

# An Empirical Study To Validate X-Curve Theory With Reference To Surat City

Ujval B. Joshi

Assistant Prof. in Economics

Ambaba Commerce College and MIBM & DICA, Sabargam.

## Abstract

Theory of Decreasing Responsibility thus states that a person may start his financial life with low assets and high liabilities, and therefore may have highest need for insurance at that stage of his life. But as he build up his wealth and his liabilities gets reduced after paying up for loans if any over the years, his need for insurance reduces gradually. He may then reach a point where his requirements for life insurance becomes little to no insurance as thus now he will be able to get self-insure using his accumulated wealth over the period of his life. This stimulates the people to adopt “Buy the Term and Invest the Difference” strategy while making investment in life insurance products. To validate this theory X-curve is used.

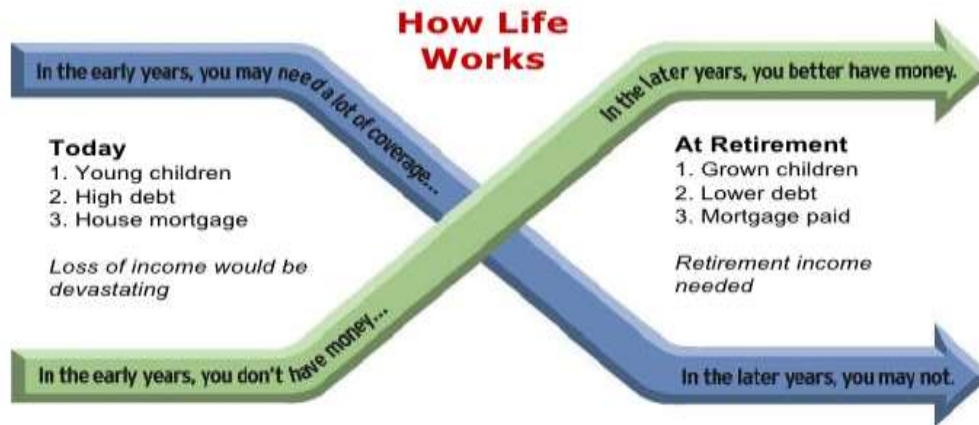
**Keywords:** Decreasing Responsibility, Life Insurance, Buy Term & Invest difference.

## Introduction

The Theory of Decreasing Responsibility is a life insurance philosophy that holds that individual financial responsibilities rises and then decline over the course of a lifetime and that life insurance amounts needed over the life span continuously changes. These responsibilities includes obligations towards family, life partner, children etc. It is promoted by proponents of Term Life Insurance. Many financial responsibilities exist for a fixed time interval. Most mortgages cover a fixed number of years. Most children become independent adults. Further, most adults accumulate financial resources during their working life, whether in the form of home equity, savings, investments and/or pensions.

Here the theory assumes that the financial obligations of the people are temporary in nature and insurance can be purchased to offset these obligations.

## The Theory of Decreasing Responsibility



Picture Source: <http://www.askprimerica.com/category/primerica/>

The X-Curve concept is a simple way to show the relationship between taking care of your responsibility while building your wealth. This concept theorizes that in general a person's responsibility decreases and their wealth increases over time.

In above picture, the shape like x-curve, there are two different curve/lines intersecting each other in middle. The Green line going up is the Money Line or the Wealth Curve, while the Blue line going down is the Responsibility Line.

- **The Money Line**

At Young age, People have very less to no savings at all. But as they start working and earn money, they start saving and investing. So as people gets older, they start building up their wealth and the Wealth Curve rises. Their target should is to increase their Money line in such a way that when they grow old, they should have enough money for their retirement since this is the time that they are unable to work anymore.

- **The Responsibility Line**

When people start to have family at young age, they have high responsibilities in the terms of food, clothing, shelter, education for children, and loans if any. They and their partner are responsible for these obligations whether they live or die. At early stage, the need for life insurance is quite high. But as their children grow up, their mortgage matures or loan gets paid up, and they ultimately reduce their debt, their responsibility gradually decreases.

### Review of Literature

The review of literature has been done to identify and understand the implications of different issues related to customer buying behaviour & trends in life insurance sector. Review has helped to adopt, verify & improvise the concept of research framework.

**Angell (1981)** stated that term life insurance is an ideal plan to carry if the insured has the necessary self-discipline to regularly invest the difference in term and cash value life premiums. He readily admitted, however, that many people do not have this self-control.

The life cycle hypothesis by **Ando and Modigliani (1963)** states that an individual's income will be low at the beginning and end stages of life and high during the middle years of life. Because term life insurance has relatively low cost, it can be suitable for persons with low incomes and high insurance needs. Therefore, young households with lower income may desire lower cost term life insurance. To the contrary, older households may be less risk averse and want less life insurance because they have already accumulated a certain amount of wealth. Moreover, they have a shorter period of time to need the income prior to their expected end of life.

**The report in 2006 prepared by Life Insurance Marketing and Research Association (LIMRA)** revealed that consumers consider the purchase of life insurance to be a complex process and eight in ten find it difficult to decide how much and what type of life insurance to buy. The worry about making an incorrect decision becomes an excuse for not buying life insurance. This issue creates interest in examination of the consumer demand for life insurance products. It is necessary for financial planners to understand consumer life insurance purchasing behaviour in order to help them buy suitable life insurance so that they can meet obligation at young age that require insurance coverage as per the decreasing responsibility theory.

### **Objective of Study**

To validate the X-Curve Theory on basis of empirical data with reference to Surat city.

### **Research Methodology**

To carry out the study both descriptive as well as analytical research design approach have been used. Convenient random sampling is used and 100 respondents from each of seven different zones of Surat city was collected. To validate X-curve theory Average Yearly Premium Expenditure by different age group of respondent was tabulated using MS-Excel.

### **Sources of Data:**

Data required for study was collected through a well-structured Questionnaire.

### **Period of Study:**

Period of study is limited to past 10 years taking 2012 as the central year in which major regulatory changes took place.

**Tools Used:** To validate X-curve theory primary data are compiled in tabular form using excel and for analyzing it to reach some conclusions various Tools like Average, Percentage along with Charts are used.

**Analysis & Interpretation of Data**

Here investment in life insurance made by the respondents have been consider based on their demographic and economic variable such as Age and Monthly Income on their investment decision in life insurance. Though different demographic factors are responsible for the decision, here to validate X-curve theory only age and Monthly income is required. Both are independent variables while yearly premium expenditure made by the respondents is the dependent variable.

**Table 1: Male/Female Investment in Life Insurance Products depending on Monthly Income & Age Group**

Age	Monthly Income						Total
	Upto-25000		25001-50000		Above 50000		
	M	F	M	F	M	F	
<b>20-23</b>	10	10	0	0	0	0	20
<b>24-27</b>	42	35	10	12	9	3	111
<b>28-31</b>	31	9	15	18	15	6	94
<b>32-35</b>	19	26	20	13	19	18	115
<b>36-39</b>	0	3	8	15	51	21	98
<b>40-43</b>	4	12	14	11	27	0	68
<b>44-47</b>	0	0	13	10	25	16	64
<b>48-51</b>	12	12	6	5	22	13	70
<b>52-55</b>	4	4	11	10	3	0	32
<b>55-59</b>	0	0	10	18	0	0	28
<b>Total</b>	122	111	107	112	171	77	700

Source\*\*: Primary Data

**Interpretation:**

Above table represents the number of males and females with from different age groups having different monthly income.

Majority of the respondents have taken decision to invest in life insurance products before they reach 35 years of age. This behaviour indicated that respondents are well aware about their financial obligations and the need for the insurance in the later part of their life.

Most of the people having reasonably well amount of monthly income and fall in the age group ranging from 25 to 35 irrespective of being male or female invest in life insurance products.

Also above table data is indicative of the fact that those respondents who earn more income does not make any difference in their behaviour relating to the investment in to the life insurance products.

However it is necessary to study in-depth relationships between different independent variables and their influence on the yearly premium expenditure made by them in life insurance products.

- Here for the purpose of validating the X-curve theory, Surat city of Gujarat state is considered for study. Mean premium expenditures of the respondents as recorded in the questionnaire was tabulated using MS-Excel to calculate average premium expenditure of the respondents based on their age who have made investment in life insurance products before and after the regulatory changes of 2012 so as to maintain

equality of time frame required to validate the theory as those who are young at this age must not have invested prior to year 2012 while those who have already invested prior to the year 2012 must have crossed certain age and are on the way of accumulating the wealth while their other responsibilities may have already started declining.

- After studying the data collected it is clear from the below table that investors in the Surat city do validate the theory of decreasing responsibility in terms of investment in life insurance as their investment reduces over a period of time along with their age getting older.
- While on other hand those who are younger have comparatively high need for the insurance and thus their investment in life insurance is comparatively higher in proportion to their income. But at the earlier stage of the life these young respondents are also earning low income and thus Term plan suits best for them because the term plan is much more cost effective than the whole life insurance where they need to pay comparatively more premiums than the term plan. Moreover the term plan suits their needs in best possible way because they may be the main or only income earner at that stage of life and their early or sudden death may prove devastating for those who are dependent on them. Hence they will try to buy term plan first rather than going for risky investment though they have higher risk aversion as compared to elder people.
- But as the age gets older respondents data shows that they starts accumulating wealth and their investment in life insurance products fall gradually. As they starts reaching the age of retirement they have almost become self-reliant to sustain for the remaining life without being insured. Thus their demand for the investment in life insurance falls.

Below table depicts the observation made above in reference to the respondents' empirical data available for the yearly premium expenditures. Using the data from the table and the chart feature of the MS-Excel along with some basic formula like Mean, Frequency Counts and Sum, a chart is prepared to show the investment nature of the respondents of Surat city that satisfies the theory of decreasing responsibility that validates the X-curve theory of wealth accumulation to get self-insured in later stage of life by using investment strategy such as "Buy the Term and Invest the Difference" which indicates that he should invest the available amount on hand in investment giving high return (may be risky) so that he can acquire wealth in the later stage of his life where his responsibilities would be almost zero and he will be financially free to live his life.

Table 2: Data for X-curve Theory Validation

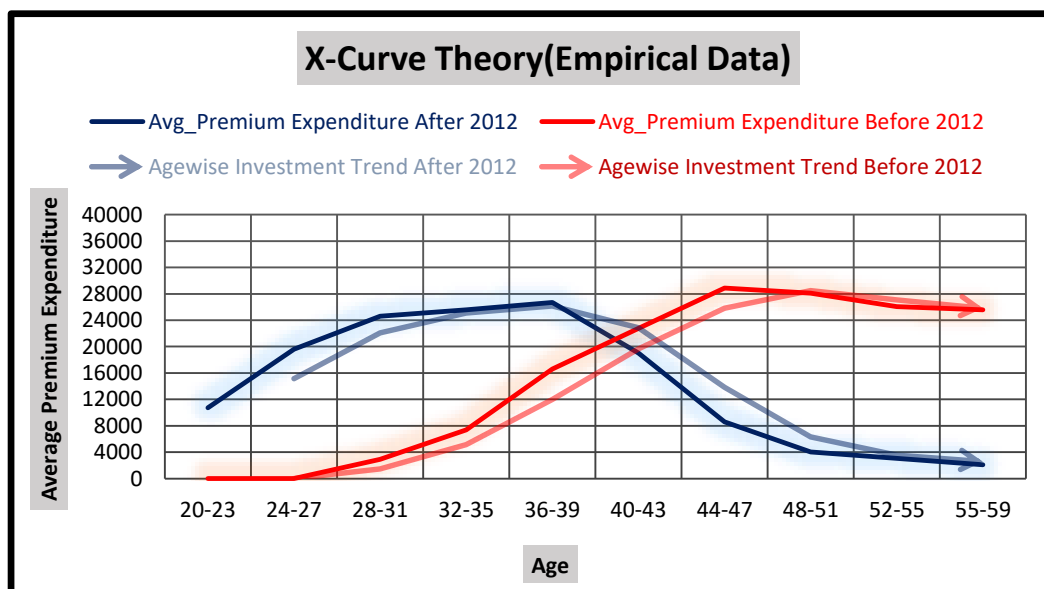
Age	No. of Respondents	Mean Premium Expenditure(₹)		
		AYPE_B12	AYPE_A12	AYPE_Total
20-23	20	0	10750	10750
24-27	111	0	19594.6	19594.6
28-31	94	2946.81	24595.7	27542.6
32-35	115	7391.3	25573.9	32965.2
36-39	98	16581.6	26693.9	42459.2
40-43	68	22779.4	19014.7	41808.8
44-47	64	28890.6	8625	37515.6
48-51	70	28085.7	4028.57	32114.3
52-55	32	26062.5	3062.5	29125
55-59	28	25571.4	2107.14	27821.4
Total	700			

Source\*\*: Primary Data collected through Questionnaire

### Interpretation:

It is observed that at younger stage respondents may have responsibilities like food, clothing, shelter, education for kids, loans , if any etc. and hence their saving is low in terms of insurance only. Here they are less secure and therefore they buy life insurance keeping in mind if they die soon. While as they grow old they accumulate wealth over period of time on one hand while on other hand their responsibilities also is reduced and they thus become more secure with almost zero responsibility. However they have threat of living too long and thus buy life insurance but just for single purpose.

Figure 1: X-curve Theory Based on Respondents of Surat City



Source\*\*: Chart Prepared from Primary Data

**Conclusions:**

Above graph clearly indicates behaviour of the sample respondents validating X-curve theory with reference to Surat city. To understand the graph consider the X-axis showing different age group while the Y-axis shows Average Premium Expenditure of the relative age group of the respondents. Here FY 2012 is taken as the dividend as it is the middle year of the period under the study and also it has marked the beginning of the remarkable Regulatory changes that has occurred in past few years in life insurance sector in India.

- Here Blue Line indicates Average Yearly Premium Expenditure done After FY 2012, while Red Line reflects the Average Yearly Premium Expenditure by the respondents of the sample Before FY 2012.
- Here The Shaded Blue Trend Line indicates Age wise investment Trend calculated for different age groups of the sample, After FY 2012, while The Red Trend Line reflects the Age wise investment Trend calculated for different age group of the respondents of the sample Before FY 2012.
- It is evident from the above graph that those who are young at present falling in the age group of 20-23 and 24-27 years must be very young or either ineligible to make investment in life insurance products. Hence their average yearly premium expenditure is zero Before FY 2012. This can be observed from shaded Red Line in above graph. So all those young is observed to have started investing in life insurance products After FY 2012 which is again reflected from the Blue Lines.
- At this age their income seems to be low and thus they tends to invest in Term Plans covering higher risk at low premium. Thus by doing so they can be rest assured that in case of their early death their dependents can be compensated with the financial loss they face and hence they can invest in more risky ventures where return is quite high, like stock market. This is called “Buy the Term and Invest the Difference” strategy while making investment in life insurance products.
- At the same time it is also evident from the above graph that those who have now reached 50 year of age or above at present must be falling in the age group among 35 to 50 years and indicates that they were having high tendency to invest in life insurance products owing to their different financial obligations. Hence their average yearly premium expenditure found to be at peak Before FY 2012. This can also be observed from shaded Red Line in above graph.
- However it is important to observe that Blue line indicates the Decreasing responsibility of the respondent which tends to rise at the initial stage of age while in the later part of the life it gradually decrease which is again reflected by the decreasing average yearly premium expenditure as they matures their age.
- Moreover the Red line is indicative of wealth accumulation where the respondents need for life insurance rises with their age in earlier stage of their life where they have many financial obligations including food, clothing and shelter of family, children’s education, loan liability if any and thus they tends to buy more of life insurance in fear of their early death. But as they starts accumulating wealth their financial obligations reduces as their children have grown up, loans paid up if any and thus they have almost become financially free as the respondent becomes older. Here they may need life insurance for the only fear of living too long and thus few of them have bought life insurance product even at the retirement age of their life which can be observed from above graph. However the overall Trend for investing in life insurance falls along with the age as they become self-insured by accumulating wealth over the life span.



- Here they may enjoy the benefits of already invested insurance plans as they starts maturing during the same period. Thus by a proper financial planning one can easily self-insure himself by making necessary investment decision in life insurance products from time to time making him financially free with almost no obligations at the time they reaches retirement age.

**From the above observations it can be stated with some limitations that the respondents from the Surat city do validate the Decreasing Responsibility Theory forming the X-curve as in the graph prepared using their data pertaining to investment in life insurance products at their respective age before and after FY 2012.**

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### Website

<http://www.askprimerica.com/category/primerica/>