Premium Estimates for Policy Options to Finance Long-Term Services and Supports

Prepared for:
The SCAN Foundation, AARP, and LeadingAge

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I. OVERVIEW

Milliman was engaged as a subcontractor to The Urban Institute (Urban) as part of a project sponsored by The SCAN Foundation (TSF), AARP, Inc. (AARP), and LeadingAge to model estimated premiums under various policy options designed to address financing of Long-Term Services and Supports (LTSS) in the United States. Please note neither Milliman nor the funders endorse any of the specific policy options evaluated. This report is one component of a larger Long-Term Care Financing Initiative. All reports associated with this initiative can be found at "http://www.TheSCANFoundation.org/ltc-financing-initiative".

For the purposes of this report, we use the terms LTSS and Long-Term Care (LTC) interchangeably in reference to the following types of care:

- Facility-Based Care

  Includes skilled, intermediate, and custodial care provided in a facility setting such as a nursing home, assisted living facility, or dedicated wing of a hospital.

- Home and Community-Based Care

  Includes care in the home or a community setting (such as adult day care) covering services provided by a licensed medical practitioner or home health aide and other services to help maintain living at home.

We evaluated policy options in this report under two broad categories of financing reform alternatives: 1) Modifications to the existing private LTC insurance market; and 2) New voluntary LTC insurance programs, which could be structured as public or private. As part of our engagement, the estimates included in this report were provided to Urban as an additional source for developing premiums in its microsimulation model. Please see Urban's report titled "Microsimulation Analysis of Financing Options for Long-Term Services and Supports"[1], which discusses how Urban used in its projections both results from its modeling and the estimates included in this report.

Our report focuses on premiums expressed in 2015 dollars for individuals purchasing LTC insurance coverage and also draws comparisons to premiums for policies commonly sold in the private market today. Premium relativities provide a measure to help gauge among reform options the relative difference in expected costs covered by insurance over an individual's lifetime. Various other measures may be appropriate for comparing the policy reform options, including but not limited to:

- Financial soundness and sustainability,
- Affordability,
- Number of people covered,
- Efficiency of using program system funds,
- Comprehensiveness of LTC costs covered and not covered by insurance,
- Choice, and
- Understandability of the program.

These measures are outside the scope of this report, but some are explored in detail within Urban's report.

[1] Favreault, Melissa M., and Richard W. Johnson. 2015. "Microsimulation Analysis of Financing Options for Long-Term Services and Supports." Washington, DC: Urban Institute.http://www.thescanfoundation.org/ltc-financing-initiative.

Our approach for modeling the policy reform options involved two key steps:

1) Construct a baseline pricing model that "recreates" premium levels offered in the private LTC insurance market today

2) Use the baseline model from Step 1 to consistently evaluate the incremental premium impact for each reform option tested

The baseline pricing model utilizes a combination of internal Milliman models and research, along with industry data, to produce premiums that are consistent with the average of those observed in the market. The parameters considered and estimated premium levels for each reform option are summarized in this report, including sensitivity testing of alternative program features and select pricing assumptions. We provide details on the underlying pricing assumptions and key modeling considerations in the Methodology and Assumptions section of this report.

Participation mix is a critical assumption for pricing a voluntary LTC program due to the circular dependency of participation, morbidity, and premium, along with other influences such as benefit design, perceived value of insurance protection, eligibility for the program and benefits, marketing and education of the program, and availability of other coverage. The framework used in this report allowed us to test the impact on premium levels given an assumed mix of participation by LTSS need and general health status. While little comparable participation data exists for reform designs presented in this report, the structure of the analysis allows for relative comparisons of various designs.

We encourage readers of this report to critically consider whether the assumed participation rates are achievable given the combination of product features and premium levels. If the participation mix assumed in this report can be achieved, the premium rates shown in this report reflect the expected morbidity levels. The participation rates presented in this report are only one possible combination. While this analysis provides general sensitivity to participation levels, additional sensitivity testing should be performed as specifications for any reform option are further refined.

Any reader of this report should possess a certain level of expertise and background in LTC insurance product features and pricing parameters to assist in understanding the significance of the assumptions used and the impact of these assumptions on the illustrated results. The reader should be advised by, among other experts, actuaries or other professionals competent in the area of actuarial projections of the type in this report, so as to properly interpret the estimates. The information included in this report should only be considered in its entirety.

II. PRIVATE LTC INSURANCE MARKET REFORMS

Milliman was requested to analyze six main private market reform options as outlined below.

Reform Option #1
Premiums increase 2% annually up to age 65 and remain level thereafter

Reform Option #2
Policy benefits automatically increase annually based on an inflation index

Reform Option #3
No underwriting and no actively-at-work requirement for coverage eligibility with a five-year vesting period of paying premiums before any policy benefits are paid

Reform Option #4
No sales commission and no waiver of premium benefit while on claim

Reform Option #5
Plan sponsors auto-enroll of defined contribution (DC) account funds into LTC insurance premiums with the following features:

- No underwriting with a five-year vesting period of paying premiums before any policy benefits are paid
- Actively-at-work requirement for coverage eligibility
- No sales commission and no waiver of premium benefit while on claim

Reform Option #6
Combination of the following features:

- One-year elimination period
- Premiums increase 2% annually up to age 65 and remain level thereafter
- Policy benefits automatically increase annually based on an inflation index
- No underwriting with a five-year vesting period of paying premiums before any policy benefits are paid
- Actively-at-work requirement for coverage eligibility
- Automatic enrollment
- Limited sales commission and no waiver of premium benefit while on claim
- Plan sponsors auto-enroll of DC account funds into LTC insurance premiums

The private market reform options are compared with a reference "Baseline Plan" reflecting a policy design commonly sold in the private LTC insurance market today. The key features of this plan include "level" premiums for the lifetime of the policy (i.e., guaranteed renewable premiums designed to remain flat with the no anticipated future increases), a $180 service reimbursement daily benefit at policy issue, a 90-day elimination period based on services incurred, three-year benefit period with a pool-of-money design, and automatic annual benefit increases of 3%. Additional details on the Baseline Plan can be found in the Methodology and Assumptions section of this report.

RESULTS SUMMARY

Figure 1 summarizes the estimated premium relativities for the six reform options. The ratios are presented relative to the Baseline Plan by select issue ages (i.e., Baseline Plan is 100%).

Figure 1
Premium Ratios Compared to Baseline Plan

Scenario	Issue Age 40	45	50	55	60	65
Baseline Plan	100%	100%	100%	100%	100%	100%
Option #1 – Initial[1] (Non-Level Premiums)	78%	80%	83%	87%	92%	100%
Option #1 – Age 65 Plus[2] (Non-Level Premiums)	128%	119%	112%	106%	102%	100%
Option #2 (Indexed Inflation)	123%	120%	118%	115%	113%	111%
Option #3 (Vesting Only)	128%	134%	143%	160%	186%	225%
Option #4 (No Commissions or Waiver)	72%	72%	71%	71%	70%	68%
Option #5 (Auto Enroll, Etc.)	76%	76%	76%	76%	77%	76%
Option #6 – Initial[1] (Combination)	53%	54%	55%	56%	59%	61%
Option #6 – Age 65 Plus[2] (Combination)	88%	80%	74%	69%	65%	61%

[1] First-year premium after issue (under Options #1 and #6, premiums increase 2% annually to age 65, level thereafter).

[2] Premium at age 65 (under Options #1 and #6, premiums increase 2% annually to age 65, level thereafter).

Our analysis shows the reform options evaluated have varying impacts on premiums relative to those found in the market today, each with their own trade-offs. While some options – such as #1 and #3 – target improving affordability when individuals are younger (in theory, opening up more individuals to be covered) or reducing / eliminating the requirements of underwriting, it comes at the expense of higher premium levels. In addition, the mix of participation by LTSS need and health status are critical for these options and present a risk that the premiums may not be sufficient if the assumed levels of participation mix are not realized. Reform Option #2 ties inflation to expected future LTSS cost trends to help protect consumers, but this results in higher premiums because inflation levels are anticipated to exceed the inflation protection assumed in the Baseline Plan. Reform options #4, #5, and #6 obtain lower premiums primarily by reducing sales commission expenses, which may not be feasible depending on the complexity of program features and costs for educating consumers. Expanded details and discussion for each reform option are presented separately below.

The premium ratios in Figure 1 are based on an assumed mix of individuals with both lower and higher levels of anticipated LTSS needs choosing to purchase a policy. The mix assumption is critically important, particularly under reform options where no underwriting is used given the intertwined nature of premium levels, participation mix of individuals with lower / higher LTSS needs, morbidity levels, and other influences (such as coverage available through other programs). It is possible these options could reach a "tipping" point where they are unsustainable as lower-risk individuals choose to not purchase a policy, leaving only higher-risk individuals. If lower-risk individuals do not enroll, premiums could approach a level near the average LTC claim (i.e., premiums approach a pre-payment of future benefits if everyone needs LTSS). The participation mix assumed in our pricing is discussed further in the Methodology and Assumptions section of this report.

REFORM OPTION #1: NON-LEVEL PREMIUMS

Table 1 and Chart 1 compare two premium structures:

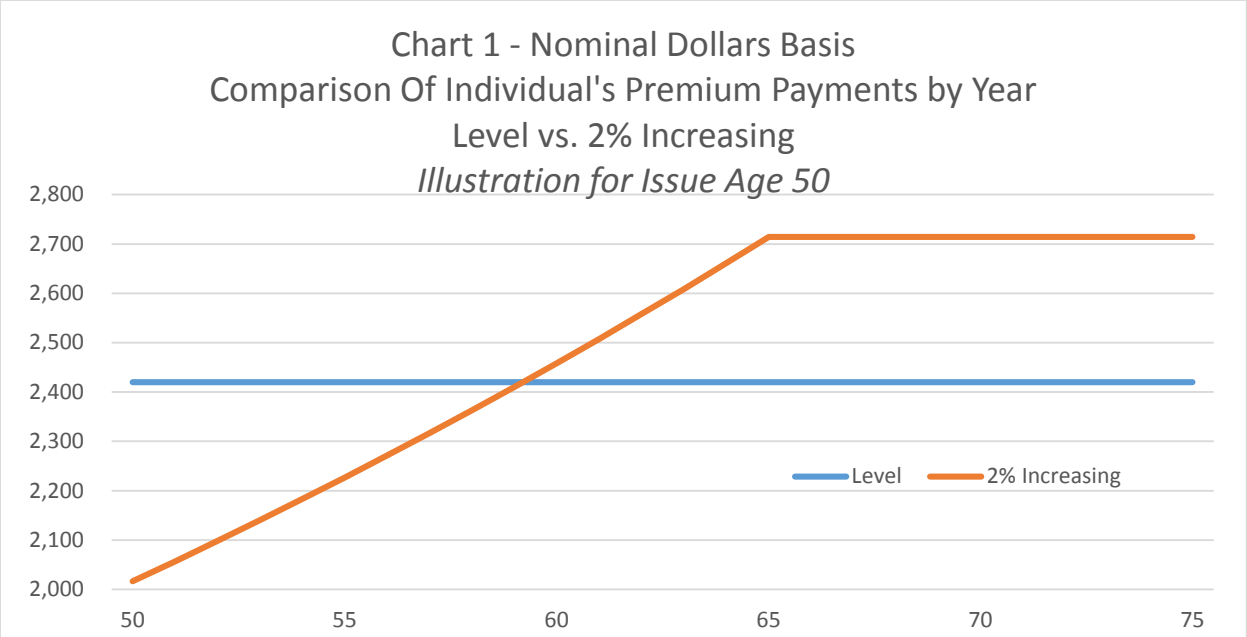
- Premiums level for life (commonly used in today's market)
- Premiums that increase 2% annually up to age 65 and remain level thereafter (reform option alternative)

The non-level premiums were constructed such that the present value of total premiums collected over the lifetime of a policy is approximately the same under both the level and non-level structures. Table 1 displays results for the Baseline Plan (i.e., level premium for life), the first-year premium under the reform option, and the premium under the reform option at age 65 and greater (where the premium remains level for life thereafter) using nominal dollars.

Table 1
Premium Comparison - Level vs. 2% Increasing
Nominal Dollars Basis

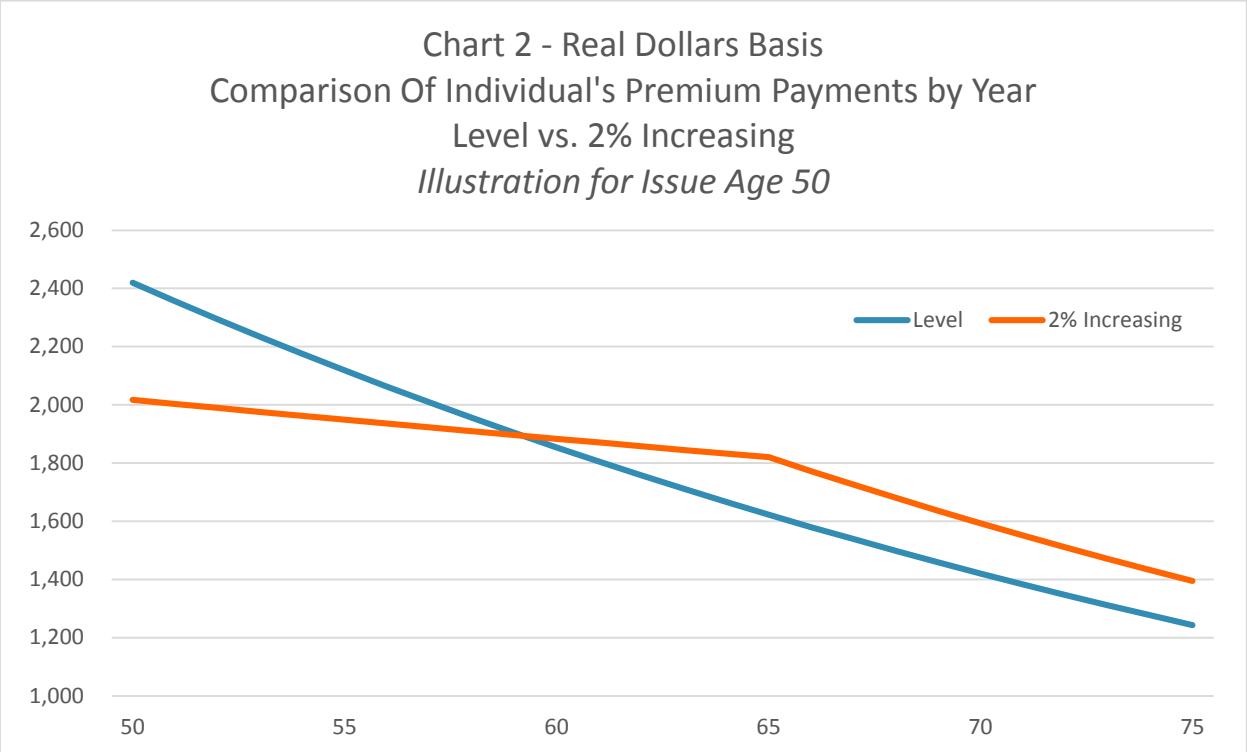
	Annual Premiums[1]				
	Baseline:	Reform: 2% Increasing to 65		Ratio to Baseline	
Issue Age	Level For Life	1st Year Premium	Premium at Age 65	1st Year Premium	Premium at Age 65
40	1,961	1,527	2,505	78%	128%
45	2,159	1,734	2,577	80%	119%
50	2,420	2,017	2,714	83%	112%
55	2,814	2,453	2,990	87%	106%
60	3,380	3,120	3,445	92%	102%
65	4,496	4,496	4,496	100%	100%

[1] Reflects $180 daily benefit, 3-year benefit period, and 3% compound benefit inflation (see Methodology and Assumptions section for complete description of product benefits).



The results in Table 1 and Chart 1 highlight the varying premium impact across the years of an individual's lifetime due to charging non-level premiums. For example, as illustrated in Table 1, the level annual premium is $2,420 for issue age 50 and the starting non-level premium is $2,017, a 17% reduction. However, at age 65 and older the level premium is still $2,420, but the non-level premium grows to $2,714, 12% higher than the level premium. This structure illustrates the "trade-off" of the lower starting premium for higher premiums later in life, which becomes even more magnified for younger issue ages. The relative premiums and the resulting trade-off will vary by important characteristics such as profit target, inflation option, and other items that influence the timing of premiums and benefits.

While Table 1 and Chart 1 display premiums on a nominal dollars basis, it can also be instructive to review premiums over time on a real dollars basis. Chart 2 restates the illustration from Chart 1 using a price growth rate of 2.7% from the 2014 Old-Age Survivors and Disability Insurance (OASDI) Trustees' Report. Chart 2 shows that premiums under the "level" structure drop consistently over an individual's life on a real dollars basis, while the non-level premiums hold relatively flat through age 65 on a real dollars basis (when the 2% annual premium increases end).



Note that the current National Association of Insurance Commissioners (NAIC) Model Regulation allows premiums to increase by attained age until an individual reaches age 65, at which point premiums must remain level by attained age. The Alternatives and Sensitivities section of this report tests a scenario where premiums increase to age 75, which may require a change to the Model Regulation for that design to be allowed.

REFORM OPTION #2: INDEXED INFLATION PROTECTION

Table 2 compares premium levels under three different automatic compound inflation protection options:

- 3% annual benefit increases (commonly found and increasing in popularity in today's market)
- 5% annual benefit increases (available but decreasing in popularity in today's market)
- Annual benefit increases tied to inflation index (reform option alternative)

Tying benefit increases to an inflation index creates additional pricing and product management challenges given the uncertainty around future LTSS cost inflation (we discuss further these challenges after Table 2). For illustration in Table 2, we assumed an index would be constructed that mimics future expected increases in LTSS costs that average 3.5% annually.

Table 2
Premium Comparison - Compound Inflation Benefit Protection Options

Issue	Annual Premium[1]			Ratio to 3% Protection	
Age	3% per Year	5% per Year	Index[2]	5% per Year	Index[2]
40	1,961	4,562	2,408	233%	123%
45	2,159	4,610	2,598	214%	120%
50	2,420	4,739	2,852	196%	118%
55	2,814	5,055	3,248	180%	115%
60	3,380	5,579	3,823	165%	113%
65	4,496	6,795	4,975	151%	111%

[1] Reflects $180 daily benefit and 3-year benefit period (see Methodology and Assumptions section for complete description of product benefits).

[2] Index assumed to increase 3.5% annually.

Table 2 demonstrates the high sensitivity of premium rates depending on the level of benefit inflation increases. Using issue age 50 as an example, premiums increase by 18% to cover the extra cost of 0.5% benefit inflation per year.

An indexed inflation benefit introduces another "uncertain" variable into the LTC projection. While companies price indexed inflation plans using a projected target inflation level, actual yearly inflation will vary from the pricing target. Approaches can be employed to hedge against this inflation risk using sophisticated investment strategies.

For example, if there was a spike in inflation 10 years from now that was not predicted, the resulting increase in benefits could be hedged against by investing reserve assets in inflation-hedged vehicles. However, this strategy may not perfectly immunize against inflation volatility due to the timing of actual cash flows. In addition, more sophisticated investment strategies may result in potentially higher investment expenses. Our pricing included the simplifying assumptions of perfect immunization and no additional investment expenses.

Another important consideration with respect to offering an indexed inflation benefit is the degree to which the index aligns with cost-of-care inflation. Many inflation indices exist today that could be used for determining benefit increases, such as the various measures tracked with the Consumer Price Index (CPI). In fact, policies with CPI-indexed benefits are currently available in the market, comprising about 5% of new policies sold in 2014. However, LTSS inflation costs historically have not always aligned with CPI indexes. Other sources of inflation differences to consider include variation by geographic area and type of care – for example, home health care inflation has typically been lower than facility care inflation.

REFORM OPTION #3: VESTING AS SUBSTITUTE FOR UNDERWRITING

Table 3 compares premiums levels under two approaches for "underwriting" new policies:

- Full underwriting that includes tools such as reviewing medical / prescription drug history and assessing cognitive abilities (common approach used in today's market)
- In lieu of underwriting, policies include a five-year vesting period of paying premiums before any benefits are paid, but do not include an actively-at-work requirement for coverage eligibility (reform option alternative)

Table 3
Premium Comparison By Underwriting Approach

Issue Age	Annual Premium[1] Full Underwriting (U/W)	Annual Premium[1] 5-Year Vesting	Ratio: Vesting to Full U/W
40	1,961	2,514	128%
45	2,159	2,886	134%
50	2,420	3,469	143%
55	2,814	4,504	160%
60	3,380	6,281	186%
65	4,496	10,109	225%

[1] Reflects $180 daily benefit, 3-year benefit period, and 3% compound benefit inflation (see Methodology and Assumptions section for complete description of product benefits).

Table 3 shows removing full underwriting in favor of a 5-year vesting period may dramatically increase premium levels. The impact is expected to increase as issue age increases given individuals are closer to the years when needing LTSS is higher. As they age, individuals will have better knowledge about their LTSS needs, allowing them to "select" against the insurance plan (i.e., individuals with higher LTSS needs are more likely to enroll compared with individuals that have lower LTSS needs).

Completely removing underwriting from an individual LTC insurance plan may result in premiums that essentially are a pre-payment of future benefits. Adding a vesting period to that plan (such as the reform option considered here) will help bring premiums lower; however, the true premium reduction may not be as significant as some would expect depending on the participation risk mix that can be achieved.

The vesting period approach removes some early claims from the insured population. However, individuals with somewhat worse health who are at higher risk for LTC claims remain likely to sign up. Even those people who are currently benefit-eligible or nearly benefit-eligible may sign up if they believe they will still need care after the five-year vesting period has expired (for example, one might expect individuals exhibiting early signs of cognitive impairment to be in this situation). Underwriting is more likely to remove many of those individuals from the covered population. If the vesting period is the only form of underwriting, healthy individuals may be less likely to sign up creating a potential adverse selection spiral.

The length of time of the waiting period is an important consideration. While a five-year wait may not create a large impact, a much longer period such as 10 years may more strongly influence premium levels. Pricing vesting periods at different periods of time were outside the scope of this project.

REFORM OPTION #4: NO SALES COMMISSIONS AND NO WAIVER OF PREMIUM BENEFIT

Table 4 compares premium levels where the influence of sales commission expenses and costs for providing waiver of premium (WOP) benefits are either included or excluded:

- Provision for commission expenses and waiver of premium benefits is included (common approach reflected in today's market)
- Commission expenses and waiver of premium benefits are excluded (reform option alternative)

Table 4
Comparison of Premiums Including / Excluding Costs of Commissions and WOP Benefits

	Annual Premium[1]		
Issue Age	Including Commissions & WOP (Baseline)	Excluding Commissions & WOP (Reform Option)	Ratio: Reform Option / Baseline
40	1,961	1,407	72%
45	2,159	1,545	72%
50	2,420	1,724	71%
55	2,814	1,989	71%
60	3,380	2,359	70%
65	4,496	3,063	68%

[1] Reflects $180 daily benefit, 3-year benefit period, and 3% compound benefit inflation (see Methodology and Assumptions section for complete description of product benefits).

Removing the costs of commission expenses and WOP benefits could significantly lower LTC premiums as shown in Table 4. The majority of the impact is attributable to removing commissions (WOP benefits are estimated to lower premiums by roughly 1% to 5%, varying by issue age).

Under this reform option, we assumed all commission expenses are removed and no other product changes are made beyond removing WOP benefits. This is a simplifying assumption for illustration and the combination may not be realistic given there will likely still be some expenses incurred for selling and marketing products as they exist today due to their complexities. As an example, the insurance LTC market selling to employer groups typically still incurs some commissions / marketing costs, albeit at a level much lower than those costs found in selling policies to individuals.

REFORM OPTION #5: AUTOMATIC ENROLLMENT

Table 5 examines premium levels where individuals are enrolled in a LTC plan on either an "opt-in" or "opt-out" basis:

- Individuals opt in and elect to buy LTC insurance (common approach reflected in today's market)
- Working individuals are automatically enrolled in a LTC insurance plan through an employer plan sponsor and must opt out if they do not want coverage (reform option alternative)

Since individuals are automatically enrolled in a plan, we assumed there would be no underwriting (other than individuals are assumed to be actively at work) and no commission expenses under this alternative (additionally, we removed WOP benefits for ease of comparison with Reform Option #4). Table 5 compares premiums under the following scenarios:

- "Baseline" (individuals opt in, go through underwriting, and plans include commissions and WOP benefits)
- Reform Option #4 (individuals opt in, go through underwriting, and plans exclude commissions and WOP benefits)
- Reform Option #5 (individuals actively working must opt out, underwriting replaced with a five-year vesting period, and plans exclude commissions and WOP benefits)

Table 5
Premium Comparison - "Opt-in" vs. Auto-Enroll "Opt-out"

Issue Age	Annual Premium[1]			Ratio: Reform #5 to	
	Baseline	Reform #4	Reform #5	Baseline	Reform #4
40	1,961	1,407	1,494	76%	106%
45	2,159	1,545	1,643	76%	106%
50	2,420	1,724	1,846	76%	107%
55	2,814	1,989	2,152	76%	108%
60	3,380	2,359	2,590	77%	110%
65	4,496	3,063	3,407	76%	111%

[1] Reflects $180 daily benefit, 3-year benefit period, and 3% compound benefit inflation (see Methodology and Assumptions section for complete description of product benefits).

Table 5 shows that compared to the Baseline Plan, Reform Option #5 premiums would be roughly 24% lower. However, much of that difference is driven by removing commission expenses. The last column in Table 5 summarizes premium differences removing the influence of commissions and WOP benefits. The results show removing full underwriting in favor of no underwriting with "opt-out", a five-year vesting period, and an actively-at-work assumption increases premiums by roughly 6% to 11%. Note that these increases are significantly less than those estimated when no underwriting is not paired with a five-year vesting period or an actively-at-work requirement (see discussion for Reform Option #3 earlier in this report). The working requirement in particular is estimated to help keep premiums lower because it is assumed individuals are generally healthier (and lower LTSS risk) if they are still able to work.

Automatic enrollment for 401(k) plans dramatically increased enrollment in those plans and there is a hope it could also increase enrollment for LTC insurance plans. However, there are several important considerations with respect to automatic enrollment for LTC insurance.

- In order to offer automatic enrollment, it may be necessary to have a guaranteed issue plan or at least a very simplified underwriting form. We assumed guaranteed issue for the premiums presented above.
- If the plan is guaranteed issue or close to guaranteed issue, the premiums may be relatively high.
- If the premiums are relatively high, the impact of automatic enrollment may not be very significant as people will be more likely to opt out.

The items described above illustrate the classic adverse selection spiral that can result in pricing LTC. Also, while there is data to support this choice architecture in other products, this is not the case in LTC.

REFORM OPTION #6: COMBINATION OF OPTIONS

Table 6 examines premium levels where individuals are enrolled in a LTC plan combining some of the product features tested for Reform Options #1 through #5. The key features for Reform Option #6 are as follows (note: Baseline Plan product features shown in parentheses for reference):

- One-year elimination period (Baseline Plan has 90-day elimination period)
- Premiums increase 2% annually up to age 65 and remain level thereafter (Baseline Plan has level premiums for life)
- Policy benefits automatically increase annually based on an inflation index (Baseline Plan has 3% compound annual inflation protection)
- No underwriting, actively-at-work requirement with a five-year vesting period of paying premiums before any policy benefits are paid (Baseline Plan has full underwriting)
- Limited sales commission and no waiver of premium benefit while on claim (Baseline Plan uses commission structure found in individual LTC products and uses waiver of premium benefits)
- Plan sponsors auto enroll of DC account funds into LTC insurance premiums (Baseline Plan uses opt-in approach)

Table 6
Premium Comparison – Reform Option #6 vs. Baseline Plan
Nominal Dollars Basis

	Annual Premiums[1]				
	Baseline:	Reform #6: 2% Increasing to 65		Ratio to Baseline	
Issue Age	Level For Life	1st Year Premium	Premium at Age 65	1st Year Premium	Premium at Age 65
40	1,961	1,047	1,717	53%	88%
45	2,159	1,165	1,731	54%	80%
50	2,420	1,329	1,789	55%	74%
55	2,814	1,587	1,934	56%	69%
60	3,380	1,978	2,184	59%	65%
65	4,496	2,752	2,752	61%	61%

[1] *Reflects $180 daily benefit, 3-year benefit period, and 3% compound benefit inflation (see Methodology and Assumptions section for complete description of product benefits).*

Table 6 shows Reform Option #6 initially starts 39% to 47% lower than the Baseline Plan. However, since the reform design includes premiums that increase 2% annually up to attained age 65, the gap compared with the Baseline Plan narrows. Reform Option #6 premiums at attained age 65 and later are 12% to 39% lower than the Baseline Plan.

To help explain the pricing impact of the different product features from the Baseline Plan outside of the increasing annual premiums, issue age 65 provides the most direct comparison since premiums are level for both the baseline and reform option. The main features driving premiums lower include raising the elimination period to one year (roughly 30% decrease on premiums) and removing most sales commissions (roughly 25% decrease on premiums). The main features driving premiums higher include changing to indexed inflation protection (roughly 10% increase on premiums) and replacing underwriting with a 5-year vesting, opt-out, actively-at-work structure (roughly 10% increase on premiums). Please note these illustrations are specific to issue age 65 – pricing impacts of the product features will vary for other issue ages.

III. NEW VOLUNTARY LTC PROGRAM REFORMS

Milliman was requested to analyze two new voluntary program reform options.

Front-End Program
Two-year benefit period with 90-day elimination period

Back-End Program
Lifetime benefit period with two-year elimination period

The options were tested under two daily benefit structures: A $180 service reimbursement daily benefit and $100 cash daily benefit at policy issue. The voluntary programs include the following main features:

- Five-year vesting period with no underwriting and no actively-at-work requirement for coverage eligibility
- Participants must actively elect / purchase coverage (i.e., opt-in design)
- Full subsidy of premium for individuals age 65 with income level at 150% or below of Federal Poverty Level (FPL); Premium subsidy phased down to zero at 200% FPL; Subsidy financed through source outside of premiums (such as a new tax or general federal government revenue)
- 3% annual compound benefit inflation
- Level premiums for lifetime of coverage
- No commissions or waiver of premium benefits
- Target zero insurance carrier / plan administrator profits after taxes and capital costs

Additional details on the new voluntary program options can be found in the Methodology and Assumptions section of this report.

RESULTS SUMMARY

Figure 2 summarizes the estimated premium relativities for the four new voluntary program options. The ratios are presented relative to the private market Baseline Plan from Section II by select issue ages for reference (i.e., Baseline Plan is 100%).

Figure 2
Premium Ratios Compared to Baseline Plan

	Issue Age					
Scenario	**40**	**45**	**50**	**55**	**60**	**65**
Baseline Plan	100%	100%	100%	100%	100%	100%
Front-End, $180 Service Daily Benefit	60%	63%	69%	77%	88%	89%
Front-End, $100 Cash Daily Benefit	57%	59%	63%	70%	77%	75%
Back-End, $180 Service Daily Benefit	88%	94%	104%	116%	129%	124%
Back-End, $100 Cash Daily Benefit	89%	93%	101%	110%	118%	107%

Our analysis shows the Front-End option designs are estimated to have lower premiums than the Baseline Plan, while the Back-End option designs are estimated to generally have higher premiums than the Baseline Plan (except at younger issue ages). Outside of differences in the level of benefits, premiums for the new voluntary program options are driven down by lower commission expenses and lower profit margins, but are driven upward by the removal of underwriting. In general, the combination of these impacts is anticipated to lower premiums at younger issue ages and raise premiums at older issue ages.

The remainder of the impact relative to the Baseline Plan is driven by benefit difference. The Front-End coverage with a two-year benefit period (compared with the Baseline Plan with a three-year benefit period) helps keep premiums lower. Conversely, the Back-End coverage with a lifetime benefit period is estimated to have higher premiums despite the longer elimination period of two years (compared with the Baseline Plan with a 90-day elimination period). The cash designs are generally estimated to have premiums somewhat similar to the service reimbursement design even though the daily benefit is 45% lower ($100 versus $180). This is driven by anticipated moral hazard with cash benefits due to the lack of restrictions on using the benefits. Expanded details and discussion for each reform option are presented separately below.

The premium ratios in Figure 2 are based on an assumed mix of individuals with both lower and higher levels of anticipated LTSS needs choosing to purchase a policy. The mix assumption is critically important, particularly under reform options where no underwriting is used given the intertwined nature of premium levels, participation mix of individuals with lower / higher LTSS needs, morbidity levels, and other influences (such as coverage available through other programs). It is possible these options could reach a "tipping" point where they are unsustainable as lower-risk individuals choose to not purchase a policy, leaving only higher-risk individuals. If lower-risk individuals do not enroll, premiums could approach a level that is a pre-payment of future benefits. The participation mix assumed in our pricing is discussed further in the Methodology and Assumptions section of this report.

PREMIUM STEP-THROUGH COMPARISON: BASELINE TO FRONT-END DESIGN

Table 7 outlines and steps through the main drivers influencing premiums transitioning from the private market Baseline Plan to the Front-End reform options. Comments on each step follow below Table 7. Additional background on the key pricing assumptions can be found in the Methodology and Assumptions section of this report.

Table 7
Estimated Premium Change Factors - Baseline vs. Front-End Annual Premiums

	Issue Age					
	40	**45**	**50**	**55**	**60**	**65**
Baseline Plan	**1,961**	**2,159**	**2,420**	**2,814**	**3,380**	**4,496**
x Remove Commissions and WOP	0.72	0.72	0.71	0.71	0.70	0.68
x Lower Profit Target	0.82	0.84	0.87	0.90	0.92	0.95
x Remove Underwriting	1.34	1.39	1.49	1.64	1.84	2.11
x Lower Benefit Period	0.75	0.75	0.75	0.75	0.75	0.75
x Premium Subsidy (Issue Age 65 Only)	1.00	1.00	1.00	1.00	1.00	0.88
Front-End Service Design	**1,168**	**1,365**	**1,671**	**2,177**	**2,982**	**4,019**
x Change to $100 Cash Daily Benefit	0.95	0.93	0.92	0.90	0.88	0.84
Front-End Cash Design	**1,112**	**1,273**	**1,536**	**1,964**	**2,617**	**3,363**

Table 7 – Step Notes

Remove Commissions and WOP (Premium decreases 28% to 32%)

- The Baseline Plan includes commissions and waiver of premium benefits, while the Front-End options exclude commissions and waiver of premium benefits.

- The premium decreases are consistent with the results shown in Table 4 for private market Reform Option #4. See discussion following Table 4 for additional background.

Lower Profit Target (Premium decreases 5% to 18%)

- The Baseline Plan uses a 15% statutory internal rate of return (IRR) profit target, while the Front-End options use a 0% statutory IRR profit target.

- The impacts vary by issue age given the emergence of premiums versus benefits and expenses over the lifetime of the policy. Using a 0% target compared with a 15% target provides a bigger premium reduction for younger issue ages relative to older issue ages.

Remove Underwriting (Premium increases 34% to 111%)

- The Baseline Plan uses full underwriting, while the Front-End options use a five-year vesting period with no underwriting and no work requirement.

- Removing full underwriting in favor of a five-year vesting period is estimated to increase premium levels. The impact is expected to increase as issue age increases given individuals are closer to the years when the need for LTSS is higher. As they age, individuals will have better knowledge about their LTSS needs, allowing them to "select" against the insurance plan (i.e., individuals with higher LTSS needs are more likely to enroll compared to individuals with lower LTSS needs).

- Completely removing underwriting from an insurance plan may result in premiums that essentially are a pre-payment of future benefits. The vesting period approach removes some early claims from the insured population. However, individuals with somewhat worse health who are at higher risk for LTC claims remain likely to sign up. Even those people who are currently benefit-eligible or nearly benefit-eligible may sign up if they believe they will still need care after the five-year period has expired (for example, one might expect individuals exhibiting early signs of cognitive impairment to be in this situation). Underwriting is more likely to remove many of those individuals from the covered population. If the vesting period is the only form of underwriting, healthy individuals may be less likely to sign up creating a potential adverse selection spiral.

- The premium estimates are highly sensitive to the assumed mix of individuals with lower or higher LTSS needs enrolling. The Alternatives and Sensitivities section of this report illustrates the impact on premiums when the assumed mix of individuals enrolling is changed.

Lower Benefit Period (Premium decreases 25%)

- The Baseline Plan uses a three-year benefit period, while the Front-End options use a two-year benefit period.

- Reducing the available pool of benefits by one year helps lower premiums due to less coverage for individuals at the time when LTSS is needed.

Premium Subsidy - Issue Age 65 Only (Premium decreases 12%)

- The Baseline Plan has no low-income subsidies, while the Front-End options provide full subsidy of premium for individuals age 65 with income levels at 150% or below of the FPL. The premium subsidy is phased down to zero at 200% FPL. The subsidy is assumed to be financed through sources outside of premiums (such as a new tax or general federal government revenue).

- Urban's microsimulation modeling helped form the basis for differences in LTSS needs varying by health status, disability level, and income level assumed in our premium development. Urban's estimates suggest lower-income individuals will have higher LTSS needs compared with higher-income individuals. However, providing a full premium subsidy ensures all low-income individuals with both low and high LTSS needs will be covered by the program. This compares with an environment where only higher income individuals enroll, but since there are no subsidies, a greater proportion of those with higher LTSS needs are assumed to enroll. We estimate the overall net impact to lower premiums.

Change to $100 Cash Daily Benefit (Premium decreases 5% to 16%)

- The Front-End option using the service design reimburses individuals up to $180 per day for LTC expenses incurred. The Front-End option using the cash design provides individuals $100 per day as long as they continue to remain eligible for benefits, regardless of whether LTC services are incurred.

- Although the cash benefit per day is 45% lower than the service benefit, we estimate the actual impact on premium to be much smaller. Based on data observed in the private LTC insurance market, cash plans have tended to exhibit higher LTC costs compared with service reimbursement plans (all other features being equal). One theory suggests the higher costs are related to "moral hazard" – a situation where individuals' behave differently when there are fewer restrictions / controls on eligibility for insurance benefits. We used data from our private market experience to estimate this adverse effect from a cash design.

PREMIUM STEP-THROUGH COMPARISON: FRONT-END TO BACK-END DESIGN

Table 8 outlines and steps through the main drivers influencing premiums transitioning from the Front-End reform option to the Back-End reform options. Comments on each step follow below Table 8. Additional background on the key pricing assumptions can be found in the Methodology and Assumptions section of this report.

Table 8
Estimated Premium Change Factors - Front-End vs. Back-End Annual Premiums

	Issue Age					
	40	**45**	**50**	**55**	**60**	**65**
Front-End Service Design	**1,168**	**1,365**	**1,671**	**2,177**	**2,982**	**4,019**
x Longer Elimination Period, Lifetime Benefits	1.48	1.49	1.50	1.50	1.47	1.39
Back-End Service Design	**1,731**	**2,039**	**2,515**	**3,271**	**4,375**	**5,571**
x Change to $100 Cash Daily Benefit	1.01	0.98	0.97	0.94	0.91	0.86
Back-End Cash Design	**1,749**	**2,003**	**2,433**	**3,085**	**3,984**	**4,802**

Table 8 – Step Notes

Longer Elimination Period, Lifetime Benefits (Premium increases 39% to 50%)

- The Front-End design uses a two-year benefit period and 90-day elimination period, while the Back-End options use a lifetime benefit period and two-year elimination period.

- Although the elimination period is increased (which lowers costs), the impact is more than offset by providing lifetime coverage after the elimination period is satisfied.

Change to $100 Cash Daily Benefit (Premium increases 1% to premium decreases 14%)

- The Back-End option using the service design reimburses individuals up to $180 per day for LTC expenses incurred. The Back-End option using the cash design provides individuals $100 per day as long as they continue to remain eligible for benefits, regardless of whether LTC services are incurred.

- Although the cash benefit per day is 45% lower than the service benefit, we estimate the actual impact on premium to be much smaller. Similar to the Front-End service reimbursement versus cash impact described with Table 7, we used data from our private market experience to estimate adverse effects from a cash design. While some of the impact from moral hazard may be diminished with the longer elimination period of a Back-End design, we estimate combining cash benefits with lifetime coverage would increase the moral hazard effect (compared with the Front-End coverage, which has a two-year benefit period). Combining the impact of these influences, we estimate changing to a cash design will be similar to that estimated for the Front-End design. Using an even longer elimination period (such as five years) could help reduce the moral hazard impact. This design is tested in the Alternatives and Sensitivities section of this report.

IV. ALTERNATIVES AND SENSITIVITIES

The modeling results in this report are highly dependent on the reform option design specifications and are sensitive to the pricing assumptions selected. We summarize in this section various design alternatives we were requested to analyze along with sensitivity tests of participation assumptions. We focused our sensitivity testing on participation assumptions given the large potential variations in premiums when comparing reform options. While changes to other pricing assumptions would have an impact on the level of premiums shown in this report, we generally expect the percentage relationships when comparing options to remain similar. However, this is a simplifying assumption and we recommend additional sensitivity and scenario testing be performed specific to a reform option to further understand possible variations before any action is taken. This level of testing was outside the scope of this report.

PRIVATE LTC INSURANCE MARKET DESIGN ALTERNATIVES

Benefit Alternatives

Table 9 summarizes the estimated premium relativities for different design alternatives varying either the elimination period or benefit period from the Baseline Plan. All other assumptions from the Baseline Plan remain unchanged. The ratios are presented relative to the Baseline Plan by select issue ages (i.e., Baseline Plan is 100%).

Table 9
Private Market – Benefit Alternatives

	Issue Age					
Scenario	**40**	**45**	**50**	**55**	**60**	**65**
Baseline Plan[1]	100%	100%	100%	100%	100%	100%
$50,000 Benefit Pool	43%	43%	42%	41%	40%	40%
Lifetime Benefit Period	211%	210%	211%	213%	215%	220%
One Year Elimination Period	72%	72%	71%	71%	71%	70%

[1] Reflects 3-year benefit period, 90-day elimination period, and $180 daily benefit (see Methodology and Assumptions section for complete description of product benefits).

As shown in Table 9, reducing available benefits to $50,000 or increasing the elimination period to one-year can significantly reduce premiums. The trade-off is individuals will have to pay more costs out of pocket when they need LTSS. On the other hand, increasing the benefit period to lifetime requires less spending out of pocket when care is needed. However, the trade-off is seen through increased premiums due to the more robust coverage.

Daily Benefit Alternative

The Baseline Plan and private reform options #1 to #6 all assume a $180 service reimbursement daily benefit at policy issue. We tested an alternative in which the daily benefit was lowered to $100 and still structured on a service reimbursement basis. We estimate premiums would decrease by approximately 35% under this alternative.

The decrease in premiums is less than the 45% drop in daily benefit ($100 versus $180) due to the impact of dollars “salvage”. The term salvage broadly refers to a situation where the full daily benefit is not paid out on a given day. When the daily benefit is $180, we assume there will be some dollars salvage as indicated the Methodology and Assumptions section of this report. Under the $100 daily benefit, we assume there will be no dollars salvage, so the premium change is less than the percentage change when only considering the daily benefit levels.

Non-Level Premium Payment Alternative

Table 10 and Chart 3 summarize the estimated premium relativities compared with the Baseline Plan under an alternative design in which premiums increase 3% annually up to age 75 and remain level thereafter. For reference, the results from the private market Reform Option #1 (premiums increase 2% annually up to age 65 and remain level thereafter) are also included. Table 10 displays results for the Baseline Plan (i.e., level premium for life), the first year premium under the reform option alternatives, and the ending premium under the reform option alternatives where the premium remains level for life thereafter. All other assumptions from the Baseline Plan remain unchanged. The ratios are presented relative to the Baseline Plan by select issue ages (i.e., Baseline Plan is 100%).

Table 10
Private Market – Non-Level Premium Payment Alternatives

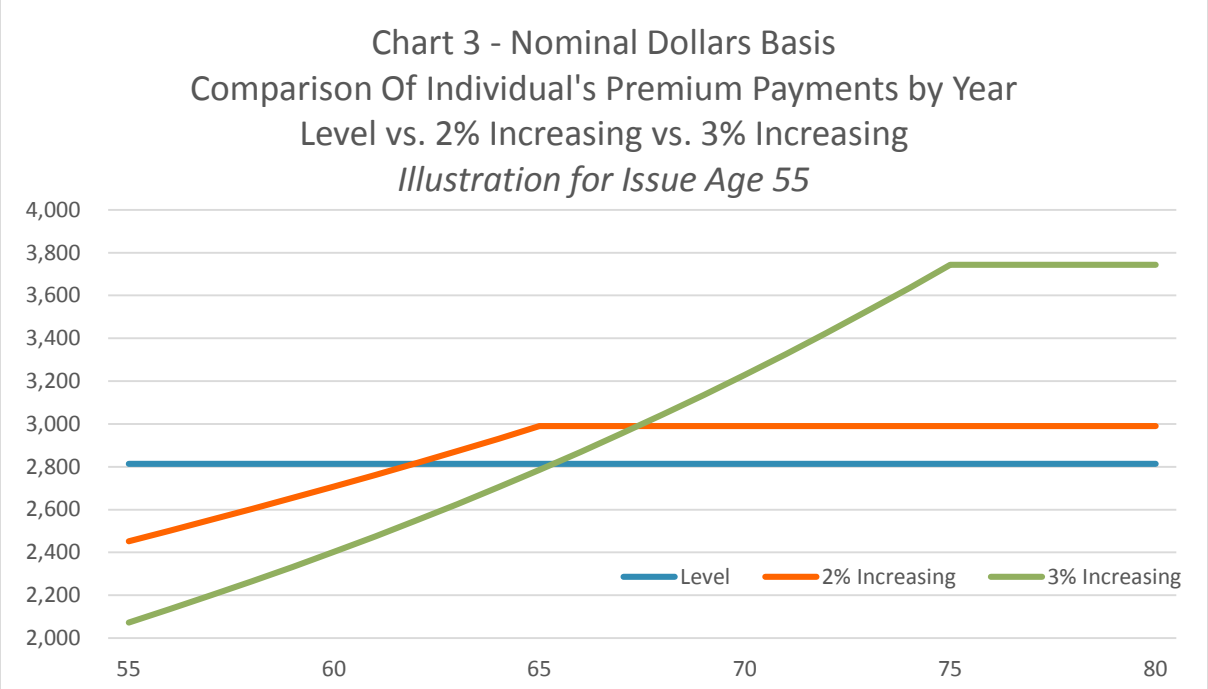
	Issue Age					
Scenario	**40**	**45**	**50**	**55**	**60**	**65**
Baseline Plan	100%	100%	100%	100%	100%	100%
Reform Option #1 – Initial[1]	78%	80%	83%	87%	92%	100%
Reform Option #1 – Age 65 Plus[2]	128%	119%	112%	106%	102%	100%
Reform Alternative – Initial[3]	65%	67%	70%	74%	78%	83%
Reform Alternative – Age 75 Plus[4]	182%	163%	147%	133%	121%	111%

[1] First-year premium after issue (under Option #1, premiums increase 2% annually to age 65, level thereafter).

[2] Premium at age 65 (under Option #1, premiums increase 2% annually to age 65, level thereafter).

[3] First-year premium after issue (under Alternative, premiums increase 3% annually to age 75, level thereafter).

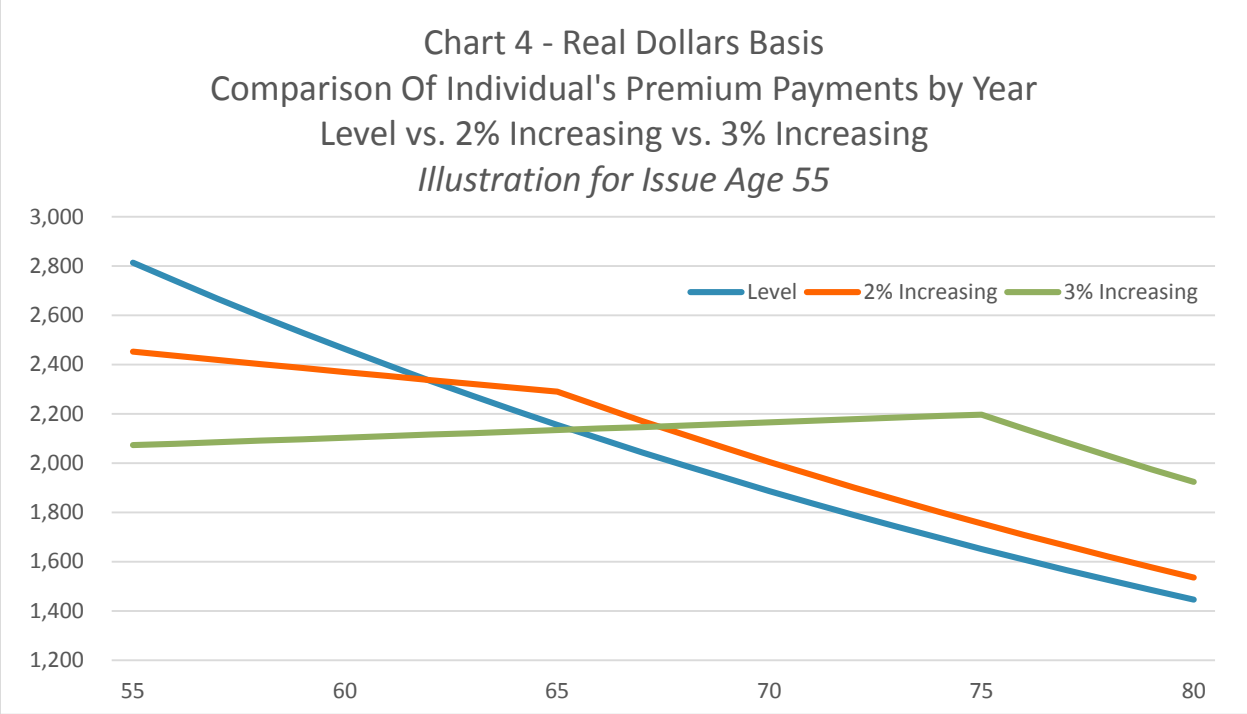
[4] Premium at age 75 (under Alternative, premiums increase 3% annually to age 75, level thereafter).



The results in Table 10 and Chart 3 highlight the varying premium impact across the years of an individual's lifetime due to charging non-level premiums. The non-level premium structures illustrate the trade-off of the lower starting premium for higher premiums later in life.

The trade-off is even more magnified when switching to the alternative design where the annual premium increases are larger (3% versus 2%). Note that the current NAIC Model Regulation allows premiums to increase by attained age until an individual reaches age 65, at which point premiums must remain level by attained age. The alternative design where premiums increase to age 75 may require a change to the Model Regulation for that design to be allowed.

While Chart 3 displays premiums on a nominal dollars basis, it can also be instructive to review premiums over time on a real dollars basis (similar to the discussion in Section II on Reform Option #1). Chart 4 restates the illustration from Chart 3 using a price growth rate of 2.7% from the 2014 OASDI Trustees' Report. Chart 4 shows that premiums under the "level" structure drop consistently over an individual's life on a real dollars basis. However, the structures with non-level premiums hold relatively flat through a period of time on a real dollars basis before dropping when the annual premium increases end (at age 65 for the 2% increasing scenario and at age 75 for the 3% increasing scenario).



NEW VOLUNTARY PROGRAM DESIGN ALTERNATIVES

Issue Age 65 Premium Subsidy

The Front-End and Back-End options shown in Tables 7 and 8, respectively, provide a full subsidy of premium for individuals age 65 with income levels at 150% or below of the FPL. The premium subsidy is phased down to zero at 200% FPL. The subsidy is assumed to be financed through sources outside of premiums (such as a new tax or general federal government revenue).

We tested an alternative where no subsidies are provided. We estimate premiums for issue age 65 would increase by 14%, while all other issue ages would remain unchanged. The reverse of this impact can also be seen in Table 7, where we show moving from no subsidies to providing subsidies decreases premiums 12% (0.88 factor = 1 / 1.14).

As also discussed below Table 7, Urban's microsimulation modeling helped formed the basis for differences in LTSS needs varying by health status, disability level, and income level assumed in our alternative premium development. Under a structure with no premium subsidies for low-income individuals, we assume the population enrolling will come from higher-income levels with a greater proportion of those with higher LTSS needs. While Urban's estimates suggest lower-income individuals will have higher LTSS needs compared with higher-income individuals, providing a full premium subsidy ensures all low-income individuals with both low and high LTSS needs will be covered by the program. We estimate the overall net impact to raise premiums for issue age 65 if the subsidies are removed from the program design.

Elimination Period for Back-End Design

Table 11 outlines and steps through premium adjustments for an alternative to the Back-End option if the elimination period was increased from two years to five years. For illustration, we start with the Back-End option using the service design shown in Table 8 and then show the impact of increasing the elimination period and changing from service to cash benefits.

Table 11
Estimated Premium Change Factors - Alternative Back-End Annual Premiums[1]

	Issue Age					
	40	**45**	**50**	**55**	**60**	**65**
Back-End Service Design (2-year EP)	**1,731**	**2,039**	**2,515**	**3,271**	**4,375**	**5,571**
x Increase EP to 5 Years	0.40	0.40	0.40	0.39	0.38	0.36
Back-End Service Design (5-year EP)	**686**	**810**	**997**	**1,280**	**1,671**	**2,024**
x Change to $100 Cash Daily Benefit	0.81	0.81	0.81	0.80	0.78	0.78
Back-End Cash Design (5-year EP)	**556**	**658**	**806**	**1,018**	**1,309**	**1,580**

[1] Service Design assumes $180 daily benefit; Cash Design assumes $100 daily benefit.

As shown in Table 11, increasing the elimination period from two years to five years lowers the estimated premium by roughly 60% to 65%. This occurs because considerably fewer people need care for longer than five years compared with the number of people continuing to need care beyond two years.

Although the cash benefit per day is 45% lower than the service benefit ($100 versus $180), we estimate the actual impact on premium to be smaller when moving to the cash design. However, compared with the results shown in Table 8, the estimated moral hazard impact of the cash design is assumed to diminish. The assumed moral hazard effect will be lessened using the longer elimination period of five years given the extra length of time an individual continues to need LTSS before any benefits are paid by the insurance coverage. We do not assume the moral hazard effect is completely eliminated, though, since individuals satisfying the five-year elimination period will then have cash benefit based insurance coverage for the remainder of their lives.

SENSITIVTY TESTING – PARTICIPATION ASSUMPTIONS

Estimating participation levels is difficult due to the intertwined nature of the choice to buy coverage, the morbidity levels of those purchasing coverage, and the premiums necessary to cover expected insurance payments. Other influences will affect participation as well, such as benefit design, perceived value of the coverage, eligibility provisions, marketing / education, and availability of other programs.

We examined two tests to help show the impact on premiums due to changing the mix of participation by current health status and LTSS need levels. For illustration, the tests were performed for private market Reform Option #5 and the new voluntary Front-End program design with no subsidies. A description of the starting participation levels by reform option can be found in the Methodology and Assumptions Appendix of this report.

Increase Participation for Individuals with Lower LTSS Needs

We assumed for this test an additional 3.5 percentage points of the population currently needing no help with ADLs and no signs of cognitive impairment will enroll (e.g., 2.25% plus 3.5% for good-excellent health and 3.25% plus 3.5% for poor-fair health applied to participation rates shown in Exhibit 2; see Methodology and Assumptions section for more background on participation assumptions). Table 12 shows adding a relatively small percentage from cohorts with estimated lower LTSS needs could reduce premiums materially. Table 12 also demonstrates the impact will vary depending on the mix by LTSS need assumed in the base participation premiums.

Table 12
Sensitivity Illustration
Increase Participation for Individuals with Lower LTSS Needs

	Issue Age					
Scenario	**40**	**45**	**50**	**55**	**60**	**65**
Reform Option #5 - Base Participation	1,494	1,643	1,846	2,152	2,590	3,407
Reform Option #5 - Increased Participation	1,457	1,595	1,772	2,032	2,384	3,022
Ratio	98%	97%	96%	94%	92%	89%
Front-End Design - Base Participation	1,168	1,365	1,671	2,177	2,982	4,576
Front-End Design - Increased Participation	1,093	1,261	1,516	1,928	2,570	3,821
Ratio	94%	92%	91%	89%	86%	83%

Decrease Participation for Individuals with Lower LTSS Needs

We assumed for this test one percentage point less of the population currently needing no help with ADLs and no signs of cognitive impairment will enroll (e.g., 2.25% minus 1% for good-excellent health and 3.25% minus 1% for poor-fair health applied to participation rates shown in Exhibit 2; see Methodology and Assumptions section for more background on participation assumptions). Table 13 shows removing a relatively small percentage from cohorts with estimated lower LTSS needs could increase premiums materially. Table 13 also demonstrates the impact will vary depending on the mix by LTSS need assumed in the base participation premiums.

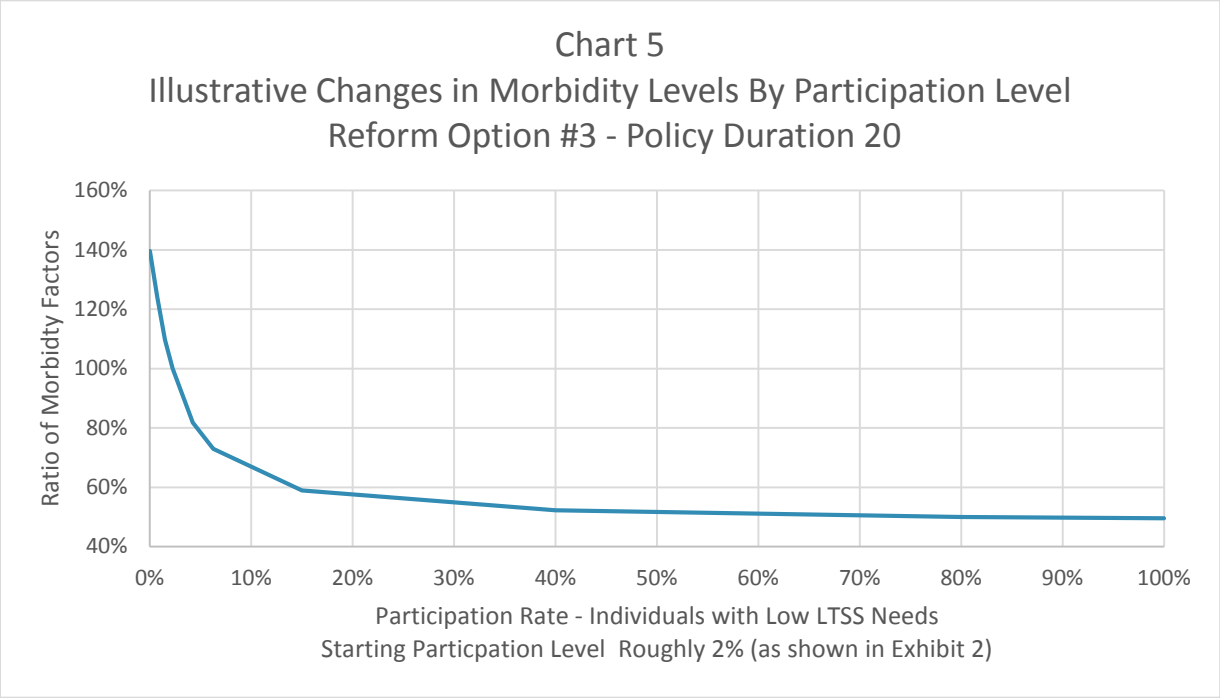
Table 13
Sensitivity Illustration
Decrease Participation for Individuals with Lower LTSS Needs

	Issue Age					
Scenario	**40**	**45**	**50**	**55**	**60**	**65**
Reform Option #5 - Base Participation	1,494	1,643	1,846	2,152	2,590	3,407
Reform Option #5 - Decreased Participation	1,540	1,700	1,922	2,267	2,774	3,725
Ratio	103%	103%	104%	105%	107%	109%
Front-End Design - Base Participation	1,168	1,365	1,671	2,177	2,982	4,576
Front-End Design - Decreased Participation	1,325	1,576	1,977	2,654	3,736	5,772
Ratio	113%	115%	118%	122%	125%	126%

Morbidity Selection Factor Illustrations

The results in Tables 12 and 13 demonstrate premiums are highly sensitive to even small incremental changes in participation from the starting levels assumed in this report. However, the premium sensitivity to participation rate changes will diminish as programs approach having all individuals with low LTSS needs enrolled. Conversely at lower levels of participation, small changes to the number of individuals with low LTSS needs enrolled with have even larger impacts on premium. As discussed earlier, this dynamic could create a "tipping" point where a program is unsustainable as lower-risk individuals choose to not purchase a policy, leaving only higher-risk individuals.

To help illustrate this impact, Chart 5 below shows the change in morbidity selection factors (policy duration 20) as the population currently needing no help with ADLs and no signs of cognitive impairment is increased / decreased for Reform Option #3. Please be aware this is for illustration only under a sample reform design. The impact of changing participation assumptions on morbidity and premium will vary for other designs and may be less or more than the changes shown in Chart 5 (for example, one factor influencing the impact is the assumed starting mix by LTSS need assumed in the base participation rates).



V. METHODOLOGY AND ASSUMPTIONS

The premium estimates presented in this report were developed from various illustrative LTC pricing assumptions. The information provided should not be interpreted as recommending rates, assumptions, or approaches for LTC pricing. The rates, assumptions, and approaches were constructed starting with our general knowledge of the private LTC market, are not attributable to any specific company, and should not be viewed as best estimates.

BASELINE PRICING MODEL

A primary goal was to construct a pricing framework to consistently evaluate the different proposed LTC financing reform options. To accomplish this objective, we used Milliman's pricing and projection software MG-ALFA® populated with assumptions developed from a combination of internal research and industry data. All premiums are shown in this report on a composite basis across gender and marital status using the following weights:

- Single insured: 70% female, 30% male
- Married insured: 50% female, 50% male
- 50% married insureds, 50% single insureds

Some of the reform option options evaluated in this report will likely have an impact on the mix of individuals covered by gender and marital status. Should any of the options shown in this report be explored further by the project funders or other interested parties, additional modeling would need to be performed to construct appropriate rates by gender and marital status.

Model Assumptions and Pricing Approach

The key assumptions used to develop premium estimates are summarized below. The assumptions are derived from Milliman client work with many top LTC carriers and reflect more than 20 company data points (both individual and group business).

MG-ALFA Pricing Formula

To estimate premiums, MG-ALFA solves for the premium level needed to satisfy the following formula over the lifetime of a policy:

Premium + Investment Income = Benefits + Expenses + Taxes + Capital Costs + Profit

Product Benefit Structure

The Baseline Plan priced in this report is intended to reflect policies commonly sold in the private LTC insurance market today. We assumed the following underlying product features for developing premiums:

- $180 daily benefit at policy issue
- 90-day elimination period based on services
- Three-year benefit period with a pool-of-money design
- 3% automatic annual compound benefit increases
- Benefits are paid based on actual service costs incurred up to the daily limit

- Comprehensive care setting coverage (nursing home, assisted living, and home care included)
- Tax-qualified with Health Insurance Portability and Accountability Act (HIPAA) trigger for benefit eligibility – substantial assistance with two of six ADLs or severe cognitive impairment

Morbidity Assumptions

- Incidence and Continuance Rates
  - Developed from the 2014 Milliman *Long-Term Care Guidelines* (*Guidelines*), which are based on approximately $25 billion of LTC private market insured claim experience from 450,000 claims
  - *Guidelines* provide a flexible, but consistent way to develop expected claim costs for various benefit packages, demographic splits, and underwriting levels
- Moderate level of full underwriting, with selection factors starting around 0.10 in duration 1 and grading up to 1.00 around durations 15 and later
- Benefit utilization (also called "salvage") arising due to service reimbursement structure, where maximum benefits will not be paid fully each day in all cases due to the actual cost of care being lower than the benefit limit ("dollars" salvage) or services not being provided every day ("days" salvage)
  - "Dollars" utilization ranging from 80% to 90%, varying by care setting
  - "Days" utilization of roughly 70% for home health care services
- Offsetting morbidity and mortality improvement (i.e., no impact to premium)
- Moderately adverse assumption: 10% load applied to claim costs

Persistency Assumptions

- Mortality
  - 90% of 1994 Group Annuitant Mortality (94GAM) Static Table
  - Selection factors of 0.40 in duration 1, grading up to 1.00 for durations 10 and later
  - Offsetting mortality and morbidity improvement (i.e., no impact to premium)
- Voluntary Lapse Rates

Duration	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9+**
Lapse Rate	6.0%	4.0%	3.0%	2.0%	1.5%	1.5%	1.5%	1.5%	1.0%

- Benefit exhaustion based on Milliman *Guidelines* continuance tables

Expense Assumptions

- Commissions / Marketing
  - 90% of first year premium
    - Years 2 to 10: 15% of premium
    - Years 11+: 5% of premium
- Policy Issue Expenses
  - 15% of first-year premium
  - Underwriting by Issue Age
    - Issue ages 60 and under: $250 per policy
    - Issue ages 65 and above $350 per policy
- Ongoing Policy Expenses (Applies to all years)
  - Maintenance
    - 5% of premium, plus
    - $50 per policy, inflating at 3% annually
  - Premium Tax: 2.5% of premium
  - Claim Adjudication: 5% of claims

Other Pricing Assumptions

- Investment Income: 4.5% annually
- Target Surplus / Capital
  - 3% of contract reserves
  - 14% of claim reserves
  - 7% of premium
  - 17% of claims
  - Figures above developed using excess level percentages from NAIC Risk Based Capital (RBC) formula with multiplier of 250% and covariance factor of 85%
- Profit Objective: 15% statutory internal rate of return

Model Validation

We validated our pricing model by comparing estimated premiums (calculated using the formula and assumptions above) against publicly available data included in the July 2014 Broker World Survey. Our comparison with the market was based on blending premiums across gender and marital status. Table 14 provides a summary of our estimated premiums compared with the market data.

Table 14
Estimated Baseline Premiums vs. Market[1]
$180 Daily Service Reimbursement Benefit

Benefit Period	Inflation	Milliman Estimated	Broker World	Milliman / Broker World
3 Year	None	$1,279	$1,322	97%
5 Year	None	$1,697	$1,744	97%
3 Year	5% Compound	$5,031	$4,875	103%
5 Year	5% Compound	$6,682	$6,445	104%

[1] *Premiums composited by issue age using the following weights:*
Age 40 = 25%, Age 50 = 35%, Age 60 = 40%

REFORM PRICING APPROACH

We used the baseline pricing model summarized above to estimate the incremental premium impact for the reform options evaluated. This approach allows for a consistent comparison of the proposed reforms by holding constant all other pricing assumptions other than those estimated to be influenced by a specific reform option.

The assumptions modified under each reform option are outlined below. Unless specified otherwise, all remaining pricing assumptions are consistent with those summarized above under the base pricing model. For simplicity and ease of consistent comparison, we also assumed the policyholder mix by gender and marital status remains the same under all reform options consistent with the baseline.

Exhibit 1 provides a detailed grid summarizing the key modeling specifications for the Baseline Plan and reform options evaluated in this report.

Participation Assumptions

The mix of participation by estimated levels of LTSS need is critically important for developing premiums. Our approach started with cohort data from Urban's model output to help estimate morbidity levels. Urban's cohort data allowed us to consider both individuals' health and wealth characteristics that might influence their insurance purchase decision and individuals' progression over their lifetime for meeting the HIPAA claim trigger.

The Urban model output was divided into 18 cohorts to allow us to vary participation by health status and LTSS need under the various reform options. Exhibit 2 provides a summary of the participation rates assumed within each cohort for the plans priced in this report. The option features summarized at the top of Exhibit 2 line up with the modeling specifications shown in Exhibit 1 to link participation rate assumptions to each design priced in this report.

The 18 cohorts were defined based on an individual's current level of health and LTSS need as follows:

- Number of ADLs needing assistance (3 options): 0, 1, or 2+
- Level of cognitive impairment (3 options): none, mild, severe
- General health status (2 options): good-excellent, poor-fair

The participation rates shown in Exhibit 2 are designed to represent initial participation rates when the reform option is first offered. The participation rates were provided to Urban for use in its modeling, where Urban makes assumptions around participation levels into the future but implicitly assumes a similar population risk will continue to enroll in a given reform option. The reform options Milliman was asked to analyze were stylized in that all program specifications were not outlined in detail. When setting participation rates, we implicitly further assumed some incentives exist to discourage individuals from delaying enrollment until older entry ages, "competing" available coverage (e.g., Medicaid) remains the same as the status quo, and there are no changes in take-up of private market coverage to fill in insurance "gaps".

The Urban model output also allowed us to examine morbidity differences based on wealth and income levels. In general, Urban's modeling suggests individuals from lower wealth and income levels will have higher LTSS needs over their lifetime. For the Baseline Plan and private market reform options, we assumed individuals in the top 20% of wealth would consider buying insurance coverage due to the affordability of premiums. For the new voluntary program designs, we assumed individuals in the top 40% of wealth would consider buying insurance coverage as part of a more widely recognized nationwide program when no premium subsidies are provided. In addition, we assumed low-income individuals would consider participating in the programs due to the presence of premium subsidies.

Private Market Baseline and Options

Our first step in constructing participation levels was to set participation rates by cohort for the Baseline Plan where underwriting is used. As a guide and based on our judgment, we varied participation rates by cohort to produce a morbidity selection factor "curve" by policy duration similar to what we observe for products in the private market that are fully underwritten. Exhibit 2 shows our assumptions to match our desired pattern. We assumed the population mix would be primarily comprised of individuals from the top 20% of wealth with no ADL limitations, no or mild cognitive impairment, and a higher proportion in good-excellent health. We assumed 0% participation for the other cohorts under the general assumption they would be declined during the underwriting process.

After establishing our baseline participation rates and resulting morbidity selection curve, we then varied participation rates by cohort for the private market reforms options where full underwriting is replaced by a five-year vesting period. As shown in Exhibit 2, we assumed a higher proportion of individuals with some ADL limitations, cognitive impairment, and poor-fair health would choose to buy coverage where previously they would have been declined by underwriting. For individuals with more severe limitations such as two or more ADLs, we assumed only a small percentage would join due to the presence of the vesting period. When moving to the option where individuals must also be actively at work, we reduced participation rates for individuals with more severe limitations assuming they are less likely to be working. The resulting selection factor curve was compared with Milliman's private market group experience for reasonableness, where coverage is typically offered to actively working employees with limited or no underwriting.

New Voluntary Program Designs

We followed a similar approach to the private market designs when setting participation rates for Front-End and Back-End new voluntary programs. However, given the presence of premium subsidies participation rates were set separately depending on wealth / income level.

- Top 40% of Wealth: We assumed participation rates by cohort to be the same as those used for the private market where a five-year vesting period is used but there is no actively-at-work requirement.
- 150% to 200% FPL: We assumed participation rates by cohort to be the same as those used for the top 40% of wealth. We assumed that the premium subsidy grading down to zero for this group would on average make the "affordability" of coverage similar to the decision of whether to enroll as those in the top 40% of wealth.
- 0% to 150% FPL: We assumed 100% of individuals would participate given their premium is fully covered by the premium subsidy.

Reform Option #1: Non-Level Premiums

This option applies a 2% compounding annual increase factor to the initial first-year premium that continues until an individual reaches age 65. For example, an individual issued a policy at age 55 would have the following factors applied by policy year:

Policy Year	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11+**
Attained Age	55	56	57	58	59	60	61	62	63	64	65+
Premium Factor	1.00	1.02	1.04	1.06	1.08	1.10	1.13	1.15	1.17	1.20	1.22

We also grossed up projected expenses such that they roughly equal those under the baseline on a present value basis, which implicitly assumes the plan expense costs under this option would be similar to expenses under the baseline.

Reform Option #2: Indexed Inflation Protection

This option examines changing the automatic compound inflation protection applied to policy benefits. We assume that both the daily benefit and remaining lifetime maximum pool (after subtracting any paid claims) increase annually based on the inflation protection level. For pricing purposes as noted under the baseline model above, we assumed individuals with inflation protection will utilize benefits in proportion to the policy maximums at a constant rate over the individual's lifetime.

To simplify the illustration under the indexed inflation option, we assumed an index could be created that roughly tracks average future LTSS costs. Historical cost of care data published by Genworth implies recent trends for nursing home care average roughly 3% to 5%, assisted living facility trends average roughly 2% to 5%, and home health care trends average roughly 1% to 3%. Going forward, we assumed a 3.5% annual composite trend across all service types based on the historical trends and our judgment. The indexed inflation protection was set to 3.5% to track this future expectation for illustration.

Reform Option #3: Vesting as a Substitute for Underwriting

The impact of replacing full underwriting with a vesting period can generally be thought to arise from two sources:

- No policy benefits paid while a policyholder is in his or her vesting period
- Different LTC risk profile of individuals because they are not subject to underwriting

Exhibit 2 shows the participation rates assumed.

Reform Option #4: No Sales Commissions and No Waiver of Premium Benefit

We set the commissions / marketing assumptions to 0% for all years and turned off waiver of premium benefits for individuals on claim.

Reform Option #5: Automatic Enrollment

Given enrollment under this option is tied to a requirement of actively-at-work, we assumed lower morbidity levels for the anticipated population covered relative to Reform Option #3. Exhibit 2 shows the participation rates assumed.

We also set the commissions / marketing assumptions to 0% for all years and turned off waiver of premium benefits for individuals on claim. Since individuals are automatically enrolled in a plan, we assumed there would be no underwriting (other than individuals are assumed to be actively at work) and no commission expenses under this alternative (additionally, we removed WOP benefits for ease of comparison to Reform Option #4).

Reform Option #6: Combination of Options

This option includes the following additional changes from Reform Option #5

- One-year elimination period
- Premiums increase 2% annually up to age 65 and remain level thereafter
- Policy benefits automatically increase annually based on an inflation index
- Commissions / marketing expense equaling 15% of first year premium and 0% for all other years

Front-End and Back-End Voluntary Programs

The new voluntary programs replace full underwriting with a vesting period and provide premium subsidies for low-income individuals. Exhibit 2 shows the participation rates assumed. In addition, the following changes were made to the Baseline Plan to model the Front-End and Back-End reform options:

- Front-End: Two-year benefit period
- Back-End: Two-year elimination period with lifetime benefit period
- No commissions or waiver of premium benefits
- Target zero insurance carrier / plan administrator profits after taxes and capital costs

VI. CAVEATS AND LIMITATIONS

This report has been prepared for The Urban Institute (Urban), The SCAN Foundation (TSF), AARP, Inc. (AARP), and LeadingAge. Milliman does not intend to benefit, or create a legal duty to, any third-party recipient of this work. This communication must be read in its entirety.

The information in this report provides premium and participation illustrations under various reform options for private market LTC insurance plans and new voluntary LTC insurance plans. It may not be appropriate, and should not be used, for other purposes.

In completing this analysis we relied on information provided by Urban and publicly available data, which we accepted without audit. However, we did review this information for general reasonableness.

Many assumptions were used to construct the estimates in this report. Actual results will differ from the projections in this report. Experience should be monitored as it emerges and corrective actions taken when necessary.

Guidelines issued by the American Academy of Actuaries require actuaries to include their professional qualifications in all actuarial communications. Chris Giese and Al Schmitz are members of the American Academy of Actuaries and meet the qualification standards for performing the analyses in this report.

EXHIBITS

Exhibit 1
Modeling Specifications Summary

High-level Description	Report Tables	Underwriting Approach	Vesting Period	Actively-at-Work Requirement	Auto Enroll	Assumed Wealth / Income Bucket	Benefit Period	BP Basis	Elimination Period	EP Basis
PM Baseline	Various	Full	None	None	No	80-100%	3 years	Pool of Money	90 days	Service
PM Reform - Option #1 - Non-Level Premiums (2% Increases)	Table 1, 10	Full	None	None	No	80-100%	3 years	Pool of Money	90 days	Service
PM Sensitivity - 5% Inflation	Table 2	Full	None	None	No	80-100%	3 years	Pool of Money	90 days	Service
PM Reform - Option #2 - Indexed Inflation	Table 2	Full	None	None	No	80-100%	3 years	Pool of Money	90 days	Service
PM Reform - Option #3 - Vesting	Table 3	None	5 years	None	No	80-100%	3 years	Pool of Money	90 days	Service
PM Reform - Option #4 - No Commissions, No WOP	Table 4, 5	Full	None	None	No	80-100%	3 years	Pool of Money	90 days	Service
PM Reform - Option #5 - Automatic Enrollment	Table 5	None	5 years	Yes	Yes	80-100%	3 years	Pool of Money	90 days	Service
PM Reform - Option #6 - Combination of Options	Table 6	None	5 years	Yes	Yes	80-100%	3 years	Pool of Money	One year	Calendar
NIP Front-End, Service Design with Subsidies	Table 7	None	5 years	None	No	60-100% & <200% FPL	2 years	Pool of Money	90 days	Service
NIP Front-End, Cash Design with Subsidies	Table 7	None	5 years	None	No	60-100% & <200% FPL	2 years	Pool of Money	90 days	Service
NIP Back-End, Service Design with Subsidies	Table 8, 11	None	5 years	None	No	60-100% & <200% FPL	Lifetime	Pool of Money	2 years	Calendar
NIP Back-End, Cash Design with Subsidies	Table 8	None	5 years	None	No	60-100% & <200% FPL	Lifetime	Pool of Money	2 years	Calendar
PM Sensitivity - $50,000 BP	Table 9	Full	None	None	No	80-100%	$50,000	Pool of Money	90 days	Service
PM Sensitivity - Lifetime BP	Table 9	Full	None	None	No	80-100%	Lifetime	Pool of Money	90 days	Service
PM Sensitivity - 1-year EP	Table 9	Full	None	None	No	80-100%	3 years	Pool of Money	One year	Calendar
PM Sensitivity - Non-Level Premiums (3% Increases)	Table 10	Full	None	None	No	80-100%	3 years	Pool of Money	90 days	Service
NIP Sensitivity - Back-End, Service Design - 5-year EP	Table 11	None	5 years	None	No	60-100% & <200% FPL	Lifetime	Pool of Money	5 years	Calendar
NIP Sensitivity - Back-End, Cash Design - 5-year EP	Table 11	None	5 years	None	No	60-100% & <200% FPL	Lifetime	Pool of Money	5 years	Calendar

Notes
Highlight indicates feature difference from PM Baseline
PM = Private Market; NIP = New Voluntary Insurance Program
BP = Benefit Period, EP = Elimination Period
WOP = Waiver of Premium
FPL = Federal Poverty Level
CoC = Cost of Capital
Commission schedule as percent of premium shown by policy year (First Year / Years 2 - 10 / Years 11+)

Exhibit 1
Modeling Specifications Summary

High-level Description	Report Tables	Inflation Protection	Daily Benefit	DB Basis	Premium Structure	Commissions	WOP Benefit	Profit Target
PM Baseline	Various	3%	180	Reimbursement	Level	90% / 15% / 5%	Yes	15% IRR
PM Reform - Option #1 - Non-Level Premiums (2% Increases)	Table 1, 10	3%	180	Reimbursement	2% to Age 65	90% / 15% / 5%	Yes	15% IRR
PM Sensitivity - 5% Inflation	Table 2	5%	180	Reimbursement	Level	90% / 15% / 5%	Yes	15% IRR
PM Reform - Option #2 - Indexed Inflation	Table 2	Index (3.5%)	180	Reimbursement	Level	90% / 15% / 5%	Yes	15% IRR
PM Reform - Option #3 - Vesting	Table 3	3%	180	Reimbursement	Level	90% / 15% / 5%	Yes	15% IRR
PM Reform - Option #4 - No Commissions, No WOP	Table 4, 5	3%	180	Reimbursement	Level	None	No	15% IRR
PM Reform - Option #5 - Automatic Enrollment	Table 5	3%	180	Reimbursement	Level	None	No	15% IRR
PM Reform - Option #6 - Combination of Options	Table 6	Index (3.5%)	180	Reimbursement	2% to Age 65	15% / 0% / 0%	No	15% IRR
NIP Front-End, Service Design with Subsidies	Table 7	3%	180	Reimbursement	Level	None	No	0% After-tax, CoC
NIP Front-End, Cash Design with Subsidies	Table 7	3%	100	Cash	Level	None	No	0% After-tax, CoC
NIP Back-End, Service Design with Subsidies	Table 8, 11	3%	180	Reimbursement	Level	None	No	0% After-tax, CoC
NIP Back-End, Cash Design with Subsidies	Table 8	3%	100	Cash	Level	None	No	0% After-tax, CoC
PM Sensitivity - $50,000 BP	Table 9	3%	180	Reimbursement	Level	90% / 15% / 5%	Yes	15% IRR
PM Sensitivity - Lifetime BP	Table 9	3%	180	Reimbursement	Level	90% / 15% / 5%	Yes	15% IRR
PM Sensitivity - 1-year EP	Table 9	3%	180	Reimbursement	Level	90% / 15% / 5%	Yes	15% IRR
PM Sensitivity - Non-Level Premiums (3% Increases)	Table 10	3%	180	Reimbursement	3% to Age 75	90% / 15% / 5%	Yes	15% IRR
NIP Sensitivity - Back-End, Service Design - 5-year EP	Table 11	3%	180	Reimbursement	Level	None	No	0% After-tax, CoC
NIP Sensitivity - Back-End, Cash Design - 5-year EP	Table 11	3%	100	Cash	Level	None	No	0% After-tax, CoC

Notes
Highlight indicates feature difference from PM Baseline
PM = Private Market; NIP = New Voluntary Insurance Program
BP = Benefit Period, EP = Elimination Period
WOP = Waiver of Premium
FPL = Federal Poverty Level
CoC = Cost of Capital
Commission schedule as percent of premium shown by policy year (First Year / Years 2 - 10 / Years 11+)

Exhibit 2
Participation Assumptions By Cohort
Assumed Percent Participating Within Cohort

			Private Market Baseline and Options			New Voluntary Insurance Programs With Subsidies		
Underwriting Approach			Full - Moderate	None	None	None	None	None
Vesting Period			None	5 years	5 years	5 years	5 years	5 years
Actively-at-Work Requirement			None	None	Yes	None	None	None
Auto Enroll			No	No	Yes	No	No	No
Assumed Wealth/Income Bucket			80-100% Wealth	80-100% Wealth	80-100% Wealth	60-100% Wealth	150%-200% FPL	0-150% FPL
Applicable Issue Ages			All	All	All	All	65	65
Number of ADL Limitations	**Cognitive Impairment Status**	**General Health Status**						
0	None	good-excellent	2.25%	1.25%	2.25%	1.25%	1.25%	100.00%
0	None	poor-fair	1.00%	3.25%	3.25%	3.25%	3.25%	100.00%
0	Mild	good-excellent	0.25%	60.00%	7.50%	60.00%	60.00%	100.00%
0	Mild	poor-fair	0.00%	55.00%	17.50%	55.00%	55.00%	100.00%
0	Severe	good-excellent	0.00%	65.00%	0.00%	65.00%	65.00%	100.00%
0	Severe	poor-fair	0.00%	60.00%	0.00%	60.00%	60.00%	100.00%
1	None	good-excellent	0.00%	35.00%	30.00%	35.00%	35.00%	100.00%
1	None	poor-fair	0.00%	40.00%	30.00%	40.00%	40.00%	100.00%
1	Mild	good-excellent	0.00%	65.00%	10.00%	65.00%	65.00%	100.00%
1	Mild	poor-fair	0.00%	60.00%	10.00%	60.00%	60.00%	100.00%
1	Severe	good-excellent	0.00%	70.00%	0.00%	70.00%	70.00%	100.00%
1	Severe	poor-fair	0.00%	65.00%	0.00%	65.00%	65.00%	100.00%
2+	None	good-excellent	0.00%	10.00%	0.00%	10.00%	10.00%	100.00%
2+	None	poor-fair	0.00%	10.00%	0.00%	10.00%	10.00%	100.00%
2+	Mild	good-excellent	0.00%	10.00%	0.00%	10.00%	10.00%	100.00%
2+	Mild	poor-fair	0.00%	10.00%	0.00%	10.00%	10.00%	100.00%
2+	Severe	good-excellent	0.00%	5.00%	0.00%	5.00%	5.00%	100.00%
2+	Severe	poor-fair	0.00%	5.00%	0.00%	5.00%	5.00%	100.00%

Notes / Assumptions
Highlight indicates feature difference from PM Baseline
PM = Private Market; NIP = New Voluntary Insurance Program
Initial participation rates anticipated when program is started.
Assume incentives exist discouraging individuals to delay enrollment until older entry ages.
"Competing" available coverage (e.g., Medicaid) same as status quo baseline.
No changes in take-up of private market coverage to fill in insurance "gaps".
No low income premium or cost sharing subsidies except when noted otherwise.