Insurance Development and Economic Growth : Evidence from India

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Abstract

Insurance as a component of the financial structure can be a vital element in the growth of economic activities as well as can enable an increase in the economy's size, employment, managed assets, etc. In light of this expected role played by insurance, the current study looked at how the development of insurance in an economy fosters its growth as well as factors contributing to the evolution of India's insurance market. For this purpose, we studied insurance development indicators, that is, insurance density and penetration and investigated their link with GDP growth. Later, we checked the role of demographic factors such as age dependency ratio, urban population growth, life expectancy, and adult literate population in explaining insurance density and penetration. Using Toda Yomamoto VAR Granger causality framework, the study found two-way causality between insurance development and economic progress supporting a feedback hypothesis on two-way association between insurance development and economic growth. Further, using ARDL bounds approach, we found a long run causality between life expectancy and insurance development. The study concluded by pointing the role of risk aversion caused by life uncertainty in promoting insurance development. It also brought out the importance of insurance development in economic growth, with scope of further research on similar lines by considering the role of insurance and its broader investigations.

Keywords: **Insurance density, Insurance penetration, causality, economic growth**

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Insurance as a component of the financial system makes economic activities possible as well as contributes to the growth of the economy's size, employment, managed assets, etc. (Liedtke, 2007 ; Outreville, 1990, 1996 ; Skipper Jr., 1997). Insurance also helps in increasing productivity in an economy by reducing the risk of abrupt demand for liquid money and by shifting the use of resources towards more productive avenues (Webb, Grace, & Skipper, 2005). In spite of the important role played by insurance in economic growth, it remains relatively less analyzed when compared to banks and other financial intermediaries. The current paper studies whether the development of the insurance sector leads to economic growth as well as attempts to find the factors contributing to the growth of the insurance sector in India.

Overview of Insurance Sector in India

The total insurance market in India increased from US$ 23 bn in 2005 to US$ 79.31 bn in 2016. The primary

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reason for this has been a growing awareness of insurance among people as well as innovative products and distribution channels aiding growth in the sector. Rising participation by private players along with an increase in FDI limit from 26% to 49% has further fuelled investments in the insurance industry. Support via government policies such as savings on tax when purchasing insurance products, issuance of insurance bill giving freedom to IRDA for framing insurance - related regulations, simplification and clarity of norms related to IPOs of insurance companies as well as attracting foreign participation has given an overall boost to the sector. Extending life insurance to pension plans, urban population under low - income category, health sector, as well as micro-insurance are potential opportunities in the sector. To foster the growth of the insurance sector and to create awareness about its need, the Pradhan Mantri Jeevan Bima Yojna was started by the Prime Minister, Shri Narendra Modi in 2015 to increase the percentage of population covered under insurance from only 20% at that time. The scheme provides insurance cover of ₹ 200,000 to people aged between 18 - 50 years at a gross premium of INR 330 only. The scheme was extended in budget 2018 to cover 60 crore basic accounts and enable the provision of micro insurance. Along with this, a health cover of ₹ 5 lakhs per year per family to cover 10 crore poor families was also introduced. These measures are expected to give a strong boost to the insurance sector.

As per IRDA, the total gross premium for the insurance industry in India from 2005 to 2016 increased from 23 bn USD in 2005 to 79.3 bn USD in 2016 with a CAGR of 8.6%. Out of the total gross premium, the gross premium written for non-life insurance sector grew from 4 bn USD in 2005 to 14.3 bn USD in 2016. On the other hand, the gross premium for life insurance stood at 19 bn USD in 2005 and increased to 54.7 bn USD in 2016.

The growth of total insurance density (TID), that is, the ratio of total insurance premium collected to the total population was 22.70 bn in 2005 to 59.7 bn USD in 2016, while the total insurance penetration (TIP), that is, insurance as a percentage of GDP increased from 3.14% in 2005 to 3.49% in 2016. Out of the total insurance density and penetration in 2016, the life insurance density (LID) and penetration (LIP) were 46.5 and 2.72% while non-life insurance density (NID) and penetration (NIP) were 13.2 and 0.77%, respectively.

India stands as the world's 15th biggest insurance market as per the volume of premium collected. Sinha (2013) ; Hariharan, Sailaja, and Patel (2017) ; and Chakraborty (2016, 2017) studied India's life insurance sector to determine the market concentration, risk management, and financial soundness of Indian life insurance companies.

The number of life insurance companies increased from 4 in 2002 to 24 in 2016. LIC continued to be the market leader with 70.4% market share, while the second player was ICICI Prudential whose market share stood at 6%. The non-life insurance companies grew from 15 in 2004 to 28 in 2016. New India Assurance led the market with a 13% share. Among non - life insurance, motor insurance had the highest share of 44% in 2016.

Literature Review

(1) Link Between Development of Insurance Sector and Growth of the Economy : The past literature uses various hypotheses to investigate how insurance leads to an increased growth in the economy. These hypotheses are (a) Supply leading hypothesis, which lays down insurance as a precursor to economic growth; (b) Demand following hypothesis, which considers growth in insurance responsible for deepening of the insurance sector ; (c) Feedback hypothesis that establishes a bidirectional relationship between the two ; while; (d) the neutrality hypothesis lays down no association between insurance and economic growth.

The current section lists all the studies taken up as well as the propositions given by each hypothesis. Chang, Lee, and Chang (2014) ; Chang and Caudill (2005) ; Lee, Chan, and Chen (2012) ; Lee, Tsong, Yang, and Chang (2013) tested whether the relationship between insurance and economic growth was supply-leading, demand following, neutral, or had a feedback association. Adams, Andersson, Andersson, and Lindmark (2009) ; Guochen

and Wei (2012) ; Haiss and Sumegi (2008) ; Kugler and Ofoghi (2005) ; Lee (2011) ; Lee, Chang, and Chen (2012) ; and Webb et al. (2005) supported the supply - leading hypothesis (SLH), that is, development of the insurance sector is a necessary pre-condition to economic growth. Guochen and Wei (2012), Kugler and Ofoghi (2005), and Ward and Zurbruegg (2000) supported the demand - following hypothesis (DFH) that economic growth is a causal factor for the development of the insurance sector. Beck and Webb (2003), Guochen and Wei (2012), and Kugler and Ofoghi (2005) supported the feedback hypothesis (FBH) which lays down that both, there is a complimentary relationship between economic growth and development of the insurance sector such that they support each other, resulting in them to be mutually causal. The neutrality hypothesis (NLH) was supported by Guochen and Wei (2012), which suggested that there is no link between development of the insurance sector and economic growth. Further, Sen and Madheswaran (2007) showed in their study that GDP is often highly correlated with insurance density and penetration, which are used as proxy variables measuring insurance demand.

(2) Demographic Factors Affecting Development of the Insurance Sector : Demographic factors play an important role in affecting demand for insurance. In the past, urbanization, adult literacy/education, age, life expectancy have been tested as major determinants of insurance development. Hwang and Gao (2003) found a positive relationship between urbanization and insurance demand due to the propensity of urban population towards saving funds for retirement. Beck and Webb (2003) studied that urbanization measures how people are concentrated and distributed across various geographies. This factor lowers the costs of distribution of insurance products. This lowers distribution costs of insurance products, helps in increasing the availability of insurance, and consequently increases its demand. Sen and Madheswaran (2007) and Sen (2008) studied 13 economies from Asia and discovered a positive relation amid urbanization and the demand for insurance. In case of the non - life insurance sector, Sherden (1984) stated that people living in the urban region perceived that there is a higher risk of encountering car accidents and burglaries and hence demanded non-life cover. Life expectancy was taken as a proxy for lifetime uncertainty by Yaari (1965), who established life insurance and life annuities as a way to insure against lifetime uncertainty. Fischer (1973) pointed out that models of insurance demand either took an infinite time horizon or assumed the date of death to be known with surety, leading to life expectancy being important in affecting insurance demand. Outreville (1996) pointed that education increased the level of risk aversion and hence led to higher demand for life insurance. Gross enrolment index (GEI) is a measure to determine the number of students registered in school at several different levels say, primary, secondary, and tertiary. Browne and Kim (1993) concluded that education leads to a person become a breadwinner for his/her family. This increases demand for insurance, to cover the risk of dependents losing their primary earning member. Age dependency ratio is the ratio of dependents, which includes people less than 15 or more than 64 years of age to the working-age population. Age dependency has been studied as proxy for age.

Given the above literature, there is a dearth of studies on the causal relationship between insurance and India's economic growth as well as the demographic factors that can lead to a higher insurance density and penetration in India. Hence, the current study has been taken up to analyze four dimensions of the insurance sector : LID, LIP, NID, NIP, TID, TIP, and link them to economic growth measured by GDP. In addition, the current research tries to determine the role of demographic factors such as age dependency ratio, urban population growth, life expectancy, and adult literate population in explaining insurance density and penetration in India.

Research Methodology

↳ **Data and Variables :** The research was conducted for the time period 2001-2016 (16-year period) with data from IRDA and world development indicators database of World Bank. The relationship between economic

Table 1. Descriptive Statistics: 2001-2016

	Life Insurance Density	Life Insurance Penetration	Non-Life Insurance Density	Non-Life Insurance Penetration
Mean	33.57	3.25	6.92	0.66
Median	41.00	3.17	6.20	0.63
Maximum	55.70	4.60	11.00	0.80
Minimum	9.10	2.15	2.40	0.56
Observations	15	15	15	15

Source: Compiled from IRDA annual reports

growth and the coverage of life and non-life insurance sector in terms of amount of premiums underwritten was tested by using the following variables:

ΔGDP – change in gross domestic product, life insurance density (LID), direct domestic premiums (DDP), life per capita (in USD), non - life insurance density (NID), DDP non-life per capita (in USD), life insurance penetration (LIP), DDP life (in USD) and used as a % of GDP, non-life insurance penetration (NIP), DDP non - life (in USD) and used as a % of GDP.

Life expectancy, age dependency ratio, urban population growth, and gross enrolment ratio were taken as socioeconomic factors. The Table 1 gives the descriptive statistics of all the variables selected for the study.

Model Selection, Data Analysis, and Results

(1) Identifying the Relationship Between Development of the Insurance Sector and Economic Growth : To understand the relationship between insurance sector development and economic growth, we decided to test the causality between GDP growth and the development indicators of life and non-life insurance sector. Data were tested for all necessary requirements of stationarity by applying the Augmented Dickey-Fuller test.

The time series properties of GDP growth along with life and non-life insurance development indicators were examined through Augmented Dickey-Fuller (ADF) procedure. The Modified Akaike Information Criterion (MAIC) was applied to determine the maximum lag lengths. The results of ADF test shown in Table 2 reveal that the series of GDP growth were stationary at first difference. On the other hand, life insurance density, non-life insurance density, and total density were all stationary at second difference ; while life, non - life, and total penetration were stationary at first difference.

Whenever a time series is integrated at different orders such that there is a mix of variables having first and second order of integration (a common finding in macroeconomic time series data), VECM should not be used. Dolado and Lutkepohl (1996) and Toda and Yamamoto (1995) introduced modified Wald's test (MWALD). This test has a basis of augmented VAR modeling for testing causality between time series having variable orders of integration. The TYDL method has been found to be better than normal Granger causality as the method does not have a pre-requisite of testing for cointegration. TYDL can be used irrespective of the level of integration in a series, that is, whether a series is integrated of order 0, 1, or 2, as well as if the data is not cointegrated or is

Table 2 . Summary of Stationarity Test Results

Variables	*GDP Growth*	*LID*	*LIP*	*NID*	*NIP*	*TID*	*TIP*
Level of Stationarity	First difference	Second difference	First difference	Second difference	First difference	Second difference	First difference

cointegrated of any random order. Hence, we decided to use VAR with Toda Yamamoto causality approach in order to test for causality between the variables. Given *n* say *Y*1, *Y*2, *Y*3 and variables *I*(1) and *I*(2), respectively. The VAR for these is given as:

$$\begin{pmatrix} Y_{1t} \\ Y_{1t} \\ Y_{1t} \end{pmatrix} = \begin{pmatrix} \delta_{10} \\ \delta_{10} \\ \delta_{10} \end{pmatrix} + \sum_{i}^{k} \begin{pmatrix} \delta_{11i} & \delta_{12i} & \delta_{13i} \\ \delta_{11i} & \delta_{12i} & \delta_{13i} \\ \delta_{11i} & \delta_{12i} & \delta_{13i} \end{pmatrix} \begin{pmatrix} Y_{1t-i} \\ Y_{1t-i} \\ Y_{1t-i} \end{pmatrix} + \sum_{j=1}^{d} \begin{pmatrix} \delta_{11,k+j} & \delta_{12,k+j} & \delta_{13,,k+j} \\ \delta_{11,k+j} & \delta_{12,k+j} & \delta_{13,,k+j} \\ \delta_{11,k+j} & \delta_{12,k+j} & \delta_{13,,k+j} \end{pmatrix} \begin{pmatrix} Y_{1t-k-j} \\ Y_{1t-k-j} \\ Y_{1t-k-j} \end{pmatrix} + \begin{pmatrix} \varepsilon_1 \\ \varepsilon_1 \\ \varepsilon_1 \end{pmatrix}$$

A modified MWALD test is used to draw final conclusions. The Table 3 gives the results of Toda Yamamoto test.

Table 3. Estimates of Toda Yomamoto VAR Granger Model

GDP Growth vs Life Insurance Density	
Dependent Variable: GDP growth	**Chi square**
Life density	12.716* (0.002)
Dependent Variable: Life Insurance Density	
GDP Growth	8.75* (0.013)
GDP Growth vs Life Insurance Penetration	
Dependent Variable: GDP growth	**Chi square**
Life Insurance Penetration	31.403* (0.000)
Dependent Variable: Life Insurance Penetration	
GDP Growth	6.758* (0.034)
GDP Growth vs Non-Life Insurance Density	
Dependent Variable: GDP growth	**Chi square**
Non-Life Insurance Density	10.81* (0.004)
Dependent Variable: Non-Life Insurance Density	
GDP Growth	14.393* (0.003)
GDP Growth vs Non-Life Insurance Penetration	
Dependent Variable: GDP growth	**Chi square**
Non-Life Insurance Penetration	12.058* (0.002)
Dependent Variable: Non-Life Insurance Penetration	
GDP Growth	1.639 (0.498)
GDP Growth vs Total Insurance Density	
Dependent Variable: GDP growth	**Chi square**
Total Insurance Density	13.522 (0.001)*
Dependent Variable: Total Insurance Density	
GDP Growth	7.1743 (0.028)*
GDP Growth vs Total Insurance Penetration	
Dependent Variable: GDP growth	**Chi square**
Total Insurance Penetration	26.174 (0.000)*
Dependent Variable: Total Insurance Penetration	
GDP Growth	5.1736 (0.075)**

Note. *& **show significance at 5% and 10% levels, respectively.

Variables: GDP per capita economic growth, Life insurance density *(LID)*, Non-life insurance density *(NID)*, Non-life insurance penetration *(NIP)*, Total insurance density *(TID)*, Total insurance penetration *(TIP)*

(2) Causality Between Insurance Development and GDP Growth : The Table 3 indicates that GDP has a bi-directional causality with life insurance density, defined as the amount of premiums collected, as well as with life insurance penetration, that is, the percentage contribution of life insurance to GDP. This indicates that the total premiums collected as well penetration of life insurance increases GDP leading to higher economic growth.

Among the non-life insurance sector growth variables, bi-directional causality is found between GDP and non-life insurance density, but uni-directional causality exists from non-life insurance penetration to GDP. This shows that premiums, when taken as a percentage of GDP, have been a driving factor for economic growth; however, the increase in GDP in turn does not cause a rise in insurance penetration. The total insurance density and penetration, both have a bi-directional relationship with GDP. Hence, life insurance density and penetration along with non-life insurance density, total insurance density, and total insurance penetration are driving GDP and are also been driven by GDP. Non-life insurance penetration has been a driving factor for GDP, but it is not affected by GDP in return. The results show a presence of association between GDP and all the life and non-life development indicators.

Overall, from the results, we can say that advancement of life and non-life insurance sectors and GDP are mutually associated with each other. The development of insurance leads to higher GDP growth and GDP growth in turn causes the growth of insurance as proved by Toda Yamamoto VAR Granger causality model.

(3) Relationship Between Demographic Factors and Insurance Development : Total insurance density and penetration were selected in order to see the impact of demographic factors namely, total population growth, life expectancy, gross enrolment ratio, and age dependency ratio on the overall growth of insurance sector from 2001-2016. We found the variables to be non-stationary and integrated of different orders (0 &1). Hence, we could not use an OLS regression as well as co-integration with VECM. Therefore, we decided to use an Autoregressive-Distributed Lag (ARDL) model to check long term and short- term integration.

(4) ARDL Model : In simplest forms, an ARDL model can be described as :

$$yt = \beta 0 + \beta 1 yt - 1 + ...+ \beta pyt - p + \alpha 0 xt + \alpha 1 xt - 1 + \alpha 2 xt - 2 + ... + \alpha qxt - q + \varepsilon t$$

where, εt is an error term. In this case, the dependent variable, *yt* is partly explained by lagged values of itself as well as previous lags of the *"x"* independent variable.

For applying the ARDL model, an optimal lag length of 1 was selected, which was found as per lowest AIC criteria (6.2264 for total density & 1.2536 for total penetration). The Tables 4 and 5 show the results of long run causality, while Tables 6 and 7 show those of short run causality.

From Tables 4 and 6, we observe that life expectancy shows a long run causality with total insurance density

Table 4. Insurance Density : Long Run Causality

Wald Test Statistic for Long Run Causality	*F* - Statistic Value	*Df*	Probability
Age Dependency Ratio	2.82	(2,7)	0.12
Gross Enrolment Ratio	3.69	(2,7)	0.08
Life Expectancy ratio	10.17*	(2,7)	0.00*
Urban Population Growth	3.03	(2,7)	0.11
All Variables Jointly Taken	1.82	(5,1)	0.50

*significant as > Pesaran upper Critical value 4.85.

Table 5. Insurance Penetration: Long Run Causality

Wald Test Statistic for Short Run Causality	*F* - Statistic Value	*df*	Probability
Age Dependency Ratio	2.00	(2,7)	0.20
Gross Enrolment Ratio	1.62	(2,7)	0.26
Life Expectancy ratio	13.04*	(2,7)	0.00
Urban Population Growth	2.34	(2,7)	0.16
All Variables Jointly Taken	3.36	(1,6)	0.39

*significant as > Pesaran upper Critical value 4.85.

Table 6. Insurance Density : Short Run Causality

Wald Test Statistic for Short Run Causality	*F* - Statistic Value	*Df*	Probability
Age Dependency Ratio	-0.55	(1,8)	0.59
Gross Enrolment Ratio	0.05	(1,8)	0.82
Life Expectancy ratio	2.41	(1,8)	0.15
Urban Population Growth	0.045	(1,8)	0.83
All Variables Jointly Taken	0.55	(4,5)	0.70

Table 7. Insurance Penetration : Short Run Causality

Wald Test Statistic for Short Run Causality	*F* - Statistic Value	*Df*	Probability
Age Dependency Ratio	0.16	(1,8)	0.69
Gross Enrolment Ratio	0.00	(1,8)	0.93
Life Expectancy ratio	0.01	(1,8)	0.91
Urban Population Growth	0.00	(1,8)	0.93
All Variables Jointly Taken	1.04	(3,5)	0.44

Table 8. Diagnostic Tests for Insurance Density and Life Expectancy

Breusch - Godfrey Serial Correlation LM Test:			
F - statistic	1.02	Prob. *F*(1,6)	0.35
Obs * *R* - squared	1.74	Prob. Chi-Square(1)	0.18

Table 9. Diagnostic Tests for Insurance Penetration vs Life Expectancy

Breusch - Godfrey Serial Correlation LM Test:			
F-statistic	2.50	Prob. *F* (1,6)	0.16
Obs**R* - squared	3.53	Prob. Chi-Square(1)	0.06

and penetration. We further test the model of life expectancy for serial correlation and stability by using LM test for serial correlation and Cusum test (Table 8 and Figure 1, Table 9 and Figure 2). The model was stable and had no serial correlation. There was no short run causality between any of the variables and total insurance density or penetration as shown in Tables 6 and 7.

Hence, from the testing of relationship between demographic factors, insurance density and penetration, we conclude that only life expectancy, which is taken as a proxy for life uncertainty, is significant in causing the growth of the insurance sector in India.

Figure 1. Insurance Density vs. Life Expectancy: CUSUM Test for Stability of Model

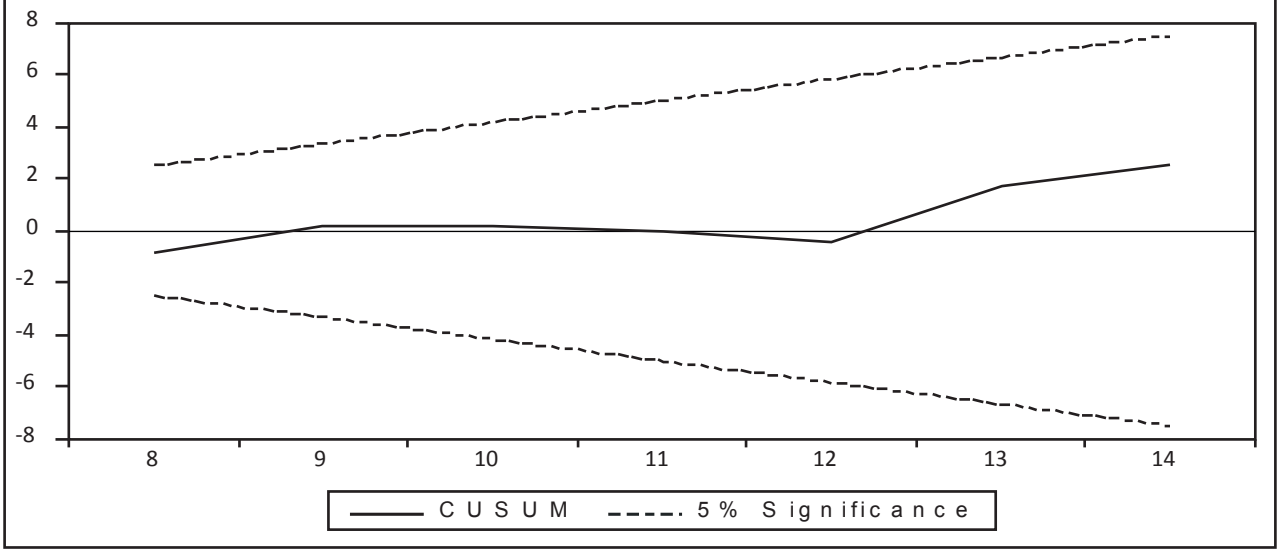
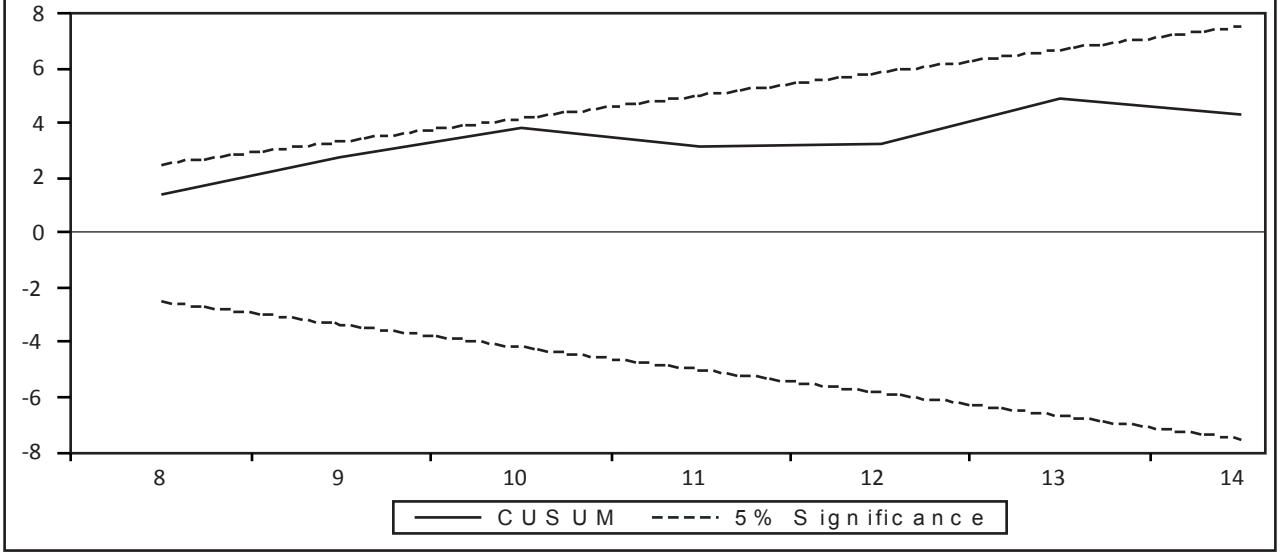


Figure 2. Insurance Penetration vs. Life Expectancy: CUSUM Test for Stability



Discussion and Conclusion

The current paper brings out the association between insurance and economic growth, measured via GDP, as well as the demographic factors that directly/indirectly reflect risk aversion of individuals and lead to demand for insurance.

The study finds that GDP is driven by life insurance density and penetration, non - life insurance density and penetration, as well as total insurance density and penetration. This supports the supply leading hypothesis, that is, insurance sector as a proxy for financial development leads to development of real sector or GDP growth. The development of insurance as a component of financial sector channelizes funds from small savers to large borrowers and leads to development of the real sector. These findings are in accordance with the findings of

Outreville (1990) and Ward and Zurbruegg (2002), who proposed that the insurance industry generates economic growth through transfer of risk from one party to another as well as by financial intermediation. Browne and Kim (1993) ; Esho, Kirievsky, Ward, and Zurbruegg (2004) ; Outreville (1996) ; and Ward and Zurbruegg (2000 & 2002) also found that the link between insurance demand and economic growth was strong in cross-country cases as well.

Research Implications

A policy implication of these results is that rapid growth of insurance can cause financial development, which can ensure growth rate of the real sector by supply of funds to enterprises. This can eventually lead to increased financial intermediation. This implies that the continued development of the insurance sector may lead to further deepening and widening of the financial markets, which may in turn cause economic development. Apart from the above, there also exists causality from GDP towards life and non-life insurance density, life insurance penetration, as well as total insurance density and penetration. This implies the support of a demand following hypothesis, which advocates that the development of the insurance sector is the result of economic growth or the real economy's development. The underlying argument of this hypothesis is that as the economy breeds, it brings extra insurance coverage in the market to meet the higher demand for financial services. This result is in line with the findings of Beck and Webb (2003), Guochen and Wei (2012), and Kugler and Ofoghi (2005).

Overall, the existence of both demand and supply effects lead us to the conclusion that the relationship between GDP and insurance sector in India can be explained by the feedback hypothesis, which suggests that there exists a mutually reinforcing and complimenting relationship between economic growth and development of the insurance sector. These findings are in line with the findings of Beck and Webb (2003), Kugler and Ofoghi (2005), and Guochen and Wei (2012), who also proposed the development of the insurance sector as vital to economic growth and economic growth inexorably requires a developed insurance market.

Practical Implications of the Findings

The above findings suggest developing the insurance sector along with the nexus of banking and financial markets in order to have complete financial intermediation that can drive economic growth.

The second part of the study demonstrates the role of life expectancy as a proxy of lifetime uncertainty among socio-demographic variables in affecting the total insurance demand of the Indian economy. The results also show the dominance of life insurance over non-life insurance demand in India (refer to Table 1). Individuals face longevity risk and mortality risk, and to cover this, they may go for life insurance annuities and plans, respectively. Life uncertainty also influences the growth of non-life insurance like health, property, loan insurance to cover the risk of loss, which may have higher aversion with greater life uncertainty. Ward and Zurbruegg (2002) advocated that longer life expectancy indicates a reduced probability of death and hence a decrease in demand for life insurance products that provide a pure security against death risk. On the other hand, life insurance policies may also serve as an instrument of contractual savings and an expectation of longer average life may increase insurance demand for additional savings. Outreville (1996) pointed out that life expectancy helps in determining the actuarially fair price to be charged for life insurance. This is because the longer people are going to live, the more premium payments will flow, and this results in expansion of the insurance sector. Outreville (1996) also found that there existed a significant positive relationship between life expectancy and life insurance demand in developing countries. He found that as government spending on social security is increased, the need for individuals to privately save and provide for life insurance to cover the risk of higher life expectancies or of early

death are reduced. Ward and Zurbruegg (2002) mentioned that the lack of social welfare provisions accompanied by a deteriorating age structure has a significant impact on the demand for life insurance in OECD countries. He found that deteriorating age pointed out towards a lower life expectancy of the population and hence increased insurance consumption in OECD countries.

The paper is an attempt to initiate thinking on ways to bring out demand for insurance such that people do not regard it as an unnecessary expenditure, but a compulsory protection (as pointed by Liedtke, 2007). This increased demand can hence boost economic growth. The insurance industry in India has shown an exponential growth during the last decade. In order to promote economic growth via spread of insurance as well as to exploit huge market potential in the future, the government and insurers need to understand clear strategies. The primary areas for improvement can be innovating to bring new products and boost demand, channelizing resources rather than cutting costs, and use of artificial intelligence in improving efficiencies and automation of services for value creation as well as differentiation.

Limitations of the Study and Scope for Future Research

The current study can be further improved upon by comparing the role of financial intermediaries like banks in developing insurance and hence economic growth. With a lot of research available on the relationship between other financial intermediaries, that is, bank/capital markets and economic growth, there remains a requirement of more empirical work on similar lines by considering the role of insurance as well as its broader investigations with economic development. Besides demographic factors affecting insurance, a research can be taken up on how a tech driven shift will impact insurance sector and how the growth of this sector can be sustained by shifting from 'detection and repair' model to a 'prediction and prevention' model.

References

Adams, M., Andersson, J., Andersson, L. - F., & Lindmark, M. (2009). Commercial banking, insurance and economic growth in Sweden between 1830 and 1998. *Accounting, Business and Financial History, 19* (1), 21 - 38. DOI : https://doi.org/10.1080/09585200802667139

Beck, T., & Webb, I. (2003). Economic, demographic, and institutional determinants of life insurance consumption across countries (English). *The World Bank Economic Review, 17*(1), 51 - 88.

Browne, M. J., & Kim, K. (1993). An international analysis of life insurance demand. *Journal of Risk and Insurance, 60* (4), 616 - 634. DOI: 10.2307/253382

Chakraborty, J. (2016). Market concentration and firm performance: Evidences from the Indian life insurance industry. *Indian Journal of Finance, 10* (9), 30 - 52. DOI: 10.17010/ijf/2016/v10i9/101477

Chakraborty, J. (2017). Financial soundness of Indian life insurance firms : An investigation based on the CARAMELS framework. *Indian Journal of Finance, 11*(11), 7-29. DOI: 10.17010/ijf/2017/v11i11/119339

Chang, T., & Caudill, S. B. (2005). Financial development and economic growth: the case of Taiwan. *Applied Economics, 37*(12), 1329-1335. DOI : http://www.tandfonline.com/doi/abs/10.1080/0003684042000338702

Chang, T., Lee, C. - C., & Chang, C. - H. (2014). Does insurance activity promote economic growth ? Further Evidence based on bootstrap panel Granger causality test. *The European Journal of Finance, 20* (12), 1187 - 1210. DOI : https://doi.org/10.1080/1351847X.2012.757555

Dolado, J., & Lutkepohl, H. (1996). Making Wald tests work for cointegrated VAR systems. *Econometric Review, 15*(4) 369 - 386.

Esho, N., Kirievsky, A., Ward, D., & Zurbruegg, R. (2004). Law and the determinants of property - casualty insurance. *Journal of Risk and Insurance, 71*(2), 265 - 283.

Fischer, S. (1973). A life cycle model of life insurance purchases. *International Economic Review, 14* (1), 132 - 152.

Guochen, P., & Wei, S. C. (2012). *The relationship between insurance development and economic growth: A cross-region study for China*. China International Conference on Insurance and Risk Management, July 18-21, 2012, Qingdao, China.

Haiss, P. R., & Sumegi, K. (2008). The relationship between insurance and economic growth in Europe: A theoretical and empirical analysis. *Empirica, 35*(4), 405 - 431. DOI : http://hdl.handle.net/10.1007/s10663-008-9075-2

Hariharan, B. R., Sailaja, V.N., & Patel, K.V. (2017). A study of disclosure on risk management of life insurance companies in India. *Indian Journal of Finance, 11* (1), 29 - 43. DOI: 10.17010/ijf/2017/v11i1/108959

Hwang, T., & Gao, S. (2003) The determinants of the demand for life insurance in an emerging economy - The case of China. *Managerial Finance, 29* (5/6), 82 - 96.

Kugler, M., & Ofoghi, R. (2005). *Does insurance promote economic growth ? Evidence from the UK*. Money Macro and Finance (MMF) Research Group Conference. United Kingdom. Retrieved from http://repec.org/mmfc05/paper8.pdf

Lee, C. - C., Tsong, C. - C., Yang, S. - J., & Chang, C. - H. (2013). Investigating the stationarity of insurance premiums : International evidence. *The European Journal of Finance, 19* (4), 276 - 297. DOI : https://doi.org/10.1080/1351847X.2011.653577

Lee, C. C. (2011). Does insurance matter for growth: Empirical evidence from OECD countries. *The BE Journal of Macroeconomics, 11*(1), 1 - 26.

Lee, C. C., Chang, C. P., & Chen, P. F. (2012). Further evidence on property - casualty insurance premiums: Do multiple breaks and country characteristics matter? *Japan and the World Economy, 24* (3), 215 - 226.

Liedtke, P.K. (2007). What's insurance to a modern economy? *The Geneva Papers on Risk and Insurance - Issues and Practice, 32* (2), 211 - 221.

Outreville, J. F. (1990). The economic significance of insurance markets in developing countries. *Journal of Risk and Insurance, 57*(3), 487 - 498.

Outreville, J.F. (1996). Life insurance markets in developing economies. *The Journal of Risk and Insurance, 63* (2), 263 - 278.

Sen, S. (2008). *An analysis of life insurance demand determinants for selected Asian economies and India* (Working Paper 36/2008). Madras School of Economics, Chennai. Retrieved from http://www.mse.ac.in/pub/working%20paper%2036.pdf

Sen, S., & Madheswaran, S. (2007). *Are life insurance demand determinants valid for selected Asian economies and India?* APRIA 11th Annual Conference - Asia-Pacific Risk and Insurance Association (pp. 1 - 27). Taipei: National Chengchi University.

Sherden, W. (1984). An analysis of the determinants of the demand for automobile insurance. *The Journal of Risk and Insurance, 51* (1), 49 - 62.

Sinha, A. (2013). Financial soundness in Indian life insurance: A comparison between two leading private players. *Indian Journal of Finance, 7* (4), 22 - 30.

Skipper Jr., H. (1997). *Foreign insurers in emerging markets: Issues and concerns* (Occasional Paper (1)), 97 - 92. Retrieved from http://www.iifdc.org/pubs/skipper.pdf

Toda, H.Y., & Yamamoto, T. (1995) Statistical inference in vector autoregressions with possibly integrated processes. *Journal of Econometrics, 66* (1 - 2), 225 - 250. DOI : https://doi.org/10.1016/0304-4076(94)01616-8

Ward, D., & Zurbruegg, R. (2000). Does insurance promote economic growth? Evidence from OECD economies. *Journal of Risk and Insurance, 67* (4), 489 - 506.

Ward, D., & Zurbruegg, R. (2002). Law, politics and life insurance consumption in Asia. *The Geneva Papers on Risk and Insurance - Issues and Practice, 27*(3), 395 - 412.

Webb, I.P., Grace, M. F., & Skipper, H. D. (2005). The effect of banking and insurance on the growth of capital and output. *SBS Revista De Termas Financieros, 2* (2), 1 - 32.

Yaari, M. E. (1965).Uncertain lifetime, life insurance, and the theory of the consumer. *The Review of Economic Studies, 32* (2), 137 - 150.

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