

# Insuring Long-Term Care in the United States<sup>†</sup>

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**L**ong-term care expenditures constitute one of the largest uninsured financial risks facing the elderly in the United States and thus play a central role in determining the retirement security of elderly Americans. Long-term care is a broad umbrella term for a wide range of supportive and health services for individuals whose physical and/or mental impairments do not allow them to independently perform basic functions of daily living. Such care currently accounts for almost 9 percent of total health expenditures in the United States (Centers for Medicare and Medicaid Services, 2010), and these expenditures are expected to grow substantially over the coming decades as the population ages (OECD, 2011b). However, much of this risk is uninsured. About one-third of these expenditures are paid for out of pocket, about 60 percent are paid for by the public sector, in particular, by Medicaid, which is the primary public insurance program for long-term care; only about 4 percent are paid for by private insurance (CBO, 2004).<sup>1</sup>

U.S. long-term care policy discussions have been grappling with how to redesign Medicaid in a manner that limits the pressure on public budgets while still ensuring that individuals have some protection against the potentially catastrophic nature of long-term care expenditures. Part of this public discussion has focused

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<sup>†</sup> To access the Appendix, visit <http://www.aeaweb.org/articles.php?doi=10.1257/jep.25.4.119>.

<sup>1</sup> More recent Congressional Budget Office estimates were not available at the time this paper went to press. Communications with CBO officials indicate that these estimates may be updated in the near future.

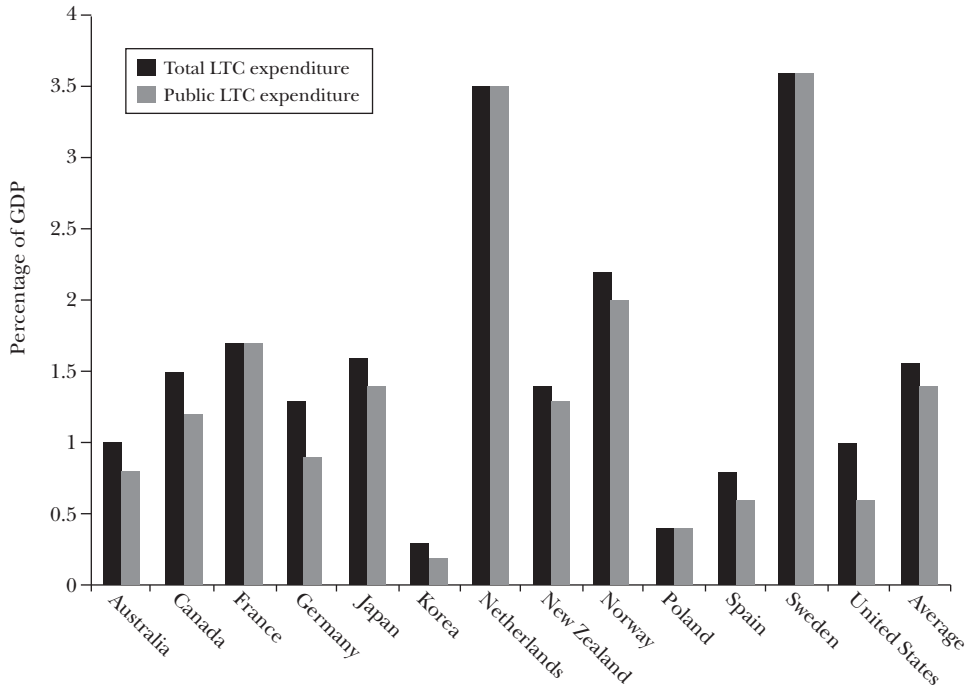
on how to correct perceived problems with the functioning of the private long-term care insurance market in the hopes that a better-functioning private market might be able to alleviate some of the pressure on public programs. Policy has been evolving rapidly over the last 15 years. Many states have introduced tax subsidies for private insurance purchase and, especially within the last five years, have attempted redesigns of their Medicaid programs with a goal of encouraging private insurance. Although the healthcare reform bill signed by President Obama in 2010 focused primarily on acute health care, it also contained a less-well-known provision to create a new role for the federal government as the direct provider of voluntary long-term care insurance policies. On October 14, 2011, as this article was going to press, the Obama administration announced that it was abandoning the implementation of this controversial program. We will summarize below some of the design problems that led to this program's early demise.

In this essay, we begin by providing some background on the nature and extent of long-term care expenditures and insurance against those expenditures, emphasizing in particular the large and variable nature of the expenditures and the extreme paucity of private insurance coverage. We then provide some detail on the nature of the private long-term care insurance market and the available evidence on the reasons for its small size, including private market imperfections and factors that limit the demand for such insurance. We highlight how the availability of public long-term care insurance through Medicaid is an important factor suppressing the market for private long-term care insurance. In the final section, we describe and discuss recent long-term care insurance public policy initiatives at both the state and federal level.

While we focus on the United States, many of the economic issues apply more broadly to other countries, where long-term care policy is also an area of current activity (OECD, 2005). Interestingly, while the United States is an outlier relative to other OECD countries in terms of the level of its healthcare expenditures, the same cannot be said for long-term care. As Figure 1 indicates, the U.S. share of GDP spent on long-term care expenditures (1 percent in 2008) is quite similar to that of many of the OECD countries; in contrast, overall U.S. health expenditure as a share of GDP is a marked outlier in the OECD (OECD, 2011a, b). While most OECD countries other than the United States have universal social insurance systems for acute health care, many do not have such programs for long-term care. For example, both the United Kingdom and Canada have means-tested public programs for long-term care. Germany, Japan, Luxembourg, and Austria have introduced universal social insurance programs for long-term care only within the last 20 years (OECD, 2005).

Many issues about long-term care insurance and related public policy are not well understood. Most academic attention devoted to health insurance focuses on hospital, emergency department, and outpatient care, as well as prescription drugs. The "academic-papers-written-to-public-expenditures" ratio is far lower for long-term care than for the health sector as a whole. We hope, therefore, that in addition to providing some guidance to our current understanding of these important issues, this paper helps to encourage and focus future research on these topics.

Figure 1  
**Long-Term Care Expenditure in the OECD, 2008**



Source: Data are from OECD (2011b).

Notes: Figures show expenditures and public expenditures as a share of GDP on long-term care (LTC) in 2008 for various OECD countries. Data on the U.K. are not available for 2008 but earlier data from 2000 showed the U.K. and U.S. share of GDP spent on long-term care to be quite similar at 1.4 and 1.3 percent respectively (OECD, 2005).

## Long-Term Care Expenditures and Financing

In 2008, long-term care expenditures in the United States were \$203 billion, representing 8.7 percent of total healthcare expenditures for all ages and about 1.4 percent of GDP (Centers for Medicare and Medicaid Services, 2010). Over the coming decades, rising life expectancies will swell the numbers of “very old,” who are disproportionately intensive users of long-term care services. For example, the number of elderly in the United States aged 80 and over is projected to double as a share of the population between 2010 and 2050 (OECD, 2011b), and long-term care use rises very sharply with age (U.S. Congress, 2004).<sup>2</sup>

<sup>2</sup> About two-fifths of people receiving long-term care are nonelderly individuals suffering from developmental disabilities, physical disabilities or mental illness (U.S. Congress, 2004). However, most of the academic research on long-term care, and the concerns about potentially explosive future growth in long-term care expenses, focus on the elderly. Our essay echoes this focus.

Long-term care expenditures have been growing faster than all healthcare expenditures over the last half century and are projected to continue to outpace overall healthcare spending growth over the next 40 years (OECD, 2011a, b; CBO, 2011). This projection may be somewhat surprising given that the long-term care sector has not witnessed much technological change, which is considered the primary driver of rising expenditures in the health sector as a whole (as Newhouse, 1992, explained in this journal). Long-term care services are extremely labor-intensive, primarily involving hands-on care and personal services, and not heavily driven by technological factors; indeed, as we discuss in Brown and Finkelstein (2008), nursing home costs are typically projected to grow at the rate of real wage growth. While we are not aware of any studies that carefully decompose the sources of growth for long-term care expenditures, we suspect that the relative growth of long-term care arises because long-term care expenditures have an even steeper age gradient than expenditures for acute care and thus are disproportionately affected by the aging of the population.

Long-term care includes both home health care for people residing in the community as well as institutional care provided in nursing homes or assisted living facilities. Expenditures on home health care account for about one-third of the total long-term care spending (Centers for Medicare and Medicaid Services, 2010). Institutional care is much more expensive than home care, so that while most expenditures on long-term care are due to nursing home care, most people receiving care do so outside of an institutional setting (U.S. Congress, 2004). On average in the United States, nursing homes cost almost \$6,000 per month (Metlife Mature Market Institute, 2009). Assisted living facilities tend to cost about half as much as a nursing home (Metlife Mature Market Institute, 2009); data from the 1980s and 1990s also suggest that their use is much less common than nursing homes (Brown and Finkelstein 2008). Although we do not know of any recent data on this topic, anecdotally it is believed that use of assisted living has grown over the last several decades.

Lifetime long-term care expenditures are spread unevenly across the population. Between 35 and 50 percent of 65 year-olds will use a nursing home at some point in their remaining lives. Of those who use a nursing home, 10 to 20 percent will live there more than five years (Brown and Finkelstein, 2009). This indicates the presence of a sizable right tail of the distribution of nursing home expenditures.

In short, the possibility of needing long-term care is exactly the sort of large, uncertain expenditure risk for which insurance would seem to be most valuable. Yet most long-term care expenditure risk is not insured. As noted earlier, the Congressional Budget Office (2004) estimates that 4 percent of long-term care expenditures are paid for by private insurance, while 33 percent are paid out of pocket. By contrast, in the healthcare sector as a whole, private insurance pays for about one-third of expenditures and only about 12 percent are paid out of pocket (Centers for Medicare and Medicaid Services, 2010).

Public insurance covers about 60 percent of long-term care expenditures, with Medicaid the dominant source of public expenditures (Congressional Budget Office, 2004). Medicaid is a means-tested public health insurance program, jointly

funded by the federal and state governments. Medicaid pays for long-term care for individuals who have low enough income (or high enough long-term care expenses) that they meet Medicaid's income and asset eligibility thresholds. Long-term care expenditures account for more than about one-third of all Medicaid spending (U.S. Congress, 2004; Eiken, Sredl, Burwell, and Gold, 2010). As we will discuss in more detail, Medicaid offers a highly imperfect form of insurance as it essentially comes with a deductible of nearly all of one's income and a substantial share of one's assets.

Medicare, the near-universal public health insurance program for the elderly, is designed mostly to cover costs associated with recovery from acute illness episodes, rather than long-term impairment. Medicare covers nursing care for no more than 100 days; only if this care is in a skilled nursing facility, not in custodial nursing homes more typical of long-term care; and only if this care follows a hospital stay of more than three consecutive days. Medicare has evolved to provide some coverage of genuine long-term home health care (U.S. Congress, 2004; CBO, 2004). Even so, home care is a relatively small component of total long-term care expenses, and Medicare covers only a small portion of home care costs (in Brown and Finkelstein, 2007, we provide a more-detailed discussion).

A pervasive concern about the financing of long-term care—whether through public or private insurance—is the potential not only to distort the amount of care away from the social optimum (as is a concern with any health insurance product) but also to distort the source of that care. One concern is that insurance that covers nursing home care rather than (or more than) home care may distort people's decisions regarding entry into institutional care. A similar issue arises in the choice between market-based care and informal, unpaid long-term care provided by relatives or friends; the latter is generally not covered by insurance. Our calculations using data from the Health and Retirement Survey suggest that the share of individuals aged 70+ who are receiving informal care (defined as unpaid help from any source) has increased slightly over the past decade, from 8.1 percent in 1998 to 9.9 percent in 2010. While estimating the magnitude of informal care provision is naturally difficult, the existing estimates all tend to suggest that it is quite important; low-end estimates generate an implicit value of informal care that is about 60 percent of market spending, while other estimates suggest the implicit spending on informal care may exceed the formal expenditures (CBO, 2004; U.S. Congress, 2004, and sources cited therein). In recognition of this issue, some OECD countries have recently attempted policy initiatives to allow individuals to use public insurance to provide monetary support to informal caregivers (OECD, 2005). Still, the economics of informal care provision remains a relatively understudied topic and an important area for future work.

## **The Private Market for Long-Term Care Insurance**

### **Ownership Rates and Benefits**

Only about 14 percent of individuals aged 60 and over currently hold long-term care insurance. According to data from the 2008 Health and Retirement Study; the

Table 1

**2008 Private Long-Term Care Insurance Ownership Rates among the Elderly**

	<i>By wealth quintile</i>					
	<i>Whole sample</i>	<i>Top</i>	<i>Fourth</i>	<i>Third</i>	<i>Second</i>	<i>Bottom</i>
<b>Whole sample</b>	13.8%	26.9%	19.0%	10.7%	6.6%	4.1%
<b>By gender</b>						
Men	13.6%	25.5%	17.1%	10.0%	4.8%	5.5%
Women	13.9%	28.4%	20.7%	11.2%	7.8%	3.3%
<b>By marital status</b>						
Married	16.3%	28.0%	19.2%	10.3%	5.9%	5.5%
Single	10.4%	23.5%	18.8%	11.2%	7.3%	3.6%
<b>By age group</b>						
60–64	12.7%	24.1%	18.7%	9.3%	5.8%	4.7%
65–69	14.7%	29.6%	19.4%	8.8%	5.9%	5.5%
70–74	15.0%	29.6%	16.8%	14.8%	6.6%	3.5%
75–79	14.7%	28.2%	21.1%	10.5%	8.6%	2.6%
80–84	13.9%	25.0%	20.8%	12.5%	6.9%	5.0%
85+	10.9%	22.1%	19.2%	8.7%	7.6%	1.6%

*Notes:* The sample consists of respondents in the 2008 Health and Retirement Study aged 60+. The average age is 70.9 years. The sample size is 13,260. All means are weighted using respondent weights. Wealth is defined as total (not just financial) wealth.

typical age of purchaser is in the low 60s (America's Health Insurance Plans, 2007). Our estimates from earlier waves of the Health and Retirement Survey suggest that the share of the population insured has been edging up: in the late 1990s, only about 10 percent of 60–69 year-olds had long-term care insurance, compared to over 13 percent by 2008.

Table 1 shows private long-term care insurance ownership patterns among the elderly across demographic groups. Ownership rates are relatively constant by age among the elderly. Men and women have similar rates of ownership. Perhaps the most striking pattern is that ownership rates rise monotonically with wealth, from just over 4 percent of individuals in the bottom wealth quintile to over one-quarter of individuals in the top wealth quintile. As we will discuss below, this may well reflect the role of Medicaid's means-tested insurance.

In contrast to the market for acute healthcare insurance, the market for long-term care insurance is dominated by individual rather than group contracts, even though, since 1996, employer-provided long-term care insurance has benefited from the same tax subsidy as employer-provided acute health insurance (Wiener, Tilly, and Goldenson, 2000). Of all new long-term care insurance sold in 2009, 79 percent of premiums (of a total of about \$600 million) and 58 percent of contracts (of a total of about 365,000) were sold in the individual market; of policies in force in 2009, 82 percent of premiums and 67 percent of contracts were individual (LIMRA International, 2010). Given the dominance of the individual market, our discussion concentrates on that segment.

Administrative data on the policies sold by major companies in 2005 provide a picture of typical long-term care insurance policies (America's Health Insurance Plans, 2007). Virtually all (90 percent) of policies sold in the individual market cover both home and nursing home care; this reflects an increasing move away from nursing-home-only policies, which were about two-thirds of the market in 1990. Most policies have deductibles—typically 30 to 90 days—during which an individual must be receiving care before benefit payments can begin; they also typically have maximum lifetime durations for benefits of 1–8 years, although about one-quarter of policies have unlimited durations.

Unlike most private acute health insurance policies, which reimburse for covered expenses (subject to charges being “reasonable”), private long-term care insurance policies typically set a relatively low maximum on the amount of covered expenses that the policy will reimburse per day in care. The average maximum daily benefit for nursing home care for policies sold in 2005 was only \$142, which was substantially below the average daily nursing home costs of almost \$200 per day in 2008 (Metlife Mature Market Institute, 2009). Moreover, since payouts from most long-term care insurance policies will often occur, if they occur at all, a decade or more after purchase of the policy—when the purchaser is in his or her early 80s (Brown and Finkelstein, 2009)—and about one-quarter of policies have a maximum daily benefit that is fixed in nominal terms, the daily benefit caps are even more binding in practice.<sup>3</sup>

For analytical purposes, we define a “typical” purchased policy (based on America's Health Insurance Plans, 2007) as a policy that covers institutional and home care with a 60-day deductible, a four-year benefit period, and a \$150 maximum daily benefit with a 5 percent per year escalation rate. We calculated the share of expenditures covered by such a policy. The data and the (many) assumptions are discussed in detail in an online Appendix available with this paper at (<http://e-jep.org>). Our estimates suggest that this policy would cover about two-thirds of expected present discount value, long-term care expenditures if purchased at age 65 and held until death. This ratio is noticeably higher for men than women (72 percent compared to 61 percent) because women have much higher expected utilization of care, and thus the benefit limits (both daily and lifetime caps) are more binding. The escalation feature of the policy is critical; the same policy with constant nominal benefits covers only about one-third of expected expenditures, barely half as much as the policy with escalating benefits. If the deductible is shortened from 60 to 30 days and the maximum benefit period extended from four years to lifetime, our measure of comprehensiveness rises from about two-thirds to 95 percent.

<sup>3</sup> As recently as 2000, about 60 percent of policies had constant nominal daily benefits. Those with benefits that escalate over time mostly do so at a predetermined fixed rate (very few are indexed to a measure of inflation like the Consumer Price Index).



Table 2

**Median Premiums by Age for Common Policies in 2010**

		Age 55	Age 60	Age 65	Age 70	Age 75
60-day deductible, 4-year benefit period	Constant nominal benefit	1,114	1,513	2,244	3,623	5,909
	Benefits escalate at 5% per year	2,777	3,357	4,459	6,228	9,632
30-day deductible, unlimited benefit period	Constant nominal benefit	1,975	2,656	3,889	6,566	11,232
	Benefits escalate at 5% per year	4,637	5,806	7,689	11,355	16,901

*Notes:* All policies cover nursing home, assisted living and home care with a \$150 daily benefit. Premium data are from “LTC Quote Plus” software taken in July 2010. We observe about 20 policies for each policy type.

**Long-Term Care Insurance Pricing**

How expensive are long-term care insurance policies? Table 2 shows median annual premiums in July 2010 by age of purchase for four different private long-term care insurance policies. The data are from a long-term care insurance software package (primarily designed for insurance agents and brokers), which aims to cover most major carriers. These policies all cover institutional and home care, and have a maximum daily benefit amount of \$150. They differ in their deductible (60 day or 30 day), their benefit period (four year or unlimited), and whether or not the daily benefit is constant in nominal terms or escalates at 5 percent per year (compounded).

As with term life insurance policies, annual premiums for long-term care insurance policies are fixed in nominal terms. Median annual premiums for 65 year-olds range from about \$2,200 to about \$7,700 depending on the coverage details. Premiums rise sharply by age; for example, for the “typical” policy described above, row 2 indicates that the annual premium is about \$2,800 if purchased at age 55, \$4,500 if purchased at age 65, and \$9,600 if purchased at age 75. Premiums are the same for men and women and do not vary across geographic areas, although companies may offer a given policy in only a subset of states. Policies are guaranteed renewable regardless of future changes in health.

The “load” of an insurance policy is a standard method of comparing how much individuals pay in premiums relative to how much they can expect to receive in benefits. It is defined as:

$$\text{LOAD} = 1 - \left( \frac{\text{expected present discounted value of benefits}}{\text{expected present discounted value of premiums}} \right).$$

An actuarially fair policy has a load of zero; the measure of benefits paid out by the insurance company is equal to the measure of premiums that the individual will pay. The higher the load, the lower the expected return on the policy will be.

We calculated loads for the policies shown in Table 2, using data and assumptions about premiums, benefits, current and projected utilization rates for long-term



care, current and projected costs for long-term care, and an appropriate interest rate for discounting future benefits and costs. Once again, the details are described in the online Appendix (available at <http://e-jep.org>). The estimates are sensitive to the assumptions used, especially the projections of how care utilization and costs will evolve over the next 40 years and the appropriate discount rate (Brown and Finkelstein, 2007). However, our basic conclusion is that loads are quite high. For the “typical” policy described above (a \$150 daily benefit that escalates at 5 percent nominal per year, and covers institutional and home care with a 60-day deductible and a four-year benefit period), we estimate that if the policy is purchased at 65 (about the typical purchase age) and premiums are paid annually until the policyholder dies, the load is 32 cents on the dollar. In other words, for every dollar paid in expected present discounted value premiums, the typical policyholder can expect to receive back only 68 cents in expected present discounted value benefits. Estimates of loads at 65 for the other policies shown in Table 2 are similar, and are presented in the Appendix.

Of course, we would not expect the load to be zero: insurance companies presumably have administrative costs and profits. Still, a 32 cent load is high compared with other insurance markets. For example, the estimated load on life annuities purchased at age 65 is about 15 to 25 cents on the dollar (Mitchell, Poterba, Warshawsky, and Brown, 1999) and the estimated load for health insurance policies is about 6 to 10 cents on the dollar for group health insurance and 25 to 30 cents on the dollar for the (less-commonly purchased) nongroup acute health insurance (Newhouse, 2002).

Moreover, our calculation of a 32 cent load will underestimate the load for a typical policyholder. This is because it was calculated under the assumption that an individual, after purchasing a policy, continues to pay premiums until that individual dies. In practice, however, individuals often stop paying premiums on existing policies; when such “policy lapsation” (as the industry calls it) occurs, individuals generally lose eligibility for subsequent benefits.<sup>4</sup> Accounting for lapsation increases the load on the typical policy just discussed; a policyholder who buys such a policy but faces the population average “termination” probability can expect to get back only 50 cents (instead of 68 cents) on the dollar in expected present value of benefits for every dollar paid in expected present value of premiums. Accounting for policy lapsation also substantially reduces the expected share of long-term care expenditures a policy will cover. For example, the coverage share for the typical policy described in the previous section declines from 65 percent to 37 percent. Lapsation has such a large effect in part because it is so common: on

<sup>4</sup> Some policies offer a “non-forfeiture” option which, for a higher premium, provides some benefits in the case of lapsed premiums. There are typically minimum requirements for the number of years a policy needs to be in-force before these non-forfeiture benefits are activated. Much more common (and required in many states) is a “contingent non-forfeiture” benefit, which is designed to protect consumers in the event that an insurance company raises premiums at a rate exceeding those specified in the model regulations produced by the National Association of Insurance Commissioners. When triggered, individuals are given options, such as the ability to reduce their benefits to maintain their existing premium.

Table 3

**Loads of a “Typical” Policy Purchased at Age 65 in 2010***(cents on the dollar)*

	<i>Policy held till death</i>	<i>Accounting for policy termination probabilities</i>
Unisex	32.1	49.9
Male	55.4	66.4
Female	13.2	36.0

*Note:* The table shows estimates of loads for a “typical” policy purchased (based on AHIP, 2007), expressed in terms of cents on the dollar. This policy covers both facility and home care with a \$150 daily benefit that escalates at 5 percent per year (compounded), a 60-day deductible, and a four-year benefit period.

average about 5 percent of policies lapse per year, and lapse rates are particularly high in the few years immediately after purchasing a policy (Society of Actuaries, 2007).<sup>5</sup> In addition, lapsation is quite costly because premiums (which are constant nominal amounts paid annually from the time of purchase) are quite front-loaded relative to benefits, which are paid out on average in later years.

Table 3 also shows a striking difference in this market in loads for men relative to women. For example, again for this typical policy, we estimate a load at age 65 that is 55 cents on the dollar for men compared to 13 cents on the dollar for women (if the policy is held until death). The difference arises because premiums are the same for men and women, but a 65 year-old woman is over 50 percent more likely to ever use a nursing home than a 65 year-old man, and conditional on using a nursing home, her average length of stay will be about 50 percent longer. These gender differences partly (although not entirely) reflect women’s longer longevity (Brown and Finkelstein, 2007). These large utilization differences between men and women raise an obvious puzzle: why do insurance companies not set gender-specific pricing? No regulatory restriction blocks them from doing so. We do not offer an answer, except to note that the puzzle is not unique to long-term care insurance; in many insurance markets, firms often forgo readily available information about expected utilization. Finkelstein and Poterba (2006) discuss other examples as well as potential explanations.

**Why is the Private Market for Long-Term Care Insurance So Small?**

The evidence of high loads on insurance policies for long-term care certainly suggests that standard culprits for market imperfections, such as asymmetric information and imperfect competition, may be important in limiting the size of this

<sup>5</sup>The reasons for lapsation are not well understood. Some lapsation may be a response to unanticipated negative wealth, income, or expenditure shocks. Individuals may decide that the initial purchase was a mistake. Or individuals may learn over time that they are at lower risk of long-term care utilization than they originally thought and therefore find it optimal to exit the market. Finkelstein, McGarry, and Sufi (2005) present evidence consistent with this latter “dynamic selection” argument, although that does not rule out a role for these other factors as well.

market. Also, there is evidence of market problems such as asymmetric information in the private long-term care insurance market (Finkelstein and McGarry 2006; Oster, Shoulson, Quaid, and Dorsey, 2010).

Yet high loads do not seem enough, by themselves, to explain the limited size of the private market for long-term care insurance. Our results from a calibrated life-cycle utility model in Brown and Finkelstein (2008) suggest that even if, contrary to fact, there were no supply-side market failures and comprehensive private policies were available at actuarially fair prices, approximately the lower two-thirds of the wealth distribution would not wish to purchase actuarially fair comprehensive private policies because of the presence of Medicaid. In other words, as first conjectured by Pauly (1990), the consumption floor provided by Medicaid's "payer of last resort" role substantially curtails demand for private insurance. For example, in Brown and Finkelstein (2008), we estimate that for a 65 year-old male at the median of the wealth distribution, 60 percent of the expected present discounted value of benefits paid from a private policy are redundant of benefits that, absent private insurance, would have been paid by Medicaid. For a female at the median of the wealth distribution, this "implicit tax" from Medicaid is closer to 75 percent.

The implicit tax levied by Medicaid on private insurance arises from two sources. First, because Medicaid applies both asset and income tests to determine eligibility, individuals who own private insurance are less likely to qualify for Medicaid. In this way, the very objective of a private insurance policy—to protect one's resources against the risks of high out-of-pocket expenditures—makes it less likely that the individual will spend down sufficiently to qualify for Medicaid. Second, Medicaid is a secondary payer; by law, Medicaid requires that private insurance pay any benefits it owes first, even if the individual is eligible to be covered by Medicaid, and only once the private policy has been exhausted is Medicaid then responsible for any residual expenses it covers.

Variation in the implicit tax from Medicaid—that is, in the extent to which Medicaid benefits are reduced by the purchase of private insurance—may help to explain some of the patterns of insurance ownership across demographic groups that were shown in Table 1. The Medicaid implicit tax is higher for lower-wealth individuals (since they have a higher fraction of their expected long-term care costs covered by Medicaid in the absence of private insurance), which presumably contributes to the high positive wealth gradient of private long-term care insurance ownership. At a given wealth level, the implicit tax imposed by Medicaid is also much larger for women than for men because women have higher expected long-term care expenditures than men, so, in the absence of private insurance, a higher proportion of women's expenditures would have been covered by Medicaid. As a result, the "net loads" are much more similar for men and women than the "gross loads" shown in Table 3 and discussed above. This fact can help explain the puzzle of very similar ownership rates by gender (Table 1) despite very different "gross loads" (for example, 55 cents for men versus 13 cents on the dollar for women for the "typical" policy if held till death).

Medicaid's crowding out of private insurance demand matters for several reasons. For starters, there is the standard deadweight loss that arises from the need to raise tax revenues to finance Medicaid. But in addition, our calibration results in Brown and Finkelstein (2008) indicate that Medicaid provides a very imperfect consumption-smoothing mechanism for all but the poorest of individuals. This is because Medicaid's income and asset eligibility requirements impose severe restrictions on an individual's ability to smooth consumption across states of care (or health) and over time. In essence, one can think of Medicaid as an insurance policy with a very large deductible set at a substantial share of one's assets.<sup>6</sup>

These findings, that Medicaid may substantially reduce private insurance demand far up the wealth distribution while providing very limited insurance to all but the poorest individuals, raise the question of possible reforms to Medicaid, which we discuss in the next section. However, it is important to emphasize that, while our findings suggest that Medicaid reform may be *necessary* before a substantial portion of the elderly purchase private long-term care insurance, such a reform may not be *sufficient*. Even if much or all of the Medicaid implicit tax were eliminated, other factors could still prevent the market for long-term care insurance from developing. We regard a greater understanding of these non-Medicaid-induced constraints on the private long-term care insurance market as an important area for further work. Here, we briefly note some of the demand-side forces that could limit demand for private insurance even absent a Medicaid implicit tax. (Some supply-side factors like asymmetric information and imperfect competition have already been mentioned.) In the conclusion, we also speculate on additional factors that are specific to the long-term (versus annual) nature of contracts in this market.

An important potential demand-side limit to the private insurance market is the existence of other potential imperfect substitutes for private long-term care insurance, such as informal insurance provided by family members who may either provide cash to pay for care or directly provide care themselves. More broadly, family interactions represent a potentially important but still poorly understood determinant of demand for products like long-term care insurance. For example, bequest motives may motivate the purchase of long-term care insurance in order to protect bequeathable assets, either for altruistic or for strategic reasons. On the other hand, Lockwood (2011) points out that those with bequest motives may have

<sup>6</sup>Of course, it is possible that individuals can avoid having their personal assets implicitly taxed away if they engage in careful "Medicaid planning." For example, individuals may be able to hide assets from the means-test by various means, including giving cash gifts to children or grandchildren, establishing trusts, or spending the money on assets that are excluded from the Medicaid asset test. Medicaid rules allow state Medicaid programs to account for assets that individuals have disposed of during a specified look-back period, but empirical evidence is mixed as to how strongly these rules are enforced and how feasible it is to qualify for Medicaid by hiding assets. While anecdotal evidence suggests that asset hiding may be common, the fact that a substantial portion of long-term care spending is out-of-pocket suggests that it is far from universal. To the extent that individuals are able to protect some of their assets from the Medicaid asset test, this would increase the insurance protection provided by the program. However, by making Medicaid an even more-attractive alternative to private insurance, it would also increase the crowd-out of private insurance.

lower demand for long-term care insurance than those without bequest motives. This effect arises because one of the benefits of long-term care insurance is that it allows individuals to reduce the need for precautionary savings against uncertain medical expenditures; this in turn reduces accidental bequests. Thus, for those who do not value bequests, the ability to convert accidental bequests into consumption is quite valuable. This ability to convert accidental bequests into consumption by purchasing long-term care insurance is less valuable to those who gain utility from bequests.

Another potential informal substitute for long-term care insurance is the illiquid assets in one's home, which may discourage the purchase of private insurance by simultaneously providing a buffer stock of assets that can be liquidated in the event one needs to pay for care, and increasing the marginal utility of liquid wealth that would be used to pay for premiums (Davidoff, 2010). Such alternatives are presumably less efficient than private insurance; for example, buffer stock assets held against a possible need for long-term care represent foregone consumption if the need does not materialize.

Behavioral factors such as limited consumer knowledge about long-term care utilization risk, public insurance coverage, or the functioning of a private insurance contract, along with limited rationality, may also constrain demand. Given that consumers also appear to exhibit weak demand for other long-horizon insurance products, such as life annuities, it may also be that individuals have particular difficulty making decisions about long-term, probabilistic outcomes. For this reason, consumers may be more likely to stick with the status quo or default option (which, in this case, would be going without long-term care insurance). We know of no recent studies of such behavioral factors specific to the private long-term care insurance market; however, there is certainly ample evidence of low levels of financial literacy and potential implications for financial planning (for example, Lusardi and Mitchell, 2007a, b), of behavioral factors being important in similar markets, such as that for life annuities (Brown et al., 2008; Benartzi, Previtro, Thaler, this issue), and of difficulties that individuals may have understanding low-probability, high-loss events (for example, Kunreuther, 1978).

Finally, if marginal utility of consumption is substantially lower when one is sick and in a nursing home, this will lower demand for private long-term care insurance and—unlike many of the other explanations—this argument would not point directly to social and private welfare losses stemming from nonpurchase.<sup>7</sup>

<sup>7</sup>A priori, it is not obvious whether marginal utility of consumption rises or falls with deteriorating health. After all, some goods (like travel or tennis) may be complements to good health while others (like help around the house or a plasma television) may be substitutes. Using a sample of the elderly in the Health and Retirement Survey, Finkelstein, Luttmer, and Notowidigdo (2008) provide evidence consistent with the marginal utility of consumption falling as health declines, which suggests that private long-term care insurance is not valued as highly as a state-independent utility function would suggest. Still, our calibrations in Brown and Finkelstein (2008) suggest that even substantial negative state dependence—more than four times larger than that estimated by Finkelstein, Luttmer, and Notowidigdo (2008)—cannot by itself explain most of the substantial nonpurchase of private long-term care insurance, although it may be a contributing factor.

## Public Policy toward Long-Term Care in the United States

Given the substantial role of Medicaid in impeding private insurance demand—as well as the existence of similar means-tested public insurance programs in Canada and the United Kingdom—we first discuss whether, in principle, such a program can be redesigned to provide meaningful insurance coverage without substantially crowding out private insurance demand. We then turn to a discussion of recent public policy in the United States and what we can surmise about its likely effects.

### Public Policy in Principle: How to Reduce Medicaid's Implicit Tax

Conceptually, the way to reduce Medicaid's implicit tax is to structure the payment system so that the expected value of transfer payments received from the government is less affected by an individual's decision of whether to purchase private long-term care insurance. For example, if it were possible to predict with accuracy the expected present value of Medicaid benefits that an individual would receive if that individual went uninsured, then one could offer the individual a payment equal to that amount in return for agreeing to forgo any additional governmental support for paying for long-term care. The logic here is simply that of the efficiency of lump-sum taxation: by separating the resource transfer from marginal decision-making, one avoids distorting decision making. While such a policy-approach would, by definition, not reduce the present value of publicly-funded, long-term care expenditures, it would (in theory) lead to welfare-enhancing increases in private insurance coverage.

In practice, of course, such a policy would be extremely difficult to implement. Policymakers would need access to a wide range of health and wealth information to assess the likelihood that an individual would need care and the likelihood that he or she would become Medicaid-eligible in the absence of private insurance. Even with such information, adverse selection is likely to be high in such a program; presumably the individuals least likely to use formal care would choose to opt-out of Medicaid in exchange for the payment, whereas those most likely to use care would stay in the Medicaid system. Further, it is questionable whether the political environment would accept an outcome in which an individual "opted out" of the Medicaid system and then needed care but did not have the resources to access it. If other systems (government-provided or charity) arose to serve as an alternative payer-of-last resort, these programs would simply replace Medicaid in imposing an implicit tax on private insurance purchases. There are no simple, practical solutions.

One natural direction of reform would be to expand Medicaid by methods such as reducing or eliminating the income and asset eligibility tests. This would increase public insurance coverage but at the cost of substantial public funds and presumably even greater crowd-out of the residual private insurance market. The other natural direction of reform would be to scale back Medicaid benefits by reducing eligibility and/or reducing benefits. This would reduce public expenditures and potentially encourage private insurance market purchases, but it would run the risk that since



the private market response could be limited, particularly for certain groups in the population, overall risk exposure could increase.

Perhaps not surprisingly, given this discussion, most of the recent public policy initiatives have had limited effects on reducing Medicaid's implicit tax or in stimulating private insurance demand. We discuss three main types of recent policy initiatives: tax subsidies for private long-term care insurance; different states' decisions regarding the amount of assets Medicaid allows beneficiary households to keep; and more-fundamental reforms through the interaction of state "Partnership" programs in how Medicaid and private insurance interact. Finally, we describe the recently failed federal initiative to sell private long-term care insurance.

### **Tax Incentives for the Purchase of Private Insurance**

A natural approach for stimulating private insurance demand is to subsidize its cost. Subsidies might seem like a particularly appropriate remedy given the implicit "tax" Medicaid imposes on private insurance for long-term care; and more generally, they might seem an appropriate approach to reducing the effect of the high loads in this market discussed earlier. In addition, a desire among policymakers to shift costs away from Medicaid has led to increasing interest in the use of tax subsidies to stimulate the purchase of private long-term care insurance (Goda, 2011).

The United States has a history of generous tax subsidies for health insurance; in particular, employer contributions to health insurance premiums are not subject to individual income taxes. A 1996 federal tax reform similarly made employer-provided long-term care insurance exempt from employee taxable income (Wiener, Tilly, and Goldenson, 2000). As noted earlier, most long-term care insurance is still provided through the nongroup market, and in that market, a limited federal tax subsidy for long-term care insurance was introduced in 1997 as a result of the prior year's passage of the Health Insurance Portability and Accountability Act (HIPAA). This provision allows for long-term care insurance premiums (up to an annual cap that varies with age) to be included as an "unreimbursed medical expense" for purposes of calculating tax deductions. However, this tax incentive is only effective for those who have itemized deductions that exceed 7.5 percent of Adjusted Gross Income. At the state level as of 2008, 24 states plus the District of Columbia had enacted a tax subsidy for the purchase of long-term care insurance (Goda, 2011).

Our calibration results in Brown and Finkelstein (2008) discussed earlier suggested that, even under relatively generous assumptions, exempting employer contributions to long-term care insurance premiums from taxable income would not do much to reduce Medicaid's implicit tax, and hence to increase private insurance demand. Indeed, federal tax subsidies are relatively poorly designed for reducing the implicit tax since marginal tax rates (and thus federal tax subsidies) increase with income while the Medicaid implicit tax decreases with wealth.

Empirical estimates of the price elasticity of demand for long-term care insurance are consistent with these calibration results. For example, Goda (2011) examines the impact of tax subsidies empirically using variation across time and states in the introduction of state tax subsidies. Between 1996 and 2008, 21 states



implemented tax subsidies for private long-term care insurance premiums. On average, these state tax subsidies reduce the after-tax price of private insurance by about 5 percent and, Goda estimates, increase private insurance purchases by individuals ages 50–69 by about 2.7 percentage points (or almost 30 percent). Thus, while the tax subsidies induce a large proportional share in individuals buying insurance, their effect is small relative to the number of uninsured. Courtemanche and He (2009) also investigate the effect of tax subsidies on purchases of private long-term care insurance using a different empirical strategy and find similar-sized results. Overall, tax subsidies can increase private insurance demand on the margin, but they are unlikely to be useful in substantially reducing the aggregate exposure to long-term care expenditure risk among the U.S. elderly.<sup>8</sup>

### **State Choices Regarding the Parameters of Medicaid**

Medicaid's asset protection rules determine the amount and form of assets one can keep while qualifying for Medicaid. These rules vary substantially across states. In Brown, Coe, and Finkelstein (2007), we estimate that for near- and young-elderly married households in 2000, moving from the most common set of state rules (in effect in about half of the states) to the second most common set of state rules (in effect in about one-third of states) would on average allow a married household to keep approximately an additional \$20,000 more in assets (approximately 30 percent of average financial assets) when one spouse enters a nursing home. The difference in the amount one can keep under different rules depends on one's asset levels and reaches as high as almost \$40,000 (for households with assets around \$85,000). Using the variation in Medicaid's asset protection across individuals based on their state of residence, marital status, and asset holding, we estimate that a \$10,000 decrease in the level of assets an individual can keep while qualifying for Medicaid would increase private long-term care insurance coverage by 1.1 percentage points. To put this in perspective, if every state in the country moved from their current Medicaid asset eligibility requirements to the most stringent Medicaid eligibility requirements allowed by federal law, this would decrease average household assets protected from Medicaid by about \$25,000. This, in turn, would increase the demand for private long-term care insurance by only 2.7 percentage points. While this represents a large increase in insurance coverage relative to the baseline ownership rate, the vast majority of households would still find it unattractive to purchase private insurance. Of course, a wholesale restructuring of Medicaid could have more-significant effects on private insurance coverage.

<sup>8</sup> Goda (2011) also examines empirically whether tax subsidies for private insurance are likely to reduce net government expenditures—in other words, can the reduction in Medicaid expenditures “pay for” the tax subsidy? Consistent with our calibrated model's results in Brown and Finkelstein (2008), she finds that the largest response to the tax incentive comes from individuals at the high end of the wealth and income distribution—groups that are both most expensive to tax subsidize (due to higher marginal tax rates) and least likely to rely on Medicaid even in the absence of insurance. This finding suggests that only more-targeted tax incentives, perhaps phased out at higher income levels, can potentially have a positive effect on net government expenditures on long-term care.

### **Long-Term Care Partnership Programs**

One major policy development over the past two decades has been the introduction and expansion of the long-term care “Partnership” programs, under which states use separate Medicaid eligibility criteria for individuals who purchase a qualifying long-term care insurance plan. In essence, these plans allow individuals who purchase a long-term care insurance policy to retain a pre-specified level of assets and still qualify for Medicaid (although individuals must still meet income tests and must still qualify on the basis of physical and/or mental impairments). These programs seek to avoid the requirement that individuals become impoverished to qualify for long-term care through Medicaid.

In the early 1990s, California, Connecticut, Indiana, and New York implemented Partnership programs. In 1993, Congress then prohibited further Partnership programs, while grandfathering the existing four state programs (Robert Wood Johnson Foundation, 2007). Initially, California, Indiana, and Connecticut allowed individuals purchasing an eligible policy to receive “dollar-for-dollar” credit, meaning that a person could keep additional assets up to an amount equivalent to the maximum lifetime benefits paid from the insurance purchased, even while receiving Medicaid benefits. For example, if a policy offered a maximum daily benefit of \$100 for a maximum of two years, then the individual would be able to protect an additional \$73,000 of assets ( $= \$100 \times 365 \times 2$ ). New York’s original partnership program, in contrast, allowed individuals to receive Medicaid benefits while keeping all of their assets, but the insurance policy that an individual had to purchase to qualify for such protection was much more comprehensive than the policies required in the other three states (Robert Wood Johnson Foundation, 2007).

The Deficit Reduction Act of 2005 included provisions allowing other states to implement Partnership programs, subject to certain restrictions, including that the plans offered under the program provide some form of inflation protection for purchasers under age 76. Partnership policies are now offered for sale in 39 states, according to government statistics at <http://www.dehpg.net/ltcpartnership/>, and there are well in excess of 400,000 such policies in-force nationwide.<sup>9</sup>

The Partnership programs directly address one of the two sources of the Medicaid implicit tax—that when an individual is receiving long-term care that

<sup>9</sup> According to data from the Partnership website, there were just under a half million Partnership policies “in-force” as of 2010. Specifically, there were nearly 230,000 policies sold nationwide under the Deficit Reduction Act (DRA) that were “in-force” as of June 30, 2010 ([http://w2.dehpg.net/LTCPartnership/reports/F1\\_US\\_20100630.PDF](http://w2.dehpg.net/LTCPartnership/reports/F1_US_20100630.PDF)). This excludes the original four states—collectively known as the “RWJF states” due to the important role of the Robert Wood Johnson Foundation in starting these programs—where data from individual state reports suggests that there were approximately 259,000 policies in-force as of the latest reporting date in 2010 (over 110,000 as of June 30 in California, over 69,000 as of June 30 in New York, just under 39,000 as of September 30 in Indiana, and just under 41,000 as of December 31 in Connecticut). The latest version of these state reports can be found at <http://w2.dehpg.net/LTCPartnership/generic.aspx?idir=other%20reports>. These figures may understate the total number of policies sold because some companies with in-force policies are no longer selling new policies and may no longer provide complete data.

is partially paid by private insurance, that individual is delaying eligibility for Medicaid because the assets that are typically protected by the insurance policy count against the means-test eligibility requirement. The Partnership programs seek to address this issue by adjusting the Medicaid asset-test to account for the insurance coverage. However, the Partnership programs do not address Medicaid's status as a secondary payer—that once an individual is Medicaid-eligible, the private policy pays first, and Medicaid picks up the difference. Our calibration results discussed earlier suggest that eliminating only one of the two sources of the Medicaid implicit tax by itself does not do much to stimulate demand for private insurance, which is consistent with the relatively low level of sales of long-term care insurance in Partnership states.

To eliminate the implicit tax completely, the Partnership programs would have to be combined with a policy that made Medicaid the primary, rather than the secondary, payer for long-term care expenses once a person qualifies for Medicaid. In this situation, private providers of long-term care insurance could base premiums only on the “incremental” coverage over and above what Medicaid would provide. Of course, such an approach could substantially increase total Medicaid expenditures.

### **The CLASS Act**

The Community Living Assistance Services and Supports (CLASS) Act was one of the provisions of the healthcare reform bill signed into law by President Obama in 2010. Under this program, the federal government was to directly sell private long-term care insurance policies to the public. On October 14, 2011, the Department of Health and Human Services announced that it was going to abandon the implementation of this program, which had grown increasingly controversial since the passage of the legislation. The intent of the legislation was to create a program in which individuals who paid monthly premiums for at least five years would be eligible to receive a cash benefit (varying by degree of functional impairment but averaging no less than \$50 per day initially) if and when they meet the health-related benefit trigger. Individuals receiving benefits would have been permitted to use the payments to pay for traditional long-term care including home health care, assisted living, and nursing homes, as well as a wide range of other services (for example, home modifications, assistive technology, and respite care).

The implementation of the CLASS Act was abandoned primarily because the poorly designed program was projected by a range of independent experts to be fiscally unsustainable. The legislation directed the Secretary of Health and Human Services to set premiums at a level that would be sufficient to maintain program solvency over 75 years. In practice, however, this meant that premiums would likely be below “actuarially fair” levels. To understand why, imagine that individuals start paying premiums immediately, but the average payout will not occur for, say, 25 years in the future. To oversimplify, a 75-year “solvency” calculation counts 75 years of premium payments, but only 50 years of benefit payments.

Thus a program could be technically solvent on a 75-year horizon even though it is being run on a negative net present value basis. This financial problem was to be magnified by the fact that the legislation required that individuals below the poverty line and full-time students be able to participate at only \$5 per month (in 2009 dollars), far below the actuarial cost. As a result of the differential pricing structure and short period of participation required for eligibility, a number of experts voiced concerns about serious adverse selection into this voluntary program (for example, American Academy of Actuaries, 2009; Mussey, 2010). Despite the fact that the legislation allowed (but did not require) employers to automatically enroll individuals, the Congressional Budget Office (2009) estimated that only 4 percent of the adult population would have enrolled in the CLASS Act program by 2019. One of the factors that would have limited participation is that Medicaid would have imposed a large implicit tax on CLASS benefits, just as it does on private insurance policies.<sup>10</sup>

## Concluding Comments

The irony of the existing long-term care insurance system in the United States is that public expenditures are expected to grow rapidly, and yet, at the same time, individuals still face significant personal financial risk from long-term care. These twin concerns have led many policymakers in search of “solutions” that rely on insuring a greater share of this risk through private markets.

While there is much we still do not know about the market for long-term care insurance, the knowledge we do have suggests that substantial growth of the private market is significantly hampered by two features of Medicaid—means-testing and its secondary payer status—which combine to impose a large implicit tax on private insurance and to crowd out the purchase of private insurance for most of the wealth distribution. Attempts to reduce the implicit tax and stimulate private insurance markets tend to have at least one of two undesirable consequences: either they increase public expenditures, for example, by making Medicaid a primary payer and reducing means testing; or they require that policymakers be willing to deny care to individuals who fail to insure themselves adequately. In addition, we still know relatively little about how the private market would respond, on either the demand or the supply side, to Medicaid reforms. In other words, the evidence today suggests that Medicaid reform is a *necessary* condition for substantial growth in the private long-term care insurance market, but it does not at all imply that such reform would be *sufficient*.

<sup>10</sup> A few provisions in the benefits seem designed to reduce—although not eliminate—the implicit tax on Medicaid. In particular, benefits received under the CLASS Act were to be disregarded as income for purposes of determining eligibility for receipt of benefits under any other assistance program (including Medicaid). In addition, once a person is on Medicaid, they would have been entitled to keep a portion of the CLASS benefits (50 percent for home care, and only 5 percent for institutional care).

While existing research falls short of providing clear guidance as to the other important impediments to stimulating the private market for long-term care insurance, some insight may be gleaned by contrasting the small size of the private long-term care insurance market to the much more-developed private insurance market for annual health expenditures. We speculate that one key distinction between the two markets that may help account for the disparity in their development is the long-term (versus annual) nature of the contracts for long-term care insurance. Long-term contracts raise a number of potential impediments to both supply and demand of private insurance that are less of an issue for annual contracts. For example, although Medicaid imposes an implicit tax on private insurance for acute, annual health insurance as well (for discussion, see Cutler and Gruber, 1996), with annual contracts the implicit tax is mostly limited to those who might plausibly “spend-down” to Medicaid asset limits within a year. With a multi-year contract like long-term care insurance, cumulative multiyear expenditures can cause the implicit tax to crowd out demand much higher up the asset distribution (Brown and Finkelstein, 2008).

In addition, the long-term nature of these contracts introduces at least three additional sources of uncertainty between the time one purchases a contract and the time one might plausibly receive benefits—for example, imagine individuals who are considering the purchase of a long-term care policy at age 40 to cover nursing home use in their 80s. First, the organization and delivery of long-term care is likely to change over the decades, so it is uncertain whether the policy bought today will cover what the consumer wants out of the choices available in 40 years. Second, why start paying premiums now when there is some chance that by the time long-term care is needed in several decades, the public sector may have substantially expanded its insurance coverage? A third concern is about counterparty risk. While insurance companies are good at pooling and hence insuring idiosyncratic risk, they may be less able to hedge the aggregate risks of rising long-term care utilization or long-term care costs over decades. In turn, potential buyers of such insurance may be discouraged by the risk of future premium increases and/or insurance company insolvency.<sup>11</sup> In addition to these sources of uncertainty, another issue arising from the long-term nature of the contract is that extreme discounting or myopia may make it less likely that today’s 40 year-old even thinks hard about whether to purchase insurance for events expected to happen many decades later.

While of course some of these problems can be mitigated by deferring purchase to later years (and indeed those who do buy private insurance tend to be in their low 60s), the residual uncertainty regarding long-term care expenditures (and hence

<sup>11</sup> Recent industry activity underscores these issues. In November 2010, MetLife—at one time the second-largest writer of long-term care policies—announced its decision to stop selling individual policies and to stop accepting new enrollments in its group plans (Berkowitz, 2010). Also in 2010, John Hancock requested rate increases of approximately 40 percent on most of its existing block of long-term care business. This rate increase was justified on the basis of a low-interest rate environment (which increases the present value of future liabilities) and on the fact that lapse rates by customers were below expected levels.

the value of insurance) is also diminishing with age. Moreover, the desire to defer purchase presumably contributes to the lack of much employer-based long-term care insurance. The paucity of employer-based long-term care insurance may also be an important deterrent to the private long-term care insurance market. Employment-based acute health insurance provides a mechanism for reducing adverse selection and of realizing economies of scale in insurance production; as a result of both factors, loads for employer-based acute health insurance are substantially lower than those in the nongroup market (Newhouse, 2002). Employer-provision seems likely to be an important contributor to the relatively higher functioning of the acute health insurance market.

Naturally there is a high degree of casual speculation in the preceding several paragraphs. As the share of elderly in the U.S. population increases and policy changes affecting long-term care insurance happen at the state and federal level, we hope that others will take up the gauntlet to bring theory and evidence to bear on this important and interesting set of economic issues.

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