Contribution of Insurance on Economic Growth in India: An Econometric Approach

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Insurance is an important part in the financial sector that contributes significantly to the economy of a country. Insurance market contributes hugely to the economic growth and also helps in managing risk more effectively. This piece of research work made an attempt to examine the relationship between insurance and economic growth in India considering the state level data and contributing to the existing literature. The data is collected for twenty-five states of India and covers the time period for 1995 to 2015. Endogenous growth model is used. Fixed effect model. Pooled ordinary least square generalized moment method (GMM) estimation techniques are used to establish the relationship between insurance and economic growth. This result infers that the insurance policies which can improve the insurance penetration in different states of India should be promoted. The relationship between physical capital and economic growth indicates that more investments should be made on infrastructure policies like health facilities, road etc. This research work could contribute largely to the insurance growth and economic growth and thus is beneficial to the Insurance sector and the Government of India.

INTRODUCTION

Financial sectors of a country are considered as a vital part of its economic growth. An effective and well developed financial system helps to increase productivity and subsequently the economic growth. Insurance as a prominent financial sector contributes hugely to the economy of a country and also helps in managing risk more effectively (Ward and Zurbruegg, 2000). Moreover, insurance contributes significantly to promotion of stabilization of finances, enabling trade and commerce, managing risk in an effective manner, mobilization of savings, allocation of capital in an effective way and also it acts as a complement of Government security programs (Skipper, 2001)

The broad categorization of Insurance can be defined as life insurance, non-life insurance and reinsurance. Life insurance represents the long- term funds whereas the non-life insurance represents short -term funds. Reinsurance can be defined as security of other insurance company against loss. However, existing literatures show that insurance development significantly affect the economic growth (Outreville 1990, 1996, Browne and Kim 1993, Beck and Hebb 2003). The controversial relation between economic growth and financial development is highlighted in many researches. The output of some of the research paper revealed that the financial development leads to economic growth where as some other research paper output contracted the same. (Levine 1993).

In the entire financial sector, the share of insurance is increasing significantly and thus the importance of insurance is also rising in almost all developed and developing countries. Insurance companies are the

major investors of bond, stock market and real estate market. Due to huge income disparity, cultural and socio economic changes in the society and globalization, the impact of these investments is also growing. The potential role of insurance sector in economic growth is also defined by the rising links between the insurance and other financial sectors (Rule, 2001).

For last few years, it is observed that the insurance sector is growing across the globe. At the same time the contribution of insurance to the financial sector is remarkable. The existing literature depicts that many researchers have researched domestic savings utilization, effective and efficient risk management, loss reduction, domestic capital allocation in an effective manner and financial stability promotion. Most of these studies highlighted a positive association between insurance and economic growth. Some recent researches are focused on the impact of insurance on economic growth in global context.

The insurance industry in India is witnessing a growth rate of 12-13% in the financial year 2015. Due to the changing life style, work culture and high income structure, change in consumption types and rate lots of change is currently happening in the insurance sector. (Daily News &Analysis) reports reveal that some of the key drivers of for the growth in insurance market are 'make in India ' initiatives, investment in infrastructure, smart cities initiative and increased consumption. The implementation of seventh pay commission, which will increase the pay-scale and it ultimately leads to more investments which will contribute to economic growth. Insurance being a capital intensive business an increase in FDI lead to more investment to grow the business. Insurance company in India helps in mobilization of savings. Insurance companies accumulate huge funds which are generated from the premiums they collect from the policies offered to the customers. These funds collected from the insurance policies are invested in multiple ways such that it can largely contribute to the economic growth.

This research focuses on establishing and investigating the relationship between insurance and economic growth in Indian context using panel data. For this research the data is collected for twenty-five states of India and covers the time period for 1995 to 2015 from various secondary sources like IRDA website, CMIE, RBI bulletin, State economic survey report etc. Endogenous growth model is used for this purpose. Pooled ordinary least square generalized moment method is used to study the relationship between the two.

In this research the independent variables like premium, human capital, physical capital is found to be significant variables. The results also reveal that premium, physical capital has positive impact. It is also seen that whereas human capital has negative impact on economic growth.

This research paper contributes extensively to the existing literature. Some of the available research focused on developing the relationship between insurance and economic growth in the global context where as some other research depicted about the comparative study amongst several countries. Such research using state level data is a research gap. Investigating the relationship between economic growth and insurance using state level panel data is the key objective of this research paper.

The rest of the research work is documented as follows: Section 2 deals with literature extant. In section 3 methodology is discussed, Section 4 highlights the empirical results. Section 5 discussed the conclusions whereas section 6 deals with implications of the research.

LITERATURE EXTANT

The literature on the relationship between financial sector and economic growth are moderately documented. However, In India very few conceptual and empirical studies are available. In most of the studies the relationship is studied on different countries. The similar research is done on twelve countries using pooled time series and cross sectional analysis and the result revealed that Gross national product (GNP) and interest rate are correlated with premiums. (Beenstock, Dickson and Khajuria, 1988).

Long run relationship between insurance market size and economic growth for the time period of 1966 to 2003 is studied in the United Kingdom and the results reveal that a bidirectional causal relationship exists between economic growth and insurance market size (Kugler and Ofoghi, 2005)

A cross country panel data analysis is conducted to study the impact of insurance investments and premiums on economic growth in fifteen UE countries for the time period of 1992 to 2005, Haiss and

Sumeji (2008). The result of this research shows the impact of life insurance on economic growth is positive. Krishna (2008) research work revealed that rate of growth of insurance reforms has a positive impact on economic development.

The pattern of interaction between insurance development and economic growth is studied by Guochen Pan,Hsu-Ling & Su Chi Wei (2012). The results of this research shows that supply leading pattern is significant for most of the provinces where as demand following pattern are found to be significant for high income provinces. The relationship between insurance and economic growth is researched in Sub-Saharan Africa over the period 1986-2011using pooled regression and the results shows a significant and positive relationship between the two in Sub-Saharan Africa, Taiwo Akinlo (2014).

Literature Gap:

The literature on the study of insurance progress and economic growth are moderately documented. some of the literature studied the financial development and economic growth with reference to banking sector and stock market (Arena, 2006). Most of the existing research paper studied the economic growth and its relationship with insurance progress or use and development in the global context, Peter R Haiss, K Sumegi (2008). The importance of insurance sector amongst all financial sectors have become very significant. The causal relationship between economic growth and the financial sectors like banks, capital markets etc. are researched massively. On the other hand, the relationship between insurance and economic growth are very thinly researched and documented.

The theoretical research pointed out that insurance should contribute to the economic growth. A very few empirical study on insurance and economic growth is available in comparison to other financial market.

There is very few conceptual research available in Indian context and on global context as well.

The relationship between insurance and economic growth is mostly established either in global context or in the context of a cross-country comparative study in the existing research.

Such research using state level data is a research gap. It is also important to understand how the insurance within the states in India are contributing to economic growth. This piece of research work made an attempt to investigate the impact of insurance and economic growth in India considering the state level data and contributing to the existing literature.

METHODOLOGY

The methodology adopted for this research is mainly discussed in three segments a) data sources, b) Explanatory Variables and measurement of the same, c) Statistical techniques

Data Source

Panel data is used for this empirical research. The data is collected for twenty-five states of India and covers the time period for 1995 to 2015. In the sample the states are selected on the basis of data availability. The data is collected from various secondary sources like IRDA website, CMIE, RBI bulletin, State economic survey report etc.

Explanatory Variables and Measurement of Variables

For regression model the percentage growth of GDP is taken as a dependent variable. The repressors or independent variables are gross premium income, physical capital, human capital, education and investment. The missing values on some of the variables are taken care of by interpolation. The independent variables, their description and expected impact on percentage growth of GDP is reported in Table 1 below:

TABLE 1

Independent variables	Variable Description	Expected Impact of percentage growth GDP
Gross premium income	Measured by total sum of premium income from life and non-life insurance	+
Physical capital	Gross-fixed capital formation as a percentage of GDP	+
Human capital	Estimated by the total work force	-
Education	Enrollments in primary and secondary systems	+
Export	Exports of goods and services in relation to GDP	+

Statistical Techniques

To investigate the relationship between insurance and economic growth is the key objective of this research paper. In this research paper descriptive statistics is used to check with the statistical properties of the variables. Correlation analysis is performed to investigate possible association among the variables. To determine the relationship between insurance and economic growth fixed effect model. Pooled ordinary least square generalized moment method(GMM) estimation techniques are used.

Empirical Results

To understand the statistical properties of the variables descriptive statistics of the variables are calculated. The results are as follows:

TABLE 2
DESCRIPTIVE STATISTICS

	GDP	GROSS PREMIUM	HUMAN CAPITAL	PHYSICAL CAPITAL	EDUCATION	EXPORT
Mean	21.66	5.90E-05	14.81	3.93	9.43	4.21
Median	22.21	-0.11 5	15	3.01	7.1	4.17
Maximum	26.71	2.88	17.77	20.54	60.01	5.34
Minimum	5.26	-4.6	11.57	-1.22	2.42	2.97
Standard Deviation	3.18	0.95	1.32	3.71	8.66	0.44
Skewness	-3.8	0.47	-0.19	3.41	2.87	0.08
Kurtosis	20.18	4.9	2.42	13.38	13.38	0.71
Sum	12015.2	0.0329	8177.65	2178.64	5244.56	2315.78

Table 2 depicts that there is no discrepancy in the results so far as the statistical properties are concerned. It is observed that descriptive statistics say mean and median of all the variables in the data series lie between the minimum and maximum values of the series implies there exists high level of consistency. Low standard deviations in the results reveal that the deviation of the observations from their means is minimal. It is also found that insurance premium has less variability in comparison to others.

Before the model building, the association between variables has to be studied. The degree of association is studied amongst the variables using correlation technique. The results are as follows:

TABLE 3
CORRELATION MATRIX

	GDP	GROSS PREMIUM	HUMAN CAPITAL	PHYSICAL CAPITAL	EDUCATION	INVESTMENT
GDP	1					
GROSS PREMIUM	0.208	1				
HUMAN CAPITAL	0.277	-0.058	1			
PHYSICAL CAPITAL	-0.571	-0.11	0.279	1		
EDUCATION	0.009	-0.02	0.176	0.025	1	
EXPORT	-0.099	0.128	0.125	0.057	-0.096	1

The results of correlation show that premium is positively correlated with GDP with a coefficient of 0.208. Human capital is found to be have a positive relation with GDP with a coefficient of 0.277 whereas physical capital has a negative correlation with GDP with -0.571coefficient. Education has a coefficient of 0.009 indicates a positive correlation with GDP. Export is positively correlated with GDP with a coefficient of -0.099. It is clear that premium and human capital has positive but weak relationship with GDP. Physical capital has negative and moderate association with GDP whereas education has negative and very weak association with GDP. The association between GDP and export is very weak but positive.

To study the relationship between insurance and economic growth, three functional estimation techniques say pooled OLS, fixed effect and Generalized method of moments are performed. The results are as follows:

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TABLE 4
PANEL DATA ESTIMATES

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Variables	Pooled OLS Result	Fixed Effect	GMM
Constant	10.35***	21.39***	
	(8.51)	(7.28)	
GDP			0.634***
			(7.35)
GROSS_PRM	0.517***	-0.043	0.0373
	(6.12)	(-1.330)	(0.234)
HUMAN_CAPITAL	2.226***	-0.115	0.2154***
	(15.32)	(0.5133)	4.84
PHYSICAL_CAPITAL	-0.543***	-0.0051	0.0665
	(-21.59)	(-0.261)	(1.855)
EDUCATION	0.0344	0.0256***	0.0025
	0.43	2.832	0.3324
EXPORT	-2.121***	0.2186***	-0.002
	(-4.465)	(5.131)	(-0.0231)
R^2	**0.56**	**0.91**	
Adjusted R^2	**0.57**	**0.98**	
F –Statistics	115.91 (0.000)	1345.86 (0.000)	
D-Watson Stats	0.044	0.47	
J –Statistics			26.83

*** indicate significant at 1% and ** indicate significant at 5%

The pooled OLS results show that premium, human capital, physical capital, education, export is found to be significant variables. In all the models the F-statistic is found to be statistically significant. The results depicted that premium and human capital has got a positive and significant (at 1% level of significance) relationship with economic growth. In pooled OLS model it is observed that physical capital has negative impact on economic growth which is confirmed at 1% level of significance. GMM estimation confirms the robustness check of the results. Education is found to be significant in fixed effect model whereas investment is found to be significant in pooled OLS and Fixed effect model.

CONCLUSION AND DISCUSSION

This research paper highlighted the investigation of the relationship between insurance and economic growth in India considering the state level data from 1995 to 2015. In this research paper descriptive statistics, association between the variables and fixed effect model, pooled ordinary least square method and generalized moment method(GMM) estimation techniques are used considering percentage growth of GDP as a dependent variable and several independent variables like gross premium income, physical capital, human capital, education and export.

Panel data for twenty-five states for a time period of 1995 to 2015 is taken into consideration to establish the relationship of insurance and economic growth of India. Premium is found to have a positive and significant relationship with economic growth. This indicates that the insurance policies which has high potential of insurance market penetration should be encouraged in Indian market. As Indian

insurance market is still far behind with respect to its contribution to the economic growth in comparison to the world market, it is the responsibility of the Indian Government to conduct seminars, workshops to share clear knowledge about the insurance policies and its benefit which probably can improve people's confidence in insurance and subsequently will increase insurance penetration. It is also observed that there exists a negative significant relationship between physical capital and economic growth. This indicates the development of insurance sector in India could be possible by encouraging the developmental policies, increasing the physical capital stock of India, adopting the policies of infrastructure development like health facility, electricity, roads etc. Education is found to be significant only in one model. More education always helps the investor to understand the terms and conditions of a policy and to take the appropriate decision.

It is observed that export and economic growth shows a significant but negative relationship. This relationship explains that more economies has to be opened by the state government. Foreign insurance companies should be allowed to operate in India. Moreover, Foreign direct investment flow to the center and the states should be encouraged by the central and state Governments.

Implication of the Study

The implication of this research is very significant. To improve the insurance penetration in different states of India the Government should promote some specific policies. The relationship between physical capital and economic growth indicates that more investments should be made on the policies of infrastructure like health facilities, road etc.

For the improvement of economic growth of India this piece of research work could be useful.

The results clearly reveal that there is a need of implementation of strategical and operational rules with regard to different macro-economic variables which are the significant indicator of economic growth of the states and ultimately it leads to India's economic growth. The results are also very useful for the development of Indian insurance sector.

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