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Reforming the US Long-Term Care Insurance Market

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Abstract

Nursing home risk is significant and costly. Yet, most Americans pay for long-term care (LTC) expenses out-of-pocket. This chapter examines reforms to both public and private LTCI provision using a structural model of the US LTCI market. Three policies are considered: universal public LTCI, no public LTCI coverage, and a policy that exempts asset holdings from the public insurance asset test on a dollar-for-dollar basis with private LTCI coverage. We find that this third reform enhances social welfare and creates a vibrant private LTCI market while preserving the safety net provided by public insurance to low-income individuals.

Keywords: Long-term Care Insurance; Medicaid; Adverse Selection; Partnership Program

JEL Codes: D82, D91, E62, G22, H30, I13.

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One of the biggest financial risks Americans face late in life is the risk of needing formal long-term care (LTC) assistance. One in three 50-year-old Americans will experience a health event that results in a nursing home stay in excess of 100 days, and about one in ten will incur out-of-pocket LTC expenses of $200,000 or more (Braun et al. 2019 and Favreault, M. and J. Dey 2022).

The Baby Boomers are now moving into retirement, and as they age, the overall number of LTC events and aggregate losses associated with these events will increase. This will stress government coffers and the personal finances of aging Boomers. The Penn Wharton Budget Model predicts that expenditures on LTC by Medicaid, the main public insurer, will increase from 0.62 percent of GDP in 2022 to 1.25 percent of GDP by 2050 (He 2022). Medicaid expenditures account for about half of total aggregate expenditures on LTC services (Chidambaram and Burns 2022). So, total US expenditures on LTC could rise from about 1.2 percent of GDP to as high as 2.5 percent.

Given the high probability of a costly LTC event, one might expect that the private market for long-term care insurance (LTCI) would be healthy and growing. Yet surprisingly, only 10 percent of Americans age 65+ own a private LTCI policy, and the number of individuals with such a policy has been falling steadily since 2021. The objectives of this chapter are to describe how Americans currently cope with LTC risk, provide an assessment of why the private LTCI market is so small, and consider alternative strategies for reforming the market.

Demand for and Provision of Long-term Care Services in the US

What is long-term care? People's demand for health care services can be categorized into three main types: acute care, hospice care, and LTC. Acute care consists of medical and/or nursing interventions aimed at treating specific acute conditions, such as an infection, heart attack, or injury, with the goal of promoting recovery. Hospice care provides support to individuals who are disabled and nearing death. LTC services offer ongoing assistance with daily activities for individuals who are not in the terminal stage of life. The primary objectives of LTC are to enhance individuals' quality of life and promote functional independence.

The extent of need for LTC services is usually determined by counting the number of *activities of daily living* (ADLs) a person is unable to perform without assistance. The six ADLs consist of eating, bathing, dressing, transferring in and out of a chair or bed, toileting, and continence. An additional determinant of LTC service needs is cognitive decline, often measured by counting the number of *instrumental activities of daily living* (IADLs) a person is unable to perform without assistance. Examples of IADLs include an individual's ability to manage their own medication, shop for groceries, prepare meals, use a telephone, drive or use transportation, handle personal finances, do laundry, and keep house. The Health Insurance Portability and Accountability Act of 1996 (Act, Accountability 1996) defines an LTC event as requiring assistance with two or more ADLs for an expected duration of 90 days or more or needing substantial supervision due to severe cognitive impairment. The Internal Revenue Service uses this definition to determine whether premiums paid for private LTCI are tax deductible.

In the analysis that follows, we summarize the demand for LTC services using a frailty index that combines into a single measure an individual's difficulty with ADLs and IADLs, and

other indicators of health status following Braun et al. (2019). A higher value of the index corresponds to a higher level of frailty.

Who needs long-term care? The likelihood of needing LTC services varies systematically with gender, marital status, education, and wealth. This is partly because LTC needs are positively correlated with age. Women typically outlive men, and individuals with higher levels of education and wealth tend to have higher life expectancies than the less-educated and less-affluent. The intensity of LTC needs also varies by demographic characteristics. Females in a given age group tend to have higher rates of difficulties with ADLs and IADLs than males of the same age, and individuals who are single or unmarried tend to have poorer health as compared to married individuals.

Thus, the evidence shows that, at age 65, the likelihood of experiencing a LTC event before death is 47 percent for men and 58 percent for women, 51 percent for married individuals, and 54 percent for unmarried individuals.[1] The average duration of care is currently 3.2 years for men and 4.4 years for women. Married individuals experience an average of 3.6 years of care, whereas unmarried individuals use care for 4.3 years.

Who provides long-term care services? About 69 percent of LTC services in the US are provided informally by a relative, 18 percent by formal care providers at home, and 13 percent in skilled nursing home facilities. The typical caregiver is a woman in her fifties or sixties who provides care for her mother. Informal care provided by the spouse is also common, accounting for 32 percent of informal LTC services (Gruber and McGarry 2023).

Informal care is frequently provided either for free or at rates well below market prices. Yet, many family members and spouses are inadequately equipped to provide LTC services to persons with multiple ADLs and/or IADLs. Consequently, approximately 45 percent of those age

65 are projected to experience a LTC event that necessitates the use of formal LTC services before their deaths. Of these, 53 percent will require less than one year of formal care, 37 percent will need two to four years of formal care, and 10 percent will require more than five years of formal LTC services (Favreault and Johnson 2021).

Formal care in the US is also quite expensive. The Genworth (2024) Cost of Care Survey reported that the median cost of one year of assisted living services in 2021 was $54,000, the median cost of formal home-provided health care was $61,776, and the median cost of a private room in a skilled nursing home facility was $108,405. Given the magnitude of these expenses combined with the fact that they tend to be concentrated near the end of life, one might expect that there would be a large and active private insurance market for LTC risks. Nevertheless, as we explain next, this is not the case.

US Insurance Arrangements for Long-term Care Risk

Public insurance. One reason we draw a distinction between acute health care and hospice care on the one hand, and LTC on the other, is the structure of insurance markets in the US for these risks. Medicare offers near-universal public coverage for individuals age 65+, serving as the primary payer of acute health care expenses including formal care services during short-term hospital and/or nursing home stays lasting 20 to 90 days.[2] Medicare also covers hospice care for individuals certified as disabled and nearing the end of life. Yet, Medicare does not provide insurance coverage for LTC events such as nursing home stays exceeding 90 days.

A different government program, Medicaid, does provide coverage of long-term nursing home stays, but it is a secondary payer, and eligibility hinges on satisfying strict income and asset tests. For instance, the asset threshold in most states is set at less than $3,000. As a secondary payer, Medicaid only steps in once individuals have exhausted their private LTCI benefits, spent down

most of their assets (equity in a home is exempt or deferred in some cases), and depleted Social Security and other retirement income. Moreover, Medicaid imposes strict guidelines regarding the nursing home amenities it covers (Kaiser Commission on Medicaid and the Uninsured 2010 and MedicaidLongTermCare.org 2024).

The private LTCI market. Despite the limited coverage of LTC risks provided by public insurance in the US, the private market for LTCI is small and the market has been declining steadily since 2012. Only about 10 percent of current retirees hold such a policy (Braun et al 2019). For perspective, according to the National Association of Insurance Commissioners (2023), approximately 5.1 million individuals in the US owned an LTCI policy in 2022. In contrast, in 2021, over 55 million individuals (comprising 95 percent of those enrolled in both Medicare Part A and Part B) had Medicare Advantage or supplemental Medicare benefits managed by a private insurer.[3]

The US LTCI market has other noteworthy characteristics emphasized in the previous literature (e.g., Brown and Finkelstein 2007, Braun et al 2019 and Gruber and McGarry 2023). Premiums for LTCI policies are higher than those for life insurance products, representative LTCI policies offer incomplete coverage against expected losses, and denial rates of applicants by private insurers is high. Hendren (2013) attributed the last observation to adverse selection and Chade and Schlee (2020) showed that it is optimal for a monopolist that faces variable administrative costs to deny coverage to adversely selected risk groups.

Why don't Americans purchase LTCI? The shortcomings of the current system suggest that there is an urgent need to reform the US LTCI market. But to properly target policy reforms and build a consensus behind them, we require a better understanding of demand elasticities for private LTCI. In particular, it is necessary to understand how these elasticities vary across individuals due

to differences in their exposures to LTC risk as well as their alternative insurance options. For instance, a wealthy individual may prefer to self-insure against long-term care risk if private LTCI insurance is sufficiently expensive. We also need to understand why LTCI is so expensive and why some risk groups are denied coverage. In particular, we need to understand how supply-side frictions influence the pricing and coverage of insurance contracts offered by private insurers. To this end, we now analyze how Medicaid, administrative costs, and adverse selection influence LTCI takeup, coverage levels, and pricing using a generalized version of the Braun et al. (2019) model.

Medicaid, Administrative Costs and Adverse Selection Drive Low LTCI Takeup Rates

Braun et al. (2019) developed a quantitative structural model of the US private LTCI market, which we use in the analysis below. Individuals in the model differ by permanent earnings (PE) and frailty. They work when young and save for their retirement. Upon retiring, they receive private information about their likelihood of needing formal LTC in the future. The retirement period then proceeds in two stages. During the first stage, people experience a shock to their wealth and also a mortality shock. Individuals who survive move to the second stage, where they face a LTC shock.

In the model, people have three ways to insure against the risk of becoming old, impoverished, and in need of LTC. First, they can self-insure by saving while working. Second, they can purchase private LTCI at the beginning of retirement. Third, they can receive assistance from public insurance provided by the government, modeled after the main features of Medicaid. Public LTC benefits are means-tested and public LTCI is a secondary payer; that is, government benefits are only provided to individuals after they exhaust any private LTCI benefits. Finally, the government guarantees a minimum consumption level for destitute individuals. Our model is

designed to isolate LTC risk from other risks such as mortality, eliminating the need for additional insurance options.

Private LTCI contracts are offered to individuals by an insurer with monopoly power, who faces fixed as well as variable costs of insurance provision. The private insurer also contends with information constraints, since it only observes individuals' PE and frailty, both of which are noisy indicators of peoples' true health status. Using this imperfect information, the insurer sorts people into risk groups, where individuals in each risk group have private information about whether they are healthy and therefore their risk of needing formal LTC will be low, or unhealthy and therefore will have a high risk of needing such care. We do not explicitly model informal care, but it is worth keeping in mind that private information can encompass additional unobserved factors, such as the willingness and availability of family members to provide informal care services. Within a given risk group, unhealthy individuals have less elastic demand for private LTCI, compared to healthy ones, while healthy individuals are less costly to insure. The insurer designs a menu of contracts for each risk group, which recognizes these distinctions between potential LTCI purchasers. Offering any amount of insurance to some risk groups may be unprofitable for the insurer, in which case, the insurer will deny coverage to that entire risk group. Coverage denials are more likely in risk groups where adverse selection problems are severe.

<Insert Figure 1 here>

The specific timing of the model is illustrated in Figure 1. In period one, young individuals learn their PE and frailty status. At the same time, LTC insurers observe the population distributions of PE and frailty, and they design insurance contracts. Individuals then receive an initial endowment of earnings, and they make consumption and savings decisions. In period two, individuals receive a second endowment, representing their private and public pension income.

They also discover their true private health type and decide whether to purchase a private LTCI contract if offered by the insurer. After this decision, they experience a consumption demand (wealth) shock and draw a realization from the survival distribution. The consumption demand shock is a parsimonious way to capture surprises requiring people to draw down wealth prior to the arrival of the nursing home (NH) shock. For instance, some people may experience large out-of-pocket medical expenses before entering a NH or may enter a NH later in life than others and have less residual wealth to provision for their care. Individuals who survive to period three make no new decisions, but they face the risk of requiring costly long-term care. NH entrants who hold a private LTCI policy receive an indemnity from the insurer. After private insurance has paid, those with low remaining wealth receive public LTC benefits.

In the model, the demand for private LTCI varies with both permanent earnings and frailty status. For instance, those with low PE and low wealth are more likely to not purchase private insurance, due to the secondary payer provision of the public LTCI program. Conversely, high-PE and high-wealth individuals are more likely to decide to self-insure, if the cost of private LTCI is too high.

Our ultimate objective is to assess the potential value of reforms to the LTCI market, so next we make the following modifications to the model (see Braun and Kopecky 2024). First, we introduce a government budget constraint and assume that the public LTCI program is funded by a linear income tax on people's labor and asset income. Second, we close the economy by assuming the private LTC insurer is owned by people in the top 1 percent of the PE distribution, and its profits are equally distributed among them. Third, we assume that, like the private insurer, the public LTCI program faces costs of insurance provision.

The model is then parameterized to be consistent with many features of the US LTCI market. This is done by setting parameters either directly, based on data, or choosing them such that the model reproduces targeted data moments.[4] Table 1 highlights several of the empirical moments used in the calibration procedure, together with their model counterparts. All dollar amounts are reported in 2024 US dollars.

<Insert Table 1 here>

People in the model differ by PE and frailty, and these differences are correlated with their retirement income, wealth, survival, and nursing home entry risk. An average individual in the model earns $47,772 a year and works for 40 years. Her retirement income replacement rate is 57 percent. Retirees face a 30 percent chance of surviving to the final period of life, entering a nursing home and incurring NH expenses of $117,974. Upon NH entry, their initial wealth will have declined by 35 percent on average. These statistics are taken from Braun et al. (2019) and details on the US data sources and construction can be found there. Here we highlight some key definitions. PE is computed as average annual earnings multiplied by 40 years, and the replacement rate of retirement income is the ratio of Social Security and private pension income to labor earnings for Health and Retirement Study (HRS) respondents. The HRS is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan. Wealth at the age of NH entry relative to retirement, and the probability of ultimately entering a nursing home for a long-term stay, are also estimated using HRS data. Finally, NH expenses are given by the average costs of three years of care in a residential LTC facility in 2000. They consist of medical and nursing costs of residential LTC only. Room and board as well as other NH amenities are a consumption choice decision in the model.

To incorporate the scale of the public LTCI (Medicaid) program, we set the consumption floor of individuals in the final stage of life to $11,916 per year. The consumption floor is derived from assuming a consumption allowance of $55 per month, and housing and food expenses of $938 per month. The $55 allowance aligns with Medicaid administrative rules, while $938 is the amount SSI provides for a single elderly individual (Brown and Finkelstein 2007 and Social Security Administration 2011). The fraction of NH residents on Medicaid in the model is 50 percent, in line with the Medicaid recipiency rate of NH residents in our HRS sample (Braun et al 2019).

The fixed and variable costs of LTCI provision are set such that the private insurer in the model incurs administrative costs of insurance provision that align with those in the industry. According to Eaton (2016), fixed administrative costs, which include underwriting costs and costs of paying claims, in 2000, were 20 percent of present-value premium on average. Variable costs, including commissions and fees paid to agents and brokers, amounted to 12.6 percent of present-value premium. One potential benefit of public insurance provision is lower costs. That is, a public insurer does not conduct underwriting nor pay commissions to agents and brokers. To capture this difference between public and private insurance provision in a simple way, we assume that both insurers face the same variable administrative costs, but that the fixed costs are only incurred by the private insurer.

<Insert Figure 2 here>

Recall that the private insurer sorts individuals into risk groups based on their observed PE and frailty. Figure 2 illustrates that the model reproduces the variation in average NH entry across these groups. Higher PE in the model is associated with a slightly lower risk of NH entry, as in the data. Likewise, the model reproduces the slight decline in NH entry with frailty. The fact that NH

entry declines with frailty in the data may be surprising, but the NH entry rates in Figure 2 are not conditional on survival. Highly frail individuals have a much lower probability of surviving to the final period of life, when NH entry occurs.

Within each risk group, individuals differ in their true NH entry risk, which is private information. All else being equal, the larger the dispersion in private information within a risk group, the more severe the adverse selection problem within that group, and consequently, the higher the probability that the group will be denied coverage by the private insurer. Accordingly, we use the variation in LTCI takeup rates across PE and frailty quintiles to determine the unobserved differences in NH entry risk between healthy and unhealthy types. As Figure 2 shows, the model fits patterns of LTCI takeup with PE and frailty well. To further assess model fit, we compare the variation in private NH entry risk in the model to the variation in self-predicted NH entry probabilities of respondents in the HRS. These two probabilities are not exactly the same. HRS respondents are asked to report their self-assessed probability of NH entry in the next five years, whereas the model values are lifetime NH entry probabilities. Still, the dispersion in these probabilities varies with PE and frailty similarly in the model and the data.

Table 2 reports summary statistics about LTCI takeup rates, LTCI coverage levels, and pricing for our baseline specification, along with four counterfactuals. Turning first to the baseline results, we observe that it reproduces the empirical observation that LTCI takeup rates are low: only 9 percent of individuals purchase private LTCI. Our discussion above also noted that LTCI takeup rates are higher for higher PE quintiles in the data. An attractive feature of our model is that we can inspect LTCI takeup rates not just at PE quintiles but also among the highest PE groups. Table 2 indicates that the relationship between LTCI and PE is more subtle than our data suggest. LTCI takeup rates in the model are hump-shaped in PE. Demand for private LTCI insurance is zero

for the lowest PE individuals because they qualify for free Medicaid LTC benefits. LTCI takeup rates are higher for middle-class individuals, but they are lower in the right tail of the PE distribution, and fall to zero for the highest 1 percentile PE individuals. The most affluent individuals in our model prefer to self-insure against LTC risk.

<Insert Table 2 here>

The baseline specification also reproduces the empirical observations that LTCI policy coverage is incomplete and the price of LTCI insurance is high. On average, LTCI only covers 60 percent of expected LTC expenses in the model. To measure pricing distortions, we express premiums as loads, that is, as markups over the premium for actuarily-fair insurance. The average load in our model is 41 percent. Table 2 also shows how coverage and loads vary with PE. Coverage rates rise with PE for most of the distribution because, as the likelihood of qualifying for Medicaid LTC benefits declines, individuals demand more coverage from the private insurer. Yet, the highest PE individuals have the resources to self-insure most or even all of the costs of a LTC event, so the insurer responds by offering them less coverage and slightly lower loads.

The impact of Medicaid, administrative costs, and adverse selection on takeup rates and policies in the private LTCI market are apparent in Columns 2–4 of Table 2. LTCI products are more costly for insurers to administer than other insurance products. Screening of applicants is more thorough, and regulators require that insurers hold more reserves to provision for aggregate variation in interest rates and lapse rates. Insurers must often also pay benefits for multiple years, and hence they need to monitor recipients, to ascertain whether LTC events are ongoing. These frictions are captured in the model with fixed and variable costs of writing LCTI policies. The 'No Administrative Costs' scenario sets these costs to zero. Removing administrative costs has a substantial impact on private LTCI rates, which increase from 9 to 60 percent. The poorest

individuals still opt out, but all other PE groups purchase private LTCI. The increase in LTCI takeup is particularly pronounced among the highest PE individuals. LTCI coverage rates also increase but are still incomplete. Private LTCI now covers 62 percent of expected LTC expenses on average, as compared to 60 in the baseline, and loads fall both on average and across the PE distribution. Overall, removing administrative costs has the biggest impact on high PE individuals, since absent administrative costs, the insurer can now accommodate them with higher coverage and lower load contracts.

Next we turn to the 'No Medicaid' economy. This scenario lowers the consumption floor provided by the public LTCI program to near zero.[5] As with administrative costs, removing Medicaid has a large impact on LTCI takeup rates, which rise from 9 to 90 percent. Coverage rates of LTCI policies also increase, from 60 to 66 percent, but coverage remains incomplete. Removing Medicaid boosts the demand for private insurance significantly, and the insurer responds by charging higher premiums. On average, the load rises to 0.56 from 0.41 in the baseline. Removing Medicaid has the most pronounced impact on individuals with relatively low financial resources. They are the biggest beneficiaries of Medicaid, and without this program, they have relatively inelastic demand for private LTCI. Individuals in the lowest PE quintile receive nearly complete coverage in the event of a loss, but they also face the highest load. Coverage ratios and loads both fall monotonically with PE. Removing Medicaid has the smallest impact on the most affluent individuals, as they have adequate resources to self-insure against LTC risk and only a small fraction will qualify for Medicaid coverage in the baseline economy.

The fourth column of Table 2 documents how LTCI takeup rates and policies change when private information frictions are absent. In this scenario, the insurer directly observes each individual's risk exposure and price discriminates accordingly. A healthy (good risk) individual

now faces lower premiums than an unhealthy (bad risk) individual in the same risk group. LTCI takeup rates rise to 37 percent, but this reflects greater takeups of the good risk types who are less costly to insure. Takeup rates of the bad risk types, in contrast, decline, as they are more expensive to insure, and the costs of their policies are no longer subsidized by the healthier individuals in their risk group. As a result, their premiums are now higher than in the baseline. This full information scenario indicates that asymmetric information plays a central role in producing incomplete coverage. LTCI now covers 83 percent of the loss, as compared to 60 percent in the baseline specification. When the insurer directly observes each individual's private health type, it no longer needs to drive down coverage levels and raise premiums for good risk types to prevent bad risk types from preferring the good-type contract.

In summary, our structural model reveals the important and distinct effects of Medicaid, administrative costs, and adverse selection on the private LTCI market. All three factors reduce LTCI takeup and coverage rates. But administrative costs raise premium loads, whereas Medicaid and adverse selection lower them. Additionally, the effects on takeup and coverage vary with PE. While all three factors are important for middle-income individuals, Medicaid matters most for the low takeup and coverage rates among poorer individuals, while administrative costs and adverse selection are most important for the low takeup and coverage of those with high PE.

Reforming the US LTCI Market

Our discussion thus far documents that the risk of needing LTC is high for older individuals, and the market price of LTC services is substantial relative to their resources during the life stage where this risk is most pronounced. Even though retirees have a high likelihood of incurring a costly LTC event, the US private LTCI market suffers from low takeup rates and policies that provide incomplete coverage of LTC costs at far from actuarily-fair premiums. As Americans age,

a higher fraction of the US population will be exposed to LTC risk in the future. This will create fiscal stress because higher government outlays will be required to maintain current levels of public LTCI. Aging could also have negative macroeconomic consequences if a rising share of households consume less and save more to provision for LTC.

Results from our quantitative model indicate that Medicaid has a particularly large and negative impact on private LTCI takeup, especially for middle- and lower-income individuals. Nevertheless, private LTCI takeup rates are also low among those with high incomes who choose to self-insure LTC risk. In this section, we ask whether it makes more sense to reduce the scale of Medicaid to foster a larger private market, or to instead increase the scale of Medicaid and offer universal coverage for LTC risk.

To answer this question, we assess the impact of reducing or increasing the scale of public LTCI using three criteria. The first is the fiscal cost of providing public LTC insurance, measured by the tax burden on individuals. The second focuses on how each reform influences the functioning of the private LTCI market. And the third evaluates how each measure affects aggregate and individual welfare.

In the ensuing discussion, it will be helpful to keep in mind that two general equilibrium effects operate in the model. First, Medicaid is financed by a linear income tax, and any changes in the scale of Medicaid are accompanied by corresponding changes in the income tax rate. Second, the private insurer's profits are distributed to individuals in the top 1 percent of PE. Thus, changes in the profitability of offering private LTCI affect the incomes of the most affluent individuals in the economy.

We start by analyzing the 'No Medicaid' economy introduced above, where the consumption floor guaranteed by the public LTCI program is close to zero (as in Braun and Kopecky 2024). The

upper panel of Table 3 reports the aggregate effects of this policy reform. Scaling back Medicaid substantially produces large fiscal savings. The low guaranteed consumption floor implies that only the neediest NH entrants qualify for public LTCI benefits, and the fraction of individuals receiving Medicaid transfers falls from 50 to 6 percent. Consequently, Medicaid outlays decline by 88.4 percent, which induces a reduction in the tax rate because the government has smaller tax revenue needs.

<Insert Table 3 here>

Reducing the scale of Medicaid has a large impact on the demand for private LTCI, especially for lower- and middle-income individuals. Aggregate LTCI takeup rates increase by a factor of 10, rising from 9 to 90 percent, driven by a dramatic increase in demand among those in PE quintiles 1–4 (Table 2). Absent public insurance, the relatively inelastic private LTCI demand of individuals in the lowest income groups is good for the insurer, who responds by charging higher loads. Profits increase from 0.1 to 31.4 percent of premium revenue, with a large share of this increase generated by low- and middle-income individuals (Table 3).

Given these outcomes, it is perhaps not surprising that aggregate welfare will decline if Medicaid were essentially removed. As shown in Table 3, a newborn individual who does not yet know her initial PE and frailty will be worse off in the 'No Medicaid' scenario than in the baseline. Indeed, a newborn in the 'No Medicaid' scenario would need 22.2 percent more consumption to be indifferent between this scenario and the baseline economy. Welfare losses are particularly high among the low income: the compensating variation for individuals in the lowest PE quintile is 44.2 percent. High PE groups in contrast prefer the 'No Medicaid' economy, as they are less likely to qualify for Medicaid benefits in the baseline, and with Medicaid severely scaled back, their taxes decline. Thus, compensating variations in PE quintiles four and five are negative. Individuals in

the top 1 percent of PE especially prefer the 'No Medicaid' economy, since, as owners of the private insurer, they also benefit from the increase in its profits.

In the case with universal public insurance for LTC risk, or the 'Universal Medicaid' scenario, government outlays for LTC rise by nearly 174 percent, reaching approximately 1.1 percent of GDP (equivalent to about 20 percent of US Social Security outlays in 2023). *Ex ante*, welfare increases moderately: a newborn would have to give up only 0.07 percent of consumption to make him indifferent between this scenario and the baseline. These welfare gains are driven by middle-class individuals who are the biggest beneficiaries of universal public LTCI. Compensating variations are negative for PE quintiles two–five and are particularly large for PE quintile three (-4.2 percent). Interestingly, PE quintile one and all three of the highest PE groups prefer the baseline. Public insurance of LTC risk is similar in both economies for those in PE quintile one, but their income taxes are lower without universal coverage. Most individuals in the highest PE groups have the resources to self-insure LTC risk and, like those in the lowest PE quintile, do not wish to pay higher income taxes to finance public benefits for the middle-class. The top PE group experiences the largest welfare losses because of the lost profit income when the private LTCI market becomes dormant.

The two reforms we have considered so far have very different impacts on poor, middle-class and wealthy people. We next show that a key element of the Long-Term Care Partnership Program (PP) preserves the safety net provided by public LTCI and at the same time creates a more sustainable private LTCI market. PP offers $1 of asset exemption from the Medicaid asset test for each $1 of benefits paid out by a qualifying private LTCI policy. Exempted assets are also protected from estate recovery upon the policyholder's death. The program dates to 1992 when California, Connecticut, Indiana and New York were allowed to participate on an experimental basis.

Expansion of the program was frozen in 1992 and then reopened to all states in 2005. As of 2023, the only nonparticipating states were Hawaii, Alaska, Utah and Mississippi, as well as Washington, DC (MedicaidLongTermCare.org 2023).

The specific requirements for an LTCI policy to qualify for PP vary by state, but the main provisions are as follows. First, under Medicaid, a recipient's primary residence (up to a cap on the equity value) is exempt from the asset test (MedicaidLongTermCare.org 2023).[6] The cap varies by state, ranging from about $680,000 to over $1,000,000. Asset exemptions for partnership policies are subject to the same caps. Second, Medicaid benefits are also subject to an income test and income spend-down provisions, and these eligibility restrictions also apply to holders of partnership policies. Third, a PP policy must be a qualified LTCI policy for federal tax purposes. Fourth, partnership policies must include an inflation protection rider.[7] Fifth, states that participate in PP must also offer reciprocity: that is, partnership LTCI policies purchased in one state must maintain the same Medicaid asset test exemption if the individual moves to another participating state. Finally, qualifying partnership policies must meet specific minimum coverage thresholds. In particular, a qualifying PP policy has to provide at least $32,850 in benefits (6 months of benefits at $180/day).

The federal government's objective in offering states the option to participate in PP was to reduce Medicaid outlays for LTC. The expectation was that the asset exemption would increase private LTCI takeup, and since Medicaid is a secondary payer, public outlays would decline. Nevertheless, this direct effect of offering PP policies is somewhat mitigated by PP's relaxation of the Medicaid asset test, which broadens the pool of individuals eligible for public LTC benefits.

Most prior research on PP has used empirical methods to assess its impact and concluded that the impact thus far has been small. Lin and Prince (2013) found, using HRS data, that the program

induced a less than 1 percentage point increase in LTCI takeup rates, with the increase concentrated among affluent individuals. In particular, they estimated that LTCI takeup increased by about 3 percentage points for individuals with assets of $465,000+, but they found no discernible response in takeup among less wealthy individuals. Bergquist et al. (2018) reached a similar conclusion using data from the National Association of Insurance Commissioners on LTCI policy applications and sales. They concluded that the introduction of partnership policies had a positive impact on LTCI applications, but takeup did not increase. Goda (2011) analyzed PP policies and other state tax subsidies offered to purchasers of LTCI, and she concluded that these subsidies induced a 2.7 percentage point increase in private insurance takeup rates. She also found that the increase was concentrated among wealthier individuals who were less likely to qualify for Medicaid benefits. In a simulation analysis, she estimated that each dollar of lost tax revenue due to the subsidies resulted in a $0.84 reduction in Medicaid outlays.

Our structural model permits us to isolate the impact of the PP asset test exemption on the US LTCI market. By modeling both private and public LTC insurance provision, we can assess how this program impacts public LTC expenditures, private LTCI uptake, as well as insurer pricing and profits. Additionally, we can examine the nuanced trade-offs in the distribution of the net benefits of this reform across individuals. Finally, we shed light on why previous research has found a small impact of PP and explore potential strategies for refining the program.

We model the PP asset exemption by allowing individuals to exempt $1 of assets from the Medicaid means-test for each $1 of private LTCI coverage (Braun and Kopecky 2024). Column 5 in Table 2 and column 4 in Table 3 report the results from this scenario. According to our model, PP increases public expenditures on LTC by 8.8 percent, and Medicaid outlays per recipient decrease by 3.0 percent, due to Medicaid's secondary payer status. Nevertheless, the dominant

effect on Medicaid outlays is the rise in the fraction of NH entrants who qualify for Medicaid benefits, which goes from 49.9 to 56.0 percent with the relaxation of the Medicaid asset test.

Previous research has concluded that the overall impact of PP on the private market is small and concentrated among more affluent households. Yet, our results in Tables 2 and 3 indicate that the PP asset test exemption has a large and widespread effect in our model. Private LTCI takeup rates increase by 52.8 percentage points, and insurers push through large increases in premiums as indicated by the average load, which rises from 0.406 to 0.662. The average load in the PP scenario is even higher than the average load in the 'No Medicaid' scenario, and, at 31.7 percent, profits as a share of premium revenue are also higher. Also, the distribution of profits is very different in the PP scenario compared to the 'No Medicaid' case. When Medicaid is virtually non-existent, loads and profits are very regressive. With PP, in contrast, loads and profits are hump-shaped across the PE distribution. Profit ratios are highest in the third PE quintile, but they are also large in the top two PE quintiles, and are sizable even within the top 10 and top 5 percentiles of the distribution.

We also compute welfare effects, and we find that a newborn prefers PP over both the baseline and the 'Universal Medicaid' economies. Compared to universal Medicaid, the welfare impacts of the program are also much more equally spread across the PE distribution. Individuals in the lower two PE quintiles continue to favor the baseline scenario, because the PP program does not influence their Medicaid eligibility, and, consequently, the primary effect of PP on their circumstances is to increase their income taxes. However, since the rise in Medicaid expenditures is less pronounced under PP, compared to universal Medicaid, the welfare costs of this tax hike are relatively small for these groups. The compensating variations for individuals in all other PE groups are negative, indicating that they prefer the PP economy to the baseline. The largest welfare

benefits are concentrated in the top PE percentile, which benefits from the large increase in private insurer profits.

On net, the PP asset test exemption looks like a good arrangement, yet we still must reconcile the empirical findings of low impact with our results. Our model abstracts from other important provisions of the PP program. First, we do not model the cap on the equity held in one's primary residence exempted from the asset test. Such a cap eliminates the benefits of purchasing a partnership policy for more affluent individuals in our model. Second, recall that to qualify for Medicaid benefits in practice under PP, individuals still must satisfy the Medicaid income test. In our model, eligibility for Medicaid LTC benefits relies on a single means-test that does not differentiate between assets and income. Third, recall that PP imposes minimum coverage ratios. Coverage ratios are not restricted in our model and many model contracts fail to meet current PP requirements.

To understand the potential impact of adding the first two provisions on aggregate LTCI takeup in the model, we can assume that in the presence of these provisions, individuals in the top PE quintile no longer increase their takeup rate relative to the baseline. Under this assumption, the aggregate increase in private LTCI takeup under PP falls from 52.8 to 40.0 percentage points. If we assume that takeup rates do not change in either of the top two PE quintiles, then the overall increase in LTCI takeup with PP is only 23.8 percentage points.

Adding a minimum coverage ratio to the model, in line with the third provision, would depress LTCI takeup further. In the model, the average private LTCI policy under PP covers only 28.4 percent of the loss. This figure is notably lower than the 60.3 percent coverage ratio in the baseline specification, and it falls short of the minimum coverage ratio under current PP requirements. Given our model's nursing home costs and the coverage ratio thresholds of the PP program,

coverage should be at least 34 percent of the loss. Model coverage ratios are particularly low in PE quintiles two and three at 15.3 and 22.6 percent, respectively. Implementing a required minimum coverage ratio would reduce takeup in these two groups.

Overall, our results raise the possibility that PP could have a much larger impact on the US private LTCI market if current Medicaid provisions were relaxed, including the cap on the exemption of equity in the primary residence, income restrictions, and minimum coverage ratios on qualifying PP policies. These reforms would increase the takeup of private LTCI by both affluent and middle-class individuals.

Conclusion

The US private LTCI market currently suffers from a variety of ailments: the market is small, coverage provided by policies is incomplete, and premiums are relatively high compared to those of other insurance products. Results from our structural model indicate that Medicaid, administrative costs, and adverse selection all contribute to low takeup rates and incomplete coverage. Additionally, administrative costs drive up premium loads.

Our work shows that exposure to LTC risk and ability to pay vary importantly across the income distribution, and that this leads to important conclusions. Affluent individuals prefer a smaller public LTCI program, combined with a large private LTCI market. In contrast, low- and middle-income individuals prefer universal public LTCI provision. One policy reform we explore involves exempting asset holdings from the Medicaid asset test on a dollar-for-dollar basis with private LTCI coverage. Surprisingly, this emerges as the most favorable policy reform, as it boosts social welfare by encouraging private LTCI uptake while maintaining Medicaid as a safety net for low-income individuals.

Our results also illustrate how a quantitative model can be a useful tool for analyzing reforms of the US LTCI. In Braun and Kopecky (2024), we analyze a broader range of policy reforms, including LTCI mandates. Government mandates to obtain private insurance can facilitate pooling and reduce administrative costs by lowering marketing costs and fees paid to brokers. Our model can also be used to analyze newer and more complex LTCI products. For instance, households with high life expectancy also face elevated long-term care risk and have incentives to purchase hybrid products that bundle longevity and LTC risk coverage. There is also considerable diversity in LTC care needs based on gender and marital status, and the implications of these factors for the LTCI market should be explored in future research.

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[1]These statistics use the Health Insurance Portability and Accountability Act's definition of a long-term care event (Favreault and Dey 2022).

[2]In the ensuing discussion we are assuming that individuals are covered by Medicare if they are enrolled in Medicare Parts A and B (Social Security Administration 2024).

[3]The Kaiser Family Foundation estimates that 27.6 million individuals had Medicare plans and that another 22.2 million had Medigap or employer-provided supplemental insurance (Ochieng et al 2023).

[4]Note that we do not recalibrate the modified version of the model. Despite this, it still matches targeted data moments well.

[5]The new consumption floor is set to the same level as in Braun et al. (2019) and is positive to ensure that consumption remains positive in the final stage of life for all individuals in the economy.

[6]In contrast to assets protected by PP, the home is not exempt from Medicaid estate recovery.

[7]Individuals over 80 years of age at the time they purchase the policy are exempt from this requirement.

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References

Act, Accountability (1996). 'Health Insurance Portability and Accountability Act of 1996.' *Public Law*, 104: 191.

Bergquist, S., J. Costa-Font, and K. Swartz (2018). 'Long-term Care Partnerships: Are They Fit to Purpose?' *The Journal of the Economics of Ageing*, 12: 151–158. https://doi.org/10.1016/j.jeoa.2018.03.006.

Braun, R. A. and K. Kopecky (2024). 'A Quantitative Analysis of Good Public and Private Insurance Arrangements for Long-Term Care Risk.' Unpublished manuscript.

Braun, R. A., K. Kopecky, and T. Koreshkova (2019). 'Old, Frail, and Uninsured: Accounting for Features of the US Long-Term Care Insurance Market.' *Econometrica*, 87(3): 981–1019. https://doi.org/10.3982/ECTA15295.

Brown, J. R. and A. Finkelstein (2007). 'Why is the Market for Long-Term Care Insurance So Small?' *Journal of Public Economics*, 91(10): 1967–1991. https://doi.org/10.1016/j.jpubeco.2007.02.010.

Chade, H. and E. Schlee (2020). 'Insurance as a Lemons Market: Coverage Denials and Pooling.' *Journal of Economic Theory*, 189: 105085. https://doi.org/10.1016/j.jet.2020.105085.

Chidambaram, P. and A. Burns (2022). '10 Things About Long-Term Services and Supports.' Kaiser Family Foundation, https://www.kff.org/medicaid/issue-brief/10-things-about-long-term-services-and-supports-ltss/.

Eaton, R. (2016). 'Long-Term Care Insurance: The SOA Pricing Project.' Society of Actuaries.

Favreault, M. M. and R.W. Johnson (2021). 'Projections of risk of needing long-term services and supports at ages 65 and older.' Washington DC: US Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation.

Favreault, M. M. and J. Dey (2022). 'Long-Term Services and Supports for Older Americans: Risks and Financing.' Washington, DC: US Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, Office of Behavioral Health, Disability, and Aging Policy.

Genworth (2024). 'Genworth Cost of Care Survey.' *Genworth*, https://www.genworth.com/aging-and-you/finances/cost-of-care.html/.

Goda, G. S. (2011). 'The Impact of State Tax Subsidies for Private Long-Term Care Insurance on Coverage and Medicaid Expenditures.' *Journal of Public Economics*, 95(7): 744–757. https://doi.org/10.1016/j.jpubeco.2010.11.001.

Gruber, J. and K. M. McGarry (2023). 'Long-term care in the United States.' National Bureau of Economic Research, Working Paper No. w31881. https://doi.org/10.3386/w31881.

He, Y. (2022). 'Projecting Medicaid's Long Term Care Expenditures.' Penn Wharton Budget: Blog Post, Healthcare. https://budgetmodel.wharton.upenn.edu/issues/2022/3/9/projecting-medicaids-long-term-care-expenditures.

Health and Retirement Study, (Public Survey Data) public use dataset. Produced and distributed by the University of Michigan with funding from the National Institute on Aging (grant number NIA U01AG009740). Ann Arbor, MI, (1996-2018).

Hendren, N. (2013). 'Private Information and Insurance Rejections.' *Econometrica*, 81(5): 1713--1762. https://doi.org/10.3982/ECTA10931.

Kaiser Commission on Medicaid and the Uninsured (2010). 'Medicaid Financial Eligibility: Primary Pathways for the Elderly and People with Disabilities.' Publication #8048.

Lin, H. and J. Prince (2013). 'The Impact of the Partnership Long-Term Care Insurance Program on Private Coverage.' *Journal of Health Economics*, 32(6): 1205–1213. https://doi.org/10.1016/j.jhealeco.2013.09.010.

MedicaidLongTermCare.org (2024). 'Medicaid Benefits in Nursing Homes: What is and is Not Covered.'*MedicaidLongTermCare.org*, https://www.medicaidlongtermcare.org/benefits/medicaid-coverage-nursing-homes/.

MedicaidLongTermCare.org (2023). 'Which States Have Long-Term Care Partnership Programs?' *MedicaidLongTermCare.org,* https://www.medicaidlongtermcare.org/protection/long-term-care-partnership-program/#states.

National Association of Insurance Commissioners (2023) 'Long-Term Care Insurance Experience Reports for 2022.' https://content.naic.org/sites/default/files/publication-ltc-lr-care-experience-report.pdf.

Ochieng, N., G. Clerveau, J. Cubanski, and T. Neuman (2023). 'A Snapshot of Sources of Coverage Among Medicare Beneficiaries.' *Kaiser Family Foundation,* https://www.kff.org/medicare/issue-brief/a-snapshot-of-sources-of-coverage-among-medicare-beneficiaries/.

Social Security Administration (2011). Annual Report of the Supplemental Security Income Program. Washington, DC: SSA, https://www.ssa.gov/oact/ssir/SSI23/ssi2023.pdf.

Social Security Administration (2024). 'Review the Parts of Medicare.' https://www.ssa.gov/medicare/plan/medicare-parts.

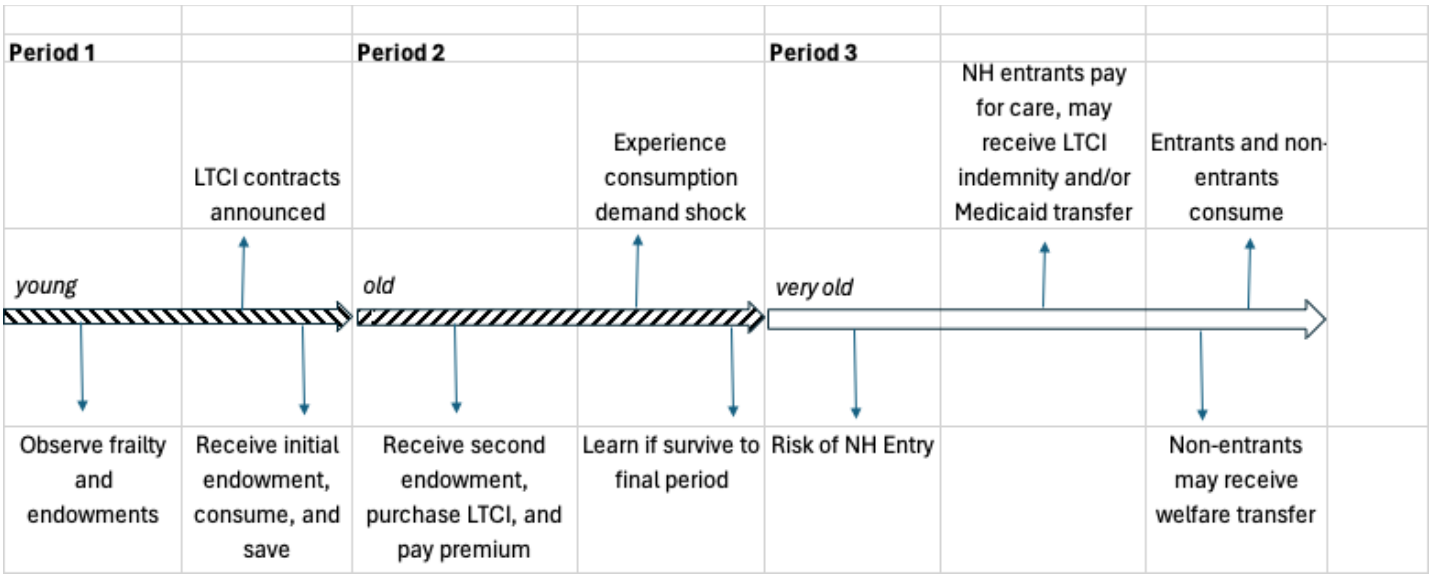

Figure 1. Timeline of events in the model.

Source: Authors' calculations.

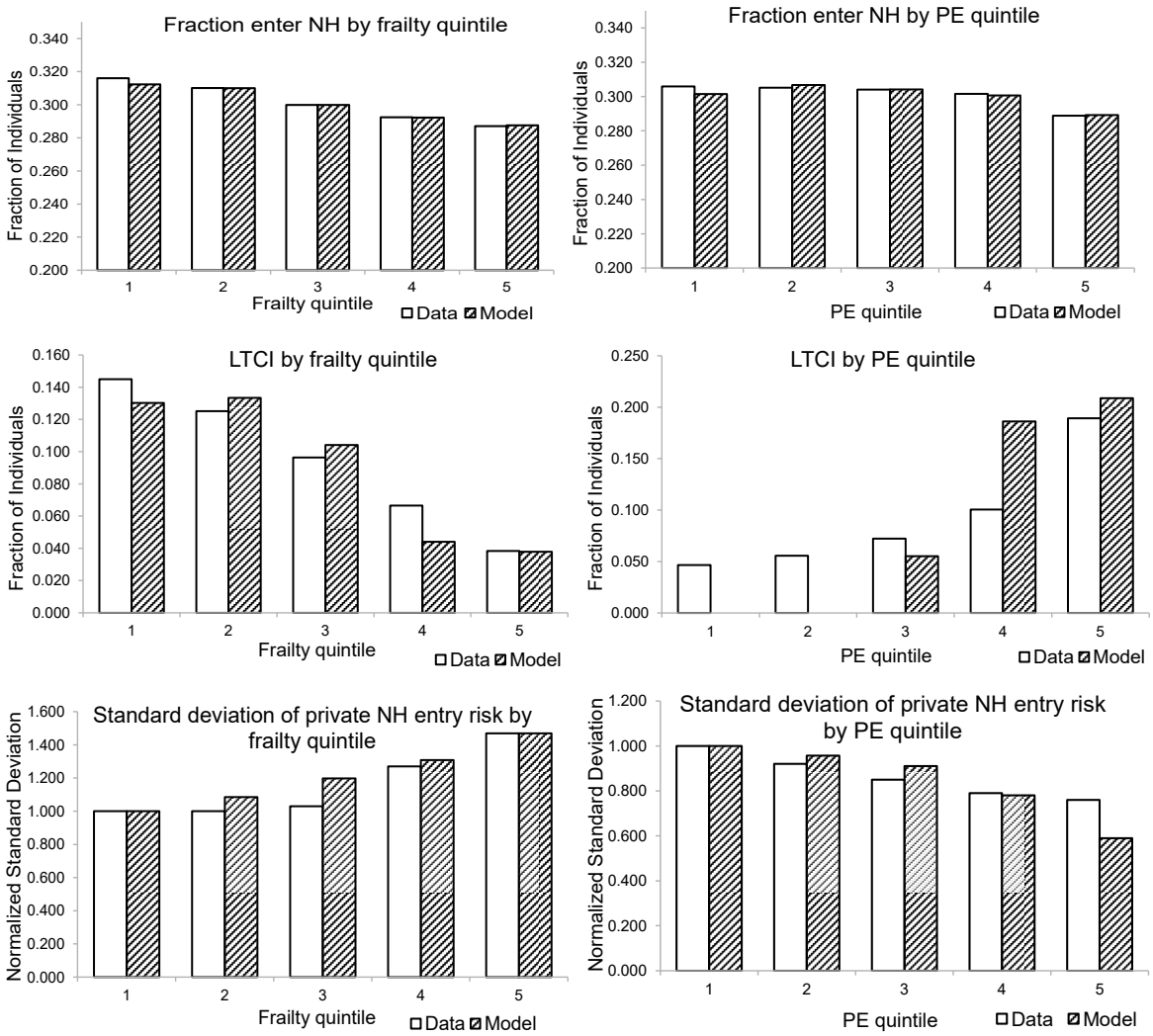

Figure 2. NH entry rates, LTCI takeup rates, and the standard deviation of private NH entry risk by frailty and permanent earnings (PE) quintiles in the model and the data

Note: NH entry rates are the estimated fraction of 65-year-olds who enter a NH for a stay of at least 90 days before the end of life. The standard deviations are of the self-reported probability of entering a NH within the next 5 years for HRS respondents ages 65 and older. The standard deviations are normalized such that the standard deviation in frailty (PE) quintile one is 1.

Source: HRS and authors' calculations.

Table 1: Data facts the model reproduces

Data values set directly		
Statistic	**Data and Model**	
permanent earnings (average, annualized)	\$47,772	
replacement rate of retirement income (average) (%)	57	
probability NH entry (average)	0.30	
medical and nursing cost of LTC event	\$117,974	
public insurance consumption floor	\$11,916	
Data values targeted in calibration procedure		
Statistic	**Data**	**Model**
wealth at NH entry/wealth ages 62–72 (average)	0.62	0.65
fraction of nursing home residents on Medicaid	0.46	0.50
private insurer's administrative costs (share of present value premium)		
fixed cost (%)	20	20
variable cost (%)	12.6	12.9

Note: This table reports the fit of the model with statistics from US data that the model has been parameterized to reproduce.

Source: HRS and Authors' calculations.

Table 2: LTCI takeup, coverage and loads in the Baseline, the 'No Administrative Costs', the 'No Medicaid', the 'Full Information' and 'Public Partnership (PP)' economies

Scenario	Baseline	No Admin. Costs	No Medicaid	Full Information	Public Partnership (PP)
Average					
LTCI takeup rate	0.090	0.597	0.904	0.370	0.618
Fraction of NH costs covered	0.603	0.621	0.661	0.832	0.284
Load	0.406	0.330	0.557	0.480	0.662
Takeup rates by PE Quintile					
1	0.000	0.000	0.719	0.000	0.000
2	0.000	0.004	1.000	0.005	0.243
3	0.055	1.000	1.000	0.437	1.000
4	0.186	1.000	1.000	0.709	1.000
5	0.209	0.979	0.802	0.700	0.845
High PE					
top 10	0.167	0.959	0.605	0.690	0.690
top 5	0.333	0.917	0.238	0.671	0.380
top 1	0.000	0.291	0.000	0.000	0.000
Coverage rates by PE Quintile					
1	0.000	0.000	0.934	0.000	0.000
2	0.000	0.426	0.731	0.692	0.153
3	0.577	0.500	0.598	0.767	0.226
4	0.572	0.609	0.561	0.824	0.313
5	0.638	0.756	0.533	0.880	0.356
High PE					
top 10	0.601	0.714	0.496	0.838	0.340
top 5	0.601	0.622	0.487	0.799	0.344
top 1	0.000	1.000	0.000	0.000	0.000
Loads by PE Quintile					
1	NA	NA	0.646	NA	NA
2	NA	0.271	0.592	0.402	0.693
3	0.418	0.307	0.550	0.492	0.722
4	0.414	0.353	0.526	0.497	0.646
5	0.396	0.331	0.482	0.456	0.601
High PE					
top 10	0.404	0.333	0.467	0.449	0.600
top 5	0.404	0.361	0.465	0.421	0.593
top 1	NA	0.118	NA	NA	NA

Note: Results are reported by permanent earnings (PE) quintiles and for the top 10, 5, and 1 percentiles of the PE distribution.

Source: Authors' calculations.

Table 3: Welfare and indicators of private and public LTCI in the Baseline, 'No Medicaid', 'Universal Medicaid', and 'Public Partnership (PP)' economies

Scenario	Baseline	No Medicaid	Universal Medicaid	Public Partnership (PP)
Welfare (newborn)	-2.778	-3.396	-2.776	-2.774
Compensating variations (%)		22.23	-0.071	-0.129
Average:				
Medicaid outlays (% change from baseline)		-88.44	173.9	8.758
Govt tax revenue	0.018	0.002	0.041	0.020
NH entrants on Medicaid (%)	49.94	5.564	100.0	56.00
Profits/Premium revenue (%)	0.101	31.39	0.000	31.68
LTCI takeup rate	0.090	0.904	0.000	0.618
Fraction of NH costs covered	0.603	0.661	NA	0.284
Load	0.406	0.557	NA	0.662
Profits/Premium revenue (%) by PE Quintile				
1	NA	35.51	NA	NA
2	NA	37.40	NA	9.338
3	0.002	22.67	NA	39.56
4	0.033	16.84	NA	29.56
5	0.011	7.990	NA	19.83
High PE				
top 10	0.022	2.550	NA	14.36
top 5	0.045	0.718	NA	7.030
top 1	NA	NA	NA	NA
Compensating variations (%) by PE Quintile				
1		44.18	3.282	0.081
2		11.76	-2.299	0.094
3		2.037	-4.160	-0.677
4		-0.434	-2.547	-0.559
5		-1.913	-0.267	-0.245
High PE				
top 10		-2.785	0.421	-0.432
top 5		-4.274	1.024	-0.959
top 1		-15.85	2.029	-5.933

Note: Results are reported by permanent earnings (PE) quintiles and for the top 10, 5, and 1 percentiles of the PE distribution.

Source: Authors' calculations.