Modeling a New Long-Term Care Financing Plan

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THE MORAN COMPANY

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The Moran Company was engaged by the American Association of Homes and Services for the Aging (AAHSA) to analyze AAHSA's initiative for a broadly available long-term care (LTC) insurance program. In particular, our assignment was to build a model that would calculate the premiums required to support specified benefits and, more generally, allow AAHSA to explore rigorously the tradeoffs between key parameters and explore potential variations in policy initiatives. The goal of the project was to show how a public LTC insurance program could help meet the challenges of the expected increase in demand in the coming decades for LTC services and the associated financial burden.

This report details our analysis and key findings. Section I describes the LTC insurance model, including how it is structured and how it works. Section II presents results from key scenarios used in our analysis. Finally, Section III discusses potential effects of the modeled LTC insurance plans on public spending.

Section I. The Model

Based on our discussions with AAHSA, we created a LTC insurance model with specific functionalities and capabilities to address AAHSA's analytic needs. The model—designed to analyze the costs, benefits, and other implications of pre-funded insurance proposals—allows a different set of policy specifications and key parameters as inputs. Given those input choices, the model calculates the premium required to support them.

The model is built on three types of assumptions: demographic, programmatic, and technical. These assumptions largely determine how the model works and what it can do. We discuss each type of assumptions in the following three sections.

A. Demographic Assumptions

The fundamental assumption underlying the model is the set of transition matrices that govern the flow of people to and from disability over time and to death. At the most basic level, the LTC insurance pays benefits when the beneficiary becomes disabled as defined by the insurance program. Therefore, estimating accurately the number of people receiving benefits, or conversely those paying premiums, is directly tied to determining who is disabled and not disabled.

There are several possible sources of data on disability. (See Appendix A for a summary of sources we considered.) After reviewing various sources and consulting with several experts, we decided to base the model on transition rates published by the Society of

Actuaries (SOA).[1] These estimates represent the work of the Long-Term Care Experience Committee of the SOA. Specifically, we used the set of annual matrices—which estimate transition probabilities during one year by age—corresponding to the benefit trigger at 2+ activities of daily living or ADLs (in which people need informal or formal care, with standby help at any frequency).

Because the National Long-Term Care Survey (NLTCS), on which the above transition probabilities are based, collects disability data among the elderly Medicare population only, we required additional estimates of transition probabilities for people younger than 65. Using data from the Survey of Income Program Participation and the National Nursing Home Survey, whose survey samples include the non-elderly population, we calibrated the NLTCS estimates for the relatively lower disability and mortality rates among the younger groups.[2]

Additional demographic assumptions used in the model include age-specific population projections for 2000 to 2050 from the Census and the life table for the population in 2003 from the Centers for Disease Control and Prevention.[3]

B. Programmatic Assumptions

In addition to the underlying demographic assumptions, the model makes the following set of programmatic assumptions related to the main features of the insurance program. These assumptions define key elements of the model's structure and capture within the model how the insurance program would work.

The model includes the following key elements. They serve as parameters in the model and their values can be set or changed as inputs to the model.

- Number of years to compute sets the time horizon of the model and the lifetime of the LTC insurance program.

[1] See Eric Stallard and Robert K. W. Yee, "Non-Insured Home and Community-Based Long-Term Care Incidence and Continuance Tables," (October 2, 1999). Using data from the 1984 and 1989 National Long-Term Care Survey, the authors estimated a Markov chain model based on five states of health and disability. Although there are other sources of disability data available, the key challenge in using them is that estimating transition probabilities from the raw disability information is complex and requires much expertise. The SOA matrices, in contrast, are the result of the necessary estimation, calibration and imputation by experts. Additionally, they are publicly available, and closely match our initial construction of the transition process. We believe they provide the most reasonable and credible basis for transition probabilities.

[2] Disability data from the 2002 Survey of Income Program Participation were provided by Mitch LaPlante of the University of California, San Francisco.

[3] Population projections are available from http://www.census.gov/ipc/www/usinterimproj and the life table is available from http://www.cdc.gov/nchs/data/nvsr/nvsr54/nvsr54_14.pdf .

- Number of years for balance sets the point in the future when the program's funding will be in balance (meaning approximately at $0 balance) when the model is solving for a premium. For our analysis, we assumed the 75-year time horizon.
- Benefit trigger is the event or condition that qualifies a person for receiving benefits. Because benefit trigger is linked to the transition probabilities to and from various disability-benefit states, changing the trigger must also change the underlying transition matrices. In our model, the trigger is 2+ ADLs and corresponds to the definition of LTC disability used in the transition matrices described in the previous section.
- Daily benefit is the cash benefit paid to disabled persons for LTC services and is specified in nominal dollars at the start of the LTC insurance program. The cash amount is same for everyone and does not vary with the number of ADLs.
- Number of years of benefit defines the maximum amount of benefits a disabled person may receive. After the specified time, the disabled person stops receiving benefits even if he/she remains disabled. Benefits will end earlier in the case of death.
- Annual premium is paid by everyone in the program until he/she is receiving benefits or has exhausted benefits. Our model can calculate the premiums given all other parameters—benefit amount, benefit length of time, vesting period, number of years to balance, transition matrices, etc.
- Vesting period specifies the required number of years of paying premiums before becoming eligible to receive benefits.

In addition to the main components of the model outlined above, the following set of rules characterizes how the program would work within the model.

- Everyone participating in the program pays premiums until receiving benefits (having become disabled), having exhausted benefits, or dead.
- During the vesting period, no one receives benefits, even the disabled.
- Benefit amount and premiums increase at a constant rate throughout the lifetime of the program. The model allows for different rates of increase for premiums and benefits. However, these two rates are same in all models presented in this report.
- No one lives longer than 99 years.
- At the very beginning of the program, everyone, in each age cohort, starts out healthy and not disabled.

- For each subsequent year until the end of the program, the transition probabilities determine the numbers of people in and out of different states of health and disability over time. Specifically, for each year, the model calculates the number of people in each age cohort who are:
    - not disabled and paying premiums;
    - disabled and receiving benefits;
    - disabled and not receiving benefits (because they have not yet vested or have already exhausted benefits); and
    - dead.

Finally, our model makes one simplifying assumption: the maximum number of years of benefit applies to continuous years of disability. In other words, if one becomes disabled again following a period of recovery and paying premiums, then the clock is reset. A more realistic assumption would be a lifetime maximum. However, modeling a lifetime maximum, rather than a continuous-spell maximum, would require a model that increasingly, with each passing year, splits each cohort into subcohorts based on the very small probability that some people would revert to disability and wind up once again on benefit status. Because our model is cohort based, not individual based, such a calculation would be unmanageable within the framework of the model.

Therefore, we made the above simplifying assumption of a continuous-spell maximum. Because of the technical mechanics of the model, this assumption is equivalent to the assumption of a lifetime maximum in two instances where there is no reversion to disability: (1) when the benefit is a lifetime benefit, and (2) when the benefit is a one-year benefit (since the model has an annual accounting period). In contrast, in certain scenarios, our model would over-estimate the number of individuals who would be in benefit status at any point in time (by the amount of the number of individuals who would have exhausted under a lifetime maximum but did not exhaust under our continuous-spell maximum, net of those who would die in the meantime). However, we calculate the net effect at about 0-2 percent over-estimation of the premium cost with a two-year benefit, and almost no over-estimation at a five-year benefit. In general, there is a tradeoff between the number of individuals who might recover before exhausting their benefit and the number of individuals who might die before reverting to disability, as the number of years of benefit increases.

C. Technical Assumptions

The program's overall finances are straightforward. In any given year, there is an inflow of premiums from people who are not disabled, and an outflow of benefits to people who are disabled. (Premiums and benefits are adjusted by the respective annual rates of increase.) Annual balance of funds equals the previous year's balance (adjusted by the annual rate of return) plus the current year's inflow of premiums minus the outflow of

benefits. The following assumptions are technical requirements in calculating the flow of premiums and benefits and balance of funds in the program.

- Annual rate of return specifies the rate (such as the assumed interest rate), in percent, at which any money in the program's funds increases from one year to the next. In our model, it is set at 5.8 percent, which is 0.1 percentage point higher than the nominal interest rate of 5.7 percent used in the intermediate assumptions of Social Security estimates.[4]
- Annual increase in benefits is assumed to grow with wages, at 3.9 percent per year throughout the lifetime of the program. This rate is the projected annual growth rate in average U.S. earnings for the intermediate assumptions of Social Security estimates.
- Annual increase in premiums is also assumed to grow at the same rate as benefits, or at 3.9 percent per year.

D. Output of the Model

There are two general ways the model can be used. The first way is to set specific values for the parameters discussed above and the model calculates and charts the annual flow of premiums and benefits and the annual balance of funds during the lifetime of the program. These results present the overall financial picture of the program as defined by the set of parameter values.

The second way is to use the model to solve for the annual premium that would support the program as defined by the parameter values. In this case, annual premium becomes the output of the model rather than a parameter input. The model iteratively calculates the annual premium given the convergence criterion (defined as the maximum change in annual premium amount between iterations before the model stops calculations) and the year (defined as the number of years after the beginning of the program) in which the annual flow of premiums paid into and benefits paid out is in balance.

In summary, the model calculates the following output:

- Annual flows of premiums paid into and benefits paid out in the program.
- Annual accumulated net balance.
- The number of people (total and by age cohort) in various disability-benefit categories: paying premiums, receiving benefits, and having exhausted benefits.
- Premiums required to fund given set of benefits.

[4] See *The 2007 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (May 1, 2007).

Section II. Results

A. Five Featured Scenarios

Working with AAHSA, we focused on five program scenarios for the model to calculate. They were chosen to illustrate the tradeoffs between different policy variables. (See Appendix B for the complete set of models estimated in our analysis, in addition to the five models presented below.)

The five modeled scenarios differ in the number of years of benefit but share the following program features:

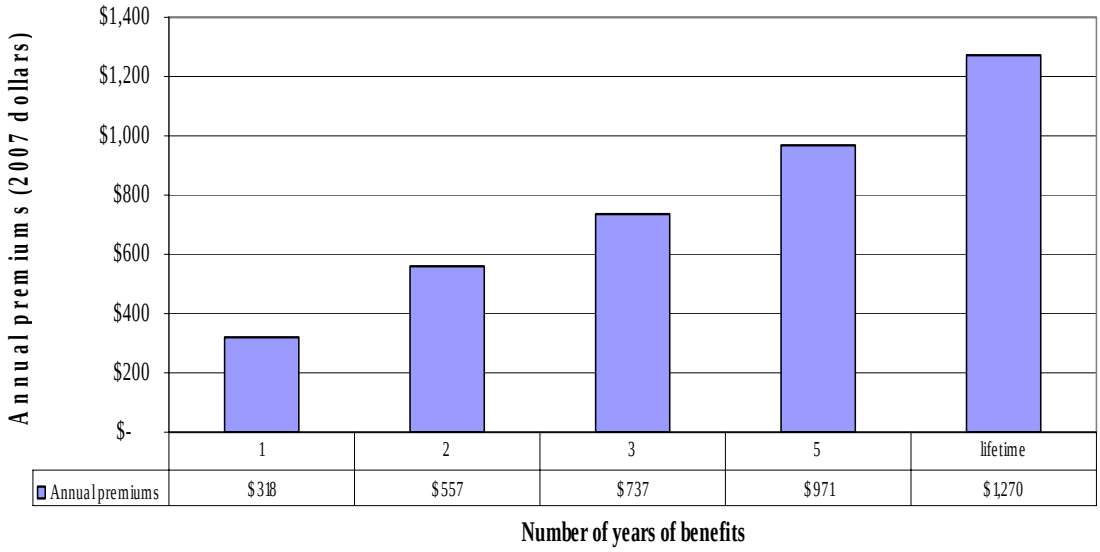
- The program begins in 2011.
- Participation in the program is mandatory for everyone aged 21 and older in 2011.
- Every 21-year-old enters the program each year after 2011.
- Every participant pays the same premium at the same point in time until disabled or dead.
- Daily benefit amount is $75 in 2011 dollars.
- Vesting period is 5 years.
- Benefit trigger is 2+ ADLs.
- Premiums are calculated to keep the program fully funded for 75 years.

As summarized in Table 1, the number of years of benefit in the five scenarios ranges from one year to lifetime. For example, Model A offers only one year of benefit (or $27,375 of total benefit in 2011 dollars) whereas Model D offers up to five years of benefit (or $136,875 of total benefit in 2011 dollars). Accordingly, the more generous benefit in Model D is reflected in the higher estimated annual premium, at almost $1100 in 2011 dollars compared to about $350 in Model A. (Because the $75 daily benefit is for 2011—the first year of the program—we calculated the estimated premiums in 2011 dollars. Table 1 also reports the estimated premiums in 2007 dollars.) The difference in premiums, however, is less than proportional to the difference in the number of benefit years—$1073 is about three times $351, rather than five—because some fraction of people receiving benefits would die before they reach the maximum number of benefit years. Moreover, the relative size of that group would be larger with more years of benefit. Figure 1 illustrates how the estimated premiums vary with the number of years of benefit.

Table 1. Estimated Premiums for the Five Featured Scenarios

Model Name	Starting Age	Daily Benefit	Benefit Years	Vesting Years	Estimated Annual Premium (2011$)	Estimated Annual Premium (2007$)
A	21-99	$ 75	1	5	$ 351	$ 318
B	21-99	$ 75	2	5	$ 616	$ 557
C	21-99	$ 75	3	5	$ 815	$ 737
D	21-99	$ 75	5	5	$ 1,073	$ 971
E	21-99	$ 75	lifetime	5	$ 1,403	$ 1,270

Figure 1. Annual premiums by number of years of benefits



In addition to the five scenarios presented in Table 1 and Figure 1, we considered a wide array of alternative scenarios, which are reported in Appendix B. They vary from the above featured models in different dimensions. For example, one alternative is a variation of Model E in Table 1: it assumes a shorter vesting period of two years, compared to five years in Model E. Appendix B also includes a set of scenarios in which the program starts with the non-elderly (aged 21 to 64) population, compared to everyone aged 21 and older as in the five featured scenarios. Conversely, additional scenarios consider the policy alternative in which there is a separate program for the elderly population.

Results from all scenarios calculated in our analysis, as shown in Appendix B, highlight different tradeoffs between various policy choices:

- A longer vesting period lowers premiums. For example, doubling to a 10-year vesting period results in an approximately 13-percent reduction in premiums, and vice versa.
- Excluding certain segments of the population also affects the estimated premiums. For example, excluding the currently elderly population would lower premiums by about 7 percent whereas excluding baby-boomers also would lower premiums by an additional 8 percent.
- Premiums vary with the number of years for balance. For example, if the program were to be in balance at 50 years, instead of 75 years, premiums may be lower due to a shorter length of time paying out benefits to fewer people.
- A key driver of the premiums is the disability rates. If people were disabled at a lower rate than assumed, premiums would decrease. At a higher disability rate than assumed, premiums must increase to keep the program's fund in balance. We address this issue in the next section.

B. Alternative Assumption on Disability

Table 2 reports the estimated premiums for the five models shown in Table 1, but based on an alternative assumption on disability. We considered a lower disability rate because disability rates among the elderly from the 1984 and 1989 NLTCS used in our original models are higher than disability rates reported in other surveys.[5] The models in Table 2 reflect lower disability rates for the elderly from 2011 forward, and they are benchmarked to an overall disability rate of 4.1 percent in 2030, compared to 6.6 percent under the original assumptions.[6] In Table 2, the estimated annual premiums for Model A is about $100 lower whereas those for Model D is about $350 lower, in 2011 dollars. Figure 2 illustrates the difference in premiums between the two disability assumptions.

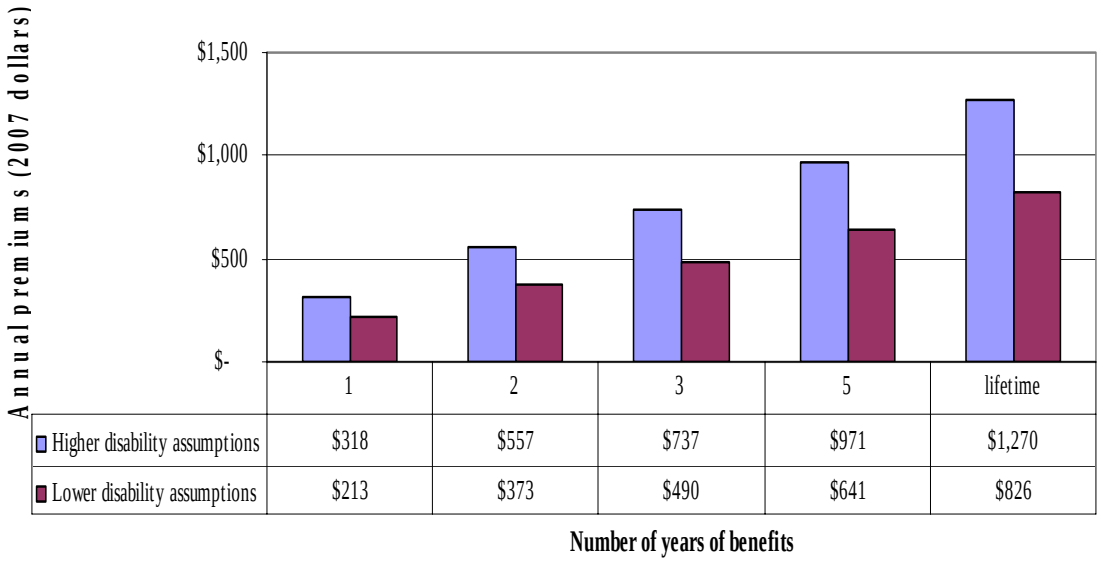
[5] Our models assume that age-specific disability rates remain constant over time, given uncertainty about future temporal trends. The disability rate reported in the NLTCS since 1989 has generally declined. See Kenneth G. Manton, XiLiang Gu, and Vicki L. Lamb, "Change in Chronic Disability from 1982 to 2004/2005 As Measured by Long-Term Changes in Function and Health in the U.S. Elderly Population," *Proceedings of the National Academy of Sciences in the United States of America*, vol. 103, no. 48 (November 28, 2006), pp. 18374-18379. However, disability rates in more recent NLTCS data are higher than those reported in other surveys. For example, according to Manton and colleagues, 11.6 percent of the elderly had 3+ ADLs in the 1999 NLTCS, whereas a recent study estimates approximately 9.1 percent of the elderly in 2000. (See Richard W. Johnson, Desmond Toohey, and Joshua M. Wiener, "Meeting the Long-Term Care Needs of the Baby Boomers: How Changing Families Will Affect Paid Helpers and Institutions," The Retirement Project, Urban Institute, Discussion Paper 07-04 (May 2007)).

[6] This alternative assumption maintains the original disability rate for the non-elderly population, but benchmarks the disability rate for the elderly population to the middle estimate from the study by Johnson and colleagues, based on AAHSA staff's correspondence with Joshua Weiner and Richard Johnson.

Table 2. Estimated Premiums for the Five Featured Scenarios Assuming Lower Disability Level

Model Name	Starting Age	Daily Benefit	Benefit Years	Vesting Years	Estimated Annual Premium (2011$)	Estimated Annual Premium (2007$)
A	21-99	$ 75	1	5	$ 235	$ 213
B	21-99	$ 75	2	5	$ 412	$ 373
C	21-99	$ 75	3	5	$ 541	$ 490
D	21-99	$ 75	5	5	$ 708	$ 641
E	21-99	$ 75	lifetime	5	$ 913	$ 826

Figure 2. Annual premiums by number of years of benefits
With alternative assumptions on disability



Section III. Discussion of Potential Effect on Public Spending

Given the economic magnitude of this program, policymakers evaluating policy options of this type will need to consider the impact on the finances of Federal and State governments, who presently play an active role in providing income support, LTC services, and medical benefits to the U.S. population. The nature of that impact could vary substantially depending on specific choices that Federal policymakers make in establishing the program, and choices that both Federal and State policymakers make, downstream of the establishment of the program, to "integrate" their existing income

security and health benefit programs with the new program. In the discussion that follows, we distinguish these two areas of concern as "budget accounting impacts" and "programmatic impacts."

A. Budget Accounting Impacts

If a program of this type is established at the Federal level, one important consideration is how the flows of funds into and out of the system will be treated under the accounting rules governing the budget of the U.S. government. (For example, Table 3 shows the annual flows of estimated premiums collected and benefits paid under Model E, with lifetime benefit and five years of vesting.) Would the premium income generated by the program be considered revenues of the Federal government, while benefit payments be treated as outlays? Or would an actuarially balanced insurance program that collects premiums and disburses benefits be considered to be outside the scope of the Federal budget, as in the case for the large government-sponsored entities involved in such activities as housing finance?

Table 3. Estimated Premiums Collected and Benefits Paid, Based on the Lifetime Benefit / Five-Year Vesting Period Model

Year	Premiums Collected (in $billions)	Benefits paid Out (in $billions)
2011	320.1	0.0
2012	332.5	0.0
2013	345.0	0.0
2014	357.4	0.0
2015	369.7	0.0
2016	382.2	92.2
2017	394.7	171.9
2018	407.5	241.6
2019	420.5	303.2
2020	433.9	358.4
2030	600.9	768.3
2040	852.5	1,154.1
2085	5,146.6	6,147.8

Notes: Reported in nominal dollars and excludes interest income. No benefits are paid out in the first five years due to the vesting period.

AAHSA's policy specifications assume that the program would be administered by a Federally-chartered entity separate from the Executive Branch. It would collect premiums (which are assumed to be mandatory in the modeled scenarios) from the public, and make statutorily-required benefit payments to individuals determined to be eligible. While programs operated on this way are most commonly treated as "on budget," there is no explicit rule, in Federal law and administrative practice, that would

automatically classify this program as being on budget.[7] This is a policy question, not a technical one.

If policymakers elect to consider this program to be "on budget," it would have the following effects:

- Premium payments received by the program (presumably established as a separate trust fund) would be treated as Federal revenues as collected. Such collections would almost certainly be deemed to create "permanent indefinite budget authority" to make benefit payments, rather than to require the Congress to make annual appropriations out of trust fund balances for this purpose.
- Investment income earned by the program from non-Federal sources would be considered net revenues, while interest payments on Federal securities would be shown as income to the trust fund, with offsetting Federal interest costs.[8] Trust fund balances would be presented in the Federal budget accounts.
- Benefit payments to individuals would be treated as outlays in the year they occurred.

Assuming that the program was established to be actuarially sound over a long period of time, the net impact of this treatment on the Federal budget could still vary materially depending on exactly how program features are set. For example, if eligibility was limited to lower age groups, revenues would be materially greater than outlays for many years before the budgetary balance turned negative in the far out-years. By contrast, if eligibility was broadened to include age groups more likely to be in immediate benefit status, the near-year budgetary impact would be more neutral. However, the premium level required to make such a program viable in the long term would make the budgetary impact less negative in the out-years.

If the program were excluded from the Federal unified budget, there would still be a separate policy question of whether benefit payments to eligible persons would constitute taxable income at any level. In our analysis, we were not required to reach a conclusion on this question because there would be no presumption, under current law, that revenues realized if the benefits were made taxable would be available to the program as a source of financing.

[7] See Congressional Budget Office, *The Budgetary Treatment of An Individual Mandate to Buy Health Insurance* (August 1994).

[8] Our model implicitly assumes that the agency's debt securities would be sold to the public, rather than to the Treasury. Such interest payments would, therefore, be treated as revenue if the program were considered to be on budget.

B. Programmatic Impacts

In addition to the question of how the premium income and benefits outflow of the program would be considered from the budgetary perspective, there is a separate question of how the existence of such a program would affect the conduct of other governmental programs. In this section, we discuss two specific classes of questions AAHSA asked us to consider: premium subsidy for low-income individuals and potential Medicaid spending displaced from existing LTC expenditures.

Low Income Subsidies

AAHSA's framework calls for low-income individuals to receive financial assistance to purchase the proposed insurance. Those premium subsidies could be implemented with internal or external financing, or some combination of the two approaches.

By "internal" financing, we mean that it would be possible for policymakers to establish premiums that would cover the full cost of providing benefits, even though some beneficiaries would pay reduced premiums, or none. Under this approach, middle and upper-income individuals would pay premiums that cross-subsidized the premiums of the low-income population.

Under "external" financing, by contrast, subsidy amounts would be transferred to the entity administering the program from the Treasury. Hence the costs of subsidies would be derived from Federal general revenues, and recorded as outlays in the Federal budget. Because of the progressivity of the Federal income tax system, the incidence of these costs would also fall on middle- and upper-income Americans. As an example, Table 4 presents the annual premiums paid by a low-income subsidy in which people whose income is below 150 percent of the Federal poverty level receive 100-percent subsidy of their premiums.

Table 4. Low-Income Subsidy of Premiums

Model Name	Number of Benefit Years	Low-Income Subsidy: 100% subsidy up to 150% FPL ($billion)
A	1	9.7
B	2	16.9
C	3	22.4
D	5	29.3
E	lifetime	38.2

Medicaid Impacts

A program of this type would be expected to have a budgetary impact under current law in Medicaid. Among other reasons, benefits payments to individuals would almost certainly be considered as countable income and resources for purposes of determining

Medicaid eligibility, and hence would, all else being equal, lower demands on the Medicaid program to finance LTC services. However, there are a number of uncertainties affecting the expected magnitude of such effects since, under current law, both the Federal government and the States have substantial latitude to adjust policy in light of changing conditions.

Consider, for example, the question of whether the Medicaid program could be used to offset the cost of low-income subsidy payments, in a manner analogous to the way in which Medicaid now makes payment of Medicare Part B premiums for individuals dually eligible for Medicare and Medicaid. It is highly likely that, if States found it in their interest to do so, the Federal government could approve State plan amendments that would make Federal matching payments available for this purpose. Given the potentially long lags between payment of premiums and the receipt of benefits, however, the State might find such coverage cost-effective only in very limited circumstances. Yet the Secretary of HHS arguably lacks the authority, under current law, to require States to participate financially in the provision of long-term subsidies. Absent some statutory mandate for State participation, a meaningful share of Federal spending on low-income subsidies would reduce State spending on LTC services, and hence would not be available to offset costs incurred at the Federal level to provide these subsidies.

This discussion suggests that, in enacting a policy involving the provision of low-income subsidies to fund this program, policymakers would almost certainly adopt some explicit policy on how such subsidies should be financed, rather than leaving them to be sorted out under current law. The so-called "clawback" provision enacted when the Congress directed the new Medicare Part D drug benefit program to take over drug coverage for dual eligibles is an illustration of an approach a future Congress might take in framing such a policy.

Given these realities, it is probably not meaningful, in a strict sense, to project how a LTC insurance program of the type under consideration here would affect Federal and State Medicaid spending under current law. It is possible, however, to get a general sense of the relative magnitudes of the potential costs of a low-income subsidy program, on the one hand, and reductions in Federal and State Medicaid spending that might occur if the resources available to those seeking LTC services, on the other.

Table 5 presents illustrative estimates of the potential reduction in Medicaid spending due to the availability of the LTC insurance program. Rather than projecting into the far future, these illustrative estimates show the magnitudes of spending impacts relative to actual Medicaid spending in 2005, based on the pro forma assumption that the program had been implemented a sufficiently long time prior to 2005 to have reached equilibrium with respect to its fiscal effects. Specifically, the estimates in Table 5 were calculated in the following way. First, we calculated a per capita benefit payment rate generated by our model for the year 2030, and restated that value in 2005 dollars. This amount was then assumed to be resources available to Medicaid beneficiaries who were receiving LTC benefits, in either the community or a nursing facility, in 2005. Since many of the individuals receiving benefits under the new program would never qualify for Medicaid,

we adjusted our estimate of available resources downward to the amount paid to beneficiaries whose change in resources would affect their eligibility for Medicaid benefits. These amounts were then imputed to be available resources for beneficiaries in nursing homes and home and community-based services, respectively. We then separately estimated the reduction in Medicaid spending that would occur because of the availability of those resources.

Table 5. Potential Effect on Medicaid LTC Expenditures

Model Name	Number of Benefit Years	Percent of Disabled Population Receiving Benefits	Medicaid Impact: Federal & State LTC expenditures ($billion)
A	1	22.2	11.4
B	2	39.5	20.3
C	3	52.8	27.1
D	5	70.7	36.3
E	lifetime	92.9	47.7

Notes: Disabled people not receiving benefits include those with 2+ ADLs, who would otherwise qualify for benefits, either waiting for the vesting period to end or have exhausted their benefits. Total Medicaid LTC spending was $96.1 billion in 2005. (See Brian Burwell, Kate Sredl, and Steve Eiken, "Medicaid Long-Term Care Expenditures in FY 2006," memorandum (August 10, 2007)).

As noted above, Table 5 presents illustrative estimates of the potential reduction in Medicaid spending due to the availability of the LTC insurance program. For example, the program's impact on Medicaid spending by the Federal and State governments would be $11.4 billion for Model A. As Table 5 shows, the impact of increased resources varies materially depending on the duration of benefits under the new program.

Appendix A

Before deciding on what disability data to use in the model, we reviewed various sources of data on disability and consulted several experts. The following list provides brief descriptions of datasets containing ADL and IADL information on non-institutionalized persons.

- The Health and Retirement Study (HRS) is a longitudinal household survey of retirement and health among the elderly in the U.S. containing detailed information on health, income and labor market decisions. The first wave began in 1992. The survey consists of five cohorts: the HRS entry cohort (born 1931 to 1941), the Study of Asset and Health Dynamics among the Oldest Old entry cohort (born before 1924), Children of Depression cohort (born 1924 to 1930), War Baby cohort (born 1942 to 1947), and Early Baby Boomer cohort (born 1948 to 1953). Each cohort, once it enters the study, is interviewed every two years. The HRS is primarily sponsored by the National Institute on Aging and administered by the Institute for Social Research at the University of Michigan.

- The Medicare Current Beneficiaries Survey (MCBS) collects detailed data on health, health insurance coverage, medical use and expenditures of Medicare beneficiaries in the community and LTC facilities. The survey participants are sampled from Medicare enrollment files in a rotating panel design and interviewed three times per year over a 4-year period, with periodic replenishment of the sample. The MCBS, which began in 1991, is sponsored by the Centers for Medicare and Medicaid Services.

- The National Health Interview Survey (NHIS) is an annual cross-sectional household survey of the civilian, non-institutionalized population in the U.S. Its purpose is to provide general health statistics of the population, including illness and disability. Data are collected by interviewers of the U.S. Census Bureau throughout the year. Since its beginning in 1957, the survey's content and sample design have changed over time. The NHIS is sponsored by the National Center for Health Statistics.

- The National Long-Term Care Survey (NLTCS) is designed to measure disability and use of LTC services among the elderly Medicare population and includes data on functional limitations, institutionalization and cognitive impairment. Its sample is based on a nationally representative longitudinal design with cross-sectional replenishment at age 65-69, allowing both longitudinal and cross-sectional analyses. The first wave of the survey was conducted in 1982 and the subsequent waves in roughly every five years. The NLTCS is sponsored by the National Institute on Aging and administered by the U.S. Census Bureau.

- The Survey of Income and Program Participation (SIPP) is a household survey of the civilian, non-institutionalized population. Its main focus is to collect data on income, labor force information, and eligibility and participation in government

programs. In addition to those “core” questions, the survey also contains "topical modules" assigned to particular interviewing waves, such as child care, utilization and cost of health care, and disability. The SIPP is sponsored by the U.S. Census Bureau.

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Appendix B

I. Five Featured Models

Model name	Starting Age range	Expected premiums to balance at 75 years, using 2011 dollars	Benefit /day ($)	Annual Benefit	Benefit Years	Vesting years	Notes	Annual premiums in 2007 dollars
A	21-99	$ 351	$ 75	$ 27,375	1	5		$ 318
B	21-99	$ 616	$ 75	$ 27,375	2	5		$ 557
C	21-99	$ 815	$ 75	$ 27,375	3	5		$ 737
D	21-99	$ 1,073	$ 75	$ 27,375	5	5		$ 971
E	21-99	$ 1,403	$ 75	$ 27,375	lifetime	5		$ 1,270

II. Additional Model in which the Program Starts with Everyone 21+

F	21-99	$ 1,533	$ 75	$ 27,375	lifetime	2		$ 1,387

III. Models in which the Program Starts with the Nonelderly Population

G	21-64	$ 325	$ 75	$ 27,375	1	5	
H	21-64	$ 572	$ 75	$ 27,375	2	5	
I	21-64	$ 759	$ 75	$ 27,375	3	5	
J	21-64	$ 900	$ 75	$ 27,375	4	5	
K	21-64	$ 1,006	$ 75	$ 27,375	5	5	
L	21-64	$ 1,332	$ 75	$ 27,375	lifetime	5	
M	21-64	$ 497	$ 75	$ 27,375	2	10	Change in vesting
N	21-50	$ 526	$ 75	$ 27,375	2	5	Change in starting ages, stopping at 50
O	21-47	$ 513	$ 75	$ 27,375	2	5	Change in starting age
P	48-65	$ 955	$ 75	$ 27,375	2	5	Separate program for 48-65 year-olds, 2 years benefit

IV. Models in which the Program Starts with the Elderly Population

Q	65-99	$ 944	$ 75	$ 27,375	1	5	Separate program for the elderly, 1 years benefit
R	65-99	$ 1,599	$ 75	$ 27,375	2	5	Separate program for the elderly, 2 years benefit

V. Five Featured Models under an Alternative Assumption on Disability

A	21-99	$ 235	$ 75	$ 27,375	1	5		$ 213
B	21-99	$ 412	$ 75	$ 27,375	2	5		$ 373
C	21-99	$ 541	$ 75	$ 27,375	3	5		$ 490
D	21-99	$ 708	$ 75	$ 27,375	5	5		$ 641
E	21-99	$ 913	$ 75	$ 27,375	lifetime	5		$ 826

VI. Additional Model under an Alternative Assumption on Disability

F	21-99	$ 985	$ 75	$ 27,375	lifetime	2		$ 891

Note: Rounded premiums to the nearest $1.
Premiums are set so that the program balance is approximately $0 at 75 years.

Using Table C1, of CBO's "The Budget and Economic Outlook: An Update", August 2007
GDP Price index (percentage change)

	Percent	Cumulative
2007 forecast	2.7%	2.7%
2008 forecast	2.0%	4.8%
2009 projection	1.8%	6.6%
2010 projection	1.8%	8.6%
2011 projection	1.8%	10.5%
Overall change is:		10.5%