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**Inflation Protection and Long-Term Care  
Insurance:  
Finding the Gold Standard of Adequacy**

**by**

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The AARP Public Policy Institute, formed in 1985, is part of the Policy and Strategy Group at AARP. One of the missions of the Institute is to foster research and analysis on public policy issues of importance to mid-life and older Americans. This publication represents part of that effort.

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## Foreword

The market for private long-term care insurance has grown rapidly in recent years. Many policymakers are anxious to expand the role of this product and Congress is considering legislation to expand beneficial tax treatment for purchasers of long-term care insurance.

Because private long-term care insurance is still a relatively new product, there is inadequate information as to what level of benefits will protect consumers against the cost of their future long-term care needs. At the present time, the average individual purchasing long-term care insurance is 67 years old, but the age of purchasers has been dropping. Consumers are encouraged to purchase insurance while they are still in their 40s and 50s, when premiums are lower and more affordable. About one-third of individual long-term care insurance policies are currently purchased by people younger than 65. However, most people will not need services until they are in their mid-70s or 80s, making inflation protection critical. Younger purchasers need to consider inflation protection, if they want the value of their policy to keep pace with the rising cost of care. While the percentage of long-term care insurance purchasers who selected inflation protection increased from 33 percent in 1995 to 41 percent in 2000, only about half of those choosing inflation protection selected *compound* inflation protection.

For years, the industry standard has been 5 percent annual compound inflation protection. AARP was interested to find out whether this standard is indeed adequate to protect most consumers. We contracted with LifePlans, Inc. to estimate the impact of purchasing a policy with 5 percent annual compound inflation protection under a range of inflation assumptions and in a variety of long-term care settings (nursing facility, assisted living, and home care). AARP also was interested to examine whether an alternative form of investment would be more or less advantageous to consumers. In keeping with AARP's mission to ensure the availability and affordability of long-term care services for mid-life and older Americans, this report is intended to contribute to the knowledge base available to consumers, insurers, and policymakers, and facilitate informed decisionmaking by mid-life and older persons as they plan for their future long-term care needs.

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## Executive Summary

### Introduction

The long-term care (LTC) insurance market has grown rapidly over the past decade. By 2000, the number of policies sold either on an individual basis or through employer-sponsored group plans had increased to more than 6 million, and between 3.5 and 4.0 million Americans currently have private insurance covering long-term care services. A growing number of policyholders purchase inflation protection riders that allow daily benefit amounts to keep up with the increasing costs of care. The most common inflation rider – recommended by the National Association of Insurance Commissioners (NAIC) in its model long-term care regulation – has benefits increasing at a compound rate of 5 percent per year.

Given that many individuals who purchase LTC insurance policies may not access benefits for many years, benefit indexing is a particularly important mechanism for ensuring that insurance benefits keep pace with inflation. But the appropriate level of such indexing is difficult to discern. If individuals choose to index at a 5 percent compound rate, will this be adequate to cover expected increases in costs? Will such a feature lead to “overinsurance” if benefit increases turn out to be greater than costs at the time a policyholder accesses benefits?

### Purpose

As more individuals purchase this rider, determining the following is important: whether it is adequate to meet the future costs of long-term care, whether its purchase is sensible for individuals of all ages, and whether there may be more efficient means of protecting oneself against the effect of inflationary costs or benefit erosion. The purpose of this study is to determine (1) whether a policy that includes a 5 percent compound inflation option is adequate to meet the future costs of long-term care and if so, is this the optimal rate for all purchasers, or just for purchasers of certain ages; (2) when policyholders of different ages access their insurance benefits; and (3) whether there are more efficient means of consumers protecting themselves against the effect of increasing long-term care costs or benefit erosion.

### Method

To answer these questions we relied on a number of techniques, including multivariate analysis and actuarial modeling based on a multidecrement life-table model. To estimate changes in service costs, we relied in part on a variety of government forecasts for both general and more sector-specific indices of projected price changes. To measure the adequacy of the 5 percent inflation rider, we focused on the expected out-of-pocket costs paid by policyholders at the time they begin using services and through their projected service use for a number of service modalities, including nursing home care, assisted living, and home care. We conducted sensitivity analysis to determine adequacy under alternative inflation scenarios.

A number of data sources were used to answer the major research questions. One includes information on a representative sample collected by LifePlans Inc. of 5,827 randomly selected individuals who have purchased LTC insurance and for whom information about benefit

indexing is available. Of these, 1,490 have purchased compound inflation protection. The second source is a National Claimant Panel that has detailed information on the service use and sociodemographic status of 1,165 LTC insurance claimants, of whom 697 are receiving services in the community and 468 are receiving services in nursing homes and assisted living facilities. Finally, additional published information on the costs of services was taken from a variety of national and local data sources.

### Key Findings

Major findings of this study include the following:

#### *Background on Inflation Protection Policies*

- About 40 percent of all new buyers purchase inflation riders.
- The probability of having an inflation rider decreases with age: 59 percent of purchasers under age 65 have a rider, whereas only 14 percent of individual over age 75 have one.
- Younger, married individuals with higher levels of income and assets are more likely to have inflation riders than are older, single policyholders with more modest levels of wealth.
- For the most part, individuals who purchase inflation riders are also more likely to have somewhat richer policy designs compared with those who do not purchase riders.

#### *Long-Term Care Costs and Projected Increases*

- Much uncertainty exists regarding the daily costs of long-term care. Claimant data suggest that in 1999, the average daily costs of care were \$123 for nursing home care, \$90 for assisted living, and \$57 per home care visit.
- The inflation rate across all service settings has been declining over the past 15 years.
- Over the past ten years, institutional care costs have increased by 5.78 percent per year, whereas home health costs have increased by 4.37 percent.
- When the variation in price changes over the past ten years is accounted for, the range for annual inflation rates is 3.5 percent to 7.7 percent for institutional care and 2.4 percent to 6.3 percent for home care.
- Assuming a ten-year historical average increase in inflation, by the year 2010, institutional costs will increase by 86 percent and home health care costs by 60 percent.
- The average age at which policyholders access long-term care services is 82. Males typically use services at a somewhat younger age and also access home care at younger ages.

### *The Adequacy of the 5 Percent Compound Inflation Rider*

- The adequacy of the inflation rider depends in part on the types of services consumed.
- In a medium inflation scenario, the inflation rider would cover 74 percent of the daily cost of nursing home care (at the time that services are first used), 91 percent of daily assisted living costs, and 95 percent of the costs of a home care visit.
- In terms of the total long-term care liability over the duration of use, the inflation rider would cover 70 percent of nursing home costs and between 82 percent and 90 percent of the total home care or assisted living costs.
- Given current trends in service use, and depending on the ultimate inflation scenario, the policy and rider will cover between 72 percent and 90 percent of the typical policyholder's future long-term care costs.
- Self-insuring for the inflation risk or purchasing a more modest compounding level (e.g., 3 percent annually) makes sense only for older purchasers (age 70 and over).

### Conclusions

Given the historical trends in long-term care costs, the insurance policy designs that individuals purchase, and the projected trends in use of institutional and home and community-based care services, a 5 percent compound inflation rider is likely adequate to finance the future long-term care costs of most policyholders: more than 80 percent of the costs of care will be covered by such policies. However, this conclusion depends on the continued shift in service use away from nursing home care and toward assisted living and home and community-based alternatives. Even in the context of the rider, considerable cost exposure may remain for those entering nursing homes, whereas those using home and community-based care risk overinsurance. Finally, to the extent that individuals purchase initially low daily benefit amounts, even with an inflation rider it will be difficult to “catch up” and minimize out-of-pocket expenses.

Clearly, the purchase of an inflation rider makes the most sense for young buyers. Even in periods characterized by modest rates of inflation, a 5 percent compound rider is warranted. Although insurers can take a number of steps to help make the protection more affordable, risk pooling to cover future price increases is still the most efficient means to prepare for the contingency.

## I. Introduction

The long-term care (LTC) insurance market has grown rapidly over the past decade. In 1990, slightly fewer than 2 million policies had been sold to individuals age 55 and over. By 2000, this figure had tripled, and the number of policies sold either on an individual basis or through employer-sponsored group plans had increased to more than 6 million (HIAA 2000a). Today, between 3.5 and 4.0 million Americans have private insurance for long-term care services. These policies typically reimburse the costs associated with skilled and custodial care provided by nursing homes, assisted living facilities, home care agencies, adult day care centers, and other providers of chronic care services.

The majority of policies are sold on an individual basis, but the number of policies sold through employers has increased significantly. Over the second half of the 1990s, individual product sales grew at an annual rate of 10 percent, while employer-group sales grew at an annual rate of about 30 percent. Compared with growth in traditional lines of insurance, these rates of growth are impressive. Even so, LTC insurance plays a relatively small role in financing the nation's long-term care bill, paying less than 10 percent of total expenditures (CRS 2000).

An important factor in market expansion is improvements in product designs. Current products typically cover home and community-based care, have options for benefit increases and nonforfeiture provisions, and cover new service modalities. Yet, issues regarding policy "value" still exist. One of the most important relates to inflation protection features (benefit indexing). The National Association of Insurance Commissioners (NAIC) model long-term care regulation requires that all companies offer policyholders the option of purchasing a compound inflation rider. Other options, such as simple interest benefit increases, may also be offered, in part because of state regulation. Such riders are based on rates of increase typically set at 3 percent to 5 percent per year. The premium charged for benefit indexing is level, indicating that inflation riders, like other benefit features, are prefunded.<sup>1</sup>

Given that many individuals who purchase LTC insurance policies may not access benefits for many years, benefit indexing is a particularly important mechanism for ensuring that insurance benefits keep pace with inflation. This is particularly true given that one out of three individual buyers is below the age of 65 (HIAA 2000b). But the appropriate level of such indexing is difficult to discern. Will a 5 percent compound rate index adequately cover expected increases in long-term care costs? Will such a feature lead to "overinsurance" if benefit increases turn out to be greater than costs at the time a policyholder accesses benefits? These and other questions are the primary focus of this inquiry.

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<sup>1</sup> In prefunding, a portion of the premium collected today is set aside to pay for liabilities in the future. If the assumptions underlying the pricing are accurate, the premium is designed to remain level or constant throughout the life of the policy. However, this does not mean that premiums cannot be raised for an entire class of individuals if experience differs from initial pricing assumptions.

## II. Purpose

As more individuals purchase inflation protection – and evidence suggests that because the average age of new buyers is declining, the prevalence of inflation protection policies is increasing – three key questions emerge:

- Is a policy that includes a 5 percent compound inflation option adequate to meet the future costs of long-term care, and if so, is this the optimal rate for all purchasers, or just for purchasers of certain ages?<sup>2</sup>
- When will policyholders of differing ages access their insurance benefits?
- Other than prefunding the inflation risk through the insurance policy, is there a more efficient means of protecting oneself against the effect of increasing long-term care costs or benefit erosion?

The purpose of this study is to answer these three basic questions.

## III. Method

To answer these questions, we established a baseline of long-term care costs for the services that are typically consumed by individuals with LTC insurance. Once service costs were established, their rate of increase was forecast into the future. To project costs forward and create alternative inflation scenarios, we examined historical price changes in service categories and conducted sensitivity analyses based on price variation. We relied in part on a variety of government forecasts for both general and more sector-specific indices of projected price changes. By so doing, we could conduct sensitivity analyses and assess the impact of alternative assumptions regarding price changes on the outcome of interest: the adequacy of financial protection offered by the insurance policy.

We also had to estimate when policyholders will access services. We employed a multidecrement life-table model that projects service use over the life of an individual.<sup>3</sup> The decrements include the annual probability of (1) using nursing home care or assisted living care (i.e., institutional services), (2) using home and community-based services, and (3) mortality. Once estimates about the timing of service use were completed, we compared the level of insurance benefits available to pay for care with the projected costs of care (given various assumptions about the rate of inflation). To measure adequacy, we focused on the expected out-of-pocket costs paid by policyholders at the time they begin using services and through their projected service use. The amount of time an individual uses services was projected using a probability model that distributes individuals to

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<sup>2</sup> We focus on the 5% inflation option because this value for benefit upgrade options is referred to in the National Association of Insurance Commissioners (NAIC) model long-term care regulation, which has been adopted by the vast majority of states.

<sup>3</sup> This is a fairly standard actuarial model used in the pricing of long-term care service use and premium generation.

various lengths of service use. The distribution of service use was based on empirical nationally published data and on privately insured long-term care claimant data (DHHS 2000; Wiener and Spence 1990). The total charges (costs) associated with this use were compared to the total level of insurance benefits available to the individual. The level and distribution of expected out-of-pocket costs were calculated for each individual in the sample.

To evaluate alternatives to the purchase of inflation protection, we simulated the amount that individuals would need to save in order to afford the same level of out-of-pocket costs as individuals who purchase the inflation protection. This amount was compared to the risk premium charged for having the inflation protection. The comparison took account of the net return on savings.

#### IV. Data Sources

A number of data sources were used to answer the major research questions. In general, datasets fall into one of two categories: (1) policyholder data and (2) data on service utilization. Over the past five years, LifePlans has collected information on a representative sample of 5,827 randomly selected individuals who have purchased LTC insurance and for whom information about benefit indexing is available. Of these, 1,490 have purchased compound inflation protection. For each individual in the sample there is detailed information on the insurance policy design parameters as well as on sociodemographic characteristics of the policyholder. The samples on which this information is based are representative and have been randomly selected from among ten of the largest long-term care insurers, representing more than 80 percent of new sales throughout the decade.

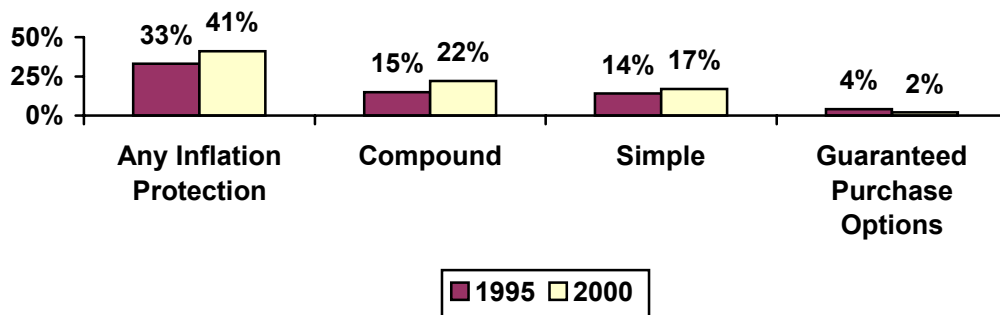
Supplementing this dataset is the National Claimant Panel, which has information on 1,165 LTC insurance claimants, of whom 697 are receiving services in the community and 468 are institutionalized in nursing homes and assisted living facilities. Detailed information is available about the service use of these individuals as well as the associated costs (charges) of care. These data are linked to detailed sociodemographic information including (but not limited to) age, gender, marital status, income level, and education status. Finally, additional published information on the costs of services is taken from a variety of national and local data sources.

We begin by providing basic background information about benefit indexing in the context of the growing LTC insurance market.

## V. Background

A. Impact of Inflation and Prevalence of Inflation Protection Policies – Although a growing number of policyholders are purchasing inflation protection riders to their basic insurance policies, most do not. In general, there are two types of inflation riders. One increases benefits on a compounded basis and the other on a simple interest basis. Figure 1 shows that about two in five buyers of LTC insurance purchase inflation riders; of these, roughly half purchase compound inflation protection, with benefits typically increasing at a 5 percent rate.

**Figure 1: Percentage of New Buyers Purchasing Inflation Protection by Purchase Year and by Type of Indexing (1995 & 2000)**



Source: Health Insurance Association of America, 2000b (n = 5,329)

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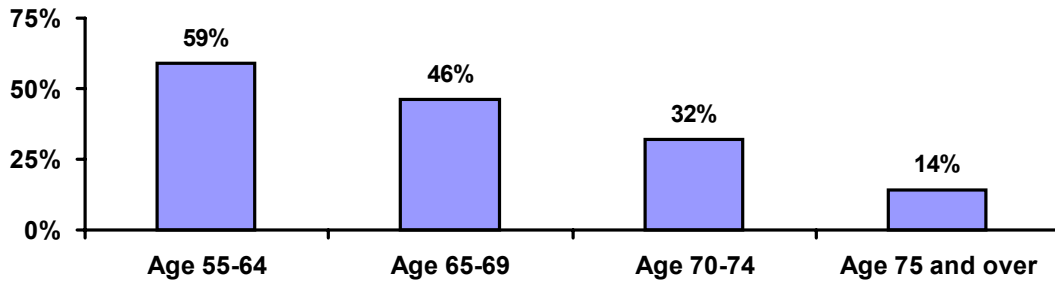
One of the reasons why a substantial number of buyers forgo inflation protection is its cost. For example, a 55-year-old purchasing a policy with a 5 percent compound inflation rider will pay a premium that is 2.6 times higher than the premium for the same policy without the rider. On the other hand, a 75-year-old buyer will pay only about an additional 55 percent to the base policy premium to buy the rider.<sup>4</sup>

Inflation protection has its greatest impact for young purchasers because of the length of time between initial purchase and use of benefits. For example, someone who purchases a policy at age 65 may not need to access policy benefits for 15 to 20 years. If at the time of purchase, policy benefits are roughly equivalent to the costs of care, then even at an annual inflation rate of only 2 percent, the policy will cover only 67 percent to 74 percent of expected costs when he or she begins using services. Thus, it may not be surprising that younger buyers are more likely to purchase inflation riders than are older buyers; the former are more likely to experience significant benefit erosion before they begin using services. Figure 2 shows that individuals under age 65 are far more likely to buy inflation riders than are individuals over age 70.

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<sup>4</sup> This assumes a three-year benefit duration with a 100-day elimination period.

**Figure 2: Percentage of New Buyers Who Purchase Inflation Protection by Age at Purchase**



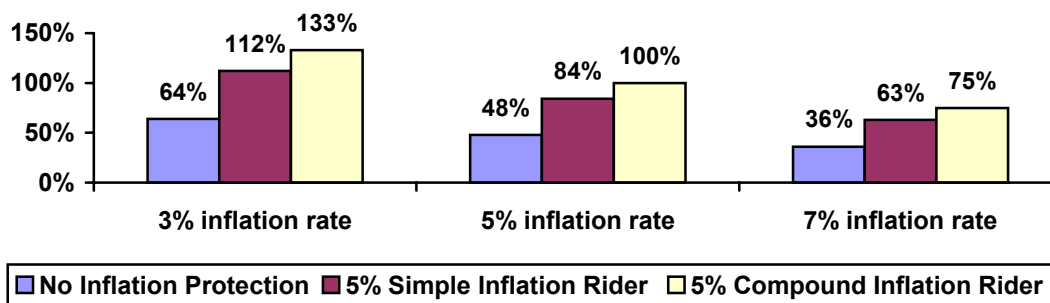
Source: LifePlans, Inc. 2000 (n = 2,601)

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If one wants a policy to cover most, if not all, of the costs of care at the time that benefits are needed, then having an inflation protection rider is particularly important. Figure 3 shows the percentage of daily costs that would be covered by a policy with (1) no inflation protection, (2) 5 percent simple inflation protection, and (3) 5 percent compound inflation protection under varying scenarios of inflation. We will assume that an individual needs benefits in 15 years and that at the time of policy purchase, the value of the daily benefit is exactly equal to the costs of care in the individual's area.

Depending on the rate of inflation, benefits can erode significantly in the absence of any inflation coverage. For example, if long-term care costs increase by 3 percent per year, then in the absence of any inflation protection, the daily benefit of a policy would cover roughly 64 percent of the expected costs. However, if an individual had purchased a 5 percent compound inflation rider, then benefits potentially available from the policy would exceed future expected costs of care. The implication is that the individual is overinsured for the inflation risk, as most policies pay only up to 100 percent of the daily costs of care.

**Figure 3: Proportion of Daily Costs Potentially Covered by Alternative Inflation Rates and Riders**



Source: LifePlans, Inc. 2000

Note: Assumes 15 years between purchase year and use of benefits.

B. Background on Purchasers of Inflation Protection and Policy Attributes – Table 1 summarizes the profile of LTC insurance policyholders by whether or not they purchased a policy with a 5 percent compound inflation option. As shown, there are major differences between the two groups. For example, younger buyers are more likely to purchase inflation protection than are older buyers – 43 percent of individuals with inflation protection are between the ages of 55 and 64. In contrast, among those without a compound inflation rider, only 20 percent are below age 65. Also, a higher percentage of married couples than singles choose to purchase the protection. Finally, increasing wealth and education are positively associated with having the protection, as is employment status.

Table 1: Sociodemographic Characteristics of LTC Insurance Policyholder Sample by Inflation Protection Status

Attributes of Policyholders	All Policyholders	5% Compound Inflation Protection	No Inflation Protection
Average Age	69 years	65 years <sup>***</sup>	70 years
55 to 64	26%	43%	20%
65 to 69	30	36	28
70 to 74	19	14	21
75+	24	7	30
Gender			
Male	43%	43%	43%
Female	57	57	57
Marital Status			
Married	67%	73% <sup>***</sup>	65%
Not Married	33	27	35
Income Status			
Less than \$25,000	20%	18% <sup>***</sup>	23%
\$25,000 to \$34,999	18	15	19
\$35,000 to \$49,999	21	21	22
\$50,000 to \$74,999	20	21	18
\$75,000 and over	21	25	19
Total Liquid Assets			
Less than \$30,000	13%	10% <sup>***</sup>	14%
\$30,000 to \$74,999	16	14	17
\$75,000 to \$99,999	6	4	6
\$100,000 and Over	65	72	63
Education Level			
Less Than High School Graduate	18%	15% <sup>***</sup>	18%
High School Graduate	13	10	14
Post High School	35	35	35
College Graduate	34	39	33
Someone in Household Is Employed			
Yes	24%	33% <sup>***</sup>	21%
No	76	67	79

Source: LifePlans Policyholder Database, 1990 through 2000. (n = 4,745).

Note: Significance Level: \*p = .10; \*\*p = .05; \*\*\*p = .01. Individuals who have policies with simple inflation riders are excluded from this analysis.

Table 2 highlights differences in the policy design parameters of policies with and without compound inflation protection.

Table 2: Attributes of Policies Among Sample of Policyholders

Attributes of Policies	All Policyholders	5% Compound Inflation Protection	No Inflation Protection
<b>Types of Policies Sold</b>			
Nursing Home Only	25%	17% <sup>***</sup>	28%
Comprehensive Policies	69	82	64
Home Care Only	6	1	8
<b>Nursing Home Duration</b>			
1-2 years	21%	16%	23%
3-4 years	34	38	32
5-6 years	13	13	13
Lifetime Benefits	34	34	34
Average Duration	5.4 years	5.5years <sup>*</sup>	5.1 years
<b>Nursing Home Daily Benefit</b>			
up to \$49	2%	2%	3%
\$50 to \$74	19	12	22
\$75 to \$99	14	15	14
\$100 to \$124	40	48	37
\$125 and over	24	23	25
Average Daily Benefit	\$103	\$105 <sup>*</sup>	\$103
<b>Home Care Duration</b>			
12 years	27%	24%	28%
34 years	28	34	27
56 years	17	18	16
Lifetime Benefits	28	24	29
Average Duration	4.9 years	4.8 years	5.0 years
<b>Home Care Daily Benefit</b>			
up to \$49	5%	5%	6%
\$50 to \$74	25	29	24
\$75 to \$99	13	18	12
\$100 to \$124	35	38	34
\$125 and over	21	10	25
Average Daily Benefit	\$98	\$89 <sup>***</sup>	\$102

Attributes of Policies – continued

Attributes of Policies	All Policyholders	5% Compound Inflation Protection	No Inflation Protection
Elimination Period	58 days	66 days***	56 days
0 day	22%	11%	26%
1 to 20 days	11	12	10
30 to 60 days	21	21	21
90 to 100 day	43	55	38
> 100 days	4	1	6
Total Annual Premium			
up to \$500	5%	4%	6%
\$500 to \$999	27	27	27
\$1,000 to \$1,499	23	27	22
\$1,500 to \$1,999	16	20	15
\$2,000 to \$2,499	11	10	11
Greater than \$2,500	18	12	20
Average Annual Premium	\$1,650	\$1,553***	\$1,684

Significance Level: \* p = .10; \*\* p = .05; \*\*\* p = .01.

Source: LifePlans Policyholder Database, 1990 through 2000. (n = 4,745).

As shown, about four in five policies with inflation riders are comprehensive;<sup>5</sup> that is, they cover services in both home care and institutional settings. In contrast, policies without inflation riders are more likely than policies with inflation riders to cover only nursing home or only home care. There is also a relationship among the purchase of an inflation rider, the duration of coverage, and daily benefit amounts. For example, policies with inflation riders provide more durational coverage for institutional care but less for home and community-based care (compared to policies without the rider). Also, compared to policies without the rider, daily benefit levels for institutional care are higher among policies with an inflation rider but are slightly lower for home and community-based care coverage.

More than half of policies with inflation riders also have elimination periods of 90 days or longer. Only roughly two in five policies without riders have such long elimination periods. Finally, the lower average premiums shown in Table 2 that are associated with inflation protection policies are due to the fact that the average age of individuals buying the protection is much lower than the age of those who do not buy it. All other things being equal, the premiums for policies with inflation riders are much higher than the premiums of policies without riders. That is, most purchasers of policies with inflation riders are not forgoing other policy features.

<sup>5</sup> When we refer to inflation riders in general, we are referring specifically to the 5% compound inflation rider.

Although the above analysis identifies the association between having an inflation rider and individual characteristics, it does not control for the correlation between variables themselves. Until we control for income, we cannot be sure that there really is an independent relationship between home care durations and the probability of having an inflation rider.

To address this issue and isolate the independent effect of variables on the probability of having an inflation rider, we used multivariate analysis. Table 3 shows the results of a logistic regression analysis designed to predict the probability of having the compound inflation rider. The variables included in the model were those found in the bivariate analysis to be associated with having the inflation rider.

The column labeled “Impact of Having Characteristic” summarizes how the probability of having a policy with 5 percent compound inflation changes when a particular trait is varied. The impact of a change in traits is in relation to a “base case” policyholder. In this example, the base case is a policyholder who is below age 65; has annual income less than \$50,000; has chosen a policy with daily benefits of less than \$100; and whose nursing home coverage is up to two years and home care coverage is up to three years. This individual also has an elimination period of less than 90 days. For this individual, the base case probability of having an inflation rider is 22 percent.

As shown, people who have higher incomes and who choose higher nursing home daily benefit amounts, longer elimination periods, and longer nursing home durational coverages are more likely to have an inflation rider. These variables are thus positively associated with having an inflation rider. A higher home care daily benefit amount, higher home care duration, and advancing age are all negatively associated with having an inflation rider. The negative relationship between age and the purchase of the rider is not surprising given that premiums for the base policy are age rated and are quite significant at advanced ages.

In terms of the probability modeling, for the base case policyholder modeled in this example, having a daily benefit amount in excess of \$100 increases the probability of having an inflation rider from 22 percent to 35 percent – a 59 percent increase in the probability. Also, having a long elimination period increases the probability of having an inflation rider – from 22 percent to 34 percent. Again, age is a particularly important variable; the probability of individuals age 65 and older having a rider is only 9 percent, compared with the 22 percent probability for the base case.

In the sections that follow, we present the results relating to each of the three research questions.

Table 3: Logistic Regression Results for Probability of Having a Policy with 5% Compound Inflation Protection

Variable	Coefficient (S.E.)	Impact of Having Characteristic (Base case probability is 22%)
Age of Policyholder (0 = below age 65)	-1.004 <sup>***</sup> (.081)	9%
Income Level (0 = income less than \$50,000)	.271 <sup>***</sup> (.081)	27%
Nursing Home Daily Benefit (0 = less than \$100 per day)	.638 <sup>***</sup> (.095)	35%
Home Care Daily Benefit (0 = less than \$100 per day)	-.565 <sup>**</sup> (.097)	14%
Nursing Home Duration (0 = up to 2 years)	.471 <sup>***</sup> (.101)	31%
Home Care Duration (0 = up to 3 years)	-.273 <sup>***</sup> (.095)	18%
Elimination Period (0 = less than 90 days)	.594 <sup>***</sup> (.076)	34%
Constant	-1.254 (.124)	

Note: All of the independent variables modeled are categorical. n = 4,952.  
 Significance Level: \* p = .10; \*\* p = .05; \*\*\* p = .01. S.E. = standard error.

## VI. Findings

### A. Estimating the Projected Rate of Increase in Long-Term Care Costs

*A.1. Baseline Long-Term Care Costs by Service Modality* – While obtaining estimates on total long-term care expenditures is relatively easy, obtaining national data on the daily costs of institutional care and home and community-based care is difficult. Differing definitions of bed types, room types, populations served, and service units (e.g., visits versus hours) confound accurate estimates of daily costs. Thus, cost estimates vary widely. For example, the daily costs of care in a nursing home in 1995 have been estimated at \$127 (HCFA 1996), \$112 (AHCA 1997), and \$96 (HCIA 1999). If one focuses on national expenditure estimates adjusted for the total number of nursing home beds and occupancy rates, the figure for 1995 is between \$121 and \$132 (HCFA 2000). A 2000 study by the Metropolitan Mature Market Institute shows that while costs vary from state to state, the average costs for a private room in a sample of selected cities across the United States totaled \$153 per day (Mature Market Institute 2000).<sup>6</sup>

Even the concept of costs is somewhat confusing. What an institution publishes as a *cost* may vary substantially from what is actually *charged* to individuals. In this analysis, we focus on charges, which are an accurate reflection of the financial liability individuals face. We rely on the National Claimant Panel, which has detailed charge information on roughly 500 institutionalized insurance claimants in nursing homes and assisted living facilities. These data reflect the mix of facility, room, and bed type accessed by LTC insurance claimants. In 1999, the average charge per day in a nursing home among LTC insurance claimants was \$123 (DHHS 2000). While the latter figure is the basis for the subsequent analysis, it closely parallels the average charge determined by the 1995 National Nursing Home Survey, which was about \$118 per day (adjusted to 1999 dollars).

Regarding assisted living, the review of claimants in the sample indicated that average charges totaled \$90 per day (DHHS 2000). The few national studies that have been completed show average charges ranging between \$50 and \$75 per day (ALFA 1998; Hawes et al. 1999; NCAL 1999). These figures may reflect “base” charges, however, not additional charges for supplemental services. Given the fact that LTC insurance policyholders typically have higher incomes and asset levels than their uninsured counterparts, it is not surprising that they reside in more costly (upscale) facilities or consume more services.

There is also wide variation in the costs of home care, in part because the costs of a visit depend on who delivers the service. For example, skilled nursing care can cost up to \$100 per visit. In contrast, a home health aide visit will typically cost less than \$60. Data from the National Claimant Panel suggest that the vast majority of community-based LTC insurance claimants (93 percent) receive care from home health aides, companions, homemakers, and personal care workers. Only 7 percent receive services

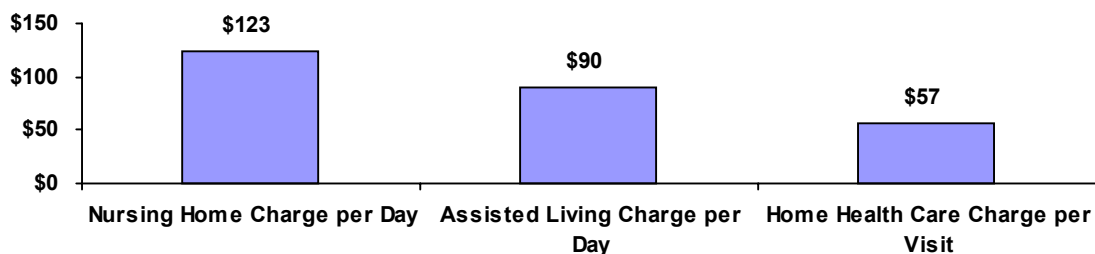
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<sup>6</sup> Note that there are other types of rooms in nursing homes, including semiprivate and shared.

from skilled nurses. Thus, the appropriate focus of our analysis is on the costs of these paraprofessional services. Recent data indicate that the average charge for a Medicare-reimbursed home health aide visit in 1998 was \$64 (HCFA 2000). The National Association of Home Care reports that in 1997, the average charge of all home health aide visits was \$54 (NAHC 1997). Given the mix of privately hired and agency-hired aides among the LTC insurance claimant population, we estimate the weighted average cost of a home health aide visit in 1999 to be \$57.

Figure 4 shows the average costs of care for each of the three major service modalities. These are the baseline costs from which subsequent projections are made.

**Figure 4: Average Charge per Service Modality (1999)**



Source: National Claimant Panel. (n = 1,168).

*A.2. Projecting Future Long-Term Care Costs* – To project future long-term care charges, we focus on the historical behavior of service cost inputs. Although a number of published price indices are related to long-term care services, only two are specifically designed to track changes in home care and nursing home care costs over time: (1) the Skilled Nursing Facility (SNF) input price index, which is an index provided by the Health Care Financing Administration (HCFA) that contains information from 1981 to the present, and (2) the Home Health Agency (HHA) input price index, which is also a HCFA index and has data from 1983 to the present. While not perfect, these indices are the most widely used and reliable ones available. They are calculated by following the behavior of a series of input components. As shown in Table 4, in both service modalities, compensation is the most important cost component. Compensation accounts for between two-thirds and three-quarters of the costs of these services.

Table 4: Components of Home Health and Skilled Nursing Facility Indices

Cost Component	Weights for Individual Cost Components	
	Home Health Care (1993 weights)	Skilled Nursing Care (1998 weights)
Compensation (wages, salaries, and benefits)	77.7%	67.1%
Administration and General Expenses	9.6	< 1
Transportation	3.4	< 1
Capital Costs	3.2	9.8
Professional Fees	< 1	1.9
Utilities	< 1	2.5
Other Products and Services	6.1	18.7
Total	100%	100%

Source: Health Care Financing Administration (2000) based on DRI/McGraw Hill's quarterly publication *Health Care Cost Review*.

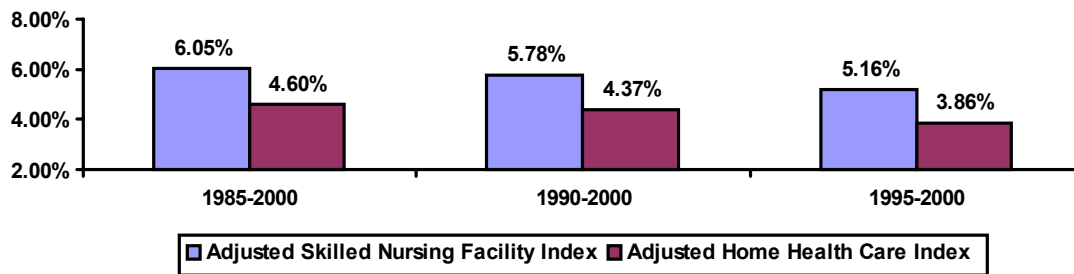
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To arrive at a specific price change for the general index, individual input prices are tracked over time and weighted by the relative amounts of spending on each input. It is important to note that such indices rely on fixed component weights. The implication is that the index does not capture any price change associated with a shift in the importance of the various components. In essence, the product (i.e., a nursing home day or a home care visit) is held constant over the period. Any change in the input mix or quality of the service would not be recognized by the index. Such factors as changes in case mix or the introduction of more costly drugs or technological innovation would not be accounted for. Consequently, the index will not adequately capture any divergence between the rates of increase in the *costs of care* (measured by these components) and the rates of increase in what is *charged for care* (and what would be paid for by the long-term care policyholder).

Even with these limitations, these indices provide an important starting point for projecting future costs in these service modalities. To date, such an index for assisted living facilities does not exist. In the analyses that follow, we assume that the trend in assisted living charges is similar to that found in nursing homes. Thus, we assume the same rate of inflation for assisted living and nursing facilities.

Figure 5 shows the historical change in the indices over varying time periods. These historical changes are composed of the base index price changes plus the adjustment factors. The resulting rates of cost inflation for both services have declined. We have chosen these varying time periods to show the sensitivity of estimates to the length of time being analyzed. Thus, for example, if one wanted to project charges based on experience between 1995 and 2000, the estimate for nursing home care would be 5.16 percent; on the other hand, a trend based on the past 15 years would yield an estimate of 6.05 percent – a 17 percent increase in the value of the index.

**Figure 5: Trends in Nursing Home and Home Health Care Charges**



Source: LifePlans, Inc., adjustment to input price indices published by the Health Care Financing Administration (2000) and based on DRI/McGraw Hill's quarterly publication *Health Care Cost Review*

Future projections in costs should bear some relationship to past experience. Yet forecasting the value of these indices into the future would not be meaningful because the dominant elements of these price indexes are related to compensation. Compensation is difficult to predict with accuracy beyond a one- or two-year horizon. The behavior of compensation beyond two years from the present will be determined in large measure by the behavior of prices in general, as measured by the consumer price index. To predict compensation, one would have to forecast the general price level, which depends on macroeconomic policy – something that is virtually impossible to predict.

The use of time series analysis – which is typically used to make projections – rests on the assumption that past behavior is a guide to future behavior. If there is a consistent behavior of a seasonal type (e.g., consumers spend more in November and December than in February and March), it is reasonable to predict that this will hold true in some future November or December. However, time-influenced behavior does not hold true for prices (including the prices of LTC-related services) because there is little or no seasonal or cyclical behavior. At best one could predict a trend. The few "forecasts" of prices that are made represent extrapolations or extensions of current experience. They do not describe a range of outcomes but simply single values.

What is desirable is to be able to make a judgment about probable or likely changes in prices. Rather than a forecast of prices, one would like to be able to determine a reasonable range of possibilities and then evaluate what would be the consequence of

events within that range. In the current study, what is of interest is assessing to what extent having the 5 percent compound inflation rider provides protection within the range of inflation possibilities. Although we cannot forecast prices, we can know past ranges of price changes, and we can assume that at least for the foreseeable future, price increases are most likely to stay within that range.<sup>7</sup>

The HHA and SNF indexes are available from the early 1980s to the present, allowing us to calculate standard deviations for changes in the series. Table 5 shows the mean and standard deviation for each index and calculates confidence intervals around the mean value of the index over the 1990 to 2000 period. As shown, for nursing home costs, the range in inflationary costs that captures 95 percent of all values for the index (i.e., the mean plus or minus two standard deviations) is between 3.9 percent and 7.7 percent. The similar interval for home health care is 2.8 percent to 6.0 percent.

Table 5: Inflation Ranges by Service Modality: 1990–2000

	Average Annual Increase	Standard Deviation	Confidence Interval		
			90%	95%	99%
Institutional Care Index	5.78%	.96%	4.2% to 7.4%	3.9% to 7.7%	3.5% to 8.1%
Home Health Care Index	4.37%	.81%	3.0% to 5.7%	2.8% to 6.0%	2.4% to 6.3%

Source: Analysis of Health Care Financing Administration (HCFA) data based on DRI/McGraw Hill’s quarterly publication *Health Care Cost Review* and analysis of aggregate HCFA data on nursing home and home care expenditures.

In the following analyses, we use the range generated by the 95 percent confidence interval to evaluate the adequacy of the 5 percent inflation rider. Table 6 shows the range in future long-term care costs that would result for each of the service modalities. We assume 1999 baseline costs for each service. The “Low” estimate represents the low end of the 95 percent confidence interval for the modality; the “High” estimate represents the high end of the interval. For example, “Low” for nursing home care is an annual increase in costs of 3.9 percent; “High” for nursing home care is 7.7 percent. Assisted living costs are assumed to behave in the same fashion as nursing home care costs.

<sup>7</sup> Barring cataclysmic situations. In extreme situations any fixed rule could be inadequate.

Table 6: Future Growth in Long-Term Care Service Costs per Day/Visit by Alternative Inflation Assumptions and by Service Modality (1999–2040)

Year	Nursing Home Care			Home Care			Assisted Living		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
1999 <sup>a</sup>	\$123	\$123	\$123	\$57	\$57	\$57	\$90	\$90	\$90
2005	\$155	\$172	\$192	\$67	\$74	\$81	\$113	\$126	\$140
2010	\$187	\$228	\$278	\$77	\$91	\$108	\$137	\$167	\$204
2015	\$227	\$302	\$403	\$89	\$113	\$145	\$166	\$221	\$295
2020	\$275	\$400	\$584	\$102	\$140	\$194	\$201	\$293	\$427
2025	\$333	\$530	\$846	\$117	\$173	\$259	\$243	\$388	\$575
2030	\$403	\$702	\$1,226	\$134	\$215	\$347	\$295	\$514	\$897
2035	\$488	\$930	\$1,777	\$150	\$266	\$464	\$357	\$680	\$1,300
2040	\$590	\$1,232	\$2,575	\$177	\$329	\$621	\$432	\$901	\$1,884
% Change 1999–2010	52%	86%	126%	35%	60%	90%	52%	86%	126%
% Change 1999–2020	123%	225%	375%	79%	146%	240%	123%	225%	375%
% Change 1999–2030	227%	471%	897%	135%	277%	509%	227%	471%	897%
% Change 1999–2040	380%	901%	1993%	210%	478%	990%	380%	901%	1993%

Source: Analysis of Health Care Financing Administration (HCFA) data based on DRI/McGraw Hill's quarterly publication *Health Care Cost Review* and analysis of aggregate HCFA data on nursing home and home care expenditures.

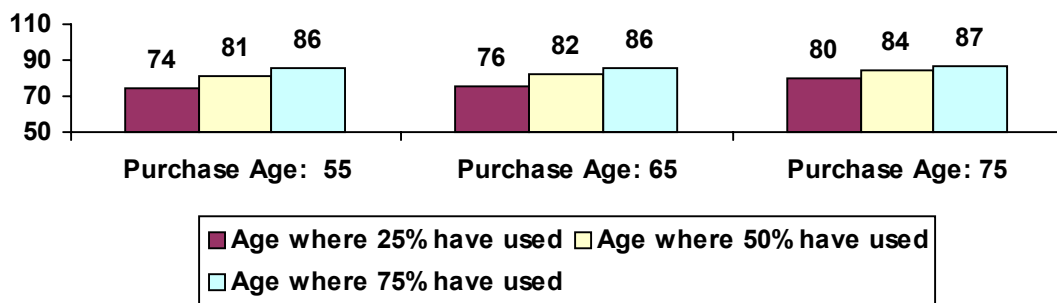
<sup>a</sup>These are the initial costs presented in Figure 4.

As shown, even under an assumption of a medium increase in inflation rates, long-term care costs are projected to rise substantially over the next decade. For example, institutional costs will increase by an average of 86 percent and home care costs by 60 percent over the period 1999–2010.

B. Estimating the Timing of Service Use – Generally reliable national data are available on the prevalence of nursing home use and on rates of activity of daily living (ADL) dependency and cognitive impairment among elders living in the community (NLTCS 1994; NNHS 1995). Information is less accurate regarding the probability of accessing services in a given year or the probability of becoming ADL dependent or cognitively impaired during the course of a year. To estimate the timing of service use among individuals with LTC insurance policies, we rely on a multidecrement life-table model – similar to what is used by actuaries pricing LTC policies. The decrements include the annual probability of using institutional services, the probability of becoming disabled and using home and community-based services, and death. The average duration between policy purchase and service use for individuals of a specific age is the point at which 50 percent of the total ultimate service-users actually use institutional care or home care services.<sup>8</sup>

Applying our model to the population of policyholders yields the expected mean age at which differing percentages of policyholders become disabled and access any type of long-term care services. Figures 6 and 7 summarize results.

**Figure 6: Distribution of Male Policyholders by Age at Policy Purchase and by Expected Age of Service Utilization**



Source: LifePlans, Inc. (2000) multidecrement service utilization model.

In general, male policyholders are more likely to access services before their female counterparts. Given the average age of purchase – around age 68 – the expected age at which half of all policyholders use services is 82.<sup>9</sup>

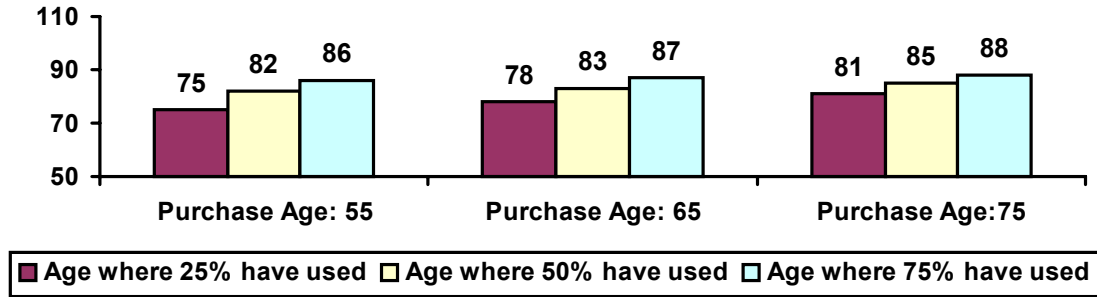
The reason why half of all 75-year-old buyers will use services by age 84 but half of all 65-year-old buyers will use services by age 82 is the impact of underwriting. A 75-

<sup>8</sup> Because insurance companies underwrite individuals before they sell them policies, service utilization is typically lower than for a noninsured group, at least for a few years. Within roughly four to six years, however, the effect of underwriting “wears off” so that the service utilization experience of an insured population will mirror that of an uninsured population.

<sup>9</sup> The “half of all policyholders who use services” refers to half of all policyholders who will ever use services. It excludes policyholders who die before they require services.

year-old who bought a policy at age 65 looks very different in terms of health status (and projected service utilization) from a 75-year-old new buyer of insurance.

**Figure 7: Distribution of Female Policyholders by Age at Policy Purchase and by Expected Age of Service Utilization**



Source: LifePlans, Inc. (2000) multidecrement service utilization model.

Figures 6 and 7 do not differentiate between the use of institutional and home and community-based care. Typically, home care is needed at an earlier age than institutional care. For example, the majority of individuals below age 75 who require care need home care. In this sample the estimated mean number of years until home care is needed is 13; the estimated mean number of years until institutional care is needed is 15. The estimated average ages of entry to a nursing home or to an assisted living facility are roughly comparable.

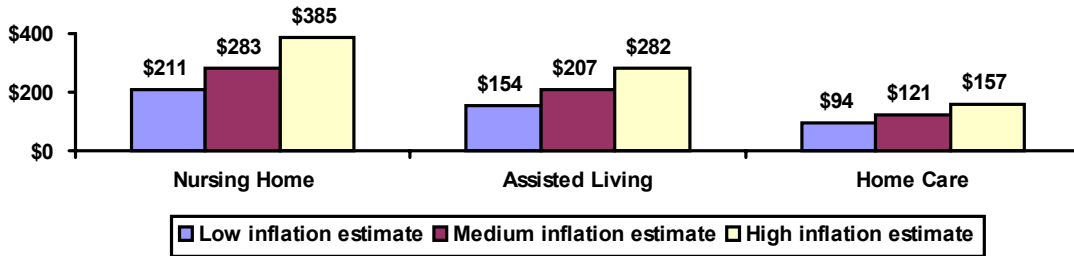
**C. Measuring Adequacy: The Impact of Inflation on Out-of-Pocket Expenditures**

*C.1. Projections of Long-Term Care Liabilities and Insurance Coverage* – In the analysis that follows, we focus on the roughly 1,400 policyholders who have purchased a 5 percent inflation rider. Because we have information about the state of residence for each of these individuals, we were able to develop state-specific baseline service costs for 1999. Thus, we are able to account for state variation in service costs. This is important because the daily benefit amounts that policyholders choose typically bear some relation to the daily costs of care in their particular geographic region.

Figure 8 shows the average daily costs of care that this cohort of policyholders will face when they access services under each inflation scenario (that is, at the point that 50 percent of the cohort has accessed services). The “low” annual inflation estimate is 3.9 percent for institutional services and 2.8 percent for home care services. The “medium” estimate is 5.78 percent for institutional services and 4.37 percent for home care services. The “high” estimate is 7.7 percent for institutional services and 6.0 percent for home care services. These inflation estimates are based on historical trends in service costs (see

Table 5). The projected costs take into account the purchase age, gender, and state of residence of each policyholder in the sample.

**Figure 8: Projected Average Daily/Per-Visit Costs Faced by Current Policyholders by Inflation Assumption and Service Modality**



Source: Analysis of policyholder data, 1990 through 2000.

Note: The low inflation estimate is 3.9% for institutional services and 2.8% for home care services. The medium inflation estimate is 5.78% for institutional services and 4.37% for home care services. The high inflation estimate is 7.7% for institutional services and 6.0% for home care services.

The typical policyholder in this sample will experience long-term care costs between 2015 and 2020. This estimate reflects their relatively young average age – 65 – and the annual risk of becoming disabled and needing services. Compared to 1999 base costs, the overall increase at the “medium” inflation estimate is 130 percent for institutional costs and 112 percent for home care costs.

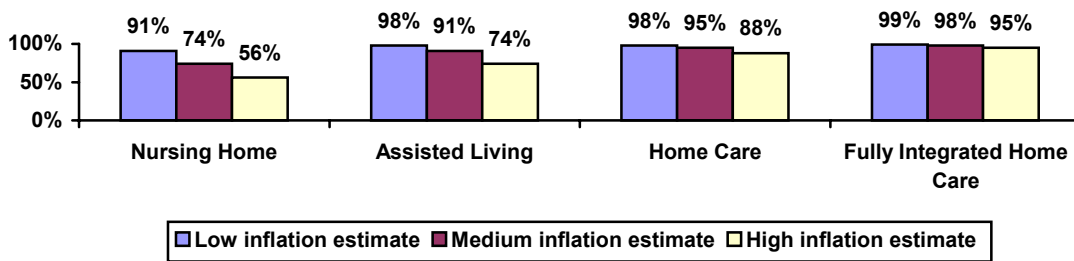
For individuals who begin using services, a key question emerges: To what extent do initial daily benefit amounts and subsequent benefit increases cover the expected future daily costs of care? Figure 9 shows that the answer very much depends on the types of services consumed (as well as on the actual inflation rate). For example, the policies of individuals who require nursing home care will pay 74 percent of the daily costs of care (under a “medium” inflation scenario). Put another way, individuals would have a 26 percent copayment, or average out-of-pocket costs for nursing home care of about \$73 per day or \$2,207 per month. A 20 percent copayment is a threshold that is generally considered acceptable in acute care insurance coverages. In contrast, for assisted living and home care protection, the copayment for the insured is much less--between \$6 per day for home care and \$19 for assisted living.

Note that the “Home Care” columns include some older policies that defined home care benefit amounts as a percentage of the nursing home benefit. The typical percentage was 50 percent. These policies are disappearing from the market and have been replaced by fully integrated policies; such policies make the daily benefit limits on home care and nursing home care similar. The results for fully integrated policies are shown in the column labeled “Fully Integrated Home Care.” For these policies, insurance would pay almost all of the expected costs of daily care, and the copayment would be quite modest.

The presence of a copayment suggests that the initial daily benefit amount chosen was somewhat lower than the average home care costs in the area.

If inflation in long-term care costs mirrors the lower estimate – about 4 percent for institutional care and 3 percent for home care – policies will cover almost all costs and make up for much of the benefit inadequacy for people who did not select inflation protection at initial purchase. That there is still exposure for nursing home claimants suggests that the initial daily benefits that they purchased were not enough to cover the daily costs of care when they bought their policy.

**Figure 9: Percentage of Daily Costs Covered by Policies with 5% Compound Inflation Rider**



Source: Analysis of policyholder data, 1990 through 2000. (n = 1,476).

Note: The low inflation estimate is 3.9% for institutional services and 2.8% for home care services. The medium inflation estimate is 5.78% for institutional services and 4.37% for home care services. The high inflation estimate is 7.7% for institutional services and 6.0% for home care services.

Given the fact that individuals who purchase inflation riders tend to trade off this benefit feature with other policy design features, it is important to examine the *total*, rather than just *daily*, expected out-of-pocket costs they will incur. For example, suppose an individual faces a choice between purchasing a policy covering three years of care with an inflation rider or one covering five years of care without an inflation rider. If the individual purchases the inflation rider, then his or her policy may indeed pay a daily benefit that completely covers the daily costs of his or her care. However, if the durational coverage is only three years and the individual incurs long-term care costs for five years, then it is unclear which choice is better. The “better” policy is the one that leads to the lowest out-of-pocket costs for the service user.

To address the “policy design trade-off issue,” we tracked the total costs of care incurred by each individual and compared them to the total value of insurance benefits paid (given each policyholder’s unique policy design). The total costs of care were derived as follows. First, we estimated exactly when each person in the sample would begin using institutional care and home care. This estimate is based on the multidecrement model and takes into account both the age and gender of the individual. Each person is then randomly assigned to a particular length-of-stay category for each service modality. For example, some individuals may use nursing home care for less than 30 days, others between one and two years, and still others for longer than five

years. The same can be said of home care users. The length-of-stay categories to which individuals were randomly distributed were based on national as well as insured data (LifePlans, Inc. 2000; Weiner and Spence 1990). Total costs were then derived by multiplying the projected daily costs of care (under each of the inflation scenarios) by the projected number of days or visits of service use. This liability was then compared to the total value of insurance benefits, which was based on the specific policy design choices made by each person in the sample.

Table 7 shows the results of the simulation. It presents the average liability faced by individuals in the sample for each of the three service modalities. Also shown are the projected average out-of-pocket costs given the individual's policy features, projected service use, and the average percentage of costs covered by each individual's insurance policy and rider.<sup>10</sup>

If we assume that roughly half of all service users will access home care, a quarter will use nursing home care, and another quarter assisted living, then the average percentage of costs covered by insurance is 83 percent; average out-of-pocket costs total \$43,637.<sup>11</sup> Not apparent in the table is the fact that most home care beneficiaries have no out-of-pocket expenses for care. For the medium inflation projection, only 32 percent of home care users will experience out-of-pocket expenses beyond their insurance benefits, compared with 90 percent of nursing home care users. For the home care claimants who do have out-of-pocket costs, these costs total about \$43,000.

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<sup>10</sup> The disability profile of assisted living residents is similar to that of disabled individuals living in the community. Because of limited data on length of stay in an assisted living facility, we assume that it is similar to that found for community-dwelling disabled elders using chronic care services.

<sup>11</sup> This distribution of service use is similar to observed trends among LTC insurance claimants today.

Table 7: Impact of 5% Compound Inflation Rider on Expected Out-of-Pocket Costs and Percentage of Covered Costs

Service Modality	Average Expected LTC Liability	Average Expected Out-of-Pocket Costs	Average Percentage of Costs Covered by Insurance <sup>a</sup>
Nursing Home Care			
Low Inflation	\$138,681	\$39,201	85%
Medium Inflation	\$194,998	\$82,148	70%
High Inflation	\$277,390	\$162,293	52%
Assisted Living			
Low Inflation	\$153,051	\$38,613	88%
Medium Inflation	\$215,312	\$64,610	82%
High Inflation	\$306,477	\$140,578	66%
Home Care			
Low Inflation	\$62,414	\$7,923	94%
Medium Inflation	\$83,850	\$13,895	90%
High Inflation	\$113,773	\$42,591	84%

Source: Analysis of policyholder data, 1990 through 2000. (n = 1,476).

<sup>a</sup> The average percentage of costs covered by insurance represents the average of the percentages of covered costs *for each individual* in the sample.

Clearly, individuals using nursing home care are likely to have the highest out-of-pocket expenses: their policy will cover 70 percent of the total liability associated with nursing home care under a medium inflation assumption but only 52 percent in a high-inflation scenario. In contrast, 82 percent of the total liability associated with assisted living, and 90 percent associated with home care, will be covered under a medium-inflation scenario. Again, under the three inflation scenarios, policies of those accessing home care services will cover the highest percentage of costs – from a low of 84 percent to a high of 94 percent. If we focus on current policies selling in the market, that is, those that allow individuals to spend a daily amount on home care similar to the amount that they would spend in an institutional setting, then across all inflation scenarios, at least 90 percent of costs would be covered.

These findings relate to the “typical” policyholder with an inflation rider. However, averages can mask variation across specific subgroups in the population. In particular,

given the sensitivity of future costs to the age at which an individual purchases a policy, it is important to explore variation by age. Table 8 shows the average out-of-pocket costs that will be paid by individuals of different ages under alternative inflation assumptions. The percentage of costs covered by insurance is also shown.

The story is much the same for assisted living, although in the medium inflation environment the percentage of costs covered by insurance declines with advancing age – from 84 percent for a 55-year-old to 70 percent for a 75-year-old. These patterns reflect the fact that individuals are choosing differing daily benefits and face liabilities at very different points in time. In a high-inflation environment, the dollar value of the divergence between the benefit increases in the policy and the increases in the costs of care increases over time. For this reason, the 75-year-old is better off than the 55-year-old because less time elapses before the former begins to use care.

The lowest percentage of home care costs covered by insurance is 81 percent, which is what a 55-year-old in a high-inflation environment would face. In both a low- and medium-inflation environment, younger buyers fare better than do older buyers, although the differences are not that great. In general, the inflation rider most benefits younger buyers, except in cases where the inflation rate is 2 or more percentage points higher than the benefit increase percentage specified in the rider.

Table 8: Impact of 5% Compound Inflation Rider on Expected Out-of-Pocket Costs and Percentage of Covered Costs by Age

	Age at Purchase			
	55 to 64	65 to 69	70 to 74	75 and over
<b>Nursing Home Care</b>				
A. <u>Low Inflation Assumption</u>				
Out-of-Pocket Costs	\$39,587	\$41,396	\$40,127	\$29,250
% covered by insurance <sup>a</sup>	89%	83%	81%	76%
B. <u>Medium Inflation Assumption</u>				
Out-of-Pocket Costs	\$94,857	\$75,655	\$60,810	\$38,136
% covered by insurance	70%	69%	70%	70%
C. <u>High Inflation Assumption</u>				
Out-of-Pocket Costs	\$200,863	\$128,155	\$89,924	\$48,845
% covered by insurance	48%	53%	59%	64%
<b>Assisted Living</b>				
A. <u>Low Inflation Assumption</u>				
Out-of-Pocket Costs	\$40,407	\$38,889	\$38,990	\$32,983
% covered by insurance	90%	87%	84%	80%
B. <u>Medium Inflation Assumption</u>				
Out-of-Pocket Costs	\$73,851	\$61,745	\$51,943	\$39,260
% covered by insurance	84%	81%	81%	70%
C. <u>High Inflation Assumption</u>				
Out-of-Pocket Costs	\$178,169	\$110,201	\$75,529	\$48,177
% covered by insurance	63%	67%	73%	73%
<b>Home Care</b>				
A. <u>Low Inflation Assumption</u>				
Out-of-Pocket Costs	\$8,698	\$6,994	\$7,227	\$8,924
% covered by insurance	95%	95%	92%	88%
B. <u>Medium Inflation Assumption</u>				
Out-of-Pocket Costs	\$17,257	\$11,279	\$9,424	\$10,769
% covered by insurance	90%	92%	90%	86%
C. <u>High Inflation Assumption</u>				
Out-of-Pocket Costs	\$38,306	\$18,806	\$12,602	\$13,079
% covered by insurance	81%	87%	88%	84%

Source: Analysis of policyholder data, 1990–2000. (n = 1,476).

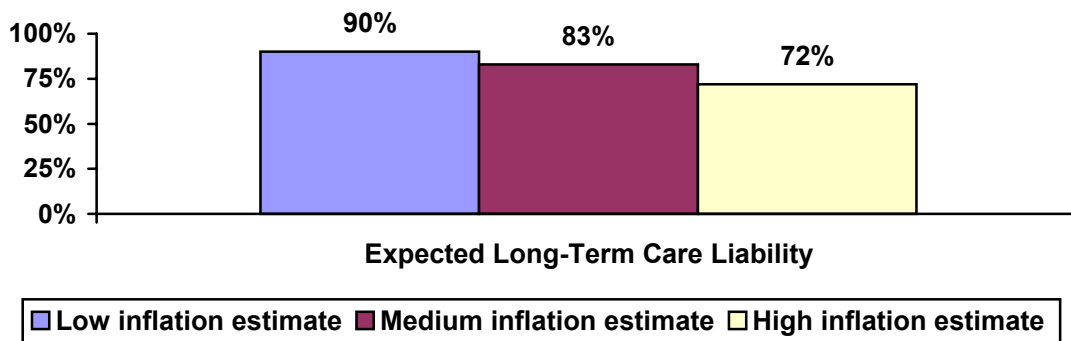
<sup>a</sup>The average percentage of costs covered by insurance represents the average of the percentages of covered costs for each individual in the sample.

*C.2. Measuring the Adequacy of the 5 percent Compound Inflation Protection Rider –*  
The concept of “adequacy” should be viewed in relation to the objectives that people have in mind when they purchase the insurance. For the most part, survey data suggest that people purchase insurance to ensure the affordability of long-term care services, not necessarily to ensure that *all* costs are covered by insurance (ACLI 2000; HIAA 2000b). They must expect some level of copayment for future services. The question is what level of copayment would be viewed as reasonable given the level of premium payments for insurance. In terms of a benchmark, up to a 20 percent copayment with a maximum cap on out-of-pocket expenses is fairly common among acute care coverages.

As shown above, the adequacy of the inflation protection rider depends in large part on the services consumed by an individual and on the age at which a policy is purchased. In typical health insurance, a copayment is a standard feature, although out-of-pocket expenses are typically capped. Regarding LTC insurance, much depends on the patterns of service use that develop over time. Already, a large number of claimants are accessing assisted living; in fact, 28 percent of all institutional claimants are in assisted living facilities (DHHS 2000). Moreover, home care claims are increasing at a much faster rate than are nursing home claims. This trend parallels national data, which show that nursing home use is declining (Bishop 1999). As more individuals who have policies with inflation riders use their benefits to pay for care outside of the nursing home, then policies will cover a greater percentage of the costs of care.

To demonstrate the point, we assume that over time, roughly 25 percent of policyholders who require care will use nursing homes, another 25 percent assisted living facilities, and the remaining 50 percent home care. This assumption is based on current trends among claimants. As mentioned, this distribution of service use is not dissimilar to observed trends among LTC insurance claimants today. Figure 10 shows that given this distribution, an LTC insurance policy with a 5 percent compound inflation rider will cover between 72 percent and 90 percent of projected long-term care costs, depending on the actual rate of inflation. At present, most long-term care policies being sold have a daily benefit amount for home care that is equal to the daily benefit for institutional care. Consequently, compared to results presented here, the percentage of covered costs will increase even more.

**Figure 10: Projected Percentage of Long-Term Care Costs Covered by Policies with 5% Compound Inflation Rider**



Source: Analysis of policyholder data, 1990 through 2000. (n = 1,476).

Note: Assumes that 25% will use nursing homes, 25% will use assisted living facilities, and the other 50% will use home care.

Given the integrated nature of policies, as well as the historical and projected increases in long-term care costs, a 5 percent rider appears adequate to ensure that most long-term care costs will be covered and that copayments will likely be in the 10 percent to 20 percent range. The coverage is most likely to be adequate for home and community-based care and less likely to be adequate for nursing home care. The cost differential between assisted living and nursing home care is such that the rider will also provide adequate protection in the assisted living context.

However, given the uncertainty in expected inflation rates, purchase of a rider with benefit indexing in excess of 5 percent may lead to overinsurance for services that are more and more likely to be accessed by claimants – non-nursing-home services. Yet, benefit indexing at a rate significantly less than this would leave significant exposure for those individuals who do require nursing home care.

**D. Alternative Methods for Financing Inflation Related Long-Term Care Costs** – As mentioned, the inflation protection riders are level funded, indicating that premiums collected in early years are set aside to pay for inflation-related liabilities in the future. The goal is to ensure that as individuals age, they continue to face a known and certain premium, which remains level over their lifetime. LTC insurance is a minimum loss ratio product, which means that insurance policies must return at least 60 percent of premiums in the form of benefits to consumers (Tapay and Feder 1999).<sup>12</sup> The remaining 40 percent typically covers expenses related to marketing and sales, acquisition, administration, premium taxes, and profit.

<sup>12</sup> Some states do require higher loss ratios.

The rider is not cheap; for a 55-year-old, buying an inflation rider can more than double premium costs. Thus, it is reasonable to ask whether one is better off purchasing insurance for the inflation risk or self-insuring. To answer that question, we evaluate the amount of money that an individual not purchasing a rider would have to set aside each year that would leave him or her no worse off (in terms of out-of-pocket costs) than the individual who purchases a rider. For the purposes of this analysis, we again assume that roughly 25 percent of policyholders who require care will use nursing homes, another 25 percent assisted living facilities, and the remaining 50 percent home care.

Table 9 shows the additional out-of-pocket expenses that would be incurred if these policyholders did not have their inflation rider, the amount of savings that they would need to set aside to fund this additional out-of-pocket expense, and whether given the rider costs, it makes more sense to self-insure for the risk.

The out-of-pocket expenses incurred by a policyholder with the inflation rider are compared to the expenses that would be incurred in the absence of the rider. The difference represents the pure financial value of the rider to the individual. These estimates are a function of when individuals begin to use services, how long they use services and incur costs, and the specific insurance coverage that they have.

To determine the amount of savings needed to fund this additional liability, we determined the amount of time between policy purchase and initial use of services. We then estimated the amount of money that would have to be set aside each year to fund this liability. Assumed was a gross interest rate of 6 percent and a net (after-tax) rate of 4 percent – a rate used by financial planners and a fairly typical assumption in the market. The average annual premium for the inflation rider was based on actual insurance policy designs selling in the marketplace.

The data indicate that in a medium inflationary environment, a policyholder age 55 to 64 would experience additional out-of-pocket expenses of \$35,211 (compared to someone with the inflation rider). To fund this liability, this individual would have to set aside \$1,275 per year until he or she began using services. Again, this figure assumes an after-tax interest rate of 4 percent. The alternative would be to pay for a rider, which would cost \$840 per year. Thus, it would not pay to self-insure; the annual cost of the 5 percent compound inflation rider would be less than the annual savings required to self-insure. Only in a low inflationary environment would it pay to self-insure or purchase a rider with a more modest benefit increase option – say 3 percent. In general, when the annual costs of the inflation rider premium are greater than the costs associated with self-insurance, it does not pay to purchase the rider.

The risk premium for the inflation rider can be lower than the costs of self-insurance in part because LTC insurance is a lapse-supported product. In other words, the reserves that have been set aside to fund the future expenses of individuals who drop their policies are spread across all remaining policyholders. This serves to lower premiums. When lapse is not an issue, then the average cost of a rider is higher than the cost of self-insurance because the premium has a load on it for marketing, administration, and profit.

It is worth noting that even in a scenario of high inflation, individuals over age 75 would be better off either self-insuring for the risk of inflated daily long-term care costs or buying a more modest rider. This is because of the roughly 40 percent load on the rider premium for non-benefit-related expenses and because even at a high inflation rate, they will access services within a relatively short period – less than ten years. For policyholders under the age of 70, the advantages of risk pooling for the inflation risk with a 5 percent compound inflation rider outweigh the cost advantages of self-insurance.

Table 9: Evaluating the Efficacy of Self-Insuring for the Inflation Risk by Purchase Age

	Age 55–64	Age 65–69	Age 70–74	Age 75
Additional out-of-pocket expenses with no inflation protection				
Low inflation	\$17,149	\$13,170	\$11,380	\$6,731
Medium inflation	\$35,211	\$22,173	\$15,902	\$8,420
High inflation	\$78,298	\$37,962	\$22,873	\$10,584
Annual savings needed to fund additional out-of-pocket expenses				
Low inflation	\$620	\$660	\$945	\$1,030
Medium inflation	\$1,275	\$1,110	\$1,320	\$1,270
High inflation	\$2,835	\$1,895	\$1,900	\$1,600
Average additional annual premium for 5% compound inflation rider	\$840	\$1,080	\$1,370	\$1,656
Action to Take				
Low inflation	Self-insure or modest rider	Self-insure or modest rider	Self-insure or modest rider	Self-insure or modest rider
Medium inflation	Insure	Insure	Self-insure or modest rider	Self-insure or modest rider
High inflation	Insure	Insure	Insure	Self-insure or modest rider

Source: Analysis of policyholder data, 1990 through 2000. (n = 1,476).

Note: Average premiums for the inflation riders are from the largest sellers of LTC insurance. Assumed is a gross rate of return on savings of 6% and a net return (after taxes) of 4%. A modest rider is one with compounding benefits at 3%.

It is also important to note that this analysis holds true only for individuals who are risk neutral. The issue of risk avoidance has not been addressed in the analysis. Clearly,

some value is associated with undertaking activities to avoid risk. People who are extremely risk averse may value risk avoidance quite highly, and thus self-insuring would not be sensible under any of these inflation scenarios. Others who prefer risk may take their chances and self-insure even when the expected value of the financial consequences from doing so is not in their favor.

Agents selling LTC insurance report that the primary reason why more people do not buy the inflation rider is its cost. There are ways, however, to make it cheaper. First, insurers can reduce commissions on the inflation rider so that a higher percentage of the premium will be returned in the form of benefits. Some carriers are already doing this. Second, the expenses associated with selling and administering policies are often expressed as a percentage of premiums. While doing so may be appropriate for a base policy, when calculating the premiums for the inflation rider, such expenses may produce excessive costs relative to what is needed. Thus, insurers may consider reducing such expenses on the rider itself. Third, it may be desirable to have different levels of benefit indexing for institutional versus noninstitutional benefits. Doing so could reduce the cost of a rider by limiting the extent of overinsurance for home care services and potentially increasing coverage for more costly institutional costs. Finally, although some insurers are already doing this, providing a guaranteed option to purchase benefit upgrades at regularly scheduled policy anniversary dates (with no underwriting for the upgrade) would benefit consumers. Individuals would be able to align benefit upgrades more closely with the level of cost increases that have occurred in their region, thus partially offsetting the costs associated with purchasing such an upgrade at an older age.

## VII. Conclusions

Given the historical trends in long-term care costs, the insurance policy designs that individuals purchase, and the projected trends in use of institutional, home, and community-based care services, a 5 percent compound inflation rider is likely adequate to finance the future long-term care costs of most policyholders: more than 80 percent of the costs of care will be covered by such policies. However, this conclusion depends on the continued shift in service use away from nursing home care and toward assisted living and home and community-based alternatives. Even in the context of the rider, considerable cost exposure may remain for those entering nursing homes, whereas those using home and community-based care risk overinsurance. Finally, to the extent that individuals purchase initially low daily benefit amounts, even with an inflation rider, it will be difficult to “catch up” and minimize out-of-pocket expenses.

Individuals accessing home and community-based care as well as assisted living care will have the lowest out-of-pocket payments, whereas those entering nursing homes will have the highest--up to 30 percent of the daily costs of care. Even so, given historical increases in costs and the declining use of nursing home care, to purchase a higher rate inflation rider (higher than 5 percent), would result in significant overinsurance and would therefore be inefficient from a consumer welfare perspective.

The purchase of an inflation rider makes the most sense for young buyers. Even in periods characterized by modest rates of inflation, a 5 percent compound rider is warranted. Self-insuring for the inflation risk may make sense only for older purchasers (age 70 and over). The extent of risk aversion influences the perceived value of the rider and will therefore partially determine whether the rider is purchased. Although insurers can take a number of steps to help make the protection more affordable, risk pooling to cover future price increases is still the most efficient means to prepare for the contingency.

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