Life Insurance Industry in US

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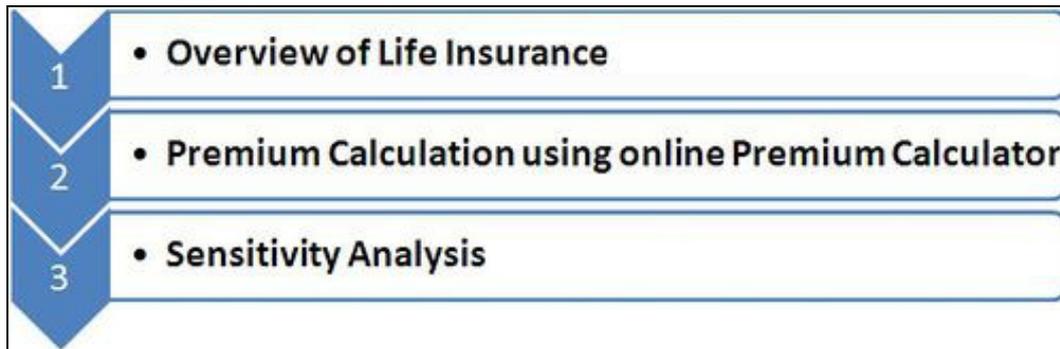
Objective

- To perform sensitivity analysis and quantitatively determine the variation in the monthly premium charged by various life insurance companies.
- To understand life insurance companies' behavior towards different segments, which are based on gender and health groups.

Methodology

The analysis was divided in three parts:

Overview of Life Insurance
A basic understanding of the life insurance industry was developed through secondary resources like websites, journals etc. This answered question like what is life insurance, why people go for it, what various types of life insurance are available and how segmentation is done in the life insurance industry. The Term Life Insurance was analyzed in detail because people over 60 years of age, the focus area for this study, generally opt for this insurance type.

Premium Calculation using online Premium Calculator
The premium charged by the following life insurance companies were determined using online premium calculators:

- ◊ **Transamerica Life Insurance Company**
- ◊ **American General Life Company (AIGAG)**
- ◊ **Prudential Financial (Pruco Life Insurance Company)**
- ◊ **Genworth Financial (Genworth Life Insurance Company)**
- ◊ **(ING) Reliastar Life Insurance company**

The analysis was carried out both for men and women. The test cases were chosen with the following attributes:

- ◊ For men height and weight assigned were 5?8?? and 176 lbs respectively while for women height and weight assigned were 5?4?? and 162 lbs respectively.
- ◊ Date of Birth as 3rd March, 1949 (more than 60 yrs), coverage amount as $250,000, the guaranteed term as 15 years and state as California both for male and female.
- ◊ Premiums were calculated considering various health conditions as blood pressure, cholesterol, cardiac problems or cancer in the family, medical advice or treatment for major illness etc.

Source: http://intelliquote.com

Ratings of the life insurance companies considered

Company	S&P Rating	AUM (in billions)
Transamerica	AA −	$73.51
(ING) Reliastar	AA −	$22.38
AIGAG	A +	$36.52
Genworth	A	$34.57
Pruco (Prudential)	AA −	$27.25

Source:intelliquote.com

Sensitivity Analysis
The sensetivity analysis was used to understand the companies' response to different health conditions on the basis of the variation in the premium amount. To enable this, the key health parameters were also determined since they have a major impact on the premium charged.

Assumptions

- Height and weight for both men and women test cases were obtained from the median height and weight prevailing in USA.
- Coverage amount was based on the median annual household income of USA taken as $50,000 and Term duration assumed to be 15 years.

Source: http://quickfacts.census.gov/qfd/states/00000.html

Overview of Life Insurance

Introduction

- Life Insurance is a contract between the policy owner and the insurer, where the insurer agrees to pay a sum of money upon the occurrence of the insured individual's or individuals' death or some other event, such as terminal illness or critical illness.
- In return, the policy owner agrees to pay a stipulated amount called a premium at regular intervals or in lump sums.
- To qualify as a life insurance policy, the insured event must be based upon the lives of the people named in the policy.
- Life policies are legal contracts and the terms of the contract describe the limitations of the insured events. Specific exclusions are often written into the contract to limit the liability of the insurer; for example claims relating to suicide, fraud, war, riot and civil commotion.

Source: http://en.wikipedia.org/wiki/Life_insurance

Why people go for life insurance

- To make sure their family will be well taken care of if they die.
- To minimize tax burden and to ensure whatever they have earned goes to their heirs since it is a tax free way to transfer their wealth.
- The value for the policyholder is derived, not from an actual claim event, rather it is the value derived from the 'peace of mind' experienced by the policyholder, due to the negating of adverse financial consequences caused by the death of the Life Assured.
- Some insurance policies like Universal life insurance, whole life insurance and some term life insurance can be settled for cash value, the value that can be borrowed against or cashed in when the owner needs money.
- To cover post death expenses like funeral, medical bills and to settle debts.

Source:http://publishmyself.net/home-and-family/seniors-and-elder-care/do-retired-people-seniors-still-need-life-insurance/

Types of Life Insurance

Broadly, life insurance is classified as temporary life insurance and permanent life insurance. These can be further sub-classified. Various life insurance policies prevailing in United States are:

Temporary Life Insurance	Permanent Life Insurance
• Term Life Insurance	• Universal Life Insurance • Variable Universal Life Insurance • Whole Life Insurance • Survivorship Life Insurance

Depending on the requirements of the individuals, companies give them an option whereby they can convert their temporary insurance policies to permanent insurance policies.

Term Life Insurance

Term life insurance provides death benefit coverage with a guaranteed level premium for a specific period of time - usually 10, 15, 20 or 30 years depending upon which product chosen.

Term life insurance can help one?s family pay for necessary expenses if one dies unexpectedly. The death benefit can help the family maintain their lifestyle, cover children?s college tuition or pay off a mortgage.

Benefits of Term Life Insurance:

Low Premiums	• It's the most affordable way to get maximum coverage with low premiums for a specified period of time.
Security	• It helps protect your loved ones against possible financial hardship and cover specific financial responsibilities like a mortgage or college expenses.
Income Tax Free Death Benefit	• Life insurance proceeds are generally income tax free to the beneficiary.
Adaptability	• Most term life insurance policies can be converted to a universal life insurance policy at a later date.

Segmentation in the life insurance industry

Segmentation in the life insurance industry is done on the basis of:

- Demographic factors like Age, Sex, Height, Weight, Income level, Geographical location, Occupation etc.
- Health Status (Blood Pressure, Cholesterol Level, Heart Condition, hereditary diseases etc), including whether or not an individual smoke and drink alcohol along with the frequency.
- Participation in high risk activities like rock climbing, skydiving and hang gliding.

Companies refer to these segments as 'rating classes'. Different companies give different weights to diseases and they have their own health check-list while developing these rating classes. All the people in a rating class would not have the same life span but they have a fairly predictable life expectancy. This gives companies a basis to determine the premium amount.

Sensitivity Analysis

For the purpose of comparison, the following classification for health classes has been defined:

Health Class	Description
BEST	No problems related to blood pressure, cholesterol, heart disease in the family and have not sought medical advice or treatment for any major illness.
PREFERRED	Have one of the problems related to blood pressure, cholesterol or heart disease in the family but have not received medical advice or treatment for any major illness.
STANDARD PLUS	Have a combination of any two of the problems related to blood pressure, cholesterol and heart disease in the family but have not received medical advice or treatment for any major illness.
STANDARD	Have received medical advice or treatment for a major illness and have combination of more than two problems related to blood pressure, cholesterol and heart disease in the family.

Each of the health classes stated above has been further categorized on the basis of smoking habits of an individual.

Non – Smoker	Current Smoker
▪ Do not smoke or use any form of cigarette or tobacco	▪ Use less than 1 packet of cigarette ▪ Use more than 1 packet of cigarette ▪ Use nicotine patch or gum

Premium charged for ?Non-Smokers? in different health classes

Comparison among Health Classes for "Non-Smokers"
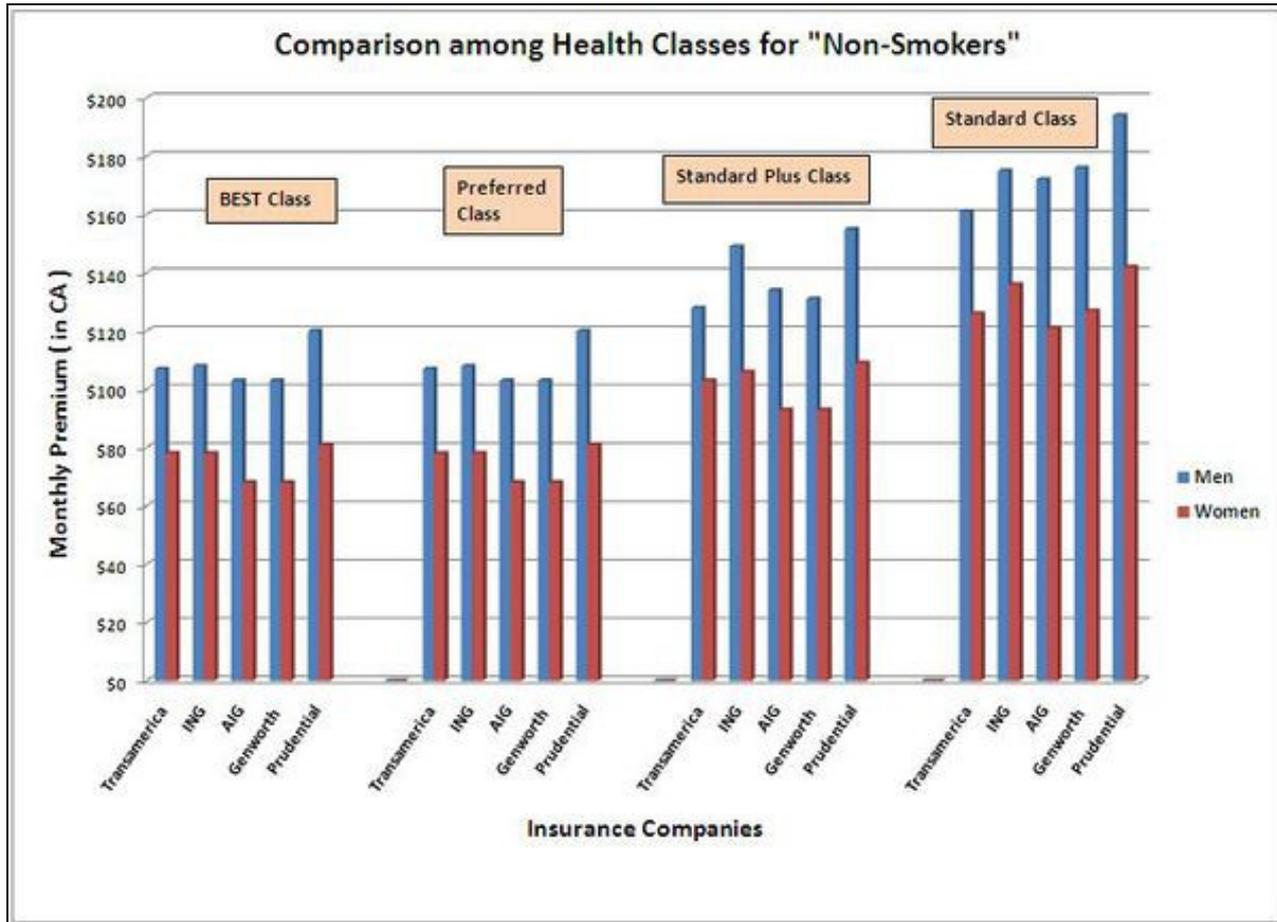
- AIG and Genworth charge the least premium for the **Best and Preferred** health class for both men (**$168**) and women (**$68**); while Prudential charges the maximum pemium (**$120** and **$81** for men and women respectively).
- In the **Standard Plus** health class, Transamerica charges the least premium amount(**$128**) for men while AIG and Genworth charge the least for women (**$93**). Prudential charges the maximum premium in this class also; **21%** higher for men and **17%** higher for women, respectively.
- Similarly, in the **Standard** health class, while Transamerica charges least for men (**$161**), AIG charges least for women (**$121**). Prudential charges the maximum in this category too with **$194** for men (**+ 20%**) and **$142** for women (**+ 17%**).
- The variation in premium charged among men and women is from **24% to 51%**.
- It is worth noticing that while premium charges for AIG increase by **67%** from Best to Standard class, the increase for Prudential is only **62%**.
- *This indicates that AIG is more sensitive to health classes than Prudential among Non-Smokers. However, Prudential may be termed as more risk-averse than the other insurance companies as the premium charged is maximum in all the health classes*.

Premium charged for ?Smokers ? less than 1 pack a day? in different health classes
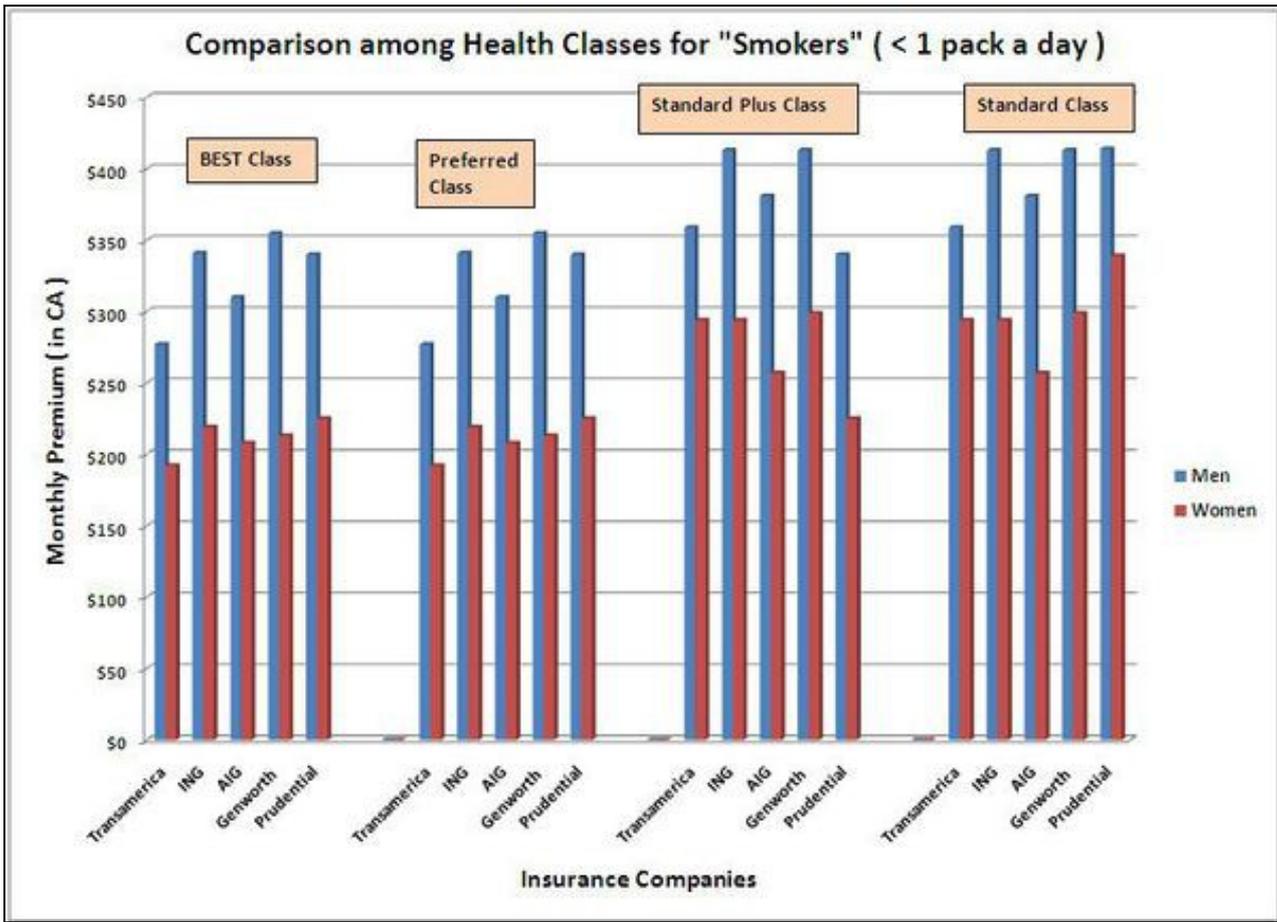
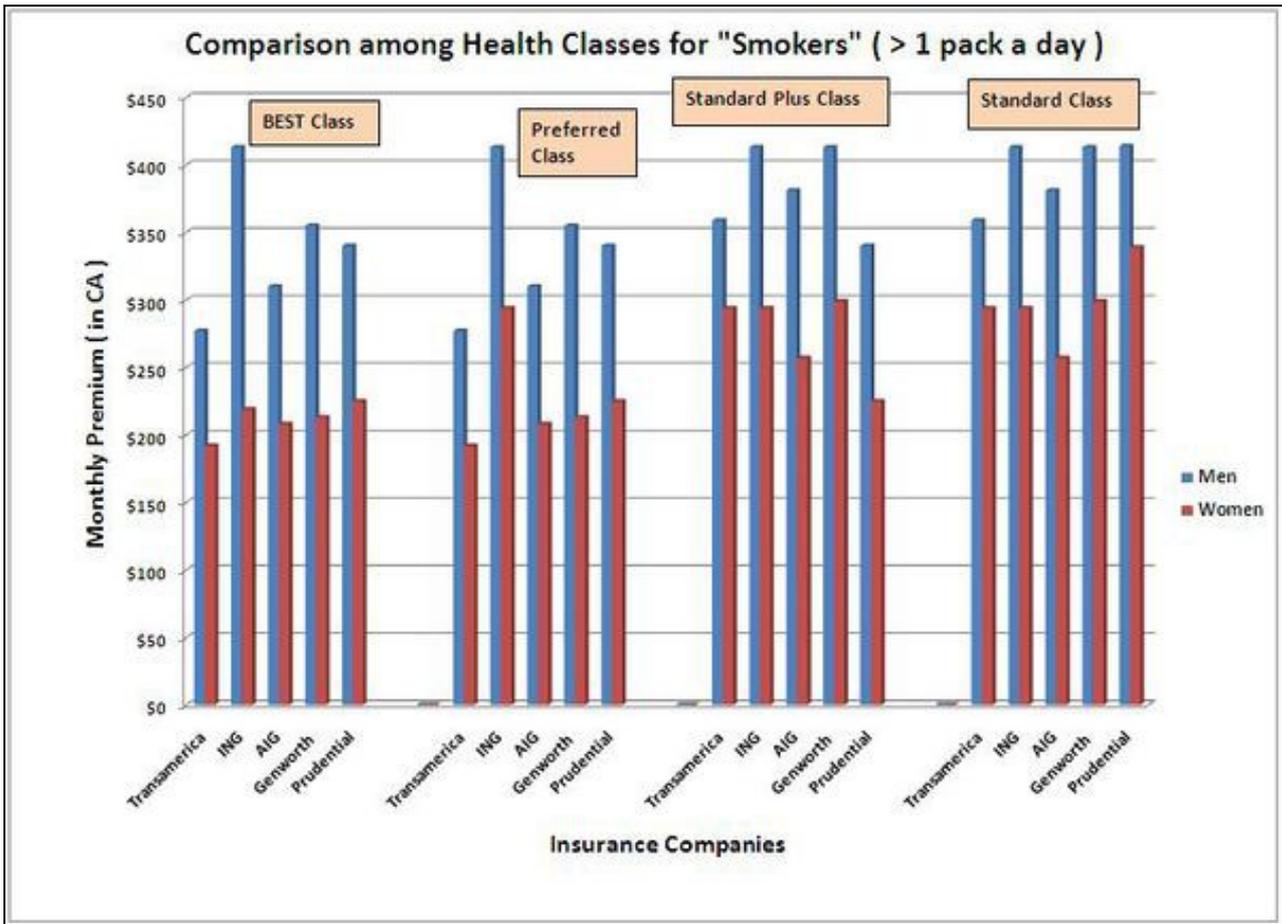Comparison among Health Classes for "Smokers" (< 1 pack a day)

- Transamerica charges the least premium in all health classes except for the Standard Plus health class in which Prudential charges the least for men and in Standard health class in which AIG charges the least for women.
- *For men, as the health class shifts from Best to Standard, the variation in premiums for companies reduces.* The percentage variation between the minimum and maximum premium in the **Best health class is 28%** while it is only **15% in Standard health class**.
- However, the same for women is 17% in the Best health class and 32% in the Standard health class.
- Transamerica, the least premium charger increases its premium by 30% from the Best to the Standard health class while the highest premium charger Genworth has a increase of only 16% for the same. This may indicate that the **risk appetite for Genworth is less**.
- The maximum difference between the premium charged for **men is 49%** while for **women it is as high as 77%**. This indicates that as the health category of women goes down the proportionate increase in premium is more than in case of men. So we can say insurance companies are **more sensitive to the changes in the health conditions of women**.

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Premium charged for ?Smokers ? more than 1 pack a day? in different health classes

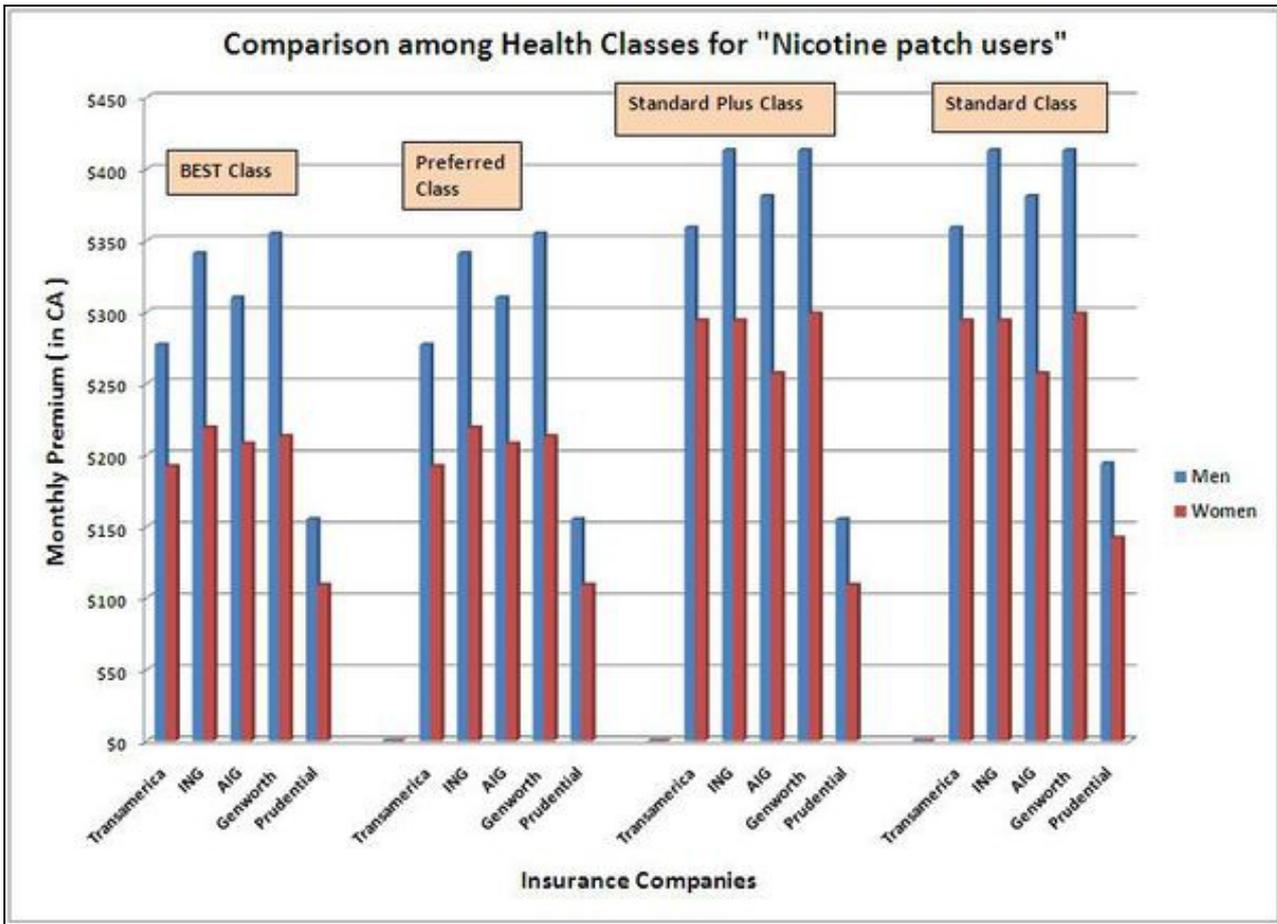Comparison among Health Classes for "Smokers" (> 1 pack a day)

- Transamerica charges the least premium in all health classes except for the Standard Plus health class in which Prudential charges the least and in Standard health class in which AIG charges the least for women.
- ING seem to be very risk averse in this category for men as the premium charges for all health classes is among the highest at $413 (except for the Standard Class in which Prudential charges a monthly premium of $414).
- For women, different companies charge the highest premium for different health classes:

Health Class	Highest premium charger
Best	Prudential
Preferred	ING
Standard Plus	Genworth
Standard	Prudential

- In this category too, maximum difference between the premium charged for men is 49% while that for women is as high as 77%.

Premium charged for ?Nicotine patch users? in different health classes

Comparison among Health Classes for "Nicotine patch users"

- Prudential charges the least premium in all health classes. Genworth charges the maximum for men while ING charges the maximum for women in the Best and Preferred class while maximum premium charges for women in Standard Plus and Standard health classes are same for three companies ? Transamerica, ING and Genworth.
- In the Standard Plus health class, all insurance companies except Prudential appear risk averse as their premium is on average 153% more than Prudential?s for men ($155). For women, the average premium charged is as high as 162% more than that charged by Prudential ($109).
- This difference seems to converge a little as we inspect the premium charges in the Standard health class which is on an average only 101% and 102% for men and women, respectively.

Company Analysis

- The graphs presented below depict the premium charges of the respective insurance company for different health classes and sub-categories based on smoking habits.
- It is noteworthy that although the companies charge lesser premium for women than for men, the increase in premium as the health class shifts, is higher for women than men. This indicates that the companies maintain a policy of risk averseness for women as their health class goes down.

Pruco Life Insurance Co. (Prudential)

Premium comparison among Health Classes for Prudential
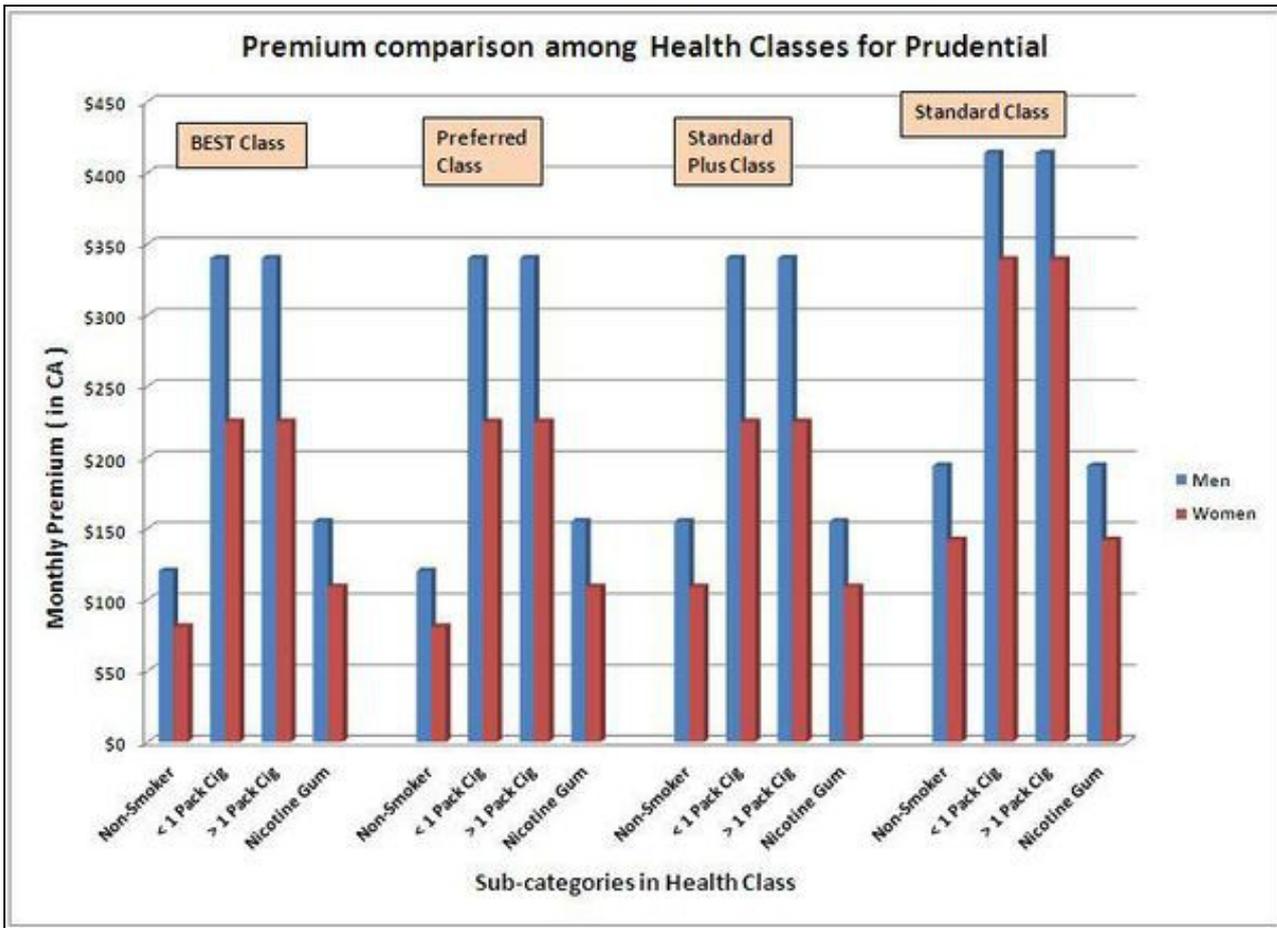
- Although Prudential charges higher premium for other categories, their charges are the least for nicotine patch users.
- The premium charged for nicotine users is only **29% higher for men** and **35% higher for women** than that for non-smokers in the Best and Preferred health classes.

However, the variation in premium charged for smokers is as follows:

Health Class	Men (Variation w.r.t. non-smokers)	Women (Variation w.r.t. non-smokers)
Best and Preferred	183%	178%
Standard Plus	119%	106%
Standard	113%	139%

- *For Standard Plus and Standard health class, the premiums charged for non-smokers and nicotine patch users are the same. This indicates that the company may be treating these two segments as one or at par with each other.*
- From the graph we find that as the health class of the non-smoker moves from Best/Preferred health class to Standard, the premium charged increases by 29% for men and 35% for women in Standard Plus, and by 62% for men and 75% for women in Standard health class. This shows that the *sensitivity of the company increases with the deterioration in health condition and they are more sensitive to the Standard health segment*.
- One interesting thing to note is that the company charges the same premium for both men and women who smoke for the health classes ? Best, Preferred and Standard Plus. However the premium increases by 22% (< 1 pack of cigarette) and 25% (> 1 pack of cigarette) for men, while for women it increases by 51% and 30% respectively.
- *The highest rate differential is found in the Best and Preferred segments where the average rates between Non-smokers and Smokers (excluding nicotine patch users) differ by 181%*.

Reliastar Life Insurance Company (ING)
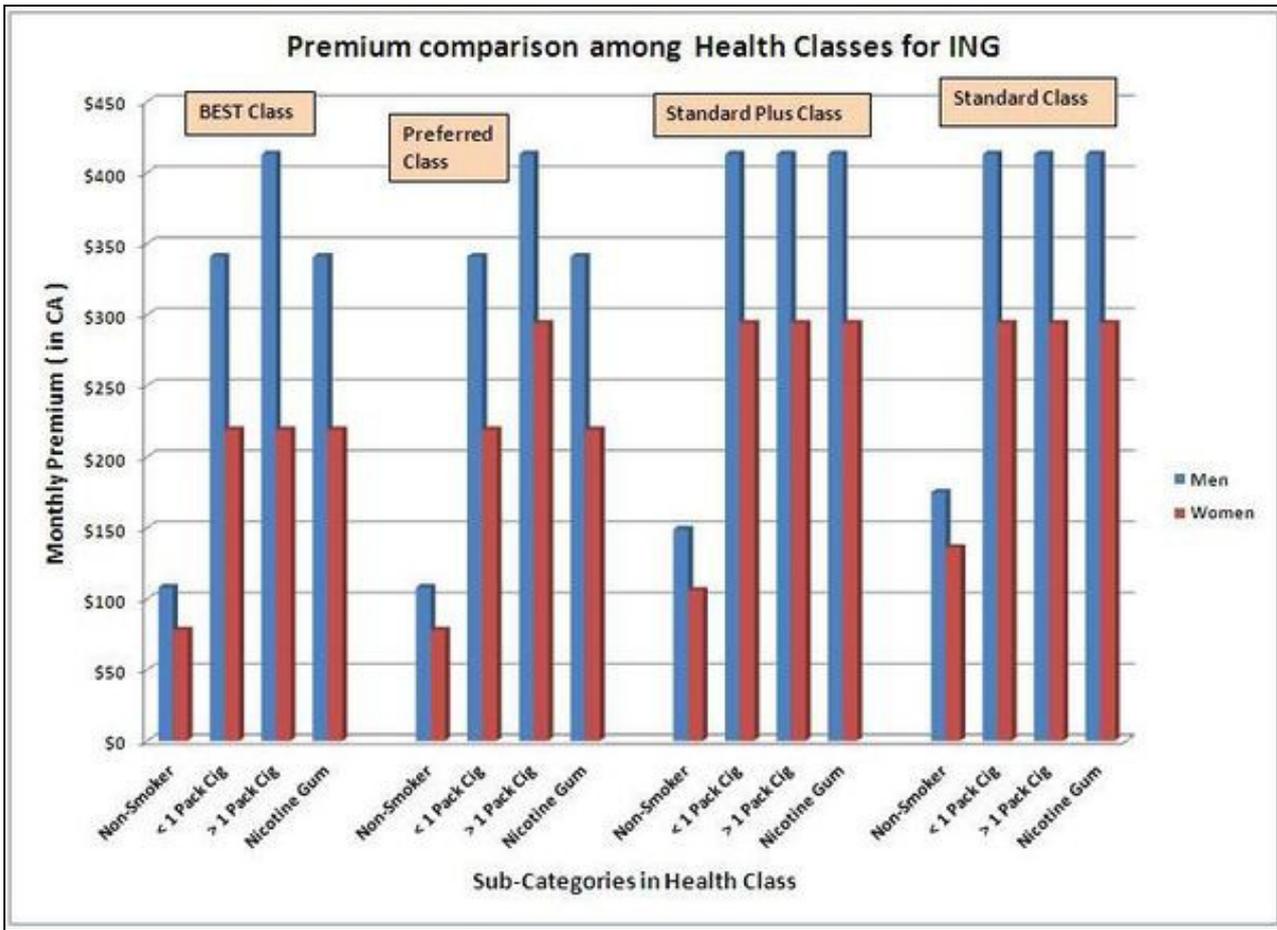
Premium comparison among Health Classes for ING

- *The highest rate differential is found in the Best and Preferred segments where the average rates between non-smokers and smokers differ by as much as 209%.*

Transamerica Life Insurance Co.

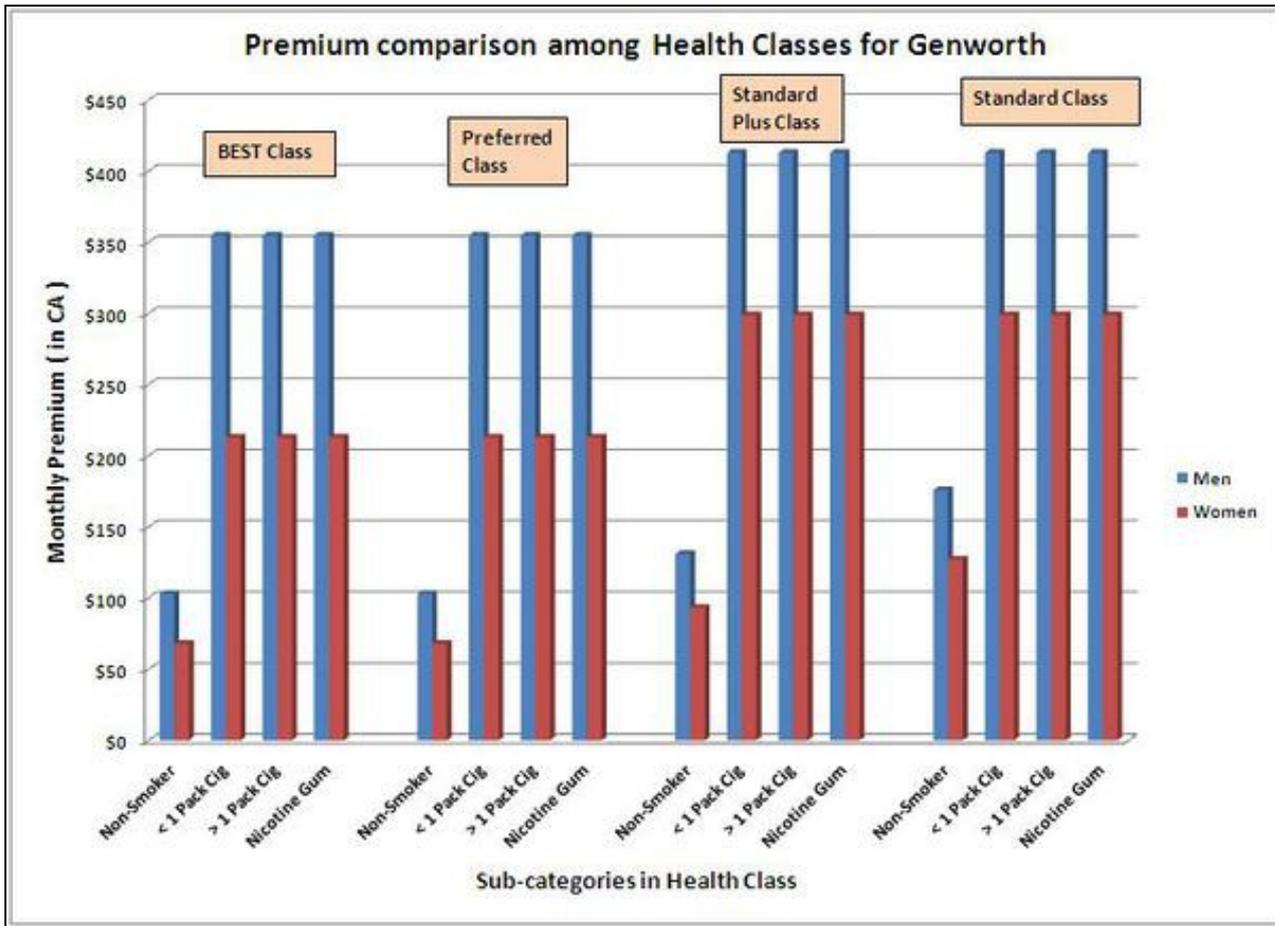Premium comparison among Health Classes for TransAmerica

- The highest rate differential is found in the Standard Plus segment where the average rates between non-smokers and smokers differ by as much as 183%.

American General Life Company (AIG)

Premium comparison among Health Classes for AIG

The highest rate differential is found in the Best and Preferred segments where the average rates between non-smokers and smokers differ by as much as 203%.

Genworth Life Insurance Company (Genworth Financial)

Premium comparison among Health Classes for Genworth

- *The highest rate differential is found in the Best and Preferred segments where the average rates between the non-smokers and smokers differ by as much as 229%.*

Average variation of premium for non-smokers across health classes compared to premium charged for the Best Health Class

Men	Preferred	Standard Plus	Standard	Women	Preferred	Standard Plus	Standard
TransAmerica	0%	20%	50%	TransAmerica	0%	32%	62%
ING	0%	38%	62%	ING	0%	36%	74%
AIG	0%	30%	67%	AIG	0%	37%	78%
Genworth	0%	27%	71%	Genworth	0%	37%	87%
Prudential	0%	29%	62%	Prudential	0%	35%	75%

Average variation of premium for smokers across health classes compared to premium charged for the Health Class

Men	Preferred	Standard Plus	Standard	Women	Preferred	Standard Plus	Standard
TransAmerica	0%	30%	30%	TransAmerica	0%	41%	53%
ING	0%	21%	21%	ING	0%	28%	34%
AIG	0%	23%	23%	AIG	0%	23%	24%
Genworth	0%	16%	16%	Genworth	0%	28%	40%
Prudential	0%	0%	22%	Prudential	0%	0%	51%

- In AIG, monthly premium for men who smoke more than 1 pack of cigarettes a day remains constant at $413 in all health classes.
- In AIG, monthly premium for women who smoke more than 1 pack of cigarettes a day in the Best health class is $219 which increases by 34% to $294 for all other health classes.

Points to note

- It is noteworthy that although the companies charge lesser premium for women than for men, the increase in premium as the health class shifts is higher for women than men. This is an indication that the companies maintain a policy of high risk averseness for women as their health class goes down.
- Companies consider Best and Preferred health class customers in the same segment as the premium charged is same for both these classes.
- Transamerica charges low premium across all categories of health classes. So we can say that they are trying to tap the major chunk of the market by competitive pricing strategy.
- Pruco (Prudential) charges the lowest premium for nicotine patch users. Hence, it may be concluded that the company is aggressively trying to dominate this segment.
- AIG and Genworth charges least premium for Best and Preferred health class individuals falling under non-smoking category while they charge relatively higher premium for all the smoking sub-categories. This shows that these companies are targeting non-smoking category and are risk averse in nature.

Constraints

- This study incorporates only five insurance companies because of the constraint of data availability.
- The study is limited only to the state of California; however, it was observed that the premium charges in other states were similar to those in California.

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