 percent (standard error 4.0 percentage points).[11] Neither source adds hours in response to the cut (Figure 6).

Letting care from children and others depend on the spouse's health in the first step leaves protection at 42.0 percent and the spouse share at 46.6 percent. This extra help depends on spouse health and is still taken as given when outside help is cut (Appendix Table G.23).

[11] Under floored paid-care variances, the standard errors are $3,632 with spouse care, $7,704 without it, and 7.9 percentage points for the reduction (Appendix E.7).

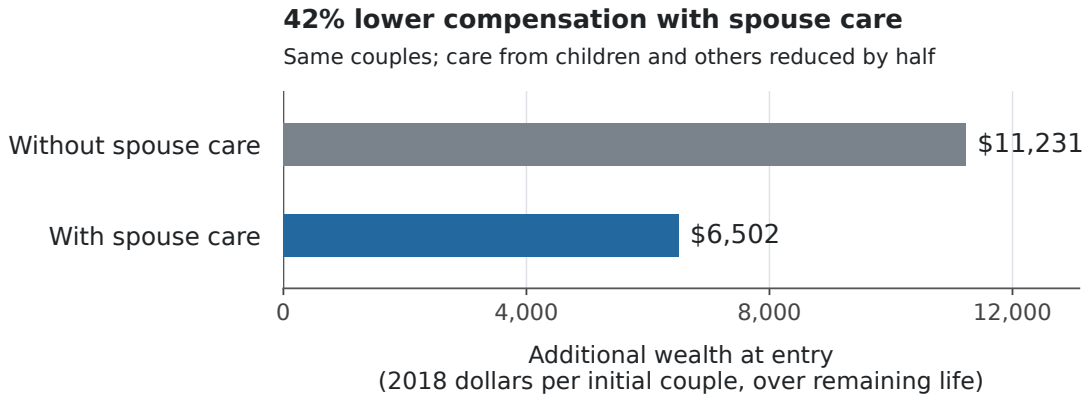



**Figure 6:** Existing spouse care reduces compensation for the same loss of outside help
Notes: The same 5,597 initial couples face the same reduction by half in care from children and others. Initial resources and health and survival paths are unchanged; removing spouse care leaves the spouse present. Spouse care is retained at 0.98 of its state-dependent schedule or is absent, both before and after the cut. Each loss is valued relative to its own pre-cut welfare. Compensation is additional wealth at entry in 2018 dollars per initial couple, covering remaining life. Conditional standard errors for the two mean compensations and their percentage reduction are reported in the text and Appendix Table E.10. Appendix Table G.23 gives the full subgroup results, numerical-cap diagnostics and qualifications.

Retained spouse care also helps couples preserve resources when they receive no payment. Paid-care spending rises by $539 every two years with spouse care, against $1,117 without it. For perspective, consumption before the cut is $26,756 with spouse care. Transfers rise by only $4 and $36, so households finance most of either bill. They reduce consumption and saving by less when the spouse's help remains available (Table 6).

**Table 6:** Spending and saving after the same reduction in care from children and others, with and without spouse care

| | With spouse care | | | Without spouse care | | |
|---|---|---|---|---|---|---|
| | Before | After | Change | Before | After | Change |
| *Dollars per household per two-year period* | | | | | | |
| Paid-care spending | 3,568 | 4,107 | +539 | 6,218 | 7,335 | +1,117 |
| Consumption | 26,756 | 26,628 | −128 | 26,455 | 26,248 | −207 |
| Net saving | 7,128 | 6,717 | −411 | 4,768 | 3,862 | −906 |
| Medicaid transfers | 2,581 | 2,586 | +4 | 2,701 | 2,738 | +36 |

Notes: The estimated model, the 5,597 simulated initial couples. Amounts are in 2018 dollars per household per two-year period. Means cover the 38,564 two-year periods in which at least one household member is alive, including periods after one spouse has died. Before and after refer to the same reduction in care from children and others (hours multiplied by 0.50), with spouse care at its scenario level or set to zero, as in Table G.23. Households keep their own assets and receive no compensation. Net saving is next-period assets minus current assets. The four rows do not form a complete budget identity, because interest income and a residual from the asset grid are omitted. The flows are amounts per two-year period and cannot be added to the compensations in Table G.23. Changes are computed before rounding.

Spouse care lowers the payment for 97 percent of couples. The reduction is 43 percent with little outside help, 45 percent with some and 33 percent with a lot. When children and others provide little, losing spouse care leaves few family hours, so the remaining help adds more to care at given paid purchases.

To check how the care technology matters, I repeat the same cut for the same couples at $\omega = 0.40$ and 0.60, re-estimating the other parameters. The reductions are 42.9 and 40.9 percent, close to the baseline 42 percent (Appendix Table G.24).

**The contribution of each source.** To divide the value between sources, I value spouse care alone, outside care alone and both together. In each case, I ask what payment with no family care would make the couple as well off as with that care. I then average what each source adds alone and alongside the other. Spouse care accounts for 46.6 percent.[12] Its share is largest with little outside help, at 51.2 percent, compared with 43.9 percent with some help and 29.0 percent with a lot. The spouse provides more of total value when the other source provides less. This divides all family-care

[12]The conditional standard error of the spouse share is 3.0 percentage points under the primary convention and 5.3 using floored paid-care variances (Appendix E.7). Appendix Table G.22 reports its sensitivity under the re-estimated curvature profiles.

value; the 42 percent comparison measures protection against losing outside help (Table 7).

**Table 7:** Shapley shares of family-care value by source, initial couples

| | | Value of family care ($) | | | |
|---|---|---|---|---|---|
| | Couples | Spouse | Children and others | Total | Spouse share (%) |
| All initial couples | 5,597 | 37,392 | 42,897 | 80,289 | 46.6 |
| *By support from children and others* | | | | | |
| Low | 4,074 | 39,097 | 37,194 | 76,291 | 51.2 |
| Middle | 773 | 37,526 | 48,026 | 85,551 | 43.9 |
| High | 750 | 27,991 | 68,591 | 96,582 | 29.0 |

Notes: The estimated model, initial couples. Total is mean compensation for removing all family care. Source contributions use equation G.9, with all underlying compensations adding wealth in the no-family-care environment. The spouse share divides its contribution by total value. Removing care leaves household membership unchanged. Support type refers to children and others. Means are one-time amounts at entry in 2018 dollars per initial couple. Rounding can prevent displayed contributions from summing to the total. Underlying compensations that reach the asset ceiling are lower bounds. The source contributions and shares combine these compensations and need not be lower bounds.

## 6.4 Without compensation, households absorb the loss themselves

I remove all family care while leaving households with their original wealth and Medicaid rules. They buy more paid care, from 0.43 to 1.13 hours a day, against 1.95 family hours lost. Purchases replace about a third of the lost hours. Even that costs $6,077 every two years, about what 0.7 extra hours a day costs at $12 an hour. Medicaid pays 3.1 percent. Households finance the rest through lower consumption and saving.

Households retain less wealth and earn less interest, leaving fewer resources for future consumption, care and bequests. The accounting records this lost interest separately (Appendix G.1).

**Medicaid transfers.** How much extra does Medicaid pay? I report transfers over 20 years, valued when the household enters using $\beta = 0.9216$ per two-year period and

averaged over all starting households, including those who never receive a transfer. Removing all family care raises that amount by $713[13], from $12,207 to $12,920. The increase is $960 for couples and $624 for singles. This is small compared with the $58,719 payment households would need over remaining life (Table 3).

Medicaid's rule in the model sets minimum spending without counting family hours. Losing care leaves transfers unchanged at the same resources. Transfers change as households spend and save differently. In 71.8 percent of households, nobody receives a transfer in either case. Appendix G.2 compares recipient value with the fiscal saving and examines alternative floor rules, which fit the targets substantially worse at the unchanged parameter estimates.

## 6.5 Fewer caregivers in 2060: less care, little more Medicaid

To study declining family support, I use demographic projections for 2060 to reduce the care from children and others to 0.50 of current hours and spouse care to 0.98. These numbers use projected kinlessness (Verdery and Margolis, 2017) and time unmarried after age 65 (Redfoot et al., 2013). Total family hours fall by 37.7 percent. Households buy back only 11.9 percent of the lost hours and receive 23.1 percent less effective care (Table 8).

I apply the reductions when the same households enter, with the same prices and Medicaid policy. The year 2060 describes the projections used to reduce care, rather than a new population of retirees. Appendix G.4 explains the calculation and a smaller 2040 reduction.

Spouse care changes little, so total family hours fall by less than the 50.0 percent cut in care from children and others. The 20.2 percent rise in paid care starts from 0.432 hours a day, compared with 1.949 family hours. The purchases replace only 11.9 percent (standard error 3.2 percentage points)[14] of family hours lost. Effective care falls by 23.1 percent as the two inputs combine. The clock-hour replacement ratio measures additional time bought, rather than the share of effective care restored.

Singles with high outside support buy 0.03 paid hours per family hour lost, compared with 0.73 among those with low outside support. Purchases therefore replace a larger share of lost hours among singles who initially receive less family help.

[13]The conditional standard errors of the overall mean saving are $341 using bootstrap paid-care moment variances and $669 using floored variances (Appendix E.7).

[14]Under floored paid-care variances, the standard error is 6.4 percentage points (Appendix E.7).

**Table 8:** Care, Medicaid and the compensation at entry today and in the 2060 scenario

| | Today | 2060 | Primary S.E. | Alternative S.E. |
|---|---|---|---|---|
| *Care (hours per household per day)* | | | | |
| Family hours, clock | 1.949 | 1.214 | | |
| change from today (%) | | −37.7 | | |
| Family hours, effective | 0.935 | 0.602 | | |
| change from today (%) | | −35.6 | | |
| Paid hours (clock) | 0.432 | 0.520 | | |
| change from today (%) | | +20.2 | | |
| Effective care | 0.540 | 0.415 | | |
| change from today (%) | | −23.1 | | |
| Lost family hours replaced by paid hours, clock (%) | | 11.9 | 3.2 | 6.4 |
| Initial couples | | 15.7 | 5.3 | 9.0 |
| Initial singles | | 11.0 | 2.7 | 5.9 |
| Added paid hours / lost effectiveness-adjusted family hours (%) | | 26.3 | | |
| *Medicaid* | | | | |
| Present value of transfers ($) | 12,207 | 12,347 | | |
| change from today ($) | | +140 | 174 | 245 |
| change, initial couples ($) | | 28 | 329 | 415 |
| change, initial singles ($) | | 180 | 136 | 199 |
| Households ever on Medicaid (%) | 26.01 | 26.47 | | |
| *Wealth at entry that restores today's welfare ($)* | | | | |
| All households, mean | | 8,061 | 1,870 | 4,037 |
| All households, median | | 6,940 | | |
| Initial couples, mean | | 6,653 | 1,917 | 3,686 |
| Initial singles, mean | | 8,573 | 1,875 | 4,181 |

Notes: The estimated model and 2060 counterfactual, for 21,000 initial households, in 2018 dollars. Care from children and others is scaled by 0.50 and spouse care by 0.98. Hours are per household per day, summed over members and averaged over living periods, including periods without care needs. Effective family hours multiply impaired-health hours by $\chi(I)$; paid hours are clock hours. Effective care is the CES aggregate in equation (3), summed across members. Replacement ratios divide added paid clock hours by lost family clock hours or lost $\chi$-weighted hours. Transfers cover 20 years per initial household, including nonrecipients. Compensation restores current-care welfare over remaining life and reaches the asset ceiling for about 1.5 percent of households. Changes use unrounded values. Primary and alternative standard errors use bootstrap paid-care and floored variances, respectively. Errors have the units of the reported statistic: dollars or percentage points for replacement ratios. They are local and conditional on the model, first-step estimates and calibrated inputs (Appendix E.7).

Households spend another $766 on paid care every two years, while transfers rise by $36. Most of the bill therefore comes from lower consumption and saving. Saving remains positive, but retaining fewer assets leaves households with less wealth and more Medicaid transfers later (Appendix G.5).

The loss of family care brings little additional Medicaid support for care at home. Transfers rise by $140 per household in present value over 20 years (standard error $174)[15], an amount statistically indistinguishable from zero. The increase is about 1 percent of the baseline $12,207 and is concentrated among low-income households.

Across the seven alternative care technologies, holding the other estimated parameters fixed, the increase is $71–$324, or 0.8–1.9 percent of each matching baseline (Appendix Table G.19).

As in Section 6.4, transfers respond through household resources. When the rule counts mean hours from children and others, transfers with current care are $7,806 rather than $12,207 and rise by $309; the payment is $7,511 and paid purchases replace 13.1 percent of lost hours (Table G.6).

This comparison excludes changes in public spending on institutional care. Appendix G.12 reports the counterfactuals under an alternative version of the model with an exogenous nursing-home state.

The spending responses show how households adjust without a payment. To value the loss, I add wealth under the reduced care until they are as well off as with current care, allowing their choices to adjust to the payment. They need $8,061 (standard error $1,870)[16] over remaining life, against $58,719 for complete removal. Households already receiving Medicaid account for 21.3 percent of the payment because extra wealth first replaces transfers. The average for households off Medicaid at the start is $6,877.

Couples need $6,653 and singles $8,573. These averages combine differences in resources, health and care received. Comparing the same cut for the same couples holds the households and outside-care loss fixed, so it separates the protection provided by the spouse (Section 6.3).

The payment per hour lost in this scenario and in complete removal is compared for the full and restricted samples in Appendix G.3.

Households receive less care and have less left for consumption and saving, while

[15] Under floored paid-care variances, the standard error is $245 (Appendix E.7).
[16] Under floored paid-care variances, the standard error is $4,037 (Appendix E.7).

Medicaid transfers change little. The family help that remains also changes how much they gain from more generous public support.

## 6.6 Existing family care makes a Medicaid expansion worth 28.5 percent less

To measure how family care changes the gains from public support, I raise both Medicaid consumption floors by 10 percent, from $2,913 a year for singles and $4,660 for couples ($\gamma = 1.1$). These floors are the amounts used to set minimum support. I make the same policy change with current care, with the 2060 care and with no family care. I recompute minimum spending at the higher floors and households choose consumption, paid care and saving again.

To put a dollar value on the expansion, I ask what one-time payment under the current Medicaid policy would leave a household as well off as under the more generous policy. Family care stays the same in the two cases. Equation (11) finds the smallest payment that does this.

The same policy change can have different public costs depending on the care households receive. Transfers rise by $1,219 over 20 years with current family care and $1,294 without it. The payments value households' gains before allowing for the taxes needed to finance these amounts.

The same 10 percent expansion is worth $4,339 per household with current family care and $6,067 with no family care. Existing care therefore reduces households' gains by 28.5 percent (Table 9).[17]

Under the rule that counts mean hours from children and others, the reduction is 29.7 percent at the same estimated parameters, with the value without family care unchanged at $6,067 (Table G.6).

Changing how paid and family care combine and re-estimating the other parameters leaves this reduction at 28.8 percent for $\omega = 0.40$ and 29.1 percent for 0.60. The 2060 cut is also evaluated at the seven alternative technologies, holding the other parameters fixed (Appendix Table G.19).

Family care reduces the expansion's value by 40.5 percent for couples and 24.7 percent for singles. The gap remains when the groups are made comparable in income,

[17] The conditional standard error of this proportional reduction is 12.3 percentage points using bootstrap paid-care moment variances and 20.2 using floored variances, with estimation weights fixed (Appendix E.7).

**Table 9:** A 10 percent increase in both Medicaid floors in three family-care environments

| Family-care environment | All households | Initial couples | Initial singles |
|---|---|---|---|
| *Household value of the expansion: wealth at entry ($)* | | | |
| Today's family care | 4,339 | 3,258 | 4,732 |
| 2060 family care | 4,588 | 3,454 | 5,000 |
| No family care | 6,067 | 5,474 | 6,283 |
| Lower today than with none (%) | 28.5 | 40.5 | 24.7 |
| *Medicaid cost of the expansion: 20-year present value ($)* | | | |
| Today's family care | 1,219 | 1,443 | 1,138 |
| 2060 family care | 1,222 | 1,418 | 1,151 |
| No family care | 1,294 | 1,546 | 1,203 |
| Lower today than with none (%) | 5.8 | 6.6 | 5.4 |
| Households | 21,000 | 5,597 | 15,403 |

Notes: The estimated model, in 2018 dollars per initial household. Household value is mean wealth added at entry under current floors to match welfare under floors 10 percent higher, holding the stated family hours fixed (equation (11)). Cost is the rise in the 20-year present value of transfers. The 2060 row uses the care schedules of Table 8; no family care removes both sources. Percent reductions are one minus the ratio of the amount with current care to the amount without care, computed before rounding. Financing taxes are excluded and public costs differ across care environments. No valuation reaches the asset ceiling.

outside help and Medicaid receipt at the start. Family care also lowers public cost by 5.8 percent, a smaller reduction than in household value (Appendix G.8).

With the 2060 care, households value the expansion at $4,588, 5.7 percent more than with current care. As family help falls, the expansion gives them more to gain, even while both family sources remain available. Bueren (2023) also finds greater gains from public support when retired singles have less family help.

A 10 percent cut in the floors likewise requires 28.2 percent less of a payment with family care (Appendix G.8).

A separate comparison uses the projected shares of couples (Appendix G.6).

# 7 Conclusion

This paper measures the value of family care to retired couples and singles and examines how its availability changes their welfare and reliance on Medicaid. Using HRS data, I estimate a life-cycle model that distinguishes care from spouses from care provided by children and others. Compensation for removing all family care averages $58,719 per household in wealth at entry, in 2018 dollars over remaining life. Reducing care from both sources by half requires $9,377. Family care provides assistance directly and preserves resources that households can use for consumption, future needs and bequests.

For couples, spouse care also limits the welfare loss when help from outside the household declines. When the same couples lose half their care from children and others, compensation is 42 percent lower with spouse care than without it. In this comparison, both sources follow their specified schedules, and care from children and others does not respond to spouse health. The separate source decomposition attributes nearly half of couples' total family-care value to spouses, with the largest share among couples receiving little outside support. These findings show why remaining care matters when assessing the loss of a particular source.

The counterfactuals also connect declining family care to household resources and public support. In the scenario with reduced family care, households purchase more paid care but still receive less effective care, financing most of the additional spending through lower consumption and saving. Medicaid transfers rise little. Family care also reduces the recipient value of more generous public support. The same 10 percent increase in Medicaid floors is worth 28.5 percent less with current family care than

without it. Family care can therefore change the value of expanded public insurance even when transfers respond little under current policy.

The welfare measure includes recipients' bequest utility and excludes caregivers' costs. An extension would model the time allocation and well-being of spouses, children and other caregivers alongside recipients' choices. It would account for time costs and forgone earnings where relevant and allow care provision to respond to needs and public support. Allowing households to choose between home care and nursing-home care would add another way to adjust when family help declines. Together, these extensions would make it possible to assess the benefits and costs of how care is provided and financed for recipients and caregivers together.

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# A Data and sample

## A.1 Samples

I combine the RAND HRS Longitudinal File (RAND Center for the Study of Aging, 2025) with public HRS files (Health and Retirement Study, 2025). The analysis panel follows the AHEAD cohort, with one record per respondent and wave from 1996 to 2018. The wave labeled 1996 is the 1995 AHEAD interview.

Table A.1 defines the HRS samples used in Section 3 and Appendix B. Each comparison uses its own sample restrictions, so the samples are not nested.

The full panel contains 69,888 respondent-wave records from 4,324 households. These include records after death and for waves without an interview. In 24,481 records, the respondent is alive and interviewed. Of these, 24,255 interviews from 4,323 households occur at age 70 or older.

The care sample contains 16,807 interviews of 4,253 respondents from 1998 to 2018. Respondents must be aged 70 or older, have positive weight and have observed marital status. Spouse hours are available only from 2000 onward (Appendix A.4). Respondents report being fully retired in 13,057 interviews. Among these interviews, the weighted married share is 33.6 percent.

The simulation starts from households at their first interview at age 70 or older with positive weight, observed wealth and observed permanent income. Couples enter when both spouses are interviewed and aged 70 or older. I retain the cohorts aged 71 to 102 in the wave labeled 1996. These households also enter the support-type construction in Section 5.2. There are 3,606 initial households, comprising 963 couples, 461 single men and 2,182 single women. The weighted couple share is 26.9 percent. Low, middle and high support account for 45.2, 26.8 and 27.9 percent of households. The corresponding permanent-income shares are 37.0, 32.3 and 30.7 percent. A couple belongs to the higher of its spouses' income groups.

At entry, survey-weighted household health is good for 55.7 percent, bad for 32.4 percent and impaired for 11.9 percent. For a couple, household health is the worse health of its living members; a couple counts once. These shares use the initial health classification described in Appendix A.3 for all 3,606 source households.

**Table A.1:** HRS samples used in the data section and appendix

| Sample | Households | Respondents | Interviews |
|---|---|---|---|
| *Processed panel, interview waves 1996 to 2018* | | | |
| All records (interviewed or not) | 4,324 | | 69,888 |
| Interviewed and alive | 4,324 | | 24,481 |
| Aged 70 or older | 4,323 | | 24,255 |
| *Aged 70 or older, waves 1998 to 2018, positive respondent weight* | | | |
| All respondents | | 4,253 | 16,807 |
| Fully retired | | 3,765 | 13,057 |
| *Households at their first interview at age 70 or older* | | | |
| Initial conditions and support types | 3,606 | | |
| *Fact 1: home-care users, singles 1998 to 2018, couples 2000 to 2018* | | | |
| Singles | | 1,623 | 2,969 |
| Couples | | 489 | 775 |
| *Fact 2: impaired recipients living with a spouse, 2000 to 2018* | | | |
| All caregiver health states | | | 346 |
| *Care by need (Appendix B.4), singles 1998–2018, couples 1998–2016* | | | |
| Singles | | 1,931 | 3,816 |
| Couples | | 717 | 1,179 |
| *Care by children (Appendix B.4), single care users, 1998–2018* | | | |
| Without children | | | 375 |
| With children | | | 2,216 |
| *Medicaid after care begins: households observed for ten years, 1998 to 2018* | | | |
| Couples | 169 | | |
| Singles | 78 | | |
| *Medicaid receipt (Appendix B.2): first observed at ages 70–72, 1996–2018* | | | |
| All | | 474 | 2,922 |
| Ever report Medicaid | | 93 | |

Notes: HRS. Counts are unweighted. A blank cell means that the count is not the unit of that sample or is not available. In the first row, the last column counts respondent-wave records, including waves without an interview. The respondent counts of singles and couples cannot be added, because a respondent can live with a spouse at one interview and be single at a later one.

In the reported simulation, each of the 3,606 source households appears once, and additional copies are allocated in proportion to its survey weight. Reported model averages are calculated across the resulting simulated households without further weighting. Entry therefore occurs at different ages. On the model's two-year grid, entry ages range from 70 to 100, with a median of 80.

Table A.1 also reports the samples for Section 3 and Appendix B. The notes to each exhibit state the restrictions used.

## A.2 Variable definitions

**Health.** I classify health using ADL limitations, IADL limitations and nights in a nursing home since the previous interview. Both limitation counts are available from 1998 onward. Appendix A.3 explains the first-wave correction. A person is impaired with three or more ADL limitations or at least 120 nursing-home nights. The threshold is 60 nights if the person dies before the next interview. Among the remaining respondents, one or two ADL limitations or any IADL limitation imply bad health. A person without limitations is in good health. Bad health therefore includes people with IADL limitations only, and impairment can reflect a recent nursing-home stay.

**Hours of help.** The data record daily help from family and friends, the spouse and other helpers. Spouse care is the spouse's hours for a respondent living with a spouse. Subtracting these from family and friend hours gives care from children and others. This category pools children, other relatives and friends. In 1998 and 2000 I add the separate helper-spouse records, and own-spouse hours are unobserved in 1998 (Appendix A.4). Hours are summed across helpers, so simultaneous help from two people counts twice. They measure hours provided and can exceed the recipient's time receiving help. Weekly hours equal seven times daily hours. For the descriptive HRS facts, missing hours count as zero.

**Paid care.** For the descriptive facts, I classify home help from people outside family and friends as paid care, using the helper's relationship to the respondent. This measure does not use the separate question about payment and does not identify the payer. It therefore does not independently verify that each helper is paid. Appendix E.3 defines the paid-care targets used in estimation.

**Home-care users.** Home-care users receive more than 0.5 hours of family or paid help a day. The definition uses observed hours. Nursing-home residents receive zero survey weight and are excluded from the weighted comparisons.

**Medicaid receipt.** Receipt means reported coverage at the interview. First observed receipt can occur after coverage began.

**Permanent income.** Annuitized income combines household Social Security benefits, pensions, annuities and veterans' benefits. I regress log annuitized income on household fixed effects, indicators for single men and single women, a cubic in the household head's age, and interactions of the two indicators with age. I define permanent income as the percentile rank of the household fixed effect. The model and estimation targets divide this rank into thirds.

**Wealth.** Wealth is a household measure. When a household-wave record matches the replication files of De Nardi, French, Jones, and McGee (2025), I use their wealth measure. Otherwise, I use my HRS measure. Households enter the simulation with this wealth.

**Weights.** I use the HRS respondent weight, which is zero for nursing-home residents. Weighted HRS facts therefore describe people living in the community. Nursing-home stays enter these facts when community residents report a prior stay. The care-onset comparison in Table B.1 uses the weight at onset. The age-at-receipt comparison in Table B.2 uses unweighted means.

## A.3 Health and care in the initial wave

For the wave labeled 1996, I construct health states from RAND counts covering six ADLs and five IADLs. No limitations imply good health. Three or more ADL limitations imply impairment, as does any limitation while living in a nursing home. The remaining respondents are in bad health. These states enter initial health, health transitions, survival, medical spending by health and end-of-life costs.

Care hours are unobserved in that wave. Care facts, support types and schedules for children and others begin in 1998, and spouse-care measures begin in 2000 (Ap-

pendix A.4). Paid-care targets begin in 1998, and their model counterparts exclude the first simulated period (Appendix E.3).

The structural estimation and counterfactuals use the analysis file's ADL counts in the 2004 and 2006 waves.

### A.4 Hours of help in 1998 and 2000

The helper modules for 1998 and 2000 record the spouse of each married helper separately. For married children, these records describe children-in-law. From 2002 onward, children-in-law have their own helper records. The 1998 roster does not identify the respondent's own spouse, so own-spouse hours are unobserved in that wave.

For the main care facts and schedules, family and friend hours in 1998 and 2000 include these helper-spouse records. I apply the same days-and-hours rule as for other helpers, exclude spouses of non-family helpers, and count anyone appearing in both blocks once. In 2000 I subtract the respondent's own spouse hours to obtain care from children and others.

Comparisons requiring own-spouse care exclude 1998. Couples in Fact 1, all of Fact 2, and the model's spouse schedules begin in 2000 (Section 5.1). Support types and schedules for children and others retain 1998, because recorded family hours already exclude the spouse (Appendix C). Appendix B uses helper hours as recorded in the analysis file.

## B Additional facts

This appendix describes how family care and reported Medicaid coverage vary with care needs and family circumstances. It follows coverage after care begins and compares age at first observed coverage. The exhibits use the helper hours recorded in the analysis file, as described in Appendix A.4. They are excluded from the estimation targets.

**Interpreting the main-text facts.** The comparisons in Figures 1 and 2 are across households and do not identify effects of marriage or illness. The confidence intervals for total care hours received by singles and people living with a spouse overlap

in Figure 1. Appendix A.2 explains how summing hours across helpers can count simultaneous help more than once.

## B.1 Medicaid after care begins

I follow 247 households for six interviews, beginning with their first observed use of care and ending ten years later. I date the start of care at the first interview from 1998 onward, at age 70 or older, in which a household member receives family or paid care or reports a nursing-home stay. A household belongs to the family-care group if any member receives family care at that interview.

Couples are households married when care begins. Singles are households single at their first interview, so the comparison excludes those widowed before care begins. The outcome is the share that has reported Medicaid at any interview since care began. Missing reports count as no coverage. Table B.1 gives the initial and ten-year shares, and Figure B.1 shows the path for couples.

**Table B.1:** Medicaid when care begins and ten years later, by family care when care begins

| | Family care at the start | Households | Share ever on Medicaid (%) [95% interval] When care begins | Ten years later |
|---|---|---|---|---|
| Couples | Yes | 133 | 8.8 [4.0, 13.7] | 20.2 [13.4, 27.1] |
| | No | 36 | 14.3 [0.9, 27.8] | 25.2 [8.9, 41.5] |
| Singles | Yes | 57 | 24.8 [13.5, 36.1] | 40.4 [26.9, 54.0] |
| | No | 21 | 24.6 [6.0, 43.2] | 47.8 [24.5, 71.2] |

Notes: HRS, interviews from 1998 to 2018. Households observed at six consecutive interviews, starting with the first interview at age 70 or older at which a member receives family care or paid care or reports a nursing-home stay. Family care at the start means that a member receives family care at that interview. Ever on Medicaid means that Medicaid is reported at that interview or at an earlier one since care began, and a missing report counts as no coverage. Shares are weighted with the household's weight at the start, and counts are unweighted. Brackets are 95 percent intervals.

For couples, the estimated share receiving Medicaid after ten years is lower among those with family care at the start. The ten-year difference is 5.0 percentage points, but it is imprecisely estimated.

For singles, the initial shares are similar at 24.8 and 24.6 percent. The later differences are also imprecisely estimated.

These comparisons describe households observed at six consecutive interviews.

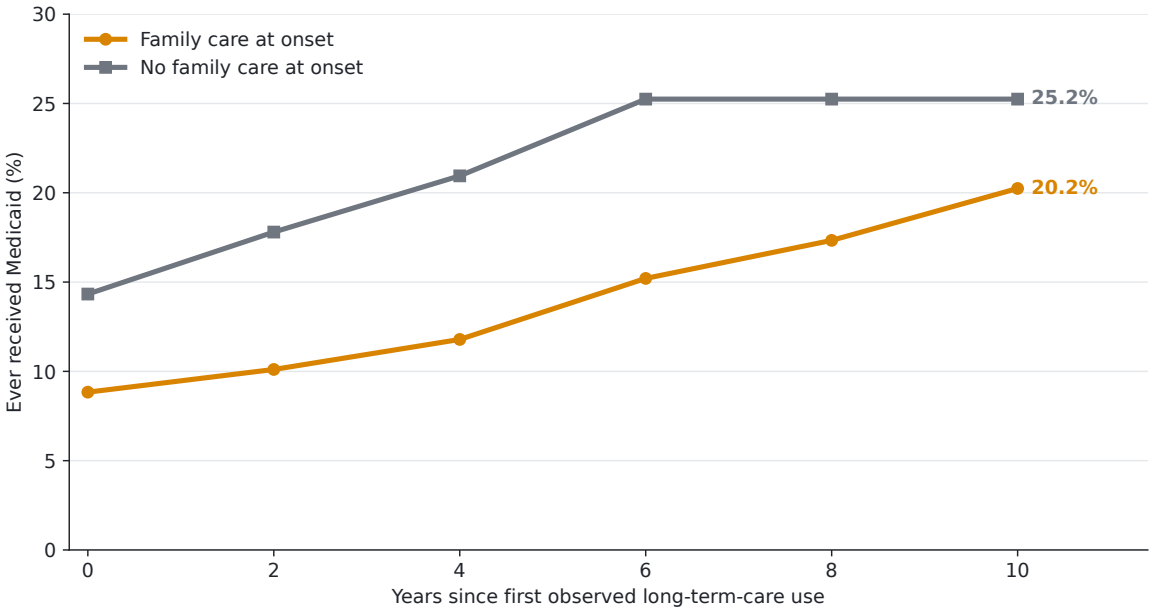



**Figure B.1:** Share of couples that have reported Medicaid, by years since care began and family care at that time

Notes: HRS, interviews from 1998 to 2018. Couples observed at six consecutive interviews, starting with the first interview at age 70 or older with long-term care use. Of these, 133 households have family care at that interview (labeled family care at onset) and 36 do not. Shares are weighted with the household's weight at that interview. The intervals at the start and ten years later, which overlap, are in Table B.1.

Differences in health, resources and survival between the family-care groups prevent interpreting their paths as the effect of family care on Medicaid receipt.

## B.2 Age at first observed Medicaid receipt

Table B.2 reports the age-at-receipt comparison and its sample counts. Of 474 respondents first observed at ages 70 to 72, 93 report Medicaid at least once during the panel. I group these eventual recipients according to whether family care is recorded at any interview up to and including the first interview with Medicaid coverage. Couples are respondents married at their first interview; singles are all others. Means are unweighted, and respondents can share a household.

Among couples, mean age at first observed receipt is 83.9 with recorded family care and 74.8 without it, a gap of 9.1 years. For singles, the corresponding ages are 82.5 and 74.0, a gap of 8.5 years.

**Table B.2:** Age at first observed Medicaid receipt, by family care reported up to that receipt

| | Family care up to first receipt | Respondents | Mean age at first observed receipt | On Medicaid at first interview |
|---|---|---|---|---|
| Couples | No | 26 | 74.8 | 14 |
| | Yes | 25 | 83.9 | 0 |
| | Difference (years) | | 9.1 | |
| Singles | No | 29 | 74.0 | 19 |
| | Yes | 13 | 82.5 | 0 |
| | Difference (years) | | 8.5 | |

Notes: HRS, interview waves 1996 to 2018. Respondents first observed at ages 70 to 72 who report Medicaid in at least one interview (93 of 474). Couples are respondents married at their first interview, and singles are all others. Family care up to first receipt is care reported in any interview through the first interview with Medicaid. Means are unweighted, and respondents can share a household. Care hours are unobserved in the 1996 wave. First observed receipt need not be the start of coverage.

These are descriptive differences among eventual Medicaid recipients. Later first observed receipt gives more opportunities to record family help, while care is unobserved in the initial wave. Missing initial records therefore affect the classification of early recipients. First observed receipt need not be the start of coverage, and the comparison does not establish that family care delays receipt.

These comparisons leave open whether family care preserves savings and lowers reliance on Medicaid. In Section 6.4, I reduce family care for the same households, holding their initial resources, health and survival paths, and Medicaid rules fixed while allowing paid care, consumption and saving to adjust.

## B.3 Care and Medicaid around widowhood

Table B.3 follows surviving spouses and matched respondents who remain married. There are 343 survivors aged 70 or older at the first interview after the spouse dies. Of these, 257 are observed two years later and 192 four years later. First post-death interviews occur between 2004 and 2014. The window from six years before to four years after therefore falls within waves with care measures.

I match each survivor to up to 3 respondents of the same sex who remain married throughout the window. Matches must be within 4 years of age and 0.20 of permanent-income rank. Among eligible matches, I select those closest in assets. I compare changes for survivors and their matches relative to six years before the death.

**Table B.3:** Care from children and others and Medicaid coverage around widowhood

| Years from widowhood | Survivors | Care from children and others (hours per week) | Medicaid coverage (percentage points) |
|---|---|---|---|
| −4 | 343 | 0.01 [−0.97, 0.98] | −0.9 [−3.5, 1.8] |
| −2 | 343 | 1.57 [−0.10, 3.25] | −0.2 [−3.5, 3.0] |
| 0 | 343 | 3.72 [0.85, 6.59] | 0.5 [−3.5, 4.5] |
| +2 | 257 | 3.37 [0.67, 6.08] | −2.1 [−6.4, 2.2] |
| +4 | 192 | 11.09 [4.39, 17.78] | 5.2 [−1.2, 11.6] |
| Pooled, −4 and −2 | 343 | 0.79 [−0.35, 1.93] | −0.6 [−3.2, 2.1] |
| Pooled, 0 to +4 | 343 | 5.35 [2.75, 7.94] | 0.8 [−3.0, 4.6] |

Notes: HRS. Surviving spouses aged 70 or older at the first interview after the spouse's death (year 0). Each is matched to up to 3 respondents who stay married through the window. Matches have the same sex, age within 4 years and permanent-income rank within 0.20. Among eligible respondents, I choose those nearest in assets. Estimates are differences between survivors and their matches relative to six years before the death, the omitted period, with matched-pair fixed effects. Brackets are 95 percent intervals, with standard errors clustered by person. Missing hours of care and missing Medicaid reports count as zero, and daily hours of care are capped at the number of hours in a day. The Survivors column reports the number observed.

Care from children and others rises around widowhood. Over the first four years

after death, survivors receive 5.35 more weekly hours relative to their matches and to the period six years before death. The 95 percent interval is 2.75 to 7.94. Receipt of any such care rises by 16.1 percentage points, with an interval of 10.5 to 21.8.

Care from children and others also increases before the spouse's death. This earlier movement and the changing sample of survivors make the estimates descriptive comparisons around widowhood.

The four-year Medicaid change is imprecise. The pooled estimate is 0.8 percentage points, with a 95 percent interval of −3.0 to 4.6.

Appendix F.3.2 and Figure F.1 compare these Medicaid estimates with the model's paths for surviving spouses. Appendix G.11 reports the model's other responses to widowhood.

## B.4 Care sources by care needs and the presence of children

Figure B.2 compares the main source of care across ADL counts among care users with an ADL or IADL limitation. I classify care as a nursing-home stay whenever one is reported. Among the remaining respondents, the main source is the one providing the most hours at home, with ties assigned to family. The sample covers singles from 1998–2018 and couples from 1998–2016.

Family care is less often the main source at higher levels of need. Among singles, its share falls from 72.8 percent with IADL limitations only to 40.6 percent with six ADL limitations. The corresponding shares for couples are 83.5 and 53.1 percent. The decline across intermediate ADL counts is not monotonic.

Among singles with six ADL limitations, paid home care accounts for 31.2 percent and nursing-home stays for 28.2 percent. With IADL limitations only, the shares are 15.3 and 11.9 percent.

Family care has the largest estimated share at every need level, although several of the confidence intervals overlap. These comparisons describe people with different care needs and family circumstances.

Figure B.3 compares care users whose households were single at their first interview, separating those with and without children. After classifying reported nursing-home stays, I divide home care into arrangements that include family hours and arrangements that use paid care alone.

Paid care alone accounts for 27.9 percent of childless singles' care arrangements

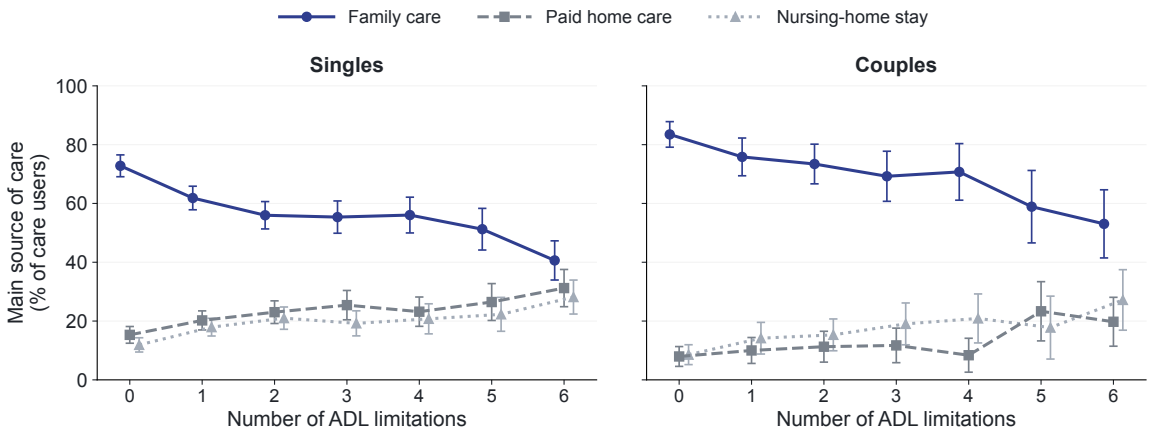



**Figure B.2:** Main source of care by number of ADL limitations, singles and couples

Notes: HRS, interviews from 1998 to 2018 for singles and from 1998 to 2016 for couples. Respondents aged 70 or older with at least one ADL or IADL limitation who report a nursing-home stay in the last two years or receive help at home. Zero ADL limitations means IADL limitations only. The main source is a nursing-home stay if one is reported. Otherwise it is family care if family hours are at least as large as paid hours, and paid home care if paid hours are larger. Family hours are recorded helper hours, including the spouse for couples when observed. Own-spouse hours are unobserved in 1998. There are 3,816 interviews of 1,931 singles and 1,179 interviews of 717 respondents in couples (549 households). Shares use respondent weights. Nursing-home residents have zero weight, so the reported stays are those of people interviewed in the community. Bars are 95 percent intervals, clustered by respondent for singles and by household for couples.

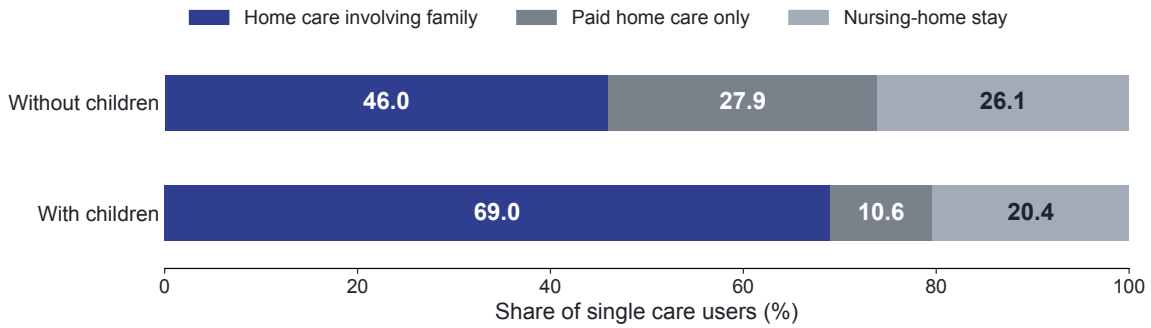



**Figure B.3:** Care arrangements of single care users, by whether they have children

Notes: HRS, interviews from 1998 to 2018. Care users aged 70 or older in households that are single at their first interview. Respondents widowed during the panel are excluded. There are 375 interviews of respondents without children and 2,216 of respondents with children. A care user receives family or paid help at home or reports a nursing-home stay. A nursing-home stay takes precedence. Otherwise, home care involves family if any family hours are reported and is paid home care only if not. Family hours are recorded helper hours, as described in Appendix A.4. Shares use respondent weights.

and 10.6 percent of those of singles with children. Other relatives and friends also provide help. Among childless singles cared for at home, 62.2 percent receive family help.

These descriptive patterns motivate health-specific family-care effectiveness and differences in support from children and others (Section 4.4 and Appendix C). They do not identify care productivity or the effect of having children. The presence of children also enters the imputation of support types. Section 5.3 discusses published evidence on substitution between family and formal care.

# C Family-support types

The model uses a fixed support type to describe persistent differences in care from children and others. Hours depend on that type and the recipient's health. Spouse care is modeled separately. This appendix describes the care histories, classification and imputation used in the paper. It then reports type shares and their relationship to household characteristics. Appendix C.7 explains a separate finite-mixture alternative and the expectation-maximization (EM) algorithm.

## C.1 Care histories and revealing waves

I use interviews at age 70 or older and measure daily care from children and others as family hours less own-spouse hours (Appendix A.2), capped at 24 hours per recipient. For 1998 and 2000, I add hours from the separate questions about married helpers' spouses. These are often children-in-law. Spouses of non-family helpers are excluded. The 1998 roster has no own-spouse code, so no spouse hours are subtracted in that wave.

I treat a wave as revealing support when the respondent lives in the community, needs help and has known hours from children and others. Need means at least one ADL or IADL difficulty. The construction starts in 1998 because the 1996 analysis file has no care hours. Interviews in a nursing home or with missing health do not reveal support.

Known hours include reported durations and confirmed zero care when the respondent needs help and no one helps. Hours are unknown when a family helper has no recorded duration, when help is reported without a listed family helper, or when bad

or impaired health occurs without a reported ADL or IADL difficulty and the help questions were not asked. Unknown hours enter neither the classification nor the care tables.

For respondents never observed in a couple, I use the waves that reveal their support. For couples, I use waves in which both spouses are interviewed and aged 70 or older. At least one spouse must need help, and hours must be known for both. I count hours as known if they are reported, if the spouse needs no help, or if no one helps that spouse. Household hours are the sum of the two recipients' capped hours from children and others. I exclude post-widowhood interviews from the couple's classification and the care tables.

The data provide histories for 2,824 singles and 1,189 couples. At least one wave reveals support for 1,342 singles and 552 couples. Of the households with histories, 2,643 singles and 963 couples form the 3,606 initial simulation households. I use all histories for classification and imputation, including households outside that initial sample.

## C.2 Classes and the type of a household

For each wave that reveals support, I assign a low, middle or high class within groups defined by health and household status. Health is bad or impaired, with a couple assigned the worse of the spouses' health states. Zero hours from children and others define the low class. Positive hours at or below the median define the middle class, and hours above the median define the high class. Equal hours therefore receive the same class. The unweighted daily-hour medians are 1.48 in bad health and 3.94 in impaired health for singles, and 1.14 and 1.81 for couples.

A household's type is the class it occupies most often across waves that reveal support, with ties assigned to the higher class. The assignment is independent of the order of households in the data, so identical histories receive identical types. Each household keeps its assigned type for life. Most revealing waves of couples in bad health record no care from children and others, so most couples with observed support have a low type. Many histories are short, with only one wave revealing support for 600 of the 1,342 revealed singles and 281 of the 552 revealed couples.

## C.3 Households with no revealing wave

No wave reveals support for the remaining 1,482 singles and 637 couples with a household history. They either never need help while observed from 1998 onward or have unknown hours whenever they need it. I assign probabilities to their three possible types using separate multinomial logits for singles and couples, estimated on households with revealed types.

Covariates come from the first interview at age 70 or older, requiring both spouses to be interviewed for couples. They include permanent-income tercile, race and ethnicity indicators, education, number of children capped at three, and a female indicator for singles. Income terciles are defined over interviews at age 70 or older. For couples, I use the higher spouse value of each covariate and omit sex. Missing values are assigned the middle income tercile, zero race and ethnicity indicators, zero children, and the middle education category.

To describe the imputation, let $R_i = 1$ indicate that household $i$ has a revealing history and let $X_i$ contain the covariates just described, including a constant. For each household group, the estimated probabilities can be written as

$$p_{ik} = \Pr(F_i = k \mid X_i, R_i = 1) = \frac{\exp(X_i' b_k)}{\sum_{j \in \{L,M,H\}} \exp(X_i' b_j)}, \qquad k \in \{L, M, H\}. \quad \text{(C.1)}$$

Here $L$, $M$ and $H$ denote low, middle and high support. One coefficient vector can be normalized to zero. Applying these probabilities to households with $R_i = 0$ assumes

$$\Pr(F_i = k \mid X_i, R_i = 0) = \Pr(F_i = k \mid X_i, R_i = 1). \quad \text{(C.2)}$$

The regressions learn the relationship between characteristics and types from households with revealing histories. They do not use paid-care choices, wealth or Medicaid receipt to assign types. The conditional type distribution of households without revealing histories remains an assumption.

The fitted logits assign a probability to each support type. For singles without a revealing wave, the mean probabilities of low, middle and high support are 0.35, 0.31 and 0.34. For couples, they are 0.71, 0.14 and 0.15.

For households without revealing waves, I retain the probabilities of all three types. Each simulated copy draws one type at entry and keeps it for life. The counterfactuals in Section 6 use the same draw, so changing the counterfactual leaves the household's

type unchanged. Replications and standard-error evaluations use their own seeds for each set of random draws. Their simulation variation therefore includes differences in the types drawn. I use the most likely type only in descriptive tabulations that require one type per household.

Another 311 households are observed as couples but never have both spouses interviewed at age 70 or older. I apply the couples' logit to them using the higher covariate values across members at their first interviews at age 70 or older.

## C.4 Shares and hours by type

Among the 3,606 initial households in Table 2, 1,769 have a revealed type and 1,837 receive a type draw. The revealed types comprise 725 low-, 478 middle- and 566 high-support households. To calculate each type's share, I weight households and allocate those with unobserved support according to their predicted probabilities. Households with revealed histories then account for 46.2 percent of low support, 50.2 percent of middle support and 52.4 percent of high support.

Low support is much more common among couples. The weighted low, middle and high shares are 35.0, 31.7 and 33.3 percent for singles and 73.1, 13.7 and 13.2 percent for couples. Couple types measure care from children and others while both spouses are alive, when the spouse supplies most family hours (Section 3.1).

In the reported simulation, each of the 3,606 source households appears once, and additional copies are allocated in proportion to its survey weight. Reported model averages are calculated across the resulting simulated households without further weighting. The low, middle and high shares in the simulation are 44.8, 26.9 and 28.3 percent. The reported shares reflect this allocation and the random type draws for households with unobserved support.

Mean family-care value is similar for households whose types are observed and those whose types are drawn. The remaining-life measure in Section 6.2 averages $59,414 for simulated households whose HRS histories reveal support and $58,052 for those with drawn types. The groups also differ in health and other initial characteristics, so this comparison does not isolate the effect of imputing types.

Type determines hours from children and others in Panel B of Table 1. Each cell gives the weighted mean for revealing waves with the stated health and type. I use these same waves to construct the types. Households with drawn types do not enter

**Table C.1:** Multinomial-logit estimates for support-type imputation

| | Low versus middle | | High versus middle | |
|---|---|---|---|---|
| | Coefficient | S.E. | Coefficient | S.E. |
| *Singles* | | | | |
| Middle income | 0.170 | (0.172) | -0.040 | (0.166) |
| High income | 0.123 | (0.194) | -0.064 | (0.199) |
| Female | -0.544 | (0.197) | 0.243 | (0.214) |
| Black | 0.082 | (0.211) | 0.730 | (0.183) |
| Hispanic | -0.631 | (0.328) | 0.331 | (0.235) |
| Education category 2 | 0.587 | (0.162) | -0.184 | (0.158) |
| Education category 3 | 0.601 | (0.276) | -0.540 | (0.318) |
| Number of children (capped at three) | -0.162 | (0.064) | 0.177 | (0.065) |
| Constant | 0.412 | (0.246) | -0.467 | (0.266) |
| Revealed households | | | | 1,342 |
| McFadden pseudo-$R^2$ | | | | 0.052 |
| In-sample modal hit rate (%) | | | | 45.8 |
| *Couples* | | | | |
| Middle income | 0.472 | (0.341) | 0.855 | (0.441) |
| High income | 0.858 | (0.383) | 0.824 | (0.511) |
| Black | -0.700 | (0.473) | 0.946 | (0.503) |
| Hispanic | 0.304 | (0.582) | 0.954 | (0.652) |
| Education category 2 | 0.388 | (0.323) | -0.684 | (0.397) |
| Education category 3 | 0.470 | (0.445) | -0.422 | (0.555) |
| Number of children (capped at three) | -0.229 | (0.149) | 0.313 | (0.208) |
| Constant | 1.474 | (0.476) | -1.080 | (0.666) |
| Revealed households | | | | 552 |
| McFadden pseudo-$R^2$ | | | | 0.079 |
| In-sample modal hit rate (%) | | | | 73.6 |

Notes. Separate unweighted multinomial logits on households with revealed support types, using first-interview covariates. Middle support is the reference outcome. Coefficients and their maximum-likelihood standard errors are from the original saved estimates. Income, race and education indicators are relative to their omitted categories; singles also include sex. Hit rates classify each revealed household by its largest fitted probability in the estimation sample and do not measure predictive accuracy for households with unobserved support. The imputation assumes the same conditional type distribution for those households. No new regression is estimated for this table.

the cell means. A confirmed absence of help contributes zero hours, while unknown hours are excluded.

Low-support couples receive little care from children and others because most have zero such care in their revealing waves. Single schedules use respondents never observed in a couple. After a spouse dies, the model assigns these schedules to the survivor. The schedules exclude surviving spouses' revealing waves, keeping the classification and hours based on the same population.

## C.5 Support type and characteristics of the respondent

Table C.2 relates support types to respondent characteristics at the first interview at age 70 or older after 1996. It contains 4,613 respondents, including 2,794 singles and 1,819 members of couples. The weighted low, middle and high shares are 55, 22 and 23 percent. These shares differ from Table 2 because this table counts potential recipients of care and the earlier table counts initial households.

Having more children is associated with high support, but children alone do not determine support. High-support shares are 18 percent with no children, 20 percent with one or two, and 27 percent with three or more. Low-support shares in the same groups are 59, 58 and 52 percent. Among initial simulation households, 82.1 percent of low-support households have a child, compared with 84.4 and 88.7 percent of middle- and high-support households.

High support is less common at higher permanent income. Its shares in the low, middle and high income terciles are 32, 24 and 16 percent. The pattern holds within couples, with shares of 17, 15 and 9, and within singles, with shares of 37, 30 and 22 percent. Low-support shares rise across the income terciles from 40 to 55 and 66 percent.

High support is also more common among respondents with less education and among Black and Hispanic respondents. Its share is 33 percent below high school and 14 to 18 percent with a diploma or more. The shares are 47 percent for Black respondents, 41 percent for Hispanic respondents and 20 percent for White respondents. Low support is more common among men than women, at 67 and 50 percent.

These associations partly reflect the imputation. The same characteristics enter the multinomial logits for households whose support is unobserved.

Table C.3 reports support shares by income in the HRS and among simulated

**Table C.2:** Support type by characteristics of the respondent

| | Low support | Middle support | High support | Respondents |
|---|---|---|---|---|
| All respondents | 55% | 22% | 23% | 4,613 |
| *Permanent income* | | | | |
| Low | 40% | 28% | 32% | 1,442 |
| Middle | 55% | 22% | 24% | 1,579 |
| High | 66% | 18% | 16% | 1,592 |
| *Number of children* | | | | |
| No children | 59% | 23% | 18% | 590 |
| One or two children | 58% | 22% | 20% | 1,948 |
| Three or more children | 52% | 21% | 27% | 2,074 |
| *Education* | | | | |
| Less than high school | 42% | 26% | 33% | 1,913 |
| High school | 63% | 19% | 18% | 1,381 |
| Some college | 64% | 20% | 16% | 721 |
| College and above | 68% | 19% | 14% | 486 |
| *Race and ethnicity* | | | | |
| White, non-Hispanic | 58% | 22% | 20% | 3,728 |
| Black, non-Hispanic | 31% | 22% | 47% | 578 |
| Hispanic | 34% | 25% | 41% | 257 |
| *Sex* | | | | |
| Men | 67% | 17% | 16% | 1,427 |
| Women | 50% | 24% | 26% | 3,186 |

Notes: HRS. Respondents at their first interview at age 70 or older after 1996. Row percentages with respondent weights. The last column is the unweighted number of respondents in the row. The unit is the respondent, the potential recipient of care, so the two members of a couple are two observations. A respondent whose history has no revealing wave counts in each type with its predicted probability. These probabilities are estimated using permanent income, race and ethnicity, education, the number of children and sex. Part of each pattern in the table therefore follows from the imputation. Rows may not add up to 100 because of rounding. The education and race rows leave out 112 respondents with a GED and 50 respondents of other races, and the number of children is missing for one respondent.

households at entry. The model's high-support shares are 36, 27 and 20 percent across income terciles. Simulated households inherit the observed initial conditions and draw unobserved types from their predicted probabilities. The HRS panel counts respondents and the model panel counts households.

**Table C.3:** Support type by permanent income in the HRS and among the simulated households

| Permanent income | Low support | Middle support | High support |
|---|---|---|---|
| *HRS respondents at their first interview at age 70 or older* | | | |
| Low | 40% | 28% | 32% |
| Middle | 55% | 22% | 24% |
| High | 66% | 18% | 16% |
| *Estimated model, households at entry* | | | |
| Low | 34% | 30% | 36% |
| Middle | 47% | 26% | 27% |
| High | 55% | 24% | 20% |

Notes: HRS and the estimated model. Row percentages. First panel: the respondents of Table C.2, with respondent weights. Second panel: the 21,000 simulated households at entry into the model, where a couple is in the higher of the two spouses' permanent-income groups. A simulated household copies the type of its HRS household when that household reveals support and otherwise draws a type from the household's predicted probabilities. Rows may not add up to 100 because of rounding.

## C.6 Interpreting support types

The classification summarizes care received when households need help, so differences in hours partly follow from its construction. It conditions on recorded health and can also reflect variation in needs within each health state and the interviews in which care is observed. In the model, types remain fixed through widowhood, while health and survival follow processes common across types.

## C.7 A finite-mixture alternative and the EM algorithm

A finite-mixture model would estimate the distribution of care histories within each type together with the probabilities of belonging to those types. This requires a statistical

model of hours conditional on health and type. The expectation-maximization (EM) algorithm provides one way to estimate such a model (Dempster et al., 1977).

Let $H_i$ denote household $i$'s observed care history and let $Z_i$ contain the characteristics on which the alternative conditions. Write $p_{ik}(\alpha)$ for its probability of type $k$ and $f_k(H_i \mid Z_i; \vartheta_k)$ for the likelihood of its history under that type. At iteration $m$, the E-step calculates membership probabilities using the current parameters,

$$q_{ik}^{(m)} = \frac{p_{ik}(\alpha^{(m)}) f_k(H_i \mid Z_i; \vartheta_k^{(m)})}{\sum_j p_{ij}(\alpha^{(m)}) f_j(H_i \mid Z_i; \vartheta_j^{(m)})}. \tag{C.3}$$

The M-step updates the parameters using these probabilities as weights,

$$(\alpha^{(m+1)}, \vartheta^{(m+1)}) = \arg\max_{\alpha,\vartheta} \sum_i \sum_k q_{ik}^{(m)} \left[\log p_{ik}(\alpha) + \log f_k(H_i \mid Z_i; \vartheta_k)\right]. \tag{C.4}$$

Repeating the steps updates both membership probabilities and the care distributions. The construction used in this paper fixes the observed-history labels before estimating the imputation logits.

The reported estimates use the classification and multinomial-logit imputation described in this appendix. The finite-mixture approach would require a specified distribution of care histories within each type.

# D Model details

## D.1 Ages and timing within a period

A model period lasts two years. The seventeen periods run from age 70 to 102. A household enters at its first interview at age 70 or older, with age index

$$t_0 = \left\lfloor \frac{\text{age} - 70}{2} \right\rfloor + 1,$$

An odd entry age is therefore rounded down to the preceding even age. Model entry ages range from 70 to 100, with median 80. The husband's age indexes a couple. At his age index $t$, the wife's age-dependent quantities are evaluated at $\max\{t-1, 1\}$.

At the start of the period, the household observes its health, medical spending, composition and family hours. Survival to this period has already been realized.

The model computes minimum spending $x^j(H_t)$ and the transfer using resources $R_t$ and equation (7). If resources exceed minimum spending, the household chooses consumption, paid care and saving. When resources fall below minimum spending, it receives the prescribed bundle in equation (8) and makes no choice. Health, survival and medical shocks determine its circumstances next period, which in turn determine income and family hours. The household takes these processes as given and makes no insurance decision.

## D.2 Exogenous processes

Section 5.1 estimates the processes that determine households' health, survival, medical spending, income and family hours. Households take these processes as given.

**Health and survival.** Next-period health and survival depend on the person's current state.

$$\Pr\big(h^g_{t+1} = h' \,\big|\, h^g_t = h,\ t,\ \pi^g,\ g,\ j_t\big), \qquad s^g_t = s^{j_t}_g\big(t, h^g_t, \pi^g\big),$$

The survival probability $s^g_t$ applies to a person alive at $t$. Both processes depend on age, health and permanent income and differ across single men, single women, husbands and wives. A survivor follows the processes for singles of the same sex. Spouses' health transitions and deaths are conditionally independent given their own states. Permanent income is fixed except at widowhood, when it becomes $\bar{\pi} = \max\{\pi^1, \pi^2\}$.

**Medical spending.** Log medical spending combines a deterministic profile and a persistent shock.

$$\ln m^g_t = \bar{m}^{j_t}_g\big(t, h^g_t, \pi^g, w\big) + \psi^g_t, \qquad \Pr\big(\psi^g_{t+1} = \psi' \,\big|\, \psi^g_t = \psi\big), \tag{D.1}$$

The profile $\bar{m}$ depends on age, health, permanent income, sex and household type. The indicator $w$ identifies a person widowed within the model. There are separate profiles for single men, single women, husbands, wives, widowed men and widowed women. The shock $\psi^g_t$ follows a three-state Markov chain common to both sexes. Spouses' shocks are independent, so a couple has nine possible shock pairs $(\psi^1_t, \psi^2_t)$ and total spending $m^1_t + m^2_t$. There is no transitory shock.

**Income.** Six income profiles depend on age and permanent-income tercile. They describe single men, single women, widowed men, widowed women and couples indexed by each spouse. Each couple profile, $y^{C,1}$ and $y^{C,2}$, measures household income. I average them to count that income once.

$$y^{C}\big(t,\pi^{1},\pi^{2}\big)=\tfrac{1}{2}\Big[y^{C,1}\big(t,\pi^{1}\big)+y^{C,2}\big(\max\{t-1,1\},\pi^{2}\big)\Big],$$

A survivor receives the widowed profile for the same sex and permanent income $\bar{\pi}$. Income changes deterministically with age and widowhood. All flows are two-year amounts in 2018 dollars.

**Family hours.** Table 1 reports five schedules of family care. Hours from children and others depend on recipient health and support type, with separate schedules for singles, husbands and wives. Single men and women share one schedule. The two spouse-care schedules give hours received by husbands and wives and depend on both spouses' health. The effectiveness factor $\chi(I)$ applies to either source when the recipient is impaired.

## D.3 Allocation within a period

Above the floor, a household allocates spending between consumption and paid care until their marginal utilities per dollar agree. For each member with $\mu(h_t^g)>0$, this condition is

$$\mu(h_t^g)\,\tau\,\big(\ell_t^{\text{paid},g}\big)^{\omega-1}\big(LTC_t^g\big)^{1-\omega-\nu}=p\,\eta_j^{\sigma-1}\,c_t^{-\sigma}.$$

The left side is the marginal utility of a paid hour. The right side is its price times the marginal utility of consumption. Good-health members buy no paid care. With zero family hours, equation (3) becomes $LTC_t^g=\tau^{1/\omega}\,\ell_t^{\text{paid},g}$.

## D.4 Computing the floor

I describe an environment by $\xi=(q^{\text{ch}},q^{\text{sp}},\gamma)$. The first two terms multiply hours from children and others and hours from the spouse. The third multiplies both Medicaid consumption floors. Current family care and policy are $(1,1,1)$, and removing all family care gives $(0,0,1)$.

I estimate $\log \underline{c}_S$ in two-year units and set $\underline{c}_C = \varrho\, \underline{c}_S$. The couple floor is therefore determined by the single floor and the calibrated ratio. Equation (5) converts consumption floors into utility guarantees. Couples' total floor consumption enters utility divided by $\eta$.

For each parameter vector, I solve problem (6) for the three single health states and nine couple health pairs. With family hours set to zero, I find the spending level whose optimal allocation between consumption and paid care attains the guarantee. Healthy households need consumption only, so $x^S(G) = \underline{c}_S$ and $x^C(G, G) = \underline{c}_C$. Other states also require paid care at price $p$. Section 5.4 reports the resulting minimum spending for singles.

When $R_t < x^j(H_t)$, transfers cover the shortfall in resources and the household receives the prescribed bundle. It enters the next period with zero assets. I evaluate its utility from this bundle using the family hours it actually receives. Utility exceeds the guarantee if a member in bad or impaired health receives family care.

While the household receives a transfer, additional assets replace that transfer dollar for dollar. The household receives the same bundle and enters the next period with zero assets, so the added wealth does not raise its value function. For households on the floor at entry, even a small utility loss can therefore require a large wealth compensation under the measure in Section 6.1.

The baseline rule gives family hours no direct effect on transfers at fixed resources. Appendix G.2 compares this rule with alternatives that credit family hours when computing minimum spending. It distinguishes calculations at fixed resources from counterfactuals in which households choose consumption, paid care and saving again.

The expansion in Section 6.6 multiplies both consumption floors by the same factor and recomputes utility guarantees and minimum spending. Minimum spending changes proportionately with the floors only in good health.

## D.5 The problem of a single person

A single person's state contains assets, health, the medical shock, permanent income, support type, sex $g$ and survivor indicator $w$. The choices are consumption, paid

hours and next-period assets.

$$V_t^S(a_t, h_t, \psi_t, \pi, F; g, w) = \max_{c_t, \ell_t^{\text{paid}}, a_{t+1}} \Big\{ u^S\big(c_t, LTC_t; h_t\big) + \beta\, s_t\, \mathbb{E}_t\big[V_{t+1}^S(a_{t+1}, h_{t+1}, \psi_{t+1}, \pi, F; g, w)\big] + \beta\,(1 - s_t)\, \mathcal{B}_0\big([a_{t+1} - d^g(h_t)]_+\big) \Big\}, \tag{D.2}$$

The constraints are (1), (3), (7), (8) and (9). Survival probability is $s_t = s_g^S(t, h_t, \pi)$. The expectation integrates over next-period health and medical spending, independent conditional on the current state. Death leaves a bequest net of end-of-life costs. Singles with $w = 0$ and $w = 1$ differ only in income and mean medical-spending profiles.

## D.6 The death of a spouse

If spouse $g'$ dies between $t$ and $t + 1$, the survivor $g$ pays the end-of-life cost from savings. The survivor enters the next period with

$$A = \big[a_{t+1} - d^{g'}(h_t^{g'})\big]_+.$$

The survivor immediately chooses a bequest $e$, valued with $\mathcal{B}_1$, and retains the remaining assets.

$$W_t^g(A, h, \psi, \pi, F) = \max_{0 \le e \le A} \Big\{ \mathcal{B}_1(e) + V_t^S\big(A - e, h, \psi, \pi, F; g, 1\big) \Big\}. \tag{D.3}$$

The value $W_t^g$ is measured before the survivor divides assets between an immediate bequest and resources retained for later use.

The survivor then faces a single person's utility, floor and budget constraint. Spouse care ends and care from children and others follows the singles schedule for the inherited support type. Health and survival use the processes for singles of the same sex. Income and mean medical spending use the widowed profiles at $\bar{\pi} = \max\{\pi^1, \pi^2\}$ (Appendix D.2). The survivor retains the current medical shock. A surviving wife's continuation value is evaluated at her own age. The subscript $t + 1$ on $W^2$ in equation (10) identifies the next household period.

At a single person's death, the bequest is $[a_{t+1} - d^g(h_t)]_+$. Simultaneous deaths in a couple leave $[a_{t+1} - d^1(h_t^1) - d^2(h_t^2)]_+$. Both bequests enter $\mathcal{B}_0$. End-of-life costs

range from \$13,174 to \$19,463 across the six sex-health cells (Section 5.1).

The model's given mortality risks determine when widowhood occurs. Only people who survive a spouse's death within the model have $w = 1$. People already widowed at entry have $w = 0$ and receive the income and medical profiles of singles.

### D.7 Units of care weights

For estimation, I measure consumption in thousands of dollars per period and care in hours per period. Let $\tilde{\mu}(h)$ denote the care weight in these units. Its counterpart in equation (2) is

$$\mu(h) = 730^{1-\nu}\, 1000^{1-\sigma}\, \tilde{\mu}(h), \qquad \tilde{\mu}(G) = 0, \tag{D.4}$$

The conversion uses 730 days per period. I estimate $\log \tilde{\mu}(B)$ and $\log[\tilde{\mu}(I) - \tilde{\mu}(B)]$, which require a higher care weight in impaired health and $\mu(I) > \mu(B) > \mu(G) = 0$.

### D.8 Terminal condition

The model ends at $T$, age 102. Death after this period gives bequest utility and survival gives zero continuation value, $V^S_{T+1} = V^C_{T+1} = W^g_{T+1} = 0$. A single person's continuation value in period $T$ is therefore $\beta\,(1 - s_T)\,\mathcal{B}_0\big([a_{T+1} - d^g(h_T)]_+\big)$. Survival probabilities remain positive at that age. Bequest utility is discounted by $\beta$ in every period. Estimation and counterfactuals use the same terminal condition.

## E Estimation details

### E.1 First-step estimates

**Sample and weights.** First-step estimates use 24,255 interviews of living HRS respondents aged 70 or older during 1996–2018. Regressions and cell means use respondent weights. The 2,602 interviews with zero weights do not enter these estimates. Most involve nursing-home residents. The medical component of end-of-life costs and the percentile and correlation used for the medical shock are unweighted.

**Terciles of permanent income.** Permanent income is a percentile rank (Appendix A.2). Income and medical profiles define terciles from living respondents aged 70 to 102. Health and survival regressions define them from all analysis records,

including records after death. The model uses survey-weighted terciles. Each spouse retains an individual income group in the household's decision problem, while reported moments assign couples to the higher of the two groups.

**Health and survival.** Table E.1 shows two-year transition and survival probabilities at age 80 and middle permanent income. The survival logit and health multinomial logit include age minus 70, its square, current-health indicators and permanent-income indicators. Separate regressions use consecutive interviews at ages 70 to 102 for single men, single women, husbands and wives. I evaluate the fitted probabilities at the ages used in the model. The survival regression uses 17,314 interviews, and the health-transition regression uses 13,867. Single men have the smallest samples, 1,416 and 1,016. Singles are never observed in a couple, and husbands and wives are currently coupled. Interviews after widowhood do not enter any of these regression samples.

**Table E.1:** Health transitions and survival over two years at age 80

| | | Health two years later (%) | | | Survives |
|---|---|---|---|---|---|
| | Health now | Good | Bad | Impaired | two years (%) |
| Single men | Good | 70.8 | 22.6 | 6.6 | 83.9 |
| | Bad | 26.2 | 48.6 | 25.2 | 75.9 |
| | Impaired | 2.4 | 29.1 | 68.5 | 58.8 |
| Single women | Good | 73.5 | 21.2 | 5.4 | 93.7 |
| | Bad | 27.1 | 49.4 | 23.5 | 88.0 |
| | Impaired | 5.7 | 30.8 | 63.5 | 77.7 |
| Husbands | Good | 77.2 | 18.6 | 4.2 | 90.5 |
| | Bad | 29.0 | 51.6 | 19.4 | 76.5 |
| | Impaired | 2.6 | 24.7 | 72.7 | 57.0 |
| Wives | Good | 74.6 | 21.4 | 4.0 | 94.7 |
| | Bad | 25.1 | 55.3 | 19.6 | 88.4 |
| | Impaired | 6.0 | 27.5 | 66.5 | 75.1 |

Notes. HRS interviews from 1996 to 2018, using respondent weights. Probabilities are in percent and evaluated at age 80 and middle permanent income. They come from a logit for survival and a multinomial logit for health, estimated separately for the four groups. Health two years later is conditional on surviving, and the three probabilities add up to 100. In the model a surviving spouse has the probabilities of a single person of the same sex.

All waves enter the estimates. Health in 1996 is recoded from RAND ADL and

IADL counts, as described in Appendix A.3. Survival, medical spending and end-of-life costs use this same health classification.

Table E.2 translates the estimated processes into expected remaining life and the probability of impairment from age 70. This calculation holds household type fixed. Husbands and wives therefore follow the couple process throughout this calculation. At middle permanent income and good health, single men expect 8.6 further years and husbands 10.2. The corresponding values for single women and wives are 14.7 and 15.7. Each period a person survives contributes two years, and the period in which the person dies contributes zero. Counting half of the death period would add one year.

**Table E.2:** Expected years of life and probability of impairment from age 70 implied by the first step

| | | Expected years of life by permanent income | | | Ever impaired (%) by permanent income | | |
|---|---|---|---|---|---|---|---|
| | Health at 70 | Low | Middle | High | Low | Middle | High |
| Single men | Good | 8.5 | 8.6 | 9.9 | 34.2 | 32.3 | 28.8 |
| | Bad | 7.0 | 7.2 | 8.6 | 45.0 | 42.2 | 36.9 |
| Single women | Good | 13.6 | 14.7 | 14.5 | 54.9 | 51.7 | 49.7 |
| | Bad | 12.1 | 13.4 | 13.1 | 61.8 | 58.1 | 56.3 |
| Husbands | Good | 9.2 | 10.2 | 11.3 | 30.2 | 31.5 | 23.6 |
| | Bad | 6.7 | 7.5 | 8.8 | 32.5 | 34.2 | 25.6 |
| Wives | Good | 14.9 | 15.7 | 16.4 | 53.4 | 50.7 | 45.9 |
| | Bad | 13.5 | 14.5 | 15.2 | 58.3 | 54.9 | 49.6 |

Notes: Computed from the first-step estimates of survival and health transitions (HRS). Expected years of life after age 70 count two years for each two-year period survived and nothing for the period of death. Ever impaired is the probability of at least one period in impaired health before death. Household type is held fixed. Low, middle and high are terciles of permanent income. A person impaired at 70 is not shown.

**Medical spending.** Table E.3 reports the spending process. A weighted regression of log out-of-pocket spending includes age minus 70, its square, health and permanent-income indicators, and indicators for women, couples and surviving spouses. Couple and survivor indicators are also interacted with sex. The sample contains 18,988 interviews with positive spending and positive weights at ages 70 to 102 and excludes nursing-home residents with zero weights. Spending is top-coded at $51,078 per

two-year period. Across all interviews at these ages, 729 exceed the cap, including 196 outside nursing homes. The fitted log-spending profile implies spending premiums of 34.8 percent in bad health and 78.3 percent in impaired health relative to good health. Middle- and high-income premiums are 16.7 and 23.7 percent relative to low income.

The shock takes three values, with a middle value of zero and high and low values symmetric around it. The high node is the 99th percentile of 20,885 residuals from a second regression. That regression includes age, age squared, health, permanent-income tercile, sex, couple status and its interaction with sex. Its residuals include nursing-home residents, unlike the mean regression. The three-state Rouwenhorst transition matrix follows Kopecky and Suen (2010). The autocorrelation measured from consecutive residuals is 0.42.

**Table E.3:** Out-of-pocket medical spending in the model

*A. Spending at the middle value of the shock, age 80, middle permanent income*

| | Health | | |
|---|---|---|---|
| | Good | Bad | Impaired |
| Single men | \$1,641 | \$2,212 | \$2,926 |
| Single women | \$1,724 | \$2,323 | \$3,074 |
| Husbands | \$1,770 | \$2,385 | \$3,155 |
| Wives | \$2,109 | \$2,842 | \$3,759 |
| Widowed men | \$1,768 | \$2,382 | \$3,151 |
| Widowed women | \$1,903 | \$2,565 | \$3,393 |

*B. The persistent shock*

| | Value of the shock | | |
|---|---|---|---|
| | Low | Middle | High |
| Spending relative to the middle value | 0.05 | 1 | 21.1 |
| Same value two years later (%) | 50.1 | 58.6 | 50.1 |
| Long-run share of periods (%) | 25 | 50 | 25 |

Notes: First-step estimates from the HRS, interviews from 1996 to 2018. Spending per person, in 2018 dollars per two-year period. Panel A is spending when the shock is at its middle value, at age 80 and middle permanent income. Mean spending in the long run is 5.78 times this value. Panel B describes the shock, which takes three values. For each value it gives spending relative to the middle value, the probability that the shock keeps its value two years later, and the share of periods at that value in the long run. The shocks of two spouses are independent.

**Income.** Table E.4 reports annual model income. Fitted log income combines the age and household-composition profile in the permanent-income regression with a

fifth-order polynomial in permanent-income rank (Appendix A.2). Weighted means of fitted income are computed by two-year age and tercile for single men, single women, husbands, wives, widowed men and widowed women. When a cell is empty, I use the value at a neighboring age. The table averages these profiles over interviews at ages 70 to 102, pooling sexes. There are 3,758 couple interviews, 9,607 single interviews and 4,276 survivor interviews. The last row divides mean income among survivors by mean income among couples. Because these come from different interviews, the ratio does not estimate the income change at widowhood.

**Table E.4:** Income by household type and permanent income

| | Permanent income | | |
|---|---|---|---|
| | Low | Middle | High |
| Couples (household income) | \$16,761 | \$26,411 | \$44,716 |
| Singles | \$8,832 | \$15,464 | \$27,516 |
| Surviving spouses | \$9,745 | \$15,770 | \$27,654 |
| Surviving spouses relative to couples | 58.1% | 59.7% | 61.8% |

Notes. HRS, using respondent weights. Amounts are in 2018 dollars per year. The model uses two-year amounts, which are twice these values. Income is Social Security benefits, pension and annuity income and veterans' benefits, and it excludes asset income, earnings and means-tested transfers. The table averages the model's income profiles over interviews at ages 70 to 102 within each group. Singles are respondents never observed in a couple, and surviving spouses are respondents whose spouse has died during the panel. The last row divides the third row by the first.

**End-of-life costs.** Table E.5 reports the one-time cost at death by sex and last observed health. It adds medical spending before death and funeral expenses from separate samples. The medical component is an unweighted mean over 4,586 exit interviews and equals half the out-of-pocket amount reported for the interval between the last interview and death. Funeral and burial expenses net of insurance are averaged over 3,155 deaths using the last respondent weight. The medical regression excludes the death wave. Medical costs after impairment are \$10,515 for men and \$11,062 for women. Funeral costs vary little across cells.

**Family care.** Table 1 reports the family schedules. Appendix C explains support types.

**Table E.5:** End-of-life costs by sex and health at the last interview

| | Health at the last interview | | |
|---|---|---|---|
| | Good | Bad | Impaired |
| Men: total | \$13,689 | \$13,288 | \$19,314 |
| Medical spending before death | \$5,443 | \$4,814 | \$10,515 |
| Funeral and burial, net of insurance | \$8,246 | \$8,474 | \$8,800 |
| Women: total | \$13,174 | \$14,167 | \$19,463 |
| Medical spending before death | \$4,661 | \$5,878 | \$11,062 |
| Funeral and burial, net of insurance | \$8,513 | \$8,289 | \$8,401 |

Notes: HRS exit interviews. 2018 dollars per death, paid once from the household's assets before any bequest. Each total is the sum of the two parts below it. Each part is a cell mean from a separate sample. Medical spending between the last interview and death uses 4,586 deaths, and funeral and burial expenses net of insurance use 3,155.

## E.2 Calibrated parameters

Table E.6 lists the parameters held fixed during second-step estimation. Section 5.3 explains their values.

**Table E.6:** Parameters fixed before second-step estimation

| Parameter | Symbol | Value | Source and notes |
|---|---|---|---|
| Discount factor | $\beta$ | 0.9216 | Per two-year period; 0.96 per year |
| Interest rate | $r$ | 0.02 | Per two-year period |
| Consumption scale of couples | $\eta$ | 1.53 | De Nardi, French, Jones, and McGee (2025) |
| Substitution curvature | $\omega$ | 0.50 | Elasticity of substitution 2 |
| Effectiveness of family hours, impaired recipient | $\chi(I)$ | 0.15 | Set externally |
| Price of paid care | $p$ | \$8,760 | Per two-year period for one hour a day; \$12 per hour |
| Couple floor relative to single floor | $\varrho$ | 1.6 | Imposed |
| Care-utility weight in good health | $\mu(G)$ | 0 | Normalization |

Notes: The model period is two years. The price of paid care, \$12 an hour, equals \$8,760 per two-year period for one hour of care a day.

## E.3 Moments

**Table E.7:** Moments targeted in the second step

| Block | Moments | What is targeted | Why it is targeted |
|---|---|---|---|
| Wealth | 324 | 25th, 50th and 75th percentiles of household wealth, by cohort, survey year (1996–2014), household type and permanent-income tercile | How family and paid care affect asset accumulation |
| Medicaid receipt | 92 | Share of households on Medicaid, by cohort, survey year (1996–2014) and permanent-income tercile (88 moments); difference in that share between singles and couples, by age group, in the bottom and middle terciles (4 moments) | Public insurance alongside family care |
| Paid-care hours | 6 | Mean paid hours per day in bad and in impaired health, for singles and for couples (4 moments); among the impaired, the difference between low and high income for singles and between low and high support for couples (2 moments) | Purchased care conditional on family support |
| Total | 422 | | |

Notes. HRS cohorts cover ages 71 to 76, 77 to 82, 83 to 88, and 89 to 102 in 1996. Wealth and Medicaid cells cover the survey years from 1996 to 2014, and the paid-care moments pool the interviews from 1998 to 2018. All three blocks use the households that start the simulation, beginning with their first interview at age 70 or older. A surviving spouse is in the cells of singles, with the cohort and the permanent-income group of the couple. Medicaid receipt is reported coverage and counts nursing-home residents. Model receipt is the share of households receiving a transfer. Simulated paid-care moments exclude the first period, which is assigned to 1996.

The second step matches 422 moments in Table E.7. Cohorts correspond to ages 71 to 76, 77 to 82, 83 to 88 and 89 to 102 in 1996. All groups of data moments use the households that initialize the simulation, beginning with their first interview at age 70 or older. Each simulated household retains the cohort of its HRS source household, but its entry is assigned to 1996 and subsequent periods to 1998–2014. This also applies to the 95 source households first interviewed during 1998–2008, although they enter data targets only when observed. Income-tercile assignments in the targets differ from those in the model for about 3 percent of initial households.

**Wealth.** Cells are defined by current household type, cohort, survey year and permanent-income tercile. Couples use the higher spouse's tercile. Survivors enter singles cells while retaining the couple's cohort and income group. Couple cells include interviews with only one spouse reporting, provided both are alive, and use the reporting spouse's wealth and weight. Each cell targets the 25th, 50th and 75th wealth percentiles.

The 72 singles cells extend through 2014, 2010, 2006 and 2000 for successive cohorts, starting in 1996. The 36 couple cells extend through 2008, 2004 and 2000 for the first three cohorts. The oldest cohort has no couple cells. Only cells with sufficient observations enter, giving 13,654 household-year observations in total. A data percentile is the smallest wealth level at which cumulative respondent weight reaches the specified share. Zero weights exclude mostly nursing-home interviews. Simulated percentiles use living households without additional weights and interpolate between order statistics.

**Medicaid receipt.** The first 88 moments pool singles and couples by cohort, survey year and income tercile. Successive cohorts extend from 1996 through 2014, 2012, 2008 and 2002, subject to minimum cell counts. The oldest cohort contributes only its 2002 cell. Together these cells contain 15,759 household-year observations. The other 4 moments compare receipt shares for singles and couples in the low- and middle-income groups. Each comparison pools cohort-year cells with midpoint ages 70 to 84 or 85 and older. Receipt in the data is reported coverage, calculated with weights that include nursing-home residents. Model receipt is a positive transfer. Survivors retain the couple's cohort. Households outside the initial simulation sample, mostly people already widowed at entry, are excluded. Nursing-home residents account for 45.4 percent of impaired interviews, unweighted. The model applies community care schedules to a receipt target that also reflects institutional care.

**Paid care.** Four moments are mean daily hours per person for singles and couple members in bad and impaired health. Data pool 1998–2018, while simulations pool periods assigned to 1998–2014 after dropping entry. Two additional moments compare paid hours among impaired recipients. One subtracts the hours of high-income singles from those of low-income singles. The other subtracts the hours of high-support couple members from those of low-support couple members, counting each household

according to its type probabilities.

Paid hours sum the hours of helpers whose reported relationship identifies them as paid help, unless they report being unpaid. Interviews without a paid helper count as zero. Interviews with unknown paid-helper hours are excluded. Unpaid help from other individuals and organizations counts as neither paid nor family care. Both data and simulation cap paid hours at 8 per day. The four mean targets use 6,302 interviews. The household-bootstrap standard errors are 0.2632 daily hours for the income contrast and 0.4133 for the support contrast.

Simulated cells require at least 15 observations. Data standard errors use a household bootstrap with 200 replications for receipt and paid care. The wealth bootstrap has 160 replications and at most 700 observations per cell. It resamples without survey weights, whereas the targeted percentiles are weighted.

## E.4 Criterion and weights

The estimation criterion is the weighted distance between $L = 422$ data moments $\hat{M}$ and simulated moments $M(\theta)$.

$$\hat{\theta} = \arg\min_{\theta} Q(\theta), \qquad Q(\theta) = \left[M(\theta) - \hat{M}\right]' \Omega \left[M(\theta) - \hat{M}\right]. \tag{E.1}$$

The diagonal weight for moment $l$ is

$$\Omega_{ll} = \frac{1}{L_l \left(\max\{\mathrm{se}_l, \underline{\mathrm{se}}_l\}\right)^2}, \tag{E.2}$$

Here $\mathrm{se}_l$ is the data standard error, $\underline{\mathrm{se}}_l$ its imposed minimum, and $L_l$ the number of moments in its block. The minimum standard errors are \$10,000 for wealth, 2 percentage points for receipt and 0.25 hours for paid care. They bind for 56 of 324 wealth moments, 42 of 92 receipt moments and 4 of 6 paid-care moments.

Each block contributes its mean squared standardized deviation. Dividing by $L_l$ gives blocks equal weight regardless of size. A paid-care moment therefore contributes 54 times as much as a wealth moment with the same standardized deviation. The minimum standard errors prevent very precise moments from dominating a block. I use diagonal weights because inverse estimated covariance matrices can produce small-sample bias (Altonji and Segal, 1996). The minimized criterion is not a chi-square statistic under these weights, and I report no overidentification test.

## E.5 Search and simulation

Each evaluation solves the model on the asset grid in Appendix H.1 and simulates 3,000 households with common random draws across evaluations. These comprise 830 couples, 402 single men and 1,768 single women. The coordinate search evaluates one step above and below each parameter, holding the others fixed, and moves to the point with the largest improvement. After a pass without improvement, the step sizes are reduced by half until they reach 0.001 in search units. Search stops when a full pass at that step finds no improvement above $10^{-8}$. I use one starting point. No estimate lies at a search bound.

Reported fit in Section 5.5 and Appendix F, and counterfactuals in Section 6, use 21,000 households at the estimate.

## E.6 Parameter estimates

Table E.8 reports the estimated preferences and Medicaid floors. All four bequest parameters enter equation (4) and are estimated jointly with the other preferences and the single floor. They are common across support types.

For comparison with the annual single floor, the 2018 maximum SSI benefit is \$9,000 (Social Security Administration, 2019), and the single floor in De Nardi, French, Jones, and McGee (2025) is \$4,350, both in 2018 dollars. The floor here is the consumption component of a guarantee that also provides paid care in bad and impaired health. Minimum spending in these health states is 1.9 and 4.2 times the good-health floor.

## E.7 Standard errors

I use the asymptotic covariance formula for simulated moments in Pakes and Pollard (1989) and Duffie and Singleton (1993). It relies on their regularity conditions and a correctly specified model.

$$\widehat{\mathrm{Var}}(\hat{\theta}) = \left(1 + \frac{N^{\mathrm{data}}}{N^{\mathrm{sim}}}\right) (D'\Omega D)^{-1} D'\Omega \,\Sigma\, \Omega D \,(D'\Omega D)^{-1}, \tag{E.3}$$

For inference, the parameter vector contains $\sigma$, $\nu$, $\tau$, $\log \tilde{\mu}(B)$, $\log[\tilde{\mu}(I) - \tilde{\mu}(B)]$, $\log \underline{c}_S$, $\log \phi_0$, $\log \phi_1$, $\log \kappa_0$ and $\log \kappa_1$. The moment Jacobian is $D = \partial M(\theta)/\partial \theta'$ at $\hat{\theta}$. The covariance matrix of the data moments is $\Sigma$, and $\Omega$ is the estimation weight matrix from equation (E.2). The leading factor allows for simulation error. The data moments

**Table E.8:** Parameter estimates and conditional standard errors

| Parameter | Symbol | Estimate | Bootstrap S.E. | Floored S.E. |
|---|---|---|---|---|
| *Preferences for consumption and care* | | | | |
| Consumption curvature | $\sigma$ | 2.8688 | 0.2523 | 0.2917 |
| Care curvature | $\nu$ | 2.7721 | 0.1242 | 0.1416 |
| Paid-care weight† | $\tau$ | 0.3971 | 0.0948 | 0.1571 |
| Bad-health care weight (log) | $\log \tilde{\mu}(B)$ | 2.4761 | 0.7767 | 2.5522 |
| Impaired-health increment (log) | $\log[\tilde{\mu}(I) - \tilde{\mu}(B)]$ | 5.4720 | 1.0555 | 1.5074 |
| *Medicaid floors, dollars per year* | | | | |
| Singles | $\underline{c}_S/2$ | \$2,913 | \$414 | \$554 |
| Couples, implied by the ratio | $\underline{c}_C/2$ | \$4,660 | \$662 | \$887 |
| *Bequest preferences, standard errors of log parameters* | | | | |
| | | Estimate in levels | Bootstrap S.E. | Floored S.E. |
| Strength, no surviving spouse | $\phi_0$ | 4,901,243 | 0.5055 | 0.5537 |
| Strength, surviving spouse | $\phi_1$ | 6,012 | 1.5162 | 1.6705 |
| Shift, no surviving spouse | $\kappa_0$ | 4,197,398 | 0.3310 | 0.3543 |
| Shift, surviving spouse | $\kappa_1$ | 210,603 | 0.9624 | 1.1405 |

Notes. The primary column uses bootstrap variances for the four paid-care level moments; the alternative imposes their minimum variances. Both retain the other moment floors and condition on first-step estimates and calibrations. Care weights use consumption in thousands of dollars and care in hours per two-year period. Floors are annual 2018 dollars. The couple floor is implied by the single floor and calibrated ratio. Bequest estimates are in model units, with shifts in model dollars. Their standard errors are for $\log \phi_n$ and $\log \kappa_n$, as indicated. † The paid-care weight uses numerical moment derivatives averaged over 5 sets of random draws. Appendix E.7 describes the calculation and the distinction between the two conventions.

use $N^{\text{data}} = 5{,}303$ persons. The expected number represented by the 3,000 search households is $N^{\text{sim}} = 3{,}823$, giving a simulation adjustment factor of 2.39.

I use a diagonal $\Sigma$ and report two conventions for paid-care variances, holding $\hat{\theta}$ and $\Omega$ fixed. The primary convention uses the empirical bootstrap variances of the four paid-care level targets to reflect their estimated sampling precision. The alternative uses the minimum standard error of 0.25 daily hours imposed during the search. This floor limits the influence of precise targets in the criterion. It is approximately 1.6 to 9.6 times their bootstrap standard errors; variance ratios are the squares of these quantities. Wealth standard errors retain their minimum of \$1,000, and receipt standard errors retain their minima in $\Omega$. Cross-moment covariances are not estimated, although wealth percentiles in a cell and repeated cohort cells use overlapping households.

I compute $D$ by central differences over 189,000 households, averaging over 5 sets of random draws. Each set includes a new draw of unobserved support types. The simulation adjustment in equation (E.3) still uses the search sample size.

The estimated log floor is 8.6700 with primary standard error 0.1421 and alternative standard error 0.1903. I use the delta method to express the floor standard errors in Table E.8 in dollars.

I also use the delta method for results in Section 6. Each reported delta-method result is evaluated one derivative step above and below each of the ten parameters, holding the others fixed. I combine the resulting gradients with equation (E.3), using step 0.0045 for the $\tau$ moment derivatives.

The two covariance conventions differ only in the variances assigned to four paid-care levels in $\Sigma$. Their bootstrap standard errors are 0.0260, 0.1112, 0.0395 and 0.1601 daily hours. The floored convention replaces them with 0.25, the minimum used in the search weights. Neither convention changes the point estimate or estimation weights. Using bootstrap variances gives $\tau$ a standard error of 0.095, compared with 0.1571 under the floored convention. The corresponding standard errors for $\sigma$ are 0.2523 and 0.2917.

The remaining-life value of family care is \$58,719 per household, with conditional standard errors of \$22,629 under bootstrap paid-care variances and \$44,541 under floored variances. The 20-year present value of Medicaid saving is \$713, with standard errors of \$341 and \$669. The expansion offset is 28.5 percent, with standard errors of 12.3 and 20.2 percentage points. Bootstrap results appear first in each pair.

The same derivative sessions, parameter covariance matrices and two conventions also give conditional errors for partial losses, spousal protection and the 2060 scenario (Table E.10). For losses of 25, 50 and 75 percent, the overall standard errors are \$878, \$2,068 and \$4,474 under bootstrap paid-care variances, and \$1,980, \$4,684 and \$9,942 under floored variances. The 42 percent spousal-protection reduction has standard errors of 4.0 and 7.9 percentage points. For 2060, the \$8,061 compensation has standard errors of \$1,870 and \$4,037; the 11.9 percent replacement ratio has errors of 3.2 and 6.4 percentage points; and the \$140 transfer change has errors of \$174 and \$245. Its untruncated normal 95 percent intervals are minus \$201 to \$480 and minus \$341 to \$621, respectively: the transfer change is statistically indistinguishable from zero. These are local calculations conditional on the model, first-step estimates and calibrated inputs; they exclude first-step and calibration uncertainty.

These are local delta-method calculations conditional on the model, first-step estimates and calibrated inputs. They omit first-step and calibration uncertainty. I report no standard error for value divided by fiscal saving. Saving is small relative to its standard error, and the 90 percent normal-Fieller set is unbounded under the floored covariance convention.

Couple value is 1.58 times single value, with primary standard error 0.11 and alternative standard error 0.18. Spouse care accounts for 46.6 percent of couple value, with corresponding standard errors of 3.0 and 5.3 percentage points. These calculations retain the estimated parameter covariances. The primary local normal 95 percent interval for mean complete-removal value is \$14,366 to \$103,072. These intervals remain conditional on the fixed first step and calibrated technology. Under the floored convention, the corresponding overall interval is minus \$28,581 to \$146,018. The normal intervals are not truncated at zero; the compensation measure remains non-negative.

## E.8 Sensitivity of the parameters to the moments

I assess how the parameter estimates respond locally to the three moment blocks. I use $\Lambda = -(D'\Omega D)^{-1}D'\Omega$ to measure this sensitivity (Andrews, Gentzkow, and Shapiro, 2017). Each row gives an estimate's response to changes in data moments. I multiply the absolute value of each element by the corresponding moment standard error, then compute each block's share of the sum. This puts moment changes on a common

**Table E.9:** Conditional uncertainty of the complete-removal means

| | Mean ($) | Primary S.E. ($) | Alternative S.E. ($) |
|---|---|---|---|
| All households | 58,719 | 22,629 | 44,541 |
| Couples | 80,289 | 32,045 | 63,169 |
| Singles | 50,881 | 19,325 | 37,917 |
| *Local normal 95 percent intervals for the overall mean* | | | |
| Primary | | | $14,366 to $103,072 |
| Alternative | | | minus $28,581 to $146,018 |

Notes. Central differences of the saved aggregate results at the existing ten parameter perturbations, combined with the original parameter covariance under each convention. The full parameter covariances are retained. Dollar amounts are entry wealth per initial household over remaining life, in the baseline reporting units. The overall errors reproduce the preceding calculation. The couple and single errors use the same saved outcomes and covariance conventions. Both conventions retain the other moment floors, the diagonal moment covariance and the same search weights. First-step and calibration uncertainty are excluded. Normal intervals are untruncated.

one-standard-error scale.

Paid-care moments account for 43 percent of the sensitivity of the paid-hours weight and 54 percent for the bad-health care weight. These are the largest paid-care shares. Receipt contributes 48 percent for the floor and 55 percent for care curvature. Wealth contributes 38 percent for consumption curvature and 49 to 59 percent for bequest parameters. No share exceeds 59 percent. Every parameter responds to more than one block.

For every parameter, the largest individual response is to a paid-care moment. Because the blocks have equal weight and there are only 6 paid-care targets, each paid-care moment receives a weight 54 times that of a comparably standardized wealth moment (Appendix E.4). Errors in this small group of targets therefore affect all the parameter estimates.

These derivatives describe local sensitivity to the targets at $\hat{\theta}$. They use the same parameters and numerical moment derivatives as the standard errors.

**Table E.10:** Conditional uncertainty of partial-loss, spousal-protection and 2060 results

| | Mean | Primary S.E. | Alternative S.E. |
|---|---|---|---|
| *Partial losses: compensation at entry (dollars)* | | | |
| 25 percent loss, all households | 4,806 | 878 | 1,980 |
| 25 percent loss, couples | 5,367 | 1,084 | 2,440 |
| 25 percent loss, singles | 4,602 | 818 | 1,825 |
| 50 percent loss, all households | 9,377 | 2,068 | 4,684 |
| 50 percent loss, couples | 11,582 | 2,682 | 6,146 |
| 50 percent loss, singles | 8,576 | 1,876 | 4,183 |
| 75 percent loss, all households | 17,310 | 4,474 | 9,942 |
| 75 percent loss, couples | 22,727 | 5,985 | 13,916 |
| 75 percent loss, singles | 15,341 | 3,979 | 8,583 |
| *Common loss of outside help, initial couples* | | | |
| With spouse care (dollars) | 6,502 | 1,902 | 3,632 |
| Without spouse care (dollars) | 11,231 | 3,943 | 7,704 |
| Spousal protection (percent) | 42.1 | 4.0 | 7.9 |
| Reduction in compensation (dollars) | 4,729 | 2,064 | 4,094 |
| *2060: compensation at entry (dollars)* | | | |
| All households | 8,061 | 1,870 | 4,037 |
| Couples | 6,653 | 1,917 | 3,686 |
| Singles | 8,573 | 1,875 | 4,181 |
| *2060: lost clock hours replaced (percent)* | | | |
| All households | 11.9 | 3.2 | 6.4 |
| Couples | 15.7 | 5.3 | 9.0 |
| Singles | 11.0 | 2.7 | 5.9 |
| *2060: transfer change, 20-year present value (dollars)* | | | |
| All households | 140 | 174 | 245 |
| Couples | 28 | 329 | 415 |
| Singles | 180 | 136 | 199 |

Notes. Primary standard errors use bootstrap paid-care variances; alternative errors use floored variances. Means retain the manuscript's 2018-dollar convention. Percent rows have standard errors in percentage points. All values use the same saved derivative sessions and full parameter covariances, and condition on the model, first-step estimates and calibrated inputs. The compensation difference uses the gradient without spouse care minus the gradient with spouse care, retaining their covariance. No new model evaluation or bootstrap is used. The ceiling-excluded $4,850 difference has no standard error.

# F Model fit and additional comparisons

This appendix reports detailed comparisons for the 21,000 households simulated at the estimated parameters. These comparisons complement the fit figures in Section 5.5.

## F.1 Fit by block of moments

Table F.1 summarizes deviations from the target moments and reports the unweighted root mean squared deviation for each block. The intervals extend 1.96 data standard errors on either side of the HRS moment, using the minimum standard errors stated in the notes. The interval counts are descriptive fit statistics.

**Table F.1:** Fit of the estimated model by block of moments

| | | Outside the interval | | | Root mean |
|---|---|---|---|---|---|
| Block | Moments | All | Below | Above | squared deviation |
| Wealth | 324 | 75 | 59 | 16 | \$75,105 |
| Medicaid receipt | 92 | 17 | 11 | 6 | 5.0 points |
| Paid-care hours | 6 | 0 | 0 | 0 | 0.32 hours a day |
| Total | 422 | 92 | 70 | 22 | |

Notes. HRS moments and the model simulated with 21,000 households. Outside the interval means a deviation greater than 1.96 data standard errors. Standard errors have minima of \$1,000 for wealth, 2 percentage points for Medicaid, and 0.25 hours for paid care. The estimation weights use a larger wealth minimum than this diagnostic. Below and above indicate the model's position relative to the HRS. Root mean squared deviations are unweighted across the moments in each block. These interval counts are descriptive fit diagnostics.

Minimum variances make some Medicaid and paid-care intervals wider than those based on the bootstrap alone. With bootstrap standard errors alone, 2 of the 6 paid-care targets fall outside their intervals. Both are mean hours in bad health. Appendix E.4 describes the weighting conventions.

## F.2 Selected cells for couples and singles

**Wealth.** Simulated households start with observed wealth, so the entry-year comparison largely reflects initialization. Table F.2 also reports wealth at a later date, separately by income and household type.

**Table F.2:** Selected moments in the HRS and in the estimated model, couples and singles

| | Couples | | Singles | |
|---|---|---|---|---|
| | Data | Model | Data | Model |
| *Median wealth, thousands of 2018 dollars* | | | | |
| Low income, 1996 | 190 | 181 | 37 | 35 |
| Middle income, 1996 | 224 | 224 | 131 | 131 |
| High income, 1996 | 375 | 370 | 235 | 224 |
| Low income, 2002 | 255 | 154 | 49 | 0 |
| Middle income, 2002 | 341 | 277 | 143 | 117 |
| High income, 2002 | 496 | 523 | 265 | 274 |
| *Medicaid receipt, percent of households* | | | | |
| Low income, ages 70–74 | 8.6 | 4.7 | 33.3 | 14.6 |
| Low income, ages 75–79 | 13.6 | 10.5 | 29.9 | 19.5 |
| Low income, ages 80–84 | 11.5 | 18.5 | 30.5 | 24.6 |
| Low income, ages 85–89 | 18.5 | 23.5 | 31.0 | 29.6 |
| Middle income, ages 70–74 | 3.5 | 2.1 | 2.4 | 1.8 |
| Middle income, ages 85–89 | 3.0 | 1.6 | 5.8 | 8.5 |
| High income, ages 70–74 | 0.7 | 0.8 | 1.4 | 0.8 |
| High income, ages 85–89 | 2.7 | 0.0 | 3.2 | 1.1 |
| *Paid care, hours per day* | | | | |
| Bad health | 0.19 | 0.05 | 0.32 | 0.26 |
| Impaired | 1.14 | 1.02 | 1.70 | 1.69 |
| Impaired, low minus high income | | | −0.24 | −0.32 |
| Impaired, low minus high support | −0.36 | 0.39 | | |

Notes. HRS and 21,000 simulated households. Income groups are permanent-income terciles. Current singles include surviving spouses. Wealth entries are targeted household medians in 1996 and 2002 for the cohort aged 71 to 76 at its first interview. Medicaid entries aggregate cohort and survey-year cells into five-year age groups, assigning each cell its cohort midpoint age. The four cohort midpoints in 1996 are 73.5, 79.5, 85.5, and 95.5. These household-type cells are not directly targeted because the targets pool couples and singles. HRS coverage includes nursing-home residents, while the model records transfer receipt. Paid-care entries are the six targets in hours per person per day. The final contrasts compare income groups among impaired singles and support groups among impaired members of couples.

**Medicaid receipt.** Receipt is concentrated among low-income households in both the data and the model. The model generates a steeper age profile for low-income singles. For low-income couples, its predictions move from below the data at younger ages to above them at older ages.

**Paid care.** The four predicted mean-hour levels are below their targets, with the closest match for impaired singles. In the five-seed mean used to calculate uncertainty, the bad-health gaps are 2.37 and 3.50 bootstrap standard errors for singles and couple members, respectively.

The income contrast among impaired singles has the same sign in the data and model. The low-minus-high-support contrast among impaired couple members has opposite signs, at $-0.36$ hours in the data and 0.39 in the model. Everyone in bad or impaired health purchases care in the model. In the HRS, the corresponding participation rates are 11.4 and 39.5 percent.

## F.3 Outcomes not targeted in estimation

These comparisons examine care after a spouse's loss of good health and Medicaid receipt around widowhood. Paid care is chosen in the model, while changes in family hours partly reflect the first-step schedules. The comparisons below specify the samples and distinguish the HRS outcomes from their model counterparts.

### F.3.1 Care after a spouse's loss of good health

I examine care changes after a spouse loses good health using a broader sample and an aligned sample. I compare two-year care changes when an initially healthy spouse leaves good health with changes when that spouse remains healthy. Recipients need care at baseline. In the HRS, I control for recipient-health transitions, five-year age groups, wealth, current household income, sex, interview year and birth group, and cluster standard errors by household. Wealth and income enter in inverse hyperbolic sine form. The model uses analogous controls, with permanent-income terciles in place of current income and no birth-group control. Age conventions also differ.

Table F.3 uses 3,093 HRS transitions, including 517 events. In the HRS, spouse care falls and children and others provide more care, but total care still falls. The HRS

paid-care point estimate is positive, with an interval that includes zero; the model predicts an increase.

The model predicts 0.17 additional daily paid hours per recipient, compared with an HRS point estimate of 0.02 and an upper interval endpoint of 0.13. Total care falls by 1.53 hours in the model and 0.72 in the data. Children and others replace about 30 percent of lost spouse hours in the HRS, while their model schedule cannot respond to spouse health. All four modeled care changes in this broader comparison lie outside the HRS intervals. The aligned comparison below uses common observation years and controls.

The predicted decline in spouse care largely follows from applying its first-step schedule to changes in health. Paid care is a household choice. The HRS comparison selects surviving community couples with complete care reports and includes an early wave with unobserved own-spouse care. Age and income controls also differ across the two samples, as described above. The comparison is descriptive and does not identify the response of Medicaid receipt to lost spouse care.

**Table F.3:** Care after a spouse's loss of good health in the HRS and in the estimated model

| | HRS | | Estimated model | |
|---|---|---|---|---|
| Care source | Change | 95% interval | Change (sim. s.e.) | Distance (HRS s.e.) |
| Spouse | −1.05 | [−1.66, −0.43] | −1.70 (0.04) | 2.1 |
| Children and others | 0.32 | [0.06, 0.57] | 0.00 (0.02) | 2.4 |
| Paid care | 0.02 | [−0.10, 0.13] | 0.17 (0.01) | 2.6 |
| Total care | −0.72 | [−1.35, −0.08] | −1.53 (0.04) | 2.5 |

Notes. The table compares two-year changes in daily hours per recipient between couples whose spouse leaves good health and couples whose spouse remains in good health. The HRS sample has 3,093 transitions and 517 events. Estimates use baseline weights and 95 percent intervals clustered by household. The model has 5,801 transitions and 1,420 events. Its parenthesized standard errors measure simulation noise only. Controls are analogous across samples, with the age and income differences described in the text. The reported distance is the absolute difference between the model and HRS changes divided by the HRS standard error. Spouse hours follow the first-step schedule. Paid care is chosen. Hours from children and others depend on recipient health and support type and cannot respond to spouse health. The event changes were not estimation targets.

**Aligned samples and controls.** Table F.4 aligns baselines to 2000–2012, requires both spouses to be at least 70, and uses the same surviving community couple at the

next interview. The recipient starts in bad or impaired health and the spouse in good health. The HRS has 2,184 transitions, including 406 events, from 1,371 couples; the model has 3,100 transitions, including 863 events, from 1,725 simulated households. Both specifications control for recipient-health transitions, recipient age bands, sex, inverse-hyperbolic-sine household assets and period groups. Neither controls for income. In the model, age follows the husband's household age and assigns the wife an age two years younger.

**Table F.4:** Care changes after spouse health declines, aligned comparison

| | HRS | Model |
|---|---|---|
| Spouse | $-1.338$ $[-1.98, -0.70]$ | $-1.746$ $[-1.86, -1.64]$ |
| Children and others | $0.265$ $[0.01, 0.52]$ | $-0.013$ $[-0.05, 0.03]$ |
| Formal-provider / paid care | $-0.006$ $[-0.14, 0.12]$ | $0.166$ $[0.13, 0.20]$ |
| Total | $-1.079$ $[-1.72, -0.44]$ | $-1.593$ $[-1.70, -1.49]$ |

Notes. Daily hours per recipient. Entries compare the two-year change when a spouse leaves good health with the change when the spouse remains healthy. Brackets are 95 percent intervals. HRS estimates use baseline respondent weights and couple-clustered errors; model intervals measure simulation uncertainty with household clusters. Neither includes first-step or parameter uncertainty. Spouse and other-family hours follow model schedules. Paid hours are chosen above the floor and prescribed in the floor bundle otherwise; 4.5 percent of model transitions receive the floor bundle at either date. HRS formal-provider hours classify helpers by relationship and do not verify payment. They are a broader measure than the paid-help targets. The model's mean recipient age is 82.3, against 77.9 in the HRS, and the cohorts differ. The comparison is conditional and descriptive.

Paid care rises in the model, while the HRS interval includes zero. The model also omits the response of children and others to spouse health that appears in the data. These comparisons do not determine the direction of bias in either the spouse allocation or the common-loss percentage. The spouse and total-care predictions lie within the aligned HRS intervals, unlike in the broader comparison.

As a first-step sensitivity at the estimated structural parameters, I let care from children and others depend on recipient health, inherited support type and whether the spouse is in good versus bad or impaired health. A pooled conditional coefficient estimated from the original first-step rows changes these schedules; normalization preserves the first-step cell means under the observed spouse-health distribution. With the response disabled, the calculation reproduces the baseline values, flows, criterion and complete-loss compensations. With the response, the complete-loss value is \$58,734 against \$58,719 for all initial households and \$80,345 against \$80,289 for initial

couples; singles are unchanged. The spouse share is 46.6 percent and common-loss protection is 42.0 percent (Appendix Table G.23). The reporting criterion is about 6.310 against 6.312, at unchanged structural parameters and with the original targets and weights. This is a first-step sensitivity, not an endogenous response to a care cut; it does not validate the care technology. First-step coefficient uncertainty has not been propagated through the life-cycle calculation. Capped cases are unchanged: 337 for complete removal and 147 and 149 of 5,597 initial couples in the two common-loss arms. These capped cases need not attain reference welfare.

### F.3.2 Medicaid receipt around widowhood

Widowhood removes spouse care and household resources. Figure F.1 compares 343 HRS survivors with matched respondents who remain married (Appendix B.3). The model follows 2,616 survivors widowed 6–14 years after entry. Both series measure the change in receipt relative to six years before widowhood, and both set event time zero at the first observation after death.

The raw model path predicts an increase in receipt too soon after widowhood. Its four- and two-year pre-death changes, 0.6 and 1.3 points, lie inside the HRS intervals. Receipt then rises by 5.0 points at the first post-death observation and 10.3 points four years later.[18] The HRS estimates detect no change within four years. The pooled post-death estimate is 0.8 points, with 95 percent interval −3.0–4.6, against 7.6 in the model. The model predictions exceed the HRS intervals at death and two years later, but lie inside the interval four years later.

An HRS sample followed over a longer window gives an eight-year rise of 11.0 points, with interval 2.2–19.8 and 90 survivors. The corresponding model rise is 14.0 points.

The raw model path captures the direction of the longer-run increase but misses its timing and short-run size. Some of the discrepancy may reflect differences in the comparisons. The raw model paths retain the effects of aging that HRS matching removes. They also measure household transfers, while the HRS records individual coverage. Nursing-home use rises by 4.2 points in the HRS, a state absent from the model. These differences prevent attributing the discrepancy to a particular model mechanism.

[18] Across three additional simulations of 63,000 households, the four-year change ranges from 9.1 to 10.9 points.

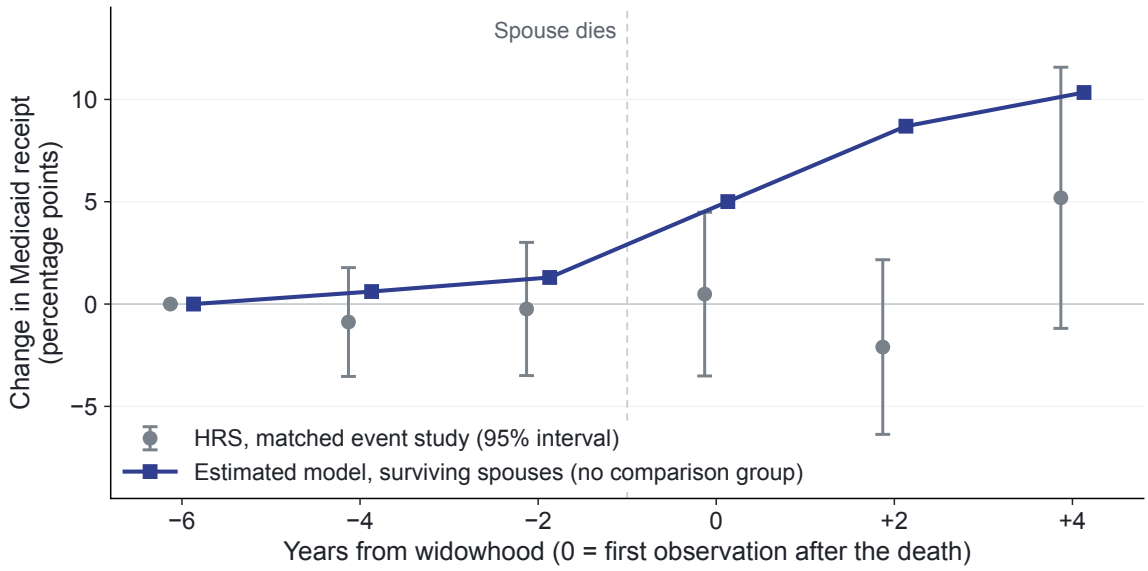



**Figure F.1:** Medicaid receipt around widowhood in the HRS and the estimated model

Notes. The HRS series compares surviving spouses with matched respondents who remain married, relative to six years before widowhood. The 95 percent intervals are clustered by person (Appendix B.3). There are 343 survivors at event time zero, 257 two years later, and 192 four years later. The outcome is the survivor's reported coverage. The model series follows 2,616 couples widowed between 6 and 14 years after entry, with 2,071 and 1,596 survivors alive two and four years later. It measures the change in the share receiving a household transfer. The model series has no matched comparison group or nursing-home state. Event time zero is the first interview or model period after the death. These changes were not estimation targets. Points are offset horizontally for legibility.

**Matched comparison within the model.** I match the same 2,616 model survivors to recipients who remain married, using the HRS rules for sex, age, permanent-income rank and assets. Matches have the same sex, age within 4 years and income rank within 0.20 at the observation six years before the death. I select up to 3 recipients with the closest inverse-hyperbolic-sine assets and estimate the same event-time interactions with matched-pair fixed effects. Table F.5 compares these estimates with the raw model path and the HRS estimates.

After matching, the model's first post-death increase is 2.4 percentage points, compared with 5.0 in the raw path. The matched point lies within the HRS interval. Two years later, the model increase remains above that interval, at 5.8 points. Four years later, its 6.8-point increase lies within the interval. Excluding matches drawn from the same original HRS household gives post-death increases of 2.2, 5.7 and 6.3 points and leaves this assessment unchanged. Matching therefore reduces part of the

**Table F.5:** Medicaid receipt around widowhood with a matched model comparison

| Years | HRS matched | Model raw | Model matched |
|---|---|---|---|
| −4 | −0.9 [−3.5, 1.8] | 0.6 | 0.1 [−0.8, 1.0] |
| −2 | −0.2 [−3.5, 3.0] | 1.3 | −0.1 [−1.3, 1.1] |
| 0 | 0.5 [−3.5, 4.5] | 5.0 | 2.4 [0.8, 4.0] |
| +2 | −2.1 [−6.4, 2.2] | 8.7 | 5.8 [3.9, 7.8] |
| +4 | 5.2 [−1.2, 11.6] | 10.3 | 6.8 [4.7, 8.9] |

Notes. Percentage-point changes relative to six years before widowhood. Year zero is the first observation after the spouse's death. The raw model series follows the survivors alone. The matched estimates compare survivors with married recipients and include matched-pair fixed effects. Each survivor has weight one and its matched recipients share weight one. The HRS intervals use person clusters; model intervals use simulated-household clusters and measure simulation variation only. They exclude parameter and first-step uncertainty. Model income ranks are taken from the source households at initialization. The model event cohorts are 2002–2010, compared with 2004–2014 in the HRS. The model assigns fixed relative spouse ages and has no nursing-home state. Its outcome is household transfer receipt, while the HRS records individual coverage. The same-source exclusion check described in the text retains the same model survivors.

earlier discrepancy, while the excessive two-year response remains.

This widowhood comparison mainly concerns the loss of resources. In the broader group of 4,964 model survivors, resource loss accounts for 95 percent of the increase in the present value of transfers. Spouse-care loss accounts for the remainder (Appendix G.11).

Neither event comparison establishes that the transfer response to removing family care is an upper bound. Widowhood changes resources, composition and care together. The raw model path lacks a matched control, and the matched comparison retains the measurement and population differences noted above. The family-care counterfactual holds health and survival paths fixed and has a different transfer comparison.

# G Additional results

This appendix reports household responses, transfer accounting and further counterfactuals. Comparisons draw on the same initial sample of 21,000 households and shock draws. Restricted comparisons use their stated subsets. Parameters remain at their baseline estimates except where re-estimated curvature profiles are stated. Conditional standard errors for selected headline results are in Appendix E.7; the other counterfactual results have no reported standard errors. Differences and ratios

use unrounded values.

The units and horizons differ across the reported dollar amounts. Budget flows are means per living household and two-year period over the 110,845 periods with a living member. Medicaid present values cover 20 years per initial household (equation G.2). Compensation is a one-time addition to entry wealth covering remaining life (equation 11). All are in 2018 prices, and the simulated paths use households' own assets without compensation.

## G.1 Household accounting when all family care is removed

I compare household choices under current family care with those after complete removal, starting from the same assets and providing no compensation. Table G.1 shows how households finance additional paid care, and Table G.2 reports the responses by household type and permanent income.

Differencing the budget constraint (9) shows how households finance additional paid care. Income and medical spending are fixed across environments, giving

$$\Delta\Big(p\sum_{g}\ell_t^{\text{paid},g}\Big) = -\Delta c_t - \Delta\big(a_{t+1} - a_t\big) + \Delta b_t + r\,\Delta a_t. \tag{G.1}$$

Here $\Delta$ is the mean without family care minus the mean with it, $a_{t+1} - a_t$ is net saving, and $r\,\Delta a_t$ is the change in interest income. The relation holds for averages over living periods apart from the residual introduced by the asset grid.

Paid-care spending rises by \$6,077 per living household and two-year period, of which higher transfers finance 3.1 percent. Lower consumption and net saving finance the rest after accounting for the loss of interest income, \$182.

Mean net saving falls from \$1,737 per period to minus \$2,900, and assets are 3.0 percent lower. Paid hours rise from 0.432 to 1.126 a day. The table reports family hours after adjustment by $\chi(I)$, so comparing them directly with paid clock hours would mix units. This accounting shows how households finance additional spending. It does not identify the motives behind the welfare loss.

Households adjust at entry, before asset paths diverge. Initial assets and transfers are identical because the floor does not depend on family care. Nevertheless, households without family care spend \$4,852 more on paid care, consume \$1,240 less, and save \$3,561 less in the entry period. Fiscal differences appear later.

**Table G.1:** Household outcomes with and without family care

| | With family care | Without family care | Difference |
|---|---|---|---|
| *Dollars per living household per two-year period* | | | |
| Paid-care spending | 3,787 | 9,864 | +6,077 |
| Consumption | 23,039 | 21,613 | −1,425 |
| Net saving | 1,737 | −2,900 | −4,638 |
| Medicaid transfers | 3,047 | 3,233 | +186 |
| Assets at the start of the period ($) | 305,929 | 296,850 | −9,079 |
| *Hours of care per day* | | | |
| Paid care | 0.432 | 1.126 | +0.694 |
| Family care | 0.935 | 0.000 | −0.935 |
| *Medicaid* | | | |
| On the Medicaid floor (% of living periods) | 11.5 | 12.4 | +0.8 |
| Ever on Medicaid (% of households) | 26.0 | 27.9 | +1.9 |
| 20-year present value ($) | 12,207 | 12,920 | +713 |

Notes: The table compares the 21,000 simulated initial households with family care and with all care from the spouse and from children and others removed. Households, shocks, prices and Medicaid rules are the same in both columns. Dollar flows, assets, hours and the share on the Medicaid floor are means over the 110,845 two-year periods in which a household is alive. Ever on Medicaid and the present value of Medicaid transfers (equation G.2) are per initial household over 20 years. Net saving is assets at the end of the period minus assets at the start, before end-of-life costs and bequests. Hours are per household per day, summed over the two spouses of a couple, and include periods with no need of care. Family hours received in impaired health are multiplied by the effectiveness factor $\chi(I)$ of equation (3), whereas paid hours are measured in clock time. A direct comparison of the two would therefore mix units. Households keep their own assets and receive no compensation. 2018 dollars.

Most adjustment occurs above the floor. Households receive no transfer in either environment during 87.5 percent of living periods. In 11.4 percent they receive the same floor bundle in both environments, and in 0.9 percent they are on the floor only when family care is absent.[19]

**Table G.2:** Changes in household flows when all family care is removed, by household type and permanent income

| | Households | Paid-care spending | Consumption | Net saving | Medicaid transfers |
|---|---|---|---|---|---|
| All households | 21,000 | +6,077 | −1,425 | −4,638 | +186 |
| Initial couples | 5,597 | +7,752 | −1,381 | −6,428 | +191 |
| Initial singles | 15,403 | +5,183 | −1,449 | −3,682 | +183 |
| *By permanent income* | | | | | |
| Low | 7,883 | +4,145 | −1,693 | −2,225 | +284 |
| Middle | 6,717 | +6,464 | −1,832 | −4,581 | +213 |
| High | 6,400 | +7,627 | −755 | −7,109 | +60 |

Notes: The estimated model. Each entry is the mean with all family care removed minus the mean with family care, in 2018 dollars per living household per two-year period, for the same households and shocks. Net saving is defined as in Table G.1. Household type and permanent income are fixed at entry, and the permanent-income group of a couple is the higher of the two spouses' groups.

Paid-care spending rises and consumption and net saving fall in every group in Table G.2. Spending rises by $7,752 per period for initial couples and $5,183 for singles. Transfers rise more among low-income households, $284 per period compared with $60 among high-income households.

## G.2 Decomposing the difference in Medicaid transfers

The fiscal comparison uses the present value of Medicaid transfers over the simulated horizon,

$$\begin{aligned} PV_i(\xi) &= b_{i,0}(\xi) + \beta\, b_{i,1}(\xi) + \beta^2\, b_{i,2}(\xi) + \cdots + \beta^9\, b_{i,9}(\xi), \\ \overline{PV}_k(\xi) &= \frac{1}{N_k} \sum_{i \in k} PV_i(\xi). \end{aligned} \tag{G.2}$$

[19]There are 462 households at an asset-grid boundary in at least one environment. Excluding them gives a fiscal saving of $723, compared with $713 in the full sample. Consumption and net saving still fall.

The mean includes households that never receive transfers. The fiscal saving is $\overline{PV}_k(0,0,1) - \overline{PV}_k(1,1,1)$. Transfers are zero after the last member dies. The horizon is 20 years; 2,789 of the 21,000 initial households have a living member in the tenth period. Discounting at $r$ instead gives saving of \$905 overall, \$1,217 for couples and \$791 for singles.

Family care can change both the periods in which a household receives Medicaid and the amount received. I allocate the \$713 saving across periods with receipt only when family care is absent, in both environments, or only when family care is present. Periods with no transfer in either environment contribute zero.

**Table G.3:** Accounting for the difference in Medicaid transfers with and without family care

| | All households | Initial couples | Initial singles |
|---|---|---|---|
| *Medicaid difference by type of period ($)* | | | |
| On Medicaid only without family care | 476 | 643 | 415 |
| On Medicaid in both cases | 294 | 469 | 230 |
| On Medicaid only with family care | −57 | −153 | −22 |
| Total | 713 | 960 | 624 |
| *Share of households (%)* | | | |
| Same periods on Medicaid in both cases | 95.5 | 94.4 | 95.9 |
| Same Medicaid transfer in every period | 86.8 | 86.2 | 87.0 |
| Ever on Medicaid, with family care | 26.0 | 24.5 | 26.6 |
| Ever on Medicaid, without family care | 27.9 | 26.2 | 28.6 |

Notes: Amounts are in 2018 dollars. The first panel allocates the difference in the 20-year present value of Medicaid transfers per initial household, without family care minus with family care, across periods. The household may receive Medicaid only when family care is absent, in both environments, or only when family care is present. For periods with receipt in both environments, the contribution is the difference in the transfer. The parts add up to the total before rounding. The second panel reports the percent of initial households that are on Medicaid in exactly the same periods in the two environments, that receive the same transfer in every period, and that are ever on Medicaid in the 20 years.

Periods in which households receive transfers only when family care is absent account for \$476, or 66.7 percent of the saving (Table G.3). Larger transfers in periods with receipt in both environments contribute \$294, or 41.2 percent. Periods with receipt only when family care is present subtract \$57. The contribution from periods with receipt only when family care is absent is larger for both couples and singles.

Periods with receipt only when family care is absent include earlier or additional receipt among households that eventually receive transfers in both environments. Their contribution therefore exceeds that of households who receive transfers only in the simulation without family care. Only 454 households, 2.2 percent, receive Medicaid without family care and never with it. Among the 5,415 households that receive transfers in both environments, receipt begins earlier without family care for 358, at the same time for 5,000, and later for 57.

A small group accounts for the fiscal change. Receipt occurs in the same periods for 95.5 percent of households, and transfers are identical in every period for 86.8 percent. With family care, 7.6 percent receive less over the simulation, by $11,497 on average. Another 5.6 percent receive more, by $2,827. Low- and middle-income households account for 89.2 percent of the aggregate difference. The saving per household falls from $994 in the low-income group to $822 in the middle group and $253 in the high group.

**Table G.4:** Resources at entry and the difference in Medicaid transfers when all family care is removed

| Resources at entry | Households | Value of family care ($) | Additional Medicaid ($) | Share of total (%) |
|---|---|---|---|---|
| Below the floor cost | 1,623 | 70,623 | 10 | 0.1 |
| Above by at most one floor cost | 1,177 | 72,765 | 1,278 | 10.0 |
| Above by one to four floor costs | 2,558 | 61,125 | 1,932 | 33.0 |
| Above by more than four floor costs | 15,642 | 56,033 | 545 | 56.9 |
| All households | 21,000 | 58,719 | 713 | 100.0 |

Notes: Before family care is removed, households are grouped by their resources at entry minus minimum spending, divided by minimum spending. Resources are $R$ in equation (7). Minimum spending is $x^j(H)$ in equation (6), evaluated at the household's status and health at entry, and the row labels call it the floor cost. These thresholds describe resources relative to minimum spending in the model. They do not correspond to legal asset limits. Households below minimum spending are on Medicaid at entry. The value of family care is the mean wealth-equivalent variation of Table 3, a one-time amount at entry. Values capped by the asset ceiling are lower bounds. Additional Medicaid is the 20-year present value of transfers per initial household without family care minus with family care. Share of total is the group's share of the difference summed over all households. 2018 dollars.

Fiscal saving does not rise or fall steadily with initial distance from the floor (Table G.4). Groups are defined by entry resources minus minimum spending, divided by minimum spending. The saving is $10 among households initially below minimum

spending. It is largest, $1,932, among those whose excess resources are one to four times minimum spending. Farther above the floor, the saving is $545. This last group is large and contributes 56.9 percent of the total. Recipient compensation is highest near or below the entry floor, where extra wealth first displaces transfers (Section 6.2).

**Alternative floor rules.** Under the baseline floor, changing family hours has no direct effect on transfers at fixed household resources. To assess this restriction, I recompute minimum spending using each household's own family hours, including spouse care. Resources, paid care and saving remain at their simulated baseline values. Over the ten periods in equation (G.2), with the same discount factor, transfers fall by $3,670 per household, or 30.1 percent. The baseline Medicaid saving from family care is $713 (Section 6.4). At fixed resources, the alternative rule increases this saving by the reduction in transfers because transfers without family care are unchanged. Counting fewer of each household's hours would produce a smaller reduction at those resources.

I also solve the model under three alternative floor rules, allowing household choices to respond. When computing minimum spending, these rules credit all households in a health state with the same hours from children and others. The credited hours come from the low-support schedule, the mean across types or the high-support schedule. They exclude spouse care and do not use each household's own hours. All parameters remain at their estimates, and the no-family-care floor is unchanged. After households respond, transfers with family care fall by $3,335, $4,401 and $4,863 per household, compared with $3,104, $3,861 and $4,062 at fixed resources. Household responses add 7.5 to 19.7 percent to the reductions. Lower minimum spending in bad and impaired health leads households to retain more wealth and makes transfer receipt less common. Using each household's own hours reduces transfers by $3,670, between the reductions from the low and mean rules at fixed resources. The common-hours and household-specific rules credit different hours, so their comparison does not identify the behavioral response to the household-specific rule.

The three solved rules imply Medicaid savings of $4,049, $5,115 and $5,577 per household. Recipient value is 13.3, 8.9 and 7.1 times these savings, compared with 82.3 under the baseline. Recipient values are $53,817, $45,461 and $39,848, respectively, declines of 8.3, 22.6 and 32.1 percent from baseline (Table G.5). These values fall because the rules reduce transfers when family care is available while leaving the

no-family-care floor unchanged. The model fits the data substantially worse at the original parameters. Receipt among low-income households falls to about half its data value, and the criterion with 21,000 simulated households rises from 6.31 to between 13.25 and 14.69. These results hold parameters fixed at their estimates.

Recipient value is 82.3 times fiscal saving under the baseline floor and at least 34 times saving at the 40 evaluated nearby parameter vectors. The ratio combines remaining-life compensation and 20-year transfers. The 90 percent conditional Fieller set is bounded but wide with bootstrap variances (Appendix E.7).[20]

**Table G.5:** Recipient value and fiscal saving under alternative floor rules

| | Baseline | Low schedule | Mean schedule | High schedule |
|---|---|---|---|---|
| Recipient value | \$58,719 | \$53,817 | \$45,461 | \$39,848 |
| Value decline (%) | 0 | 8.3 | 22.6 | 32.1 |
| Medicaid saving | \$713 | \$4,049 | \$5,115 | \$5,577 |
| Value / saving | 82.3 | 13.3 | 8.9 | 7.1 |

Notes. All estimated parameters are held at baseline. The alternative rules credit a common low, mean or high schedule of hours from children and others when computing minimum spending, excluding spouse hours. The no-family-care floor is unchanged. Recipient value is additional wealth at entry over remaining life, and saving is the 20-year present value of transfers without family care minus with it, discounted at $\beta$, both per initial household in model dollars. Ratios use each rule's own recipient value and saving before rounding. The baseline ratio's 90 percent Fieller set is unbounded under floored paid-care variances. These are floor-rule comparisons, with worsened fit at unchanged parameters, rather than re-estimated specifications.

[20]The ratio's 90 percent confidence set is unbounded under floored paid-care variances (Appendix E.7).

**Table G.6:** The 2060 scenario and the floor expansion under the mean-schedule rule

| | Baseline rule | Mean-schedule rule |
|---|---|---|
| Family clock hours, current | 1.949 | 1.949 |
| Family clock hours, 2060 | 1.214 | 1.214 |
| Family clock hours lost (percent) | 37.7 | 37.7 |
| Paid clock hours, current | 0.432 | 0.312 |
| Paid clock hours, 2060 | 0.520 | 0.408 |
| Lost clock hours replaced (percent) | 11.9 | 13.1 |
| Consumption, current ($) | 23,039 | 22,614 |
| Consumption, 2060 ($) | 22,853 | 22,398 |
| Transfer present value, current care ($) | 12,207 | 7,806 |
| Transfer present value, 2060 ($) | 12,347 | 8,115 |
| Change in transfer present value ($) | +140 | +309 |
| Ever on Medicaid, current (percent) | 26.01 | 18.43 |
| Ever on Medicaid, 2060 (percent) | 26.47 | Not stored |
| Compensation, all households ($) | 8,061 | 7,511 |
| Initial couples ($) | 6,653 | 6,075 |
| Initial singles ($) | 8,573 | 8,033 |
| Median, all households ($) | 6,940 | 6,741 |
| Expansion value with family care ($) | 4,339 | 4,263 |
| Initial couples ($) | 3,258 | 3,656 |
| Initial singles ($) | 4,732 | 4,483 |
| Expansion value without family care ($) | 6,067 | 6,067 |
| Initial couples ($) | 5,474 | 5,474 |
| Initial singles ($) | 6,283 | 6,283 |
| Expansion value offset (percent) | 28.5 | 29.7 |
| Expansion fiscal cost, with family care ($) | 1,219 | 440 |
| Expansion fiscal cost, without family care ($) | 1,294 | 1,294 |
| Reporting criterion | 6.31 | 14.20 |

Notes. The same 21,000 initial households and baseline estimated parameters. Common across-type mean hours from children and others enter minimum spending, excluding spouse hours; family scaling updates this credit, and the no-family-care floor is unchanged. Dollar amounts are 2018 dollars per initial household. Compensation and expansion values cover remaining life at entry; transfers and fiscal costs are 20-year present values discounted at $\beta$. Hours per day and consumption per two-year period average living households. No standard errors are computed for these fixed-parameter checks. Fit worsens at the unchanged parameters. Each payment is the smallest addition to entry wealth that reaches reference welfare. Every household below the asset ceiling reaches that level. In the 2060 loss, 315 households (1.5 percent) reach the ceiling. None do in either expansion. Table G.5 computes payments from a monotone approximation to welfare. Under complete removal with the mean-schedule rule, those payments fell short of reference welfare for 18 of 21,000 households. Using the original welfare values raises the mean by $0.06 and changes one payment by as much as $175. The approximation falls short for 32 households in the 2060 loss, 33 in the expansion with family care and 2 in the expansion without it. The two methods give means within $1 in each of these three comparisons. Receipt shares and effective-care outcomes are not reported for this check.

Table G.6 extends the mean-schedule crediting rule to the 2060 care reduction and the 10 percent floor expansion, holding every parameter fixed. Credited hours are the common across-type mean of care from children and others, excluding spouse hours, and scale with the family-care schedules; the no-family-care floor is unchanged. Under this rule, compensation for the 2060 loss is \$7,511 and added paid hours replace 13.1 percent of lost family clock hours. The reporting criterion is 14.20, compared with 6.31 under the baseline rule and within the 13.25 to 14.69 range for the three crediting rules. Table G.6 computes each payment as the smallest addition to wealth that reaches reference welfare. Using the monotone approximation from Table G.5 gives means within \$1.

## G.3 Pricing the hours of family care

This appendix gives the priced-hours comparisons summarized in Section 6.2. Table G.8 and Figure G.1 compare remaining-life recipient compensation with the price of remaining-life hours. I also report a calculation over the shorter simulated horizon, pricing the ten periods at the paid-care wage and discounting at $\beta$,

$$P_i = \sum_{t=0}^{9} \beta^t \, \bar{p} \sum_{g} \ell_{i,t}^{\mathrm{fam},g}, \tag{G.3}$$

Here $\bar{p} = \$8{,}760$ is the cost of one daily hour over a two-year period at \$12 an hour (Section 5.3). The quantity $\ell_{i,t}^{\mathrm{fam},g}$ is member $g$'s daily family clock hours, set to zero after death (equation (1)). To price hours after adjusting for effectiveness, I replace these with $\chi(h_{i,t}^{g})\,\ell_{i,t}^{\mathrm{fam},g}$. Interest-rate discounting replaces $\beta^t$ with $(1+r)^{-t}$. Table G.7 reports the group means and their ratios to recipient value.

Equation (G.3) stops after 20 years, while recipient compensation covers remaining life. It also prices family and paid hours as interchangeable clock time, although hours reported for different helpers can overlap. The resulting wage calculation describes the price of reported hours under these conventions. Required compensation instead comes from the household's welfare comparison.

**Pricing remaining-life hours.** The comparison summarized in Section 6.2 includes realized hours over the ten simulated periods and expected hours thereafter, conditional on the last simulated state. I price these hours at \$12 an hour and discount them at

**Table G.7:** The price of the hours of family care, by household type and support type at entry

| | Support type | | | |
|---|---|---|---|---|
| | Low | Middle | High | All |
| *A. Clock hours, discounted with $\beta$ ($)* | | | | |
| Initial singles | 9,775 | 22,462 | 143,705 | 58,956 |
| Initial couples | 79,479 | 102,580 | 240,198 | 104,206 |
| All households | 39,972 | 33,419 | 155,880 | 71,016 |
| *B. Effective hours, discounted with $\beta$ ($)* | | | | |
| Initial singles | 3,046 | 9,192 | 68,247 | 26,979 |
| Initial couples | 44,999 | 52,213 | 125,468 | 56,778 |
| All households | 21,221 | 15,076 | 75,467 | 34,921 |
| *C. Clock hours, discounted at r ($)* | | | | |
| Initial singles | 11,953 | 27,057 | 171,604 | 70,573 |
| Initial couples | 93,471 | 119,579 | 292,556 | 123,754 |
| All households | 47,268 | 39,711 | 186,866 | 84,747 |
| *D. Panel A divided by the value of family care* | | | | |
| Initial singles | 0.27 | 0.46 | 2.10 | 1.16 |
| Initial couples | 1.04 | 1.20 | 2.49 | 1.30 |
| All households | 0.75 | 0.62 | 2.16 | 1.21 |

Notes: The table uses the 21,000 simulated initial households with their current family care. Panels A to C report means per initial household of equation (G.3), which prices the family hours of all household members at $12 an hour and adds them over the ten simulated periods (20 years), with no hours once a member has died. Clock hours are the hours of Table 1. Effective hours multiply hours received in impaired health by $\chi(I)$ (equation (3)). Panel D divides the mean of Panel A by the mean wealth-equivalent variation of Table 3, which covers the rest of life, before rounding. Support type refers to care from children and others, and household type is fixed at entry. 2018 dollars.

the interest rate. Their total price and recipient compensation are thus both expressed as wealth at entry over remaining life. The comparison excludes 1,623 households on the floor at entry and 337 whose compensation calculation is constrained by the asset ceiling. The first group has mean compensation of $70,623, reflecting the flat value function while additional assets displace transfers. The resulting sample contains 19,040 households, comprising 13,822 singles and 5,218 couples. Table 3 retains the

full 21,000-household sample.[21]

**Table G.8:** The value of family care and the cost of the hours at $12 an hour, by household type and support type at entry

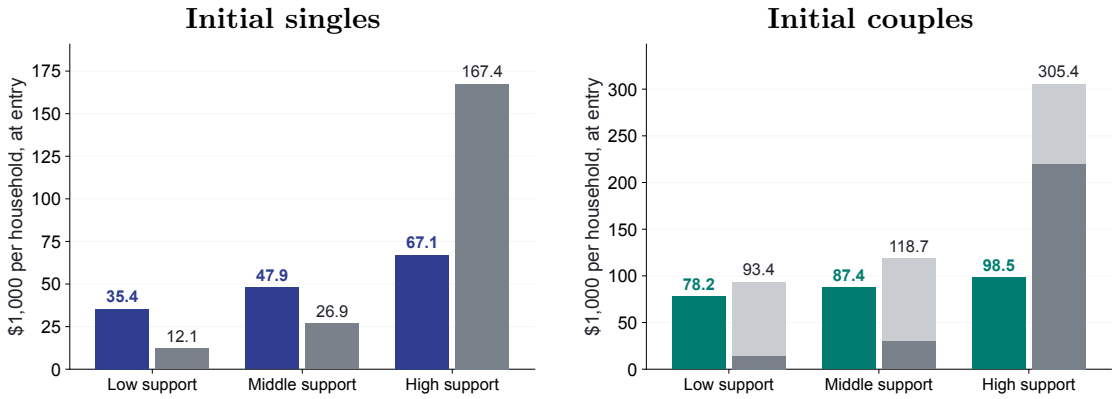
| Support type | Total family-care value ($) | Priced family hours ($) | | Total value / cost of all family hours |
|---|---|---|---|---|
| | | Children and others | Spouse | |
| *A. Initial singles* | | | | |
| Low | 35,393 | 12,096 | 0 | 2.93 |
| Middle | 47,901 | 26,932 | 0 | 1.78 |
| High | 67,136 | 167,375 | 0 | 0.40 |
| *B. Initial couples* | | | | |
| Low | 78,151 | 14,212 | 79,215 | 0.84 |
| Middle | 87,438 | 30,765 | 87,955 | 0.74 |
| High | 98,529 | 219,932 | 85,507 | 0.32 |

Notes: The estimated model, restricted to 19,040 households off the Medicaid floor at entry with valuations below the asset ceiling. Value is mean compensation for removing all family care. Cost is remaining-life family clock hours priced at $12 an hour and discounted at $r$ to entry, including expected hours beyond the simulation. Separate columns price children and others and spouse care. The ratio divides total family-care value by the combined cost of both sources. Support type refers to children and others. 2018 dollars.

Value-to-price ratios fall sharply with support. Among singles with low, middle, and high support, respectively, they are 2.93, 1.78, and 0.40, equivalent to $35.11, $21.34, and $4.81 per discounted clock hour. For the same three support groups among couples, the ratios are 0.84, 0.74, and 0.32 when both sources are priced. They correspond to $10.04, $8.84, and $3.87 per hour. Spouse care supplies 85, 74, and 28 percent of couple hours. Keeping total family-care value in the numerator and excluding the price of spouse hours from the denominator gives ratios of 5.50, 2.84, and 0.45.

High-support singles receive 13.8 times the priced hours of low-support singles and have 1.90 times their value. The corresponding multiples for couples are 3.3 and 1.26. Care from children and others alone differs by a factor of 15.5 among couples. High-support singles account for 81 percent of singles' priced hours and 44 percent of their value. Low-support singles account for 6 and 25 percent.

[21] Both quantities cover remaining life and are expressed at entry. Hours are clock hours priced at $12 an hour and discounted at $r$, including expected hours beyond the simulation. The comparison uses 19,040 households, comprising 13,822 singles and 5,218 couples. Appendix Table G.8 gives the full comparison and sample definition.




Blue and green: recipient value. Dark gray: priced hours from children and others. Light gray: priced spouse hours.

**Figure G.1:** The value of family care and the cost of the hours, by support type and household type at entry

Notes: The estimated model, the same 19,040 households and conventions as Table G.8. The panels compare mean compensation for removing all family care with the price of remaining-life family clock hours at $12 an hour, in thousands of 2018 dollars per household at entry. For couples, the cost bar stacks priced hours from children and others and spouse care. The panels have different vertical scales. Support types are built from hours, so the concentration of cost in high-support households holds by construction.

For singles, the common-wage benchmark understates mean value in the low-support group and overstates it in the high-support group. Support types are constructed from received hours, which partly explains the difference in hours by construction; the much smaller difference in compensation is an outcome of the model.

The price-to-value ratio rises with support in 112 of 112 comparisons across 4 samples and 14 conventions. It also rises in 72 of 72 comparisons at re-estimated $\omega$ values of 0.40, 0.50, and 0.60. Pooling household types preserves the ordering in only 0 of 56 cases. Couples, with their spouse hours, comprise 44 percent of the low-support group. Comparing couples and singles separately avoids this composition effect. Individual value and priced hours have rank correlations of 0.58 among singles and 0.31 among couples. The group ratios alone do not identify individual ranking reversals.

Priced care from children and others exceeds total family-care value in the two high-support groups. These groups contain 27 percent of households, 61 percent of family hours, and 33 percent of recipient value. Pricing spouse hours as well produces this inequality in 4 groups, comprising all three couple groups and high-support singles. They contain 51 percent of households, 89 percent of hours, and 66 percent of value.

**Compensation per hour in the 2060 scenario.** The distribution of lost hours helps explain the difference between pricing care and valuing its loss. Pricing the removed hours at the paid-care wage gives 4.05 times mean compensation, with both quantities covering remaining life and expressed in dollars at entry. High-support households account for 78 percent of priced lost hours, but their compensation per lost hour is $1.08 among singles and $0.78 among couples. Much of the care lost in this scenario therefore comes from groups with low compensation per hour for this reduction.

To compare the demographic reduction with complete removal, Table G.9 returns to the restricted sample used in Figure G.1. It excludes households on the floor at entry and those whose complete-loss compensation reaches the asset ceiling, so the per-hour amounts differ from the full-sample figures above. Each entry divides mean compensation by mean discounted hours lost in the stated counterfactual. The smaller reduction requires less compensation per hour in every group, consistent with the care that remains available after a partial loss. These amounts value finite changes in care rather than marginal hours or caregivers' costs.

Table G.9 reports compensation per lost clock hour by support group in the restricted sample. Relative to compensation per hour for complete removal, these amounts range from 0.17 to 0.44 among singles and from 0.15 to 0.79 among couples. These averages describe a large change in family hours and do not measure marginal valuations.

In the full sample, high-support singles add 0.03 paid hours per lost family hour, compared with 0.73 among low-support singles. The demographic counterfactuals were not repeated when the model was re-estimated at other $\omega$ values, so those profiles do not verify this price-to-compensation ratio.

Because support types are built from hours, the concentration of hours across these types is partly imposed. The estimated model determines how much compensation differs across them. The care technology also contributes to the result. With positive paid care, the marginal product of family hours in equation (3) is unbounded as family hours approach zero for any $\omega$ between zero and one. Every re-estimated profile retains this feature. Low-support singles also receive 82 percent of their hours while impaired, compared with 61 percent among high-support singles. The timing of care therefore differs alongside its amount. Recipient value excludes caregivers' costs. Changing the pricing wage from $12, while keeping the model's paid-care price fixed, scales all price

**Table G.9:** Compensation per lost family-care hour for complete removal and the 2060 reduction

| Support type | Complete removal | 2060 reduction |
|---|---|---|
| *A. Initial singles* | | |
| Low | 35.11 | 15.36 |
| Middle | 21.34 | 7.63 |
| High | 4.81 | 0.84 |
| *B. Initial couples* | | |
| Low | 10.04 | 7.91 |
| Middle | 8.84 | 4.25 |
| High | 3.87 | 0.57 |

Notes: The estimated model, restricted to the same 19,040 households as Table G.8, comprising 13,822 singles and 5,218 couples. Households on the Medicaid floor at entry and those whose complete-removal compensation is constrained by the asset ceiling are excluded. Each entry divides mean remaining-life compensation by mean discounted family clock hours lost, with hours discounted at $r$ to entry. Complete removal sets both sources to zero. The 2060 reduction scales children and others by 0.50 and spouse care by 0.98. These are averages over finite changes in care. 2018 dollars per hour.

comparisons proportionately.

For complete loss, I also re-estimate the other parameters at $\omega = 0.40$ and 0.60. The high-to-low value ratios for singles are 1.72 and 2.09, compared with an hours ratio of 13.8. The much smaller differences in value therefore remain when $\tau$ adjusts within the same care technology. Appendix G.9 reports the full comparison. The partial-care counterfactuals use the baseline parameters. Appendix Table G.24 reports the within-couple common-loss comparison under the re-estimated curvature profiles.

Compensation also differs much less across high- and low-support groups than hours do at smaller reductions in family-care availability, separately for singles and couples. This holds in the full sample and in a common sample off the floor at entry and below the numerical ceiling in every counterfactual. The partial-loss comparisons use the baseline curvature, $\omega = 0.50$ (Appendix G.7).

## G.4 Construction of the 2040 and 2060 scenarios

These counterfactuals ask how households respond to a decline in the family care available to them. I use published demographic projections to choose reductions in hours from children and others and from spouses. Each reduction applies from entry, with current family care as the benchmark. Households keep their initial states and support types and choose paid care, consumption and saving under the reduced schedules. Preferences, shocks, prices and policy remain fixed. Table G.10 records the inputs and intermediate calculations for the three steps below.

The first input is projected childlessness among people aged 65 and older with a disability. Childlessness means having no surviving adult children. Redfoot et al. (2013), drawing on Johnson et al. (2007), report 14 percent in 2010 and 21 percent in 2040.

The second input is the share of a cohort expected to spend at least ten years unmarried after age 65. The report compares people aged 80 to 89 in 2010 with the same age group in 2030. The share falls for women and rises for men, and equally weighting the two sexes gives 46.5 and 48 percent. The resulting measure describes marital experience over the lifetime. It does not give the share unmarried at a particular date.

The third input is the projected number of non-Hispanic white and black Americans aged 50 and older with no living partner, children, siblings, or parents. Verdery and

Margolis (2017) project a rise from 1.8 million in 2015 to 6.3 million in 2060. This input is a count, whereas the other two are shares.

First, I construct hypothetical support-group shares. Let $\alpha_{\text{low}}$, $\alpha_{\text{mid}}$, and $\alpha_{\text{high}}$ be the current simulated shares. For year $Y$, I multiply the odds of low support by $\delta_Y$ and divide the remaining share between middle and high support in current proportions,

$$\begin{aligned} \frac{\alpha_{\text{low},Y}}{1-\alpha_{\text{low},Y}} &= \delta_Y \frac{\alpha_{\text{low}}}{1-\alpha_{\text{low}}}, \\ \alpha_{F,Y} &= \left(1-\alpha_{\text{low},Y}\right) \frac{\alpha_F}{\alpha_{\text{mid}}+\alpha_{\text{high}}} \qquad \text{for } F \in \{\text{mid}, \text{high}\}. \end{aligned} \tag{G.4}$$

The 2040 multiplier $\delta_Y$ is the ratio of projected childlessness shares, 1.5. The 2060 multiplier is the ratio of projected numbers of people without close kin, 3.49 before rounding. I apply these ratios, with base years 2010 and 2015, to the simulated support shares. The constructed low-support share rises from 44.8 percent to 54.9 percent for 2040 and 73.9 percent for 2060.

Second, I convert these shares into an hours multiplier. Let $\bar{\ell}^{\text{ch}}_F$ be mean daily hours from children and others in support group $F$, measured among HRS histories that reveal support (Table 2). The group means are 0.12, 0.90, and 7.43 hours. Weighting them by the constructed shares gives

$$\bar{\ell}^{\text{ch}}_Y = \sum_F \alpha_{F,Y}\, \bar{\ell}^{\text{ch}}_F, \qquad q^{\text{ch}}_Y = \frac{\bar{\ell}^{\text{ch}}_Y}{\bar{\ell}^{\text{ch}}_{\text{today}}}. \tag{G.5}$$

The hours index falls from 2.40 to 1.99 for 2040 and 1.20 for 2060. The resulting multipliers are $q^{\text{ch}}_{2040} = 0.83$ and $q^{\text{ch}}_{2060} = 0.50$. I use this index to construct the reduction in hours. The simulated population's mean care is a separate quantity.

Third, I construct the spouse-care multiplier. The simulated share of couples is $\alpha_C = 26.7$ percent. Multiplying the odds of being single by the ratio of the projected unmarried shares, 1.03, gives a constructed couple share $\alpha_{C,Y}$ of 26.0 percent. The spouse-care multiplier is $q^{\text{sp}}_Y = \alpha_{C,Y}/\alpha_C = 0.98$, a reduction of 2.3 percent. I apply this same multiplier in both scenarios because the underlying marital comparison ends in 2030.

These constructed shares enter the model only through the hours multipliers. The demographic adjustment therefore does not change the simulated low-support share to the 74 percent in Table G.10 or reassign couples as singles. Family-support types

**Table G.10:** Construction of the 2040 and 2060 scenarios

| | Today | 2040 | 2060 |
|---|---|---|---|
| *Support from children and others: share of households (%)* | | | |
| Low support | 45 | 55 | 74 |
| Middle support | 27 | 22 | 13 |
| High support | 28 | 23 | 13 |
| Hours index, care from children and others | 2.40 | 1.99 | 1.20 |
| Multiplier on care from children and others | 1.00 | 0.83 | 0.50 |
| Couples, share of households (%) | 26.7 | 26.0 | 26.0 |
| Multiplier on spouse care | 1.00 | 0.98 | 0.98 |

Notes: The table reports the inputs used to construct the 2040 and 2060 care multipliers. Today's shares are those of the 21,000 simulated initial households. For 2040 the odds of low support are multiplied by the ratio of the shares of people aged 65 and older with a disability who are childless, 21 percent in 2040 and 14 percent in 2010 (Redfoot et al., 2013). For 2060 they are multiplied by the ratio of the numbers of non-Hispanic white and black adults aged 50 and older with no living partner, children, siblings or parents, 6.3 million in 2060 and 1.8 million in 2015 (Verdery and Margolis, 2017). The other households are assigned to middle and high support in today's proportions (equation G.4). The hours index uses these shares to weight each support type's mean daily care from children and others, measured among histories that reveal support (Table 2). The multiplier is this index divided by today's index (equation G.5). The share of couples is obtained by multiplying today's odds of being single by the ratio of the shares expected to spend ten or more years unmarried after age 65, averaged over women and men (48 and 46.5 percent). The multiplier on spouse care is the share of couples relative to today's. The shares enter the model only through the two multipliers. Initial household composition and support types are unchanged across comparisons, while widowhood can still occur along the common survival paths. Shares are rounded and need not add to 100.

remain fixed, and hours are scaled from entry in every health state. Couples can still become widowed along the unchanged survival paths. The simulation has no transition through calendar years. Preferences, shocks, prices, policy, and the initial population remain fixed. Care does not change health or survival.

The 2060 cut is larger partly because it uses growth in the number of people without close kin, which also reflects population size and age composition. Kinlessness shares, reported by race and sex in Verdery and Margolis (2017), generally rise by less. Using counts therefore produces a larger shift in the constructed low-support share than using changes in population shares would. The projection also covers

adults aged 50 and older in two population groups and includes partners, siblings, and parents. I interpret the resulting 50.0 percent reduction as a large cut. The 17.3 percent reduction in 2040 provides a moderate comparison.

The projections describe family structure rather than care hours among households aged 70 and older. Applying them to support and marital odds supplies the mapping from demographic inputs to the imposed hours cuts.

## G.5 Household accounting in the 2060 scenario, and the 2040 scenario

I first trace how households adjust their budgets under the 2060 care schedules. These paths start from the same assets as under current care and give households no compensating transfer. Table G.11 shows how they finance the added paid care. Panel A uses equation (G.1), with $\Delta$ defined as the scenario minus current care. Panel B allocates the transfer increase across receipt categories as in Table G.3.

Paid-care spending rises by $766 per living household and two-year period, of which higher transfers cover 4.7 percent. Lower consumption and saving cover most of the remainder, while interest income falls by $17. These are shares of additional spending. Net saving falls from $1,737 to $1,177 but remains positive.

The milder 2040 scenario gives the same qualitative responses. It scales care from children and others by 0.83, a cut of 17.3 percent, compared with 50.0 percent in 2060. Both scenarios scale spouse care by 0.98. Family clock hours fall by 13.5 percent and $\chi$-weighted family hours by 12.8 percent, compared with 37.7 and 35.6 percent in 2060. Paid hours rise by 5.7 percent. Added paid clock hours amount to 9.4 percent of lost family clock hours and 20.7 percent of lost weighted family hours.

In 2040, paid-care spending rises by $217 per living household and two-year period. Consumption falls by $47, net saving by $164, and transfers rise by $11. The present value of transfers rises by $43 per initial household, compared with $140 in 2060. The share receiving transfers at least once rises by 0.13 percentage points.

Mean compensation is $3,436, with median $1,985, compared with $8,061 and $6,940 in 2060. The means are $2,799 for couples, $3,667 for singles, and $1,923 for households above the floor at entry. With the resulting family hours, the floor expansion is worth $4,408, 27.3 percent less than with no family care. The reduction with current care is 28.5 percent.

**Table G.11:** Household accounting in the 2060 scenario

| | Today | 2060 | Dollars | Share (%) |
|---|---|---|---|---|
| *A. Paid-care spending and its financing ($ per two-year period)* | | | | |
| Extra paid-care spending | 3,787 | 4,553 | 766 | 100.0 |
| Lower consumption | 23,039 | 22,853 | 185 | 24.2 |
| Lower net saving | 1,737 | 1,177 | 561 | 73.2 |
| Higher Medicaid transfers | 3,047 | 3,084 | 36 | 4.7 |
| Change in interest income | | | −17 | −2.2 |
| Asset-grid residual | | | 1 | 0.1 |
| *B. Medicaid transfers ($, 20-year present value)* | | | | |
| Increase in the present value | 12,207 | 12,347 | 139.74 | 100.0 |
| Receipt only in 2060 | | | 65.11 | 46.6 |
| Larger transfers, receipt in both | | | 82.12 | 58.8 |
| Receipt only today | | | −7.49 | −5.4 |

Notes: The table compares current care with the 2060 scenario for the same 21,000 simulated initial households and shocks, in 2018 dollars. In Panel A, the columns Today (the estimated model) and 2060 give the levels of paid-care spending, consumption, net saving and Medicaid transfers, means over the 110,845 two-year periods in which a household is alive. The Dollars column reports the rise in paid-care spending in the first row and, below it, the amount contributed by each source (equation G.1). The Share column expresses that amount as a percent of the rise in paid-care spending. Net saving is defined as in Table G.1. Interest income changes because assets are lower, and the residual comes from the asset grid. Panel B reports the 20-year present value of Medicaid transfers per initial household (equation G.2), its increase, and the split of the increase by type of period. Receipt only in 2060 includes earlier receipt and additional periods of receipt by households that also receive Medicaid in the estimated model.

I also repeat the within-couple comparison of Section 6.3 for the 2040 cut. The same couples lose the same fraction of care from children and others, once with spouse care at its scenario level and once without spouse care. Each compensation restores welfare before the cut under that comparison's own spouse-care schedule. When the cut applies only to care from children and others, couples require $4,006 without spouse care and $2,650 with it. The reduction is 34 percent, compared with 42 percent for the 2060 cut, and is positive for 97 percent of couples (Section 6.3).

The 2060 adjustment starts at entry, when assets and transfers remain identical across environments. Households spend $440 more on paid care, consume $92 less, and save $344 less. The asset gap then grows, with assets $847 lower on average over living periods and $3,325 lower among the 2,789 households alive in the tenth period.

Of the $140 increase in transfers, $65 or 46.6 percent comes from periods with receipt only in the scenario. Larger transfers in periods with receipt in both environments contribute $82 or 58.8 percent. Only 106 households receive Medicaid in the scenario and never under current care.

**Table G.12:** Household responses to the 2060 scenario by household type, permanent income and resources at entry

| | | Per two-year period ($) | | | Medicaid |
|---|---|---|---|---|---|
| | Households | Paid-care spending | Consumption | Net saving | present value ($) |
| All households | 21,000 | +766 | −185 | −561 | +140 |
| Initial couples | 5,597 | +554 | −129 | −425 | +28 |
| Initial singles | 15,403 | +879 | −215 | −633 | +180 |
| *By permanent income* | | | | | |
| Low | 7,883 | +544 | −184 | −301 | +239 |
| Middle | 6,717 | +824 | −241 | −568 | +117 |
| High | 6,400 | +930 | −131 | −814 | +42 |
| *By resources at entry above the Medicaid floor, in multiples of the floor's cost* | | | | | |
| At the floor | 1,623 | +172 | −135 | −42 | −9 |
| Up to one | 1,177 | +434 | −303 | −77 | +205 |
| One to four | 2,558 | +649 | −257 | −321 | +317 |
| More than four | 15,642 | +847 | −172 | −662 | +121 |

Notes: Each entry is the 2060 scenario minus the estimated model, for the same households and shocks, in 2018 dollars. Paid-care spending, consumption and net saving are means per living household per two-year period. The last column is the change in the 20-year present value of Medicaid transfers per initial household. The permanent-income group of a couple is the higher of the two spouses' groups. Resources at entry are measured in the estimated model, as in Table G.4. The row labeled At the floor contains households whose resources are below minimum spending, called the floor's cost in the table. The other rows group households by resources above minimum spending, measured in multiples of that spending.

Consumption and net saving fall in every group in Table G.12. Paid-care spending rises by $879 per period for singles and $554 for couples. Their transfer present values rise by $180 and $28. The fiscal response is larger in the bottom income tercile, $239, than in the top, $42.

The transfer response does not rise or fall steadily with distance from the floor. It is close to zero, at minus $9, for households initially on the floor. It peaks at $317 among those whose excess resources are one to four times minimum spending, then falls to $121 for households farther above it.

How much of the scenario's compensation is associated with each source of lost care? I compare the joint reduction with counterfactuals that reduce only care from children and others or only spouse care. Household circumstances and all other inputs remain the same. Every compensation restores welfare under current care. Table G.13 allocates the compensation for the joint reduction across the two sources. For household $i$ and scenario year $Y$, define

$$\begin{aligned} K_i &= \lambda_i\big((q_Y^{\text{ch}}, q_Y^{\text{sp}}, 1),\, (1,1,1)\big), \\ K_i^{\text{ch}} &= \lambda_i\big((q_Y^{\text{ch}}, 1, 1),\, (1,1,1)\big), \qquad K_i^{\text{sp}} = \lambda_i\big((1, q_Y^{\text{sp}}, 1),\, (1,1,1)\big). \end{aligned} \tag{G.6}$$

The amounts $K_i$, $K_i^{\text{ch}}$, and $K_i^{\text{sp}}$ compensate for the joint cut, the cut in care from children and others alone, and the spouse-care cut alone. All three amounts restore welfare under current care. I use a Shapley allocation to divide this compensation between the two sources. Children and others receive $\frac{1}{2}\big[K_i^{\text{ch}} + (K_i - K_i^{\text{sp}})\big]$, and spouse care receives $\frac{1}{2}\big[K_i^{\text{sp}} + (K_i - K_i^{\text{ch}})\big]$. The parts sum to $K_i$. The differences inside these expressions need not equal the compensation for a second cut imposed after the first. Such a counterfactual would start from a different reference welfare and wealth position.

The cut in care from children and others accounts for \$7,874 of total compensation of \$8,061, or 97.7 percent. Among couples it accounts for \$5,952 of \$6,653, or 89.5 percent. The remaining \$701 is assigned to spouse care. The corresponding shares assigned to children and others in 2040 are 94.6 percent overall and 75.1 percent among couples.

These shares depend on the sizes of the cuts. In 2060, care from children and others falls by 50.0 percent and spouse care by only 2.3 percent. They therefore do not measure the relative value of retaining each source in full. The spouse share when all care is removed is 47 percent (Section 6.3). Most compensation assigned to the small spouse-care cut comes from the 216 couples on the entry floor. Among other couples, spouse care accounts for 2.8 percent of mean compensation of \$5,750.

## G.6 Reweighting to projected shares of couples

The main scenarios keep the initial couple share at 26.7 percent. This counterfactual asks how a different share of couples would change the average value and cost of the floor expansion. I keep each household's outcomes fixed and change only the weights

**Table G.13:** Compensation in the 2040 and 2060 scenarios by source of family care

| | All households | Initial couples | Initial singles |
|---|---|---|---|
| *2040 scenario* | | | |
| Compensation at entry ($) | 3,436 | 2,799 | 3,667 |
| less care from children and others | 3,250 | 2,102 | 3,667 |
| less spouse care | 186 | 697 | 0 |
| *2060 scenario* | | | |
| Compensation at entry ($) | 8,061 | 6,653 | 8,573 |
| less care from children and others | 7,874 | 5,952 | 8,573 |
| less spouse care | 187 | 701 | 0 |
| Households | 21,000 | 5,597 | 15,403 |

Notes: Amounts are in 2018 dollars per initial household. Compensation is initial wealth that restores welfare under current care after the scenario cut (Table 8). The source rows allocate compensation between the two sources by the Shapley rule in equation G.6 and the text below it. All compensation amounts use current care as their welfare reference. The allocation averages contributions to this measure and does not give direct compensation for sequential cuts. Parts sum before rounding. Initial singles receive no spouse care. Compensation for the joint 2060 cut reaches the asset ceiling for approximately 1.5 percent of households and is a lower bound in those cases. The source contributions and shares combine several compensation measures and need not be lower bounds.

assigned to couples and singles. Let $\bar{\lambda}_C$ and $\bar{\lambda}_S$ be mean expansion values for couples and singles. At couple share $\alpha_C$, the population mean is $\alpha_C\bar{\lambda}_C + (1-\alpha_C)\bar{\lambda}_S$.

For year $Y$, I scale the current couple share by the ratio of projected couple shares among households aged 70 and older in year $Y$ and today. The source is the Social Security Administration's population projections for the 2026 Trustees Report under intermediate assumptions (Social Security Administration, 2026). This gives $\alpha_C = 26.0$ percent in 2040 and 27.4 percent in 2060. I apply the proportional change because the projections and the model use different population definitions.

To make this comparison, I first solve each scenario with spouse care at current hours and care from children and others at its scenario level. Households choose paid care, consumption and saving in that environment. I then calculate the population averages using either the original or the projected couple share. Spouse care remains at current hours in both columns of Table G.14. Reweighting thus replaces the spouse-hours multiplier used in the main scenarios, whose marital comparison ends in

**Table G.14:** The Medicaid expansion with the projected shares of couples

| | Share of couples of the model | Projected share of couples |
|---|---|---|
| *Couples, share of households (%)* | | |
| 2040 | 26.7 | 26.0 |
| 2060 | 26.7 | 27.4 |
| *Household value of the expansion: wealth at entry ($)* | | |
| 2040 family care | 4,407 | 4,417 |
| 2060 family care | 4,587 | 4,576 |
| *Medicaid cost of the expansion: 20-year present value ($)* | | |
| 2040 family care | 1,225 | 1,223 |
| 2060 family care | 1,222 | 1,224 |

Notes: The estimated model, in 2018 dollars. In both columns spouse care keeps its current hours, and care from children and others follows the scenario of the row. The first column keeps the share of couples of the 21,000 simulated initial households. In the second column the results of the same households are reweighted so that the share of couples changes in proportion to the projected share of couples among households aged 70 and older, relative to today's projected share. The household value is the mean one-time wealth at entry into the model that makes a household under the current floors as well off as under floors 10 percent higher (Table 9). The cost is the rise in the 20-year present value of Medicaid transfers per initial household. The reweighting does not project the share of couples of the model's population.

2030. It changes the relative contribution of existing households without changing any household's marital status.

The projected couple shares differ from the model share by less than one percentage point, so the effects are small. Expansion value rises by $10 under the 2040 care schedule and falls by $11 under the 2060 schedule. Public cost falls by $2 and rises by $2, respectively. Expansion value is higher for singles, while public cost is higher for couples (Table 9). A smaller share of couples therefore raises mean value and lowers mean cost.

## G.7 Partial losses of family care

The welfare loss from removing all family care need not describe the loss from a smaller reduction. To examine how compensation varies with the size of the reduction,

I multiply hours from spouses and from children and others by the same factor $q$ in every state. Initial states, shocks, parameters, the paid-care price and the Medicaid floor remain fixed. Households choose consumption, paid care and saving again under each reduced schedule. Compensation is the wealth added at entry that restores welfare under current family care. These counterfactuals apply equal reductions to both sources. The demographic scenarios use different reductions for the two sources.

Table 5 reports compensation in the main text. Table G.15 adds compensation per lost clock hour. Increasing the reduction from 75 percent to complete removal accounts for about 70 percent of full-removal compensation. Compensation per lost family clock hour is $8.19 for complete removal, compared with $2.61 to $3.22 for reductions of one-half and three-quarters. These finite comparisons reflect the curvature of equation (3), household choices and the transfer rule. Figure G.2 gives the detailed profiles and sample comparisons.

**Table G.15:** Compensation for partial and complete losses of family care

| Family care removed | Compensation ($) | Compensation per lost clock hour ($) |
|---|---|---|
| 25% | 4,806 | 2.68 |
| 50% | 9,377 | 2.61 |
| 75% | 17,310 | 3.22 |
| 100% | 58,719 | 8.19 |

Notes. The full sample of 21,000 initial households. A couple counts once. Compensation is the mean entry-asset transfer required to restore welfare under current family care, in 2018 dollars over remaining life. Compensation per lost hour divides mean compensation by mean lost family clock hours, discounted at $r$ to entry and including expected hours after the simulation. The calculation uses reference hours scaled by the fraction removed. It differs from compensation divided by the dollar cost of hours. Valuations are constrained to be non-negative and limited by the asset ceiling. Conditional standard errors for compensation are reported in Table E.10; compensation per lost hour is not propagated.

The comparison between compensation and hours holds at each partial cut, separately for singles and couples and in both samples. It does not imply that high-support households always require more compensation. At some partial cuts their compensation is lower. Support groups differ in resources and other characteristics, so these comparisons do not isolate the effect of support holding household circumstances fixed.

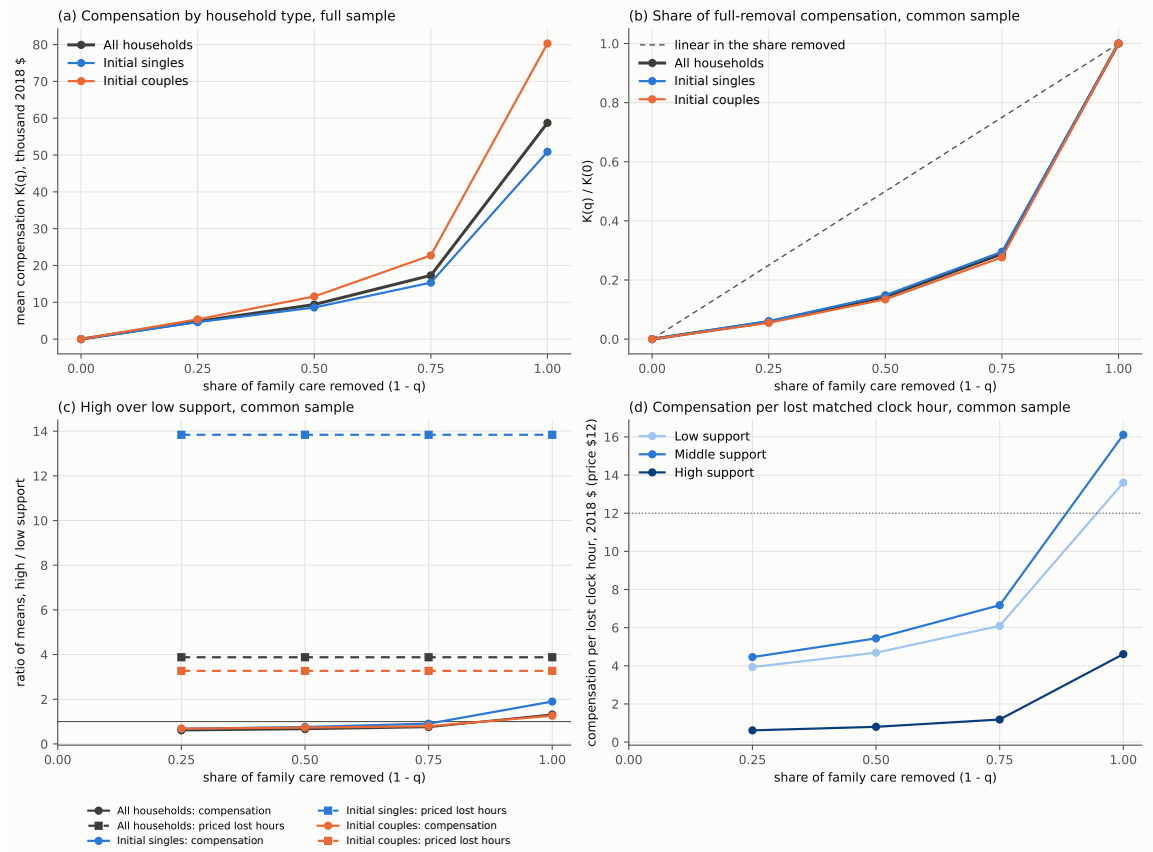



**Figure G.2:** Compensation as family care is reduced

Notes. Both sources retain fraction $q$ of their current hours. Panel (a) uses the full sample. Panels (b)–(d) use the same 19,040 households off the Medicaid floor at entry and below the compensation ceiling in every loss counterfactual. This restriction differs from checking the ceiling only at complete removal. Household type and support type are defined at entry. Panel (b) divides compensation by its full-removal value within each group. In panel (c), solid lines compare high- and low-support compensation, and dashed lines compare lost hours priced at $12. Panel (d) reports compensation per lost discounted clock hour by support group, pooling household types. Compensation and priced hours cover remaining life. These are finite changes within the estimated care technology at $\omega = 0.50$; slopes between points do not measure empirical marginal products.

## G.8 The Medicaid expansion and a cut in the floors, by group

Does family care change how much households gain from more generous Medicaid floors? For group $k$, I compare the same expansion under current family care and under no family care. Within each care environment, I add wealth under the current floors until the household is as well off as under the expanded floors. Family hours are unchanged by the policy. Households choose paid care, consumption and saving again, and the expansion has no financing tax. The same percentage increase in the floors can have different public costs across care environments. The percentage reductions in value and public cost are 100 times

$$1 - \frac{\bar{\lambda}_k\big((1,1,1),(1,1,\gamma)\big)}{\bar{\lambda}_k\big((0,0,1),(0,0,\gamma)\big)} \qquad \text{and} \qquad 1 - \frac{\overline{PV}_k(1,1,\gamma) - \overline{PV}_k(1,1,1)}{\overline{PV}_k(0,0,\gamma) - \overline{PV}_k(0,0,1)}, \tag{G.7}$$

Here $\gamma = 1.1$. The first expression compares group mean compensation, whereas the second compares increases in transfer present values. Each uses its own no-care denominator. Replacing current care in the numerator with either demographic scenario leaves the no-care denominator unchanged. In the 2060 environment, the reduction in expansion value is 24.4 percent, compared with 28.5 percent under current care.

Reweighting couples and singles to a common distribution over income tercile, support type and floor status at entry leaves an offset difference of 12.07 or 15.64 percentage points, depending on which household type supplies the reference distribution. Differences in these characteristics therefore account for only part of the aggregate gap. These are aggregate reweighting results and do not bound the gap in every cell.

Within each income tercile, family care reduces expansion value by a larger percentage for couples than for singles (Table G.16). The reduction rises with income, from 36.4 to 54.3 percent among couples and from 19.3 to 48.9 among singles. For high-income couples, the large percentage applies to a small dollar value, \$394 with family care compared with \$861 without it. Low-income singles value the expansion at \$8,934, with the smallest proportional reduction. Singles account for 15,403 of 21,000 households, giving them greater weight in the overall comparison.

I also ask how family care changes the loss from less generous public support. A separate counterfactual reduces both floors by 10 percent, $\gamma = 0.9$. The same cut is imposed with current family care and with no family care. Within each comparison,

**Table G.16:** Value of a 10 percent increase in both Medicaid floors by household type and permanent income

| | | Value of the expansion ($) | | | Lower |
|---|---|---|---|---|---|
| | Households | Today's family care | 2060 family care | No family care | today than with none (%) |
| *Initial couples, by permanent income* | | | | | |
| Low | 1,232 | 9,378 | 9,738 | 14,740 | 36.4 |
| Middle | 2,038 | 2,829 | 3,093 | 5,138 | 45.0 |
| High | 2,327 | 394 | 443 | 861 | 54.3 |
| All | 5,597 | 3,258 | 3,454 | 5,474 | 40.5 |
| *Initial singles, by permanent income* | | | | | |
| Low | 6,651 | 8,934 | 9,369 | 11,069 | 19.3 |
| Middle | 4,679 | 2,443 | 2,655 | 4,097 | 40.4 |
| High | 4,073 | 501 | 560 | 979 | 48.9 |
| All | 15,403 | 4,732 | 5,000 | 6,283 | 24.7 |
| *All households, by permanent income* | | | | | |
| Low | 7,883 | 9,003 | 9,427 | 11,643 | 22.7 |
| Middle | 6,717 | 2,560 | 2,788 | 4,413 | 42.0 |
| High | 6,400 | 462 | 518 | 936 | 50.7 |
| All | 21,000 | 4,339 | 4,588 | 6,067 | 28.5 |

Notes: Amounts are in 2018 dollars. The value is the mean one-time wealth at entry into the model that makes a household under the current floors as well off as under floors 10 percent higher, with family care held at the level of the column (equation 11). The 2060 column uses the scenario of Table 8. The last column is one minus the ratio of the value with today's family care to the value with no family care, in percent (equation G.7). Households, shocks and parameters are the same in every column. The expansion is unfinanced, and its public cost differs across columns. Household type and permanent income are fixed at entry, and the permanent-income group of a couple is the higher of the two spouses' groups. No value in this table reaches the asset ceiling.

family hours stay fixed and households choose paid care, consumption and saving again. In care environment $(q^{\text{ch}}, q^{\text{sp}})$, the compensation is $\lambda_i\big((q^{\text{ch}}, q^{\text{sp}}, 0.9), (q^{\text{ch}}, q^{\text{sp}}, 1)\big)$. This amount adds wealth under the lower floors to restore welfare under current floors, while the fiscal saving is the reduction in transfers. I calculate percentage reductions as in (G.7), replacing expansion value with loss compensation and public cost with public saving. The compensation measure has a zero lower bound (Appendix H.3). Households whose welfare does not fall are recorded at zero. This convention does not distinguish unchanged welfare from a gain.

With current family care, the floor cut requires mean compensation of $4,515 and

**Table G.17:** A 10 percent cut in both Medicaid floors with and without family care

| | | With family care | | Without | Lower with |
|---|---|---|---|---|---|
| | Households | Mean | Median | family care, mean | family care (%) |
| *Welfare loss ($ at entry): all households, by permanent income* | | | | | |
| Low | 7,883 | 9,024 | 6,861 | 12,126 | 25.6 |
| Middle | 6,717 | 3,061 | 1,788 | 4,447 | 31.2 |
| High | 6,400 | 486 | 5 | 1,020 | 52.3 |
| All | 21,000 | 4,515 | 1,432 | 6,285 | 28.2 |
| *Welfare loss ($ at entry): initial couples, by permanent income* | | | | | |
| Low | 1,232 | 9,764 | 7,003 | 15,560 | 37.3 |
| Middle | 2,038 | 3,319 | 3,641 | 5,377 | 38.3 |
| High | 2,327 | 453 | 86 | 979 | 53.8 |
| All | 5,597 | 3,546 | 1,379 | 5,790 | 38.8 |
| *Welfare loss ($ at entry): initial singles, by permanent income* | | | | | |
| Low | 6,651 | 8,887 | 6,756 | 11,490 | 22.7 |
| Middle | 4,679 | 2,948 | 1,015 | 4,041 | 27.1 |
| High | 4,073 | 505 | 1 | 1,044 | 51.6 |
| All | 15,403 | 4,867 | 1,468 | 6,465 | 24.7 |
| *Medicaid saving ($, 20-year present value): all households* | | | | | |
| All | 21,000 | 1,181 | | 1,230 | 4.0 |

Notes: Both Medicaid floors are cut by 10 percent, and amounts are in 2018 dollars. The welfare loss is the one-time wealth at entry into the model that makes a household under the lower floors as well off as under the current floors (equation 11), with family care and with no family care. The Medicaid saving is the fall in the 20-year present value of transfers per initial household. The last column is one minus the ratio of the mean with family care to the mean without, in percent. Households and shocks are the same in both cases, and public saving differs between them. No value in this table reaches the asset ceiling.

median compensation of $1,432 (Table G.17). Mean compensation falls from $9,024 among low-income households to $486 among high-income households. The respective medians are $6,861 and $5.

Family care lowers mean compensation by 28.2 percent overall, 38.8 percent for couples, and 24.7 percent for singles. The cut saves Medicaid $1,181 per initial household with family care and $1,230 without it. The floor cut and expansion are different changes, so their percentage reductions, 28.2 and 28.5, need not match.

## G.9 Sensitivity to calibrated care inputs

For complete removal, re-estimating the other parameters at $\omega = 0.40$ and 0.60 gives mean values of \$59,590 and \$56,253, compared with \$58,719 at baseline. The fixed-parameter checks produce larger valuation changes and worse fit when curvature changes with $\tau$ fixed, because input productivity changes as well (Appendix G.9).

These exercises assess sensitivity to calibrated inputs. The first set of checks changes a calibrated input while keeping the estimated parameters fixed. The second re-estimates the other parameters. Table G.18 changes $\chi(I)$, $\omega$, or the paid-care price while retaining the remaining parameters. Table G.21 fixes $\omega$ at 0.40 or 0.60 and re-estimates the other parameters. Both sets report remaining-life recipient compensation and 20-year fiscal saving. The expansion columns compare the same 10 percent floor increase under current and absent family care, with unequal public cost.

Across the fixed-parameter checks, family care lowers expansion value by 22.0 to 42.3 percent. Recipient value is 50.5 to 86.0 times fiscal saving. Changing $\chi(I)$ has relatively modest effects. At 0.10 and 0.25, recipient value is 5.7 percent lower and 7.0 percent higher. The criterion at 21,000 households rises by 6 and 7 percent.

The fixed-parameter checks describe the response to changing one input at the estimated values of the remaining parameters.

Changing $\omega$ at fixed $\tau$ has much larger effects. At $\omega = 0.75$ and $\omega = 0.90$, value falls by 44.0 and 53.6 percent, while the criterion rises by 44 and 69 percent. Changing curvature also changes productivity. A higher $\omega$ raises $\tau^{1/\omega}$ and $(1-\tau)^{1/\omega}$, the care produced by a unit of each CES input on its own. The results therefore combine changes in substitution curvature and in the productivity of each input.

**Table G.18:** The main results at other values of $\chi(I)$, $\omega$ and the price of paid care

| | Value of family care | | | Medicaid | Value per dollar | 10% expansion | | |
|---|---|---|---|---|---|---|---|---|
| | All | Couples | Singles | saved | saved | With | Without | Lower (%) |
| Estimated model† | 58,719 | 80,289 | 50,881 | 713 | 82.3 | 4,339 | 6,067 | 28.5 |
| $\chi(I) = 0.10$ | 55,359 | 75,496 | 48,042 | 644 | 86.0 | 4,499 | 6,067 | 25.8 |
| $\chi(I) = 0.25$ | 62,844 | 86,213 | 54,352 | 808 | 77.7 | 4,151 | 6,067 | 31.6 |
| $\omega = 0.40$ | 86,402 | 117,518 | 75,096 | 1,559 | 55.4 | 4,847 | 7,706 | 37.1 |
| $\omega = 0.75$ | 32,887 | 45,311 | 28,373 | 462 | 71.2 | 3,793 | 5,014 | 24.4 |
| $\omega = 0.90$ | 27,261 | 37,113 | 23,681 | 335 | 81.3 | 3,605 | 4,621 | 22.0 |
| Price \$20 an hour | 83,976 | 114,673 | 72,821 | 1,564 | 53.7 | 5,069 | 7,890 | 35.8 |
| Price \$22 an hour | 89,815 | 122,649 | 77,884 | 1,778 | 50.5 | 4,815 | 8,342 | 42.3 |

Notes: The dagger marks the estimated model, with $\chi(I) = 0.15$, $\omega = 0.50$ and a price of \$12 an hour. Each other row changes one of these inputs and keeps every other parameter at its estimate, without re-estimating. Each row is one simulation of the 21,000 initial households (5,597 couples and 15,403 singles) with the same random draws and the same support types. Dollar amounts are 2018 dollars per initial household, and per couple and per single in those columns. Value of family care is the mean one-time wealth at entry that compensates for losing all family care (equation (11)). Medicaid saved is the 20-year present value of Medicaid transfers without family care minus with it, discounted with $\beta$. Value per dollar saved is the ratio of the two means. For the baseline, its 90 percent Fieller set is unbounded under floored paid-care variances; ratios under alternative family-hour-crediting floor rules are 7.1–13.3 (Table G.5). The 10% expansion columns report the mean value at entry of raising both Medicaid floors by 10 percent, with family care (With) and with no family care (Without). Lower is $100\,(1 - \text{With}/\text{Without})$. Without is the same in the estimated model and in the two rows that change $\chi(I)$, because $\chi(I)$ has no effect without family hours. Standard errors are not reported for the fixed-parameter alternatives. Appendix E.7 gives standard errors for the results of the estimated model. The $\omega = 0.40$ row is a fixed-parameter check at the curvature of the first re-estimated profile in Table G.22, with re-estimation of the other parameters the only difference between the two exercises.

At $\omega = 0.40$ with the other parameters fixed, the value of family care is \$86,402, against \$59,590 when the other parameters are re-estimated at the same curvature (Table G.22). Re-estimation, which raises $\tau$, absorbs most of the change. The 2060 payment is \$8,842 and transfers rise by \$242, or 1.6 percent (Table G.19). At lower curvature the floor becomes more expensive. Minimum spending is defined with no family hours, and without family hours each paid hour produces $\tau^{1/\omega}$ effective hours. This is 0.158 at $\omega = 0.50$, 0.099 at 0.40 and 0.025 at 0.25. At $\omega = 0.25$ the recomputed floor for an impaired single is \$94,835 per two years against \$24,621 at the estimate. With current family hours, paid care is 1.53 hours a day against 0.43, transfers are \$48,220 against \$12,207, and 39 percent of households ever receive Medicaid. At this curvature the value of family care is \$231,647, the 2060 payment is \$13,164, and the 2060 increase in transfers is \$726, or 1.5 percent.

**Selected fixed-curvature comparisons.** Keeping $\tau$ and the other estimated parameters fixed, mean complete-removal compensation is \$32,887 at $\omega = 0.75$ and \$27,261 at $\omega = 0.90$ (Table G.20). The criterion rises from 6.31 to 9.06 and 10.67. Changing $\omega$ at fixed $\tau$ changes the productivity of each input as well as substitution curvature, through $\tau^{1/\omega}$ and $(1-\tau)^{1/\omega}$. These comparisons retain the boundary behavior near zero family care. The re-estimated profiles in Appendix G.9 allow the other parameters to adjust.

At paid-care prices of \$20 and \$22 an hour, value rises by 43.0 and 53.0 percent. Fiscal saving more than doubles, and the criterion rises by 33 and 43 percent. The highest price gives the smallest value-to-saving ratio, 50.5, and the largest reduction in expansion value, 42.3 percent.

**Selected outcomes under re-estimated curvature profiles.** Table G.22 summarizes complete-removal value, the spouse share and the reduction in expansion value. Each alternative fixes care curvature and re-estimates the other parameters. Table G.21 reports the fuller comparison. The within-couple common-loss exercise is reported separately in Table G.24. All three fitted specifications retain the CES behavior near zero family care.

With $\omega$ fixed at 0.40, 0.50 and 0.60, the criteria are 6.1425, 6.1856 and 6.1922 at 3,000 households. The differences from baseline are $-0.043$ and $+0.007$, respectively. The evaluated criteria are similar across these curvatures.

**Table G.19:** The 2060 scenario under alternative care technologies

| Technology | Paid clock hours per day | | Replacement (%) | |
|---|---|---|---|---|
| | Before | After | Clock | $\chi$-weighted |
| Estimated technology | 0.432308 | 0.519726 | 11.89 | 26.29 |
| $\chi(I) = 0.10$ | 0.477148 | 0.561852 | 11.52 | 27.43 |
| $\chi(I) = 0.25$ | 0.374884 | 0.466394 | 12.44 | 24.09 |
| $\omega = 0.40$ | 0.527806 | 0.622750 | 12.91 | 28.56 |
| $\omega = 0.75$ | 0.344899 | 0.425004 | 10.89 | 24.09 |
| $\omega = 0.90$ | 0.318685 | 0.396882 | 10.63 | 23.52 |
| Price \$20 an hour | 0.356725 | 0.425504 | 9.35 | 20.69 |
| Price \$22 an hour | 0.345371 | 0.412187 | 9.09 | 20.10 |

| Technology | Medicaid transfers, 20-year present value | | | | Ever Medicaid (%) | |
|---|---|---|---|---|---|---|
| | Before (\$) | After (\$) | Change (\$) | Change (%) | Before | After |
| Estimated technology | 12,206.83 | 12,346.57 | 139.74 | 1.14 | 26.01 | 26.47 |
| $\chi(I) = 0.10$ | 12,276.21 | 12,409.46 | 133.25 | 1.09 | 26.21 | 26.63 |
| $\chi(I) = 0.25$ | 12,111.91 | 12,269.46 | 157.55 | 1.30 | 25.65 | 26.19 |
| $\omega = 0.40$ | 15,325.32 | 15,567.24 | 241.92 | 1.58 | 28.02 | 28.66 |
| $\omega = 0.75$ | 9,769.93 | 9,877.04 | 107.12 | 1.10 | 22.62 | 23.30 |
| $\omega = 0.90$ | 9,369.97 | 9,441.16 | 71.20 | 0.76 | 21.44 | 21.84 |
| Price \$20 an hour | 15,891.65 | 16,170.78 | 279.13 | 1.76 | 28.53 | 29.22 |
| Price \$22 an hour | 16,889.46 | 17,213.61 | 324.15 | 1.92 | 29.01 | 29.87 |

| Technology | Payment at entry (\$) | | | Capped cases | | |
|---|---|---|---|---|---|---|
| | All | Couples | Singles | All | Couples | Singles |
| Estimated technology | 8,061.31 | 6,652.63 | 8,573.18 | 315 | 147 | 168 |
| $\chi(I) = 0.10$ | 7,968.66 | 6,458.94 | 8,517.25 | 314 | 147 | 167 |
| $\chi(I) = 0.25$ | 8,025.66 | 6,778.42 | 8,478.88 | 315 | 147 | 168 |
| $\omega = 0.40$ | 8,842.05 | 7,521.34 | 9,321.95 | 317 | 149 | 168 |
| $\omega = 0.75$ | 6,991.62 | 5,197.05 | 7,643.72 | 314 | 147 | 167 |
| $\omega = 0.90$ | 6,808.83 | 4,704.69 | 7,573.41 | 314 | 147 | 167 |
| Price \$20 an hour | 10,823.93 | 9,015.01 | 11,481.23 | 318 | 150 | 168 |
| Price \$22 an hour | 11,464.78 | 9,559.36 | 12,157.16 | 318 | 150 | 168 |

Notes: Each alternative changes one calibrated input, with other parameters held at their estimates. The same 21,000 initial households (5,597 couples and 15,403 singles) retain their states, support types, random draws, and health and survival paths, including widowhood. The unrounded demographic multipliers apply from entry. Hours average over living household-periods in the twenty-year simulation. Replacement compares added paid clock hours with lost family clock or effectiveness-adjusted hours. It does not measure CES effective care restored. Transfers cover twenty years, discounted at $\beta$ over all initial households, including nonrecipients. Payments cover remaining life in 2018 dollars. The first-crossing inverse finds the smallest sufficient addition on the saved piecewise-linear grid. Its means agree with nondecreasing-envelope means within \$1 in every row and group. Capped cases remain in the means and are lower bounds when welfare is not restored. Differences and ratios need not be lower bounds. Standard errors are not reported. Parameters are not re-estimated.

**Table G.20:** Complete-removal value when curvature changes at fixed estimated parameters

| Care curvature | Mean compensation ($) | Criterion |
|---|---|---|
| Baseline, $\omega = 0.50$ | 58,719 | 6.31 |
| $\omega = 0.75$ | 32,887 | 9.06 |
| $\omega = 0.90$ | 27,261 | 10.67 |

Notes. Selected rows of Appendix Table G.18. Mean compensation is additional entry wealth per initial household over remaining life, in 2018 dollars. The same 21,000 initial households and draws are used. All other parameters, including $\tau$, remain fixed. Both curvature and input productivity change. Criteria use the reporting simulation, and the alternatives fit worse at these unchanged parameters. No standard errors are reported for these fixed-parameter checks.

**Table G.21:** The main results with $\omega$ fixed at 0.40 and at 0.60 and the other parameters re-estimated

| | $\omega$ | | |
|---|---|---|---|
| | 0.40 | 0.50 (estimate) | 0.60 |
| $\tau$ | 0.478 | 0.397 | 0.330 |
| Criterion, $N = 3{,}000$ | 6.1425 | 6.1856 | 6.1922 |
| Criterion, $N = 21{,}000$ | 6.184 | 6.312 | 6.498 |
| Value of family care, mean ($) | 59,590 | 58,719 | 56,253 |
| Couples ($) | 80,904 | 80,289 | 79,901 |
| Singles ($) | 51,845 | 50,881 | 47,660 |
| Medicaid saving, 20 years with $\beta$ ($) | 678 | 713 | 804 |
| Spouse share of the couples' value (%) | 43.5 | 46.6 | 48.8 |
| Expansion worth less with family care (%) | 28.8 | 28.5 | 29.1 |

Notes: The model is re-estimated at each fixed $\omega$ using the coordinate search in Appendix E.5, initialized from the estimate with $\tau$ adjusted. The 0.50 column is the baseline. Criteria are reported at the search sample of 3,000 households and the reporting sample of 21,000. Both alternative evaluations use the same 422 targets. Value and saving follow Table 3. The spouse share uses the Shapley allocation in equation (G.9). Its underlying compensations all add wealth in the same no-family-care environment to attain welfare under the respective care arrangements. The last row follows Table 9. Dollar amounts are in 2018 prices per initial household. No standard errors are reported for the profile results.

**Table G.22:** Selected outcomes with care curvature fixed and the other parameters re-estimated

| | $\omega = 0.40$ | $\omega = 0.50$ (baseline) | $\omega = 0.60$ |
|---|---|---|---|
| Mean value of all family care ($) | 59,590 | 58,719 | 56,253 |
| Spouse share of couples' total value (%) | 43.5 | 46.6 | 48.8 |
| Expansion worth less with current family care (%) | 28.8 | 28.5 | 29.1 |

Notes: Selected rows from Appendix Table G.21. Mean value is additional wealth at entry in 2018 dollars per initial household over remaining life. Spouse share is the Shapley allocation of couples' total family-care value. The last row compares the same 10 percent floor expansion with current family care and with none, allowing public costs to differ and excluding financing taxes. The estimated parameters are re-estimated at each alternative curvature. The common-loss comparison is reported separately in Appendix Table G.24. No confidence intervals are shown.

Re-estimation changes the paid-care weight in response to the change in curvature. Its value is 0.478 at $\omega = 0.40$ and 0.330 at 0.60, compared with 0.397 at baseline. The mean value of family care is $59,590 and $56,253, compared with $58,719. These are changes of +1.5 and −4.2 percent. Fiscal savings are $678 and $804, compared with $713. The spouse shares are 43.5 and 48.8 percent, compared with 46.6, and the expansion-value reductions are 28.8 and 29.1 percent, compared with 28.5.

Value also remains much flatter across support groups than priced hours. On a common sample of 19,039 households above the floor at entry and below the compensation cap at every point, the ratios of high-support to low-support value among singles are 1.72, 1.90, and 2.09. Their priced-hours ratio is 13.8. Among couples the value ratios are 1.21, 1.26, and 1.36, compared with 3.3 for hours. Low-support singles' value changes most, by +8.4 percent at 0.40 and −12.5 percent at 0.60.

All three profiles retain the CES boundary behavior. Conditional on positive paid care, the marginal product of family hours rises without bound near zero. The profiles assess nearby curvature while allowing the estimated parameters to change. The demographic scenario has not been evaluated under these re-estimated profiles. Table G.19 reports the separate fixed-parameter comparisons. Appendix Table G.24 repeats the within-couple common-loss comparison under these fitted profiles.

## G.10 Spouse care: detailed comparisons and source allocation

### G.10.1 The common loss of care from children and others

Figure 6 reports the aggregate comparison. Table G.23 reports the full subgroup results and numerical qualifications. Care from children and others is multiplied by $q^{\text{ch}}_{2060} = 0.50$ in each environment. Retained spouse care follows $q^{\text{sp}}_{2060} = 0.98$ times its current schedule, with the spouse present and the same initial resources and health and survival paths.

Within each environment, spouse care follows its respective schedule before and after the outside-care cut. Each compensation restores the couple's welfare before that cut under its own spouse-care arrangement. I therefore compare two welfare losses, each measured from its own reference welfare. The two compensations are

$$\lambda_i\big((q^{\text{ch}}_{2060}, q^{\text{sp}}_{2060}, 1),\ (1, q^{\text{sp}}_{2060}, 1)\big) \qquad \text{and} \qquad \lambda_i\big((q^{\text{ch}}_{2060}, 0, 1),\ (1, 0, 1)\big). \tag{G.8}$$

The difference between mean compensation without and with spouse care measures how much the existing spouse-care schedule reduces this common loss. Spouse hours do not increase after outside help falls, and children and others supply the same hours in both comparisons.

For 7 of the 5,597 simulated couples (0.13 percent), compensation for losing outside help is higher with spouse care than without it. In this group, the compensation reduction averages minus $2,218 and has a minimum of minus $2,895. Only 2 of these couples are among the 216 on the floor at entry.

**Table G.23:** Compensation for the same reduction in care from children and others, with and without spouse care

| | | Compensation ($) by spouse care | | Reduction | | Share |
|---|---|---|---|---|---|---|
| | Couples | With | Without | ($) | (%) | positive (%) |
| *50 percent reduction in care from children and others* | | | | | | |
| All initial couples | 5,597 | 6,502 | 11,231 | 4,729 | 42 | 97 |
| Low support | 4,074 | 6,337 | 11,157 | 4,820 | 43 | 97 |
| Middle support | 773 | 6,716 | 12,191 | 5,474 | 45 | 98 |
| High support | 750 | 7,182 | 10,647 | 3,465 | 33 | 98 |
| Off the floor at entry | 5,381 | 5,595 | 10,391 | 4,796 | 46 | 97 |
| On the floor at entry | 216 | 29,115 | 32,170 | 3,056 | 9 | 99 |
| with spouse-health response | | 6,521 | 11,241 | | 41.98 | |

Notes: The estimated model, 5,597 initial couples, in 2018 dollars per couple. Compensation is wealth added at entry to restore welfare before the cut in care from children and others. That care is multiplied by 0.50. With and Without refer to spouse care, retained at 0.98 times current hours or absent before and after the cut. The spouse remains present. Reduction is compensation without spouse care minus compensation with it, in dollars and as a percentage of compensation without spouse care. Share positive is the fraction with a positive reduction. Support refers to children and others. About 2.7 percent reach the asset ceiling in either compensation; excluding them gives a mean reduction of $4,850. For all initial couples, standard errors are $1,902 and $3,632 with spouse care, $3,943 and $7,704 without spouse care, and 4.0 and 7.9 percentage points for the percentage reduction, using bootstrap paid-care variances first and floored variances second. The $4,729 difference has standard errors of $2,064 and $4,094, propagated from the difference of the two gradients with the same covariance. These errors are local and conditional on the model, first-step estimates and calibrated inputs (Table E.10); the ceiling-excluded $4,850 figure has no standard error. The row with spouse-health response lets care from children and others depend on recipient health, inherited support type and whether the spouse is in good versus bad or impaired health. It is a first-step sensitivity at the estimated structural parameters, with no new standard errors (Appendix F.3).

Table G.24 repeats equation (G.8) with the full parameter vector fitted at each curvature. Each wealth addition restores that couple's own pre-cut welfare under the same spouse-care arrangement. The initial population, draws and unrounded care multipliers are unchanged. Floors and guaranteed bundles are those of each fitted specification, computed at zero family care. The percentage reduction is one minus the ratio of mean compensation with spouse care to mean compensation without it.

**Table G.24:** Compensation for the common loss of outside care under re-estimated care-curvature profiles

| | Mean compensation ($) | | | | | |
|---|---|---|---|---|---|---|
| $\omega$ | With spouse care | Without spouse care | Difference ($) | Reduction (%) | Couples | At ceiling in either case (%) |
| 0.40 | 5,659 | 9,918 | 4,259 | 42.9 | 5,597 | 2.63 |
| 0.50 | 6,502 | 11,231 | 4,729 | 42.1 | 5,597 | 2.66 |
| 0.60 | 7,352 | 12,440 | 5,088 | 40.9 | 5,597 | 2.68 |

Notes: The same initial couples lose the same fraction of care from children and others, with spouse care retained at its scenario schedule or absent. The spouse remains present. Compensation is additional entry wealth per initial couple over remaining life, in the same model-dollar units as the baseline calculation. Each loss is valued relative to its own pre-cut welfare. Other estimated parameters are re-estimated at each alternative $\omega$. The baseline row reproduces Figure 6 before rounding. At ceiling in either case is the fraction reaching the original compensation ceiling in at least one arrangement; these compensations are lower bounds. Differences and percentage reductions do not inherit a lower-bound interpretation. All couples remain in the means. No confidence intervals are reported. All specifications retain the CES behavior near zero family care. These comparisons do not evaluate the demographic scenario at alternative curvatures.

### G.10.2 Allocation of total family-care value by source

The source allocation in Table 7 asks how much each source contributes to the value of all family care. Whenever retained, a source supplies its current benchmark hours. The common environment is the one without family care in which wealth is added; the welfare level attained depends on the care arrangement being valued.

Low-support husbands in bad or impaired health receive only 0.11 to 0.44 daily hours from children and others while both spouses are alive (Table 1). Care from children and others continues to contribute after widowhood.

Let $v_i = \lambda_i\big((0,0,1),(1,1,1)\big)$ denote total value, $v_i^{\text{sp}} = \lambda_i\big((0,0,1),(0,1,1)\big)$ the value of spouse care alone, and $v_i^{\text{ch}} = \lambda_i\big((0,0,1),(1,0,1)\big)$ the value of care from children and others alone. All three compensations add wealth in the same no-family-care environment. The Shapley allocation averages each source's contribution when it is included first and when it is included second (Shapley, 1953),

$$\lambda_i^{\text{sp}} = \tfrac{1}{2}\Big[v_i^{\text{sp}} + \big(v_i - v_i^{\text{ch}}\big)\Big], \qquad \lambda_i^{\text{ch}} = \tfrac{1}{2}\Big[v_i^{\text{ch}} + \big(v_i - v_i^{\text{sp}}\big)\Big]. \tag{G.9}$$

The contributions add to $v_i$. They allocate compensation measured from a common no-care environment and need not equal compensations for removing the sources sequentially.

On average, each source adds more to this compensation measure when the other is absent. Spouse care alone is worth \$49,345, compared with an increment of \$25,438 when care from children and others is available. The value attributed to spouse care therefore depends on the outside help available, while the common-loss comparison asks how existing spouse care protects households when outside help declines.

At a given recipient health state, an hour from either family source receives the same weight in equation (3). Differences in the source contributions arise from the available schedules and their interaction with recipient choices. The allocation averages contributions measured from the common no-family-care environment and differs from compensation for sequential removal.

### G.10.3 Spending and saving after the same cut in outside care

The 5,597 initial couples of Section 6.3 lose half their care from children and others while keeping their original wealth. Spouse care is held at the same schedule before and after the reduction or is absent throughout. Additional paid-care spending is \$539 per living household and two-year period with spouse care, compared with \$1,117 without it (Table 6). Consumption and net saving also fall less with spouse care. Transfers rise by \$4 and \$36, so households finance most of the additional care themselves. These responses show which resources retained spouse care helps preserve.

Effective care falls by 0.064 daily hours with spouse care and 0.065 without it, from different initial levels. A smaller welfare loss therefore need not coincide with a smaller absolute decline in effective-care units. These per-period flows are separate from the one-time wealth compensation in Section 6.3.

## G.11 Widowhood in the model

Widowhood changes the survivor's resources as well as the care available at home. I use counterfactuals to separate their contributions to Medicaid receipt and paid-care use. The comparison follows 4,964 simulated survivors whose spouses die during the simulation. Appendix B.3 provides the descriptive HRS comparison.

The benchmark is the survivor's path in the estimated model (Appendix D.6). At the spouse's death, the deceased spouse's end-of-life cost is paid from assets, the survivor makes a bequest, and income switches to the widowed profile. I compare this path with three counterfactuals that preserve spouse care, resources, or both after death. Preserving care continues the former spouse's hours. Preserving resources retains couple income profiles and removes the deceased spouse's end-of-life charge. Each counterfactual leaves the path before death unchanged.

I allocate the resulting differences across resources and care by averaging each channel's contribution over the two orders of preservation. The Shapley allocation here divides changes in transfers and paid-care use. No welfare compensation is being allocated. The first outcome is the present value of transfers from death through the remaining simulated periods, discounted to the death period, per survivor. Its population and horizon differ from the main 20-year measure per initial household. The other outcomes are receipt at any time after death and daily paid care.

Transfers after death have a present value of $11,987 per survivor, compared with $4,914 when both resources and care are preserved (Table G.25). Lost resources account for $6,720 of the $7,073 difference, or 95 percent. Lost care accounts for $353. Of the 12.9 percentage-point increase in receipt at any time after death, 11.5 points are assigned to resources.

Care matters more for paid-care use. Losing spouse care raises paid hours by 0.435 a day, compared with 0.011 from lost resources. The counterfactual therefore separates the transfer response, driven mainly by resources, from the paid-care response, driven mainly by lost care.

The couple has mean assets of $521,827 at the end of its last period together. The survivor starts the next period with $301,466. End-of-life costs and the survivor's immediate bequest account for the $220,361 difference. Most survivors never receive Medicaid after death, so a minority accounts for the mean transfer response.

The HRS comparison provides a descriptive benchmark. Care from children and others rises by 5.35 weekly hours during the first four years after widowhood

**Table G.25:** Medicaid and paid care after a spouse's death, separating lost resources and lost care

| Channel | Medicaid present value ($) | Ever on Medicaid (percentage points) | Paid care (hours per day) |
|---|---|---|---|
| Lost resources | 6,720 | 11.5 | 0.011 |
| Lost spouse care | 353 | 1.4 | 0.435 |
| Total | 7,073 | 12.9 | 0.445 |

Notes: The table follows the 4,964 simulated survivors of initial couples in which one spouse dies during the simulation. Each entry measures how losing resources or care at the spouse's death changes the outcome. It is the outcome in the estimated model minus the outcome when that channel is preserved after death, averaged over the two orders in which the channels can be preserved. The first column is the present value of Medicaid transfers from the period of the death over the remaining simulated periods, discounted to that period, in 2018 dollars per survivor. The second is the share of survivors with a Medicaid transfer in any period after the death. The third is the survivor's paid care, a mean over the periods after the death. Because of rounding, the rows need not add up to the total.

(Table B.3). In the model, this care changes when the survivor moves to the singles' schedule at the same support type. That schedule is estimated from single-person interviews excluding widowed waves (Appendix C).

The HRS estimate of the change in Medicaid receipt within four years is 0.8 percentage points, with a 95 percent interval from −3.0 to 4.6. A separate comparison with fewer survivors gives 11.0 points after eight years, with interval 2.2 to 19.8. The later estimate has the same direction as the modeled increase. Paid care rises in the model, while the HRS estimate is 0.49 weekly hours with an interval containing zero.

The HRS estimates compare survivors with matched respondents who remain married and measure reported coverage over fixed event windows. The model counterfactuals preserve resources or care after death and count transfers over the remaining simulation. Figure F.1 reports modeled receipt and the HRS estimates on a common two-year grid, retaining their different comparison groups.

## G.12 An alternative version of the model with a nursing-home state

An alternative version of the model, estimated separately, includes a nursing-home state. The exogenous probability of entry is estimated from the HRS and depends on age, health, permanent income and the household's support type. Residents receive a fixed bundle of care and retain a fraction of their family hours. Medicaid covers the shortfall when the resources left after paying for the facility fall below the personal-needs allowance. Table G.26 repeats the counterfactuals of Section 6 at that version's estimated parameters using the same 21,000 initial households and random draws across the cases.

With entry held fixed, the result of Section 6.5 carries over. When family hours fall to their projected 2060 levels, Medicaid transfers over 20 years rise by 0.8 percent and households need an average of $9,419 at entry to be as well off as with current care. When the entry probability moves with hours from children and others according to the first-step differences across support types, the same cut raises transfers by about 10 percent and the median payment at entry by about a third. The entry response is strongest among singles and survivors, whose entry risk falls steeply with family support in the first step. The differences across support types can reflect selection as well as behavior. The model in the main text covers care at home.

Removing all family care raises transfers by $1,693 per household when entry probabilities stay fixed. If every household without family care instead faces the entry probability of low-support households, transfers rise by $9,885 and the share ever in a nursing home rises from 24.2 to 29.7 percent. The change in entry risk is imposed.

With entry held fixed, retaining spouse care lowers the payment for halving care from children and others by 35.5 percent for the same couples.

**Table G.26:** Counterfactuals under the alternative version with a nursing-home state (21,000 initial households, 2018 dollars)

| Object | Value |
|---|---|
| Value of family care, mean (couples / singles) | 81,069 (136,566 / 60,903) |
| Medicaid transfers over 20 years, with family care | 36,165 |
| Of which in periods with a resident | 28,056 |
| Increase from removing all family care, entry fixed | 1,693 |
| Increase from removing all family care, low-support entry probability imposed | 9,885 |
| Share ever in a nursing home, baseline / low-support entry probability imposed | 24.2 / 29.7 percent |
| 2060 payment at entry, mean (couples / singles) | 9,419 (8,352 / 9,806) |
| 2060 change in transfers | +277 (0.8 percent) |
| 2060 share ever on Medicaid, before / after | 32.7 / 33.2 percent |
| 2060 with entry responding, change in transfers | +3,800 (10.5 percent) |
| 2060 with entry responding, payment at entry, mean (median) | 19,888 (11,151) |
| 2060 with entry responding, share ever in a nursing home, before / after | 24.2 / 26.7 percent |
| Payment for halving care from children and others in the same couples, with / without spouse care | 8,043 / 12,476 (35.5 percent less) |
| Gain from a 10 percent home-floor expansion, with / without family care | 4,505 / 5,700 (21.0 percent less) |

*Notes.* Transfers are 20-year present values per initial household. The amount in periods with a resident includes transfers for the spouse at home in those periods. Payments and gains are additional wealth at entry over remaining life. Singles include widows and widowers. The low-support case assigns every household without family care the entry probability of low-support households. The first three 2060 rows hold entry fixed. The rows with entry responding interpolate the first-step probabilities across support types using hours from children and others alone. All rows use the same initial households and draws. Standard errors are not reported.

# H Numerical solution and simulation

## H.1 Solution

I solve the model by backward induction. The asset grid has 320 points between zero and $3,000,000, with finer spacing at low wealth. Adjacent points are $87 apart at zero, $2,015 apart at $50,000 and $2,683 apart just below $100,000. Spacing is $7,447 up to $1.5 million and $22,059 above it. Estimation, fit and counterfactuals use this grid, which includes zero because households on the floor save nothing. At each age I compute the value function at every asset point and combination of health, medical shocks, permanent-income terciles and support type. Singles' states also include sex and the survivor indicator.

For each parameter vector, I first compute minimum spending and the floor bundles by bisection on spending (Appendix D.4). When resources are below minimum spending, the household receives its prescribed bundle and saves zero. Above the floor, I evaluate each feasible grid point for next-period assets. Remaining resources are allocated between consumption and paid care using the first-order condition in Appendix D.3. I solve this allocation by bisection over a spending grid and interpolate consumption, paid hours and utility linearly between spending points.

I solve singles first, separately by sex, and then survivors with their widowed income and medical profiles. Next I solve the immediate bequest choice in equation (D.3), restricting retained assets to grid points. I solve couples last, rounding a new survivor's assets net of end-of-life costs down to the grid.

## H.2 Simulation

A simulated household starts with an HRS household's observed status, age, health, permanent income and assets at its first interview at age 70 or older. It also inherits the observed household's support type when the data reveal it. In the reported simulation, each of the 3,606 source households appears once, and additional copies are allocated in proportion to its survey weight. Reported model averages are calculated across the resulting simulated households without further weighting. Initial medical shocks are drawn from their stationary distribution.

The parameter search uses 3,000 households per evaluation. Reported simulations use 21,000 households, comprising 5,597 couples and 15,403 singles. Each household is

followed for at most ten periods, or twenty years. Its simulated path ends earlier if its last member dies or reaches the model's terminal age. A household with unobserved support draws its permanent type at entry from the probabilities in Appendix C.3.

Simulated assets are continuous. The household starts with observed wealth, and actual resources determine whether the floor binds. Above the floor, consumption and paid hours are linearly interpolated between policy-function grid points. The budget constraint determines next-period assets, which are bounded to the grid. Wealth at entry is unbounded, so an observed amount outside the grid enters the budget at its actual value while policies are read at the nearest endpoint. Among the 21,000 households, 365 enter with negative wealth and 298 above the ceiling. A new survivor's assets are also continuous, and the bequest choice is interpolated.

I use the same random draws for health, survival, medical spending and imputed support types across parameter vectors and counterfactual environments, holding these draws fixed in every comparison.

## H.3 Wealth-equivalent variation

The minimum selects the smallest non-negative wealth addition that attains reference welfare. When the value function is strictly increasing and a positive required addition lies within the grid, compensation solves the utility-equality condition. The minimum also covers flat portions of the value function, where several wealth levels can yield the same welfare. Compensation is zero if original wealth already attains reference welfare, including indifference and welfare gains.

I calculate the payment in equation (11) from the household's value functions under the two care and policy arrangements, evaluated at its entry state. Entry assets are bounded to the grid for this calculation. Linear interpolation permits compensation smaller than the distance between adjacent points. Before inverting the value function in the receiving environment, I replace its value at each asset point by the highest value at that point or any lower asset point. This produces a non-decreasing envelope. In the all-care-removal counterfactual, it changes values for 4.9 percent of households, or 9.3 percent of distinct entry states used in the inversion. For 96 percent of affected households, only one grid point changes. Compensation is set to zero if welfare already equals or exceeds the reference. If the asset ceiling cannot restore reference welfare, compensation equals the distance from entry assets to that ceiling. In this case,

reported compensation is a lower bound. It applies to 1.6 percent of households when all family care is removed.

At the estimated parameters, doubling the number of asset points lowers the criterion with 21,000 households by 0.7 percent. Family-care value is then $58,725, compared with $58,719, and Medicaid saving is $727, compared with $713. The expansion offset is 28.6 percent, compared with 28.5 percent. These comparisons hold parameters fixed.