RAY: International Journal of Multidisciplinary Studies, E-ISSN: 2456-3064
Volume IV, No. 2, October, 2019, pp. 63-71.

Macro-Economic Variables and Demand for Life Insurance Product in India

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Structured Abstract:

Purpose: Macroeconomic environment has an important influence on life insurance business, and this study is undertaken to examine the demand for life insurance product in India.

Design / Methodology / Approach: The data related to the demand for life insurance is obtained from the annual report of the Life Insurance Commission.

Findings: The major findings of this study are that a change in the price of insurance has a significant negative relationship with the demand for life insurance product. This finding may be helpful to insurance company in developing pricing strategies.

Research Limitations / Implications: Primary survey data will help to assess the ground level reality of the demand for life insurance product.

Practical Implications: The major findings of this study show that the price of insurance and the F.D are two significant macroeconomic variables associated with the demand for life insurance in India.

Originality / Value: The major findings of this study may be helpful to the marketing directors of life insurance companies in developing pricing strategies.

Keywords: Life insurance, Demand, Macroeconomic Variable, Insurance Penetration, Insurance Density.

Paper Type: Research Paper.

Introduction

The insurance industry has gradually emerged to become an important component of the financial services sector in India. The end of the First World War (1914-1918) witnessed an influx of insurance companies in India, and then Universal Life Assurance Company became a part of Life Insurance Corporation in 1956. Basically insurance is a contract between insurer and insuree to deal with unpleasant contingencies. It provides partial or total protection against adverse financial outcomes. Broadly insurance contracts can be divided into life and non- life insurance. Life insurance, in general, provides protection to a

household against the risk of premature death of its income earning member, and also provides protection against other life related risk, such as risk of longevity. On October 21, 1999 the government passed the Insurance Regulatory and Development Authority, henceforth IRDA Bill in the Parliament allowing the private insurers to coexist along with government companies like LICI. As laid down in the said bill, the main aim of the said bill is to promote competition and efficiency in the insurance sector by allowing private insurance companies into the fray. Introduction of IRDA bill is a part of the overall package of financial sector reform in this country which is underway since 1991 with the inception of economic liberalization programme.

However, the total premium income generated by the insurance industry in India is small as compared to those in countries such as United States, Japan and United Kingdom. From table 1 we observe that the respective percentage of the contribution of life insurance premium to the gross national product (GNP) were 3.04%, 7.14%, 8.86%, and 10.61% for India, the US, Japan and the UK in 2017-2018, also in this table we see that life insurance density of India is only 7.6 in US dollar which is second lowest among the all over the world.

Table 1: Demand for Life Insurance in different Countries of the World for the Year 2018.

Countries	**Life Insurance Penetration (premiums as a % of GDP)**	**Life Insurance Density (per capita premiums in US dollar)**
United Kingdom	10.61	3028.5
Japan	8.86	3165.1
United States	7.14	1611.4
South Africa	12.89	392.9
Australia	5.58	1193.5
South Korea	11.16	935.6
India	3.04	7.6
China	4.22	9.5
Malaysia	3.13	26.4
Indonesia	1.89	4.0
Brazil	3.9	12.9

Source: International Journal of Insurance, 2018.

Literature Review

There is no unique and integrated theory for life insurance demand. According to Outreville (1996), almost all the theoretical works on the demand for life insurance have related their work to the study of Yarri (1965) which considered the demand for life insurance within the life time allocation processes of an individual.

A number of different models on life insurance demand have been developed and tested empirically in the past. For studies that involve many countries, a comprehensive cross sectioned study to examine the demand for life insurance across many countries has been carried out by Robertson (1982), Browne and Kim (1993) examine the factors that influence the demand for life insurance across 45 countries spread throughout the world which include the under-developed and developed nation. Outreville (1996) has studies 48 developing countries to investigate empirically the relationship between the development of life insurance sector and the level of financial development and market structure of insurance industry.

In a comparative study, Truett and Truett (1990) examine the factors affecting the life insurance demand in Mexico and the U.S. Other related studies on life insurance demand on a single country basis comprise those that relate life insurance demand with financial development and market structure (Headon and Lee, 1974; Outreville 1996), household characteristics (Anderson and Navin, 1975; Cargill and Troxel, 1979; Lewis 1989 Hau, 2000), price expectations (Cargill and Troxel, 1979; Babbel, 1985) and social security retirement and survivor benefit (Lewis 1989; Browne and Kim, 1993). A study directly associated the macroeconomic variables with the demand for life insurance has been conducted by Rubayah and Zaidi (2000).

Objectives of the Study

1) To review on different macroeconomic factors affecting the demand for life insurance.
2) To study the interaction between macroeconomic variables (i.e., financial development, per capita income, inflation, price of life insurance product) and the demand for life insurance product (i.e., by sums insured) in order to seek evidence of their relationship in the context of India.

Data and Measurement of Variable

The data for this study consist of annual aggregate data from 2000-2017. All data in this study are secondary in nature. The data related to the demand for life insurance are obtained from the following annual reports: the annual report of the Insurance Commission and the Annual report of the Director General of Insurance. The macroeconomic data are obtained from various types of annual reports: Monthly statistics Bulletin, Economic Report, Statistical Abstract, RBI Bulletin etc.

For the purpose of this study, the following operational definitions are used for the variables being examined:

Demand for life Insurance (Demand): This is the dependent variable. It refers to the percentage calculated as the ratio of the new sums insured in a year to the total sums insured in force in the preceding year of ordinary life business (comprising policies such as whole life, endowment, temporary, and others.)

Price of insurance (Price): The price of insurance product is hypothesized to be negatively related to the demand for life insurance .The price measure used in this study is based on the model used by Browne and Kim (1993) .More formally, the price of insurance is defined as the ratio of total annual premium in force to the total sums insured in force in a year.

Financial Development (FD): Financial Development is hypothesized to be positively related to the demand for life insurance. The ratio of broad defination of money (M2) to GNP at market price at the end of December is used to proxy the level of financial development.

Savings with Commercial banks (Savings): The savings is hypothesized to be negatively related to the demand for life insurance.

Income per capita (IPC): Income is hypothesized to be positively related to the demand for life insurance. Income per capita defined as the amount of income calculated as the GDP at market price divided by the number of mid-year population is used to represent disposable personal income.

Inflation (CPI): The inflation rate is hypothesized to be negatively related to the demand for life insurance. The rate of change in the price index (Retail price index, prior to 1967 and consumer price index, .from 1967 onwards) is used as a proxy for the anticipated rate of inflation.

A Review on Macroeconomic Factors Affecting the Demand for Life Insurance

The demand for life-insurance product is influenced by many factors and economic factors might be one of them. For example, income per capita, inflation rate and price of insurance may affect the demand for life insurance in a country. The macroeconomic factors investigated in these studies are highlighted and discussed in brief below:

Price of Insurance: The findings reported with respect to the effect of price on the demand for life insurance are consistent in the studies of Babbel (1985) and Browne and Kim 1993). The price of insurance insignificantly and inversely related to the demand for life insurance. A high insurance cost tends to discourage the purchasing of life insurance. Also reforms have marked the entry of many of the global insurance majors into the Indian market in the form of joint ventures with Indian companies. Some of the key names are AIG, New York Life, Allianz, Prudential, Standard Life, Sun Life Canada and Old Mutual. The entry of new players has rejuvenated the erstwhile monopoly player LIC, which has responded to the competition in an admirable fashion by launching new products, new price structure and improving service standards.

Financial Development: The findings of Outreville (1996) indicate the level of financial development directly affects the development of life insurance sector. The ratio of broad definition of money (M2) to GNP at market price is regarded as an adequate measure for the financial development in developing countries because banking is the predominant factor in the financial market of developing countries.

Savings: The findings on the relationship between household sector savings in post office & commercial banks and the demand for life insurance are inconclusive. But Cargill and Troxel (1979) examine two kinds of interest rates in their study: the competing yield on other savings, products and the return earned by life insurers. The findings on the competing yield are inconsistent. However, the competing yield tends to be negatively related to life insurance savings. A higher interest rate on alternative

savings products tends to cause insurance products to become less attractive as a savings instrument.

Income: Income level significantly affects the demand for life insurance. The findings of Cargil and Troxel (1979), Babbel (1985), Browne and Kim (1993), Outreville (1996) and Rubayah and Zaidi (2000) confirm that income has a positive relationship with life insurance demand. Life insurance becomes more affordable when income increases.

Inflation: The findings of Browne and Kim (1993) and Outreville (1996) reveal that inflation has a significant negative relationship with life insurance demand. Inflation has a dampening effect on the demand for life insurance. High inflation tends to cause the purchasing of life insurance to be less attractive because of the rising cost of living. However the finding of Cargil and Troxel (1979) and Rubayah and Zaidi (2000) are not in line with the findings of Browne and Kim (1993) and Outreville (1996). Only the moderately defined savings model (i.e., the model that takes into account the changes in policy loans besides the changes in life insurance reserves / savings and dividend accumulations) in study of Cargill and Troxel (1979) generates a significant result with the expected negative sign for this variable. There is only a weak relationship between life insurance savings and price expectation. Further, the findings of Rubayah and Zaidi (2000) show an insignificant positive relationship between inflation rates and the demand for life insurance.

Model Specification

Based on the above propositions, the demand for life insurance is hypothesized to have the following relationships with the macro economic variables:

Demand = f (Price, FD, Savings, IPC, CPI,) ---------- (1)

Initial Estimation of Equation

In statistics, ordinary least squares (OLS) is a type of linear least squares method for estimating the unknown parameters or coefficient in a linear regression model. OLS chooses the parameters of a linear function of a set of explanatory variables by the principle of least squares: minimizing the sum of the squares of the differences between the

observed dependent variable (values of the variable being predicted) in the given dataset and those predicted by the linear function. An initial estimation equation is constructed by regressing demand (**Yt**) on current regressor i.e., each of the macroeconomic variables such as price of life insurance product (**X1t**), financial development (**X2t)**, savings with commercial banks (**X3t)**, income per capita (**X4t**) and inflation (**X5t**).

The initial estimation equation formulated for analysis is shown below:

$$\mathbf{Yt = \beta 0 + \beta 1\ X1t + \beta 2\ X2t + \beta 3\ X3t + \beta 4\ X4t + \beta 5\ X5t + Ut \quad \text{--------- (2)}}$$

Now we can estimate equation (2) by using OLS method and get the result in table (2).

Empirical Findings

Table 2 displays the result of the Ordinary Least Square (OLS) estimation for the initial test equation. From Table (2) OLS estimation indicates that the price of insurance product, financial development, savings appear to be important variables associated with the demand for life insurance. Price of insurance product and savings are negatively related to the demand for life insurance product. On the other hand financial development is positively and significantly related with the demand for life insurance product. This relationship is very natural, because as the financial development of an economy improves, then money supply (which is defined as broad money M2) in an economy increases, i.e., purchasing power of every individual in an economy increases and that leads to rise in demand for life insurance product.

The income per capita (IPC) has a significant negative relationship with the demand for life insurance product. But this finding is contrary to the hypothesized proposition that income per capita is positively related to the demand for life insurance product. As the per capita income in an economy increases then one would naturally expect that high income leads to cause more and more purchasing power of life insurance product. However, the findings on this variable have failed to show the expected positive sign. The inflation has a significant positive relationship with the demand for life insurance product. But this finding is contrary to the hypothesized proposition that inflation rate is negatively related to the demand for life–insurance product. This finding on inflation dose not confirms the findings of Browne and Kim (1993) and Osterville (1996) that inflation has a negative relationship with life insurance demand. But in the context of India, this finding may occur due to the fact that, as inflation

rises, then it leads to more future uncertainty for maintaining certain standard of living. So to maintain certain standard of living in future, there is a tendency to purchase more life insurance product at present time period.

Table 2: Empirical Findings

Variable	coefficient
CONSTANT	1.624
PRICE (X1t)	-.767
F.D (X2t)	6.420
SAVINGS (X3t)	-.423
IPC (X4t)	-6.277
INFLATION (X5t)	.22
R^2=.762	

A close scrutiny of Table 2 further reveals that price (X1t), F.D (X2t), Savings (X3t), IPC(X4t) and Inflation (X5t) explain about 76 % of the variance in the demand for life insurance in India (R^2=.762). This finding indicates that about 24% of the variance in the demand for life insurance is not being explained. There are other variables that are important in explaining the demand for life insurance that have not been considered in this study.

Conclusion

The major findings of this study show that the price of insurance and the F.D are two significant macroeconomic variables associated with the demand for life insurance in India. A small percentage decrease in the price change would help to increase the demand for life insurance. This finding has an important inference on policy formulation for the policy makers of the central bank and the marketing directors of life insurance companies. This finding may be helpful to the marketing directors of life insurance companies in developing pricing strategies to achieve a specific sales target for life insurance business in India. The findings reported in this paper are a preliminary finding of a research project undertaken to investigate the demand for life insurance. Further research in this area is necessary.

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