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Contribution of Insurance on economic growth in India: An Econometric approach

By
Dr.Sunita Mall

Corresponding author: Dr.Sunita Mall, Asst.Professor (Quantitative Techniques& Operations), MICA The School of Ideas. Room No-17, Digital building, Shela, Ahmedabad, mail Id: malsunita@gmail.com, sunita.mall@micamail.in

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Abstract

Insurance is an important part in the financial sector that contributes significantly to the economy of a country. Insurance market contributes to the economic growth as a financial intermediary 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 2000 to 2015. Endogenous growth model with a modified Cobb-Douglass production function is used. This result implies 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 the policies of infrastructure like health facilities, road etc. This research work could be useful for the state Governments to improve the economic growth and also is useful for the development of the insurance sector in India.

Key Words: Economic Growth, Econometric approach, Gross premium income, Physical capital, Human capital, Openness

JEL Classification:C23,R11, O11,O16, G22

Contribution of Insurance on economic growth in India: An Econometric approach

1.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 is an important part in the financial sector that contributes significantly to the economy of a country. Insurance market contributes to the economic growth as an financial intermediary and also helps in managing risk more effectively (Ward and Zurbruegg ,2000). Moreover, insurance contributes to the promotion of financial stability, facilitation of trade and commerce, management of 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)

Insurance can be broadly categorized 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)

Many research highlighted a controversial relation between financial development and economic growth. Some studies remarked financial development leads to economic growth where as some other found it reversely. (Levine 1993)

In almost every developing and developed country the importance of the insurance is rising due to the increasing share of the insurance sector in the entire financial sector.
Insurance companies, together with mutual and pension funds, are one of the biggest institutional investors into stock, bond and real estate markets. Their impact on the economic development has been growing due to ageing societies, widening income disparity and globalization. The growing

links between the insurance and other financial sectors also emphasize the possible role of insurance companies in economic growth (Rule, 2001).

For last few years, it is observed that there has been a significant growth in the insurance sector across the globe. At the same time the contribution of insurance to the financial sector is remarkable. Mobilization of domestic savings, more efficient management of different risks, mitigation of losses, more efficient allocation of domestic capital and promotion of financial stability has been researched by many researchers. These studies also shows a positive influence of insurance on economic growth. Some of the recent research deals with the contribution of insurance on economic growth and analyzing the impact of insurance on economic growth mostly 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 is generated from the premiums they collect from the policies offered to the customers. These funds are invested in different ways and that substantially contribute to the economic growth.

The main objective of this research is to examine the relationship between insurance and economic growth of India using panel data. For this research the data is collected for twenty-five states of India and covers the time period for 2000 to 2015 from various secondary sources like IRDA website, CMIE, RBI bulletin, State economic survey report etc. For this purpose endogenous growth model with a modified Cobb-Douglass production function is used. To study the relationship between insurance and economic growth Pooled ordinary least square generalized moment method is used. premium, human capital, physical capital are found to be significant

variables. The results also reveals that premium, physical capital has positive impact where as human capital has negative impact on economic growth.

This research paper contributes extensively to the existing literature. Available research have studied the relationship between insurance and economic growth in global context and compared with other countries. Such research using state level data is a research gap. The main objective of this research is to examine the relationship between insurance and economic growth of India using panel data.

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 where as section 6 deals with implications of the research.

2. Literature Extant

The literature on studying the relationship between insurance 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. Beenstock , dickson and Khajuria (1988) studied the relationship between insurance and economic growth on twelve countries. they applied pooled time series and cross sectional analysis and found that premiums are correlated to interest rate and GNP.

Kugler and Ofoghi(2005) studied long run relationship between insurance market size and economic growth in united Kingdom for the period from 1966 to 2003. The results reveal there exists a bidirectional causal relationship in the long run between economic growth and insurance market size.

Haiss and Sumeji(2008) studied the impact of premiums and insurance investments on GDP growth in Europe. He conducted a cross-country panel data analysis from 1992 to 2005 and found a positive impact of life insurance on GDP growth in fifteen UE countries.

Krishna(2008) checked the economic growth effects of insurance reforms. He remarked that the reforms exerted no strong relationship but the rate of growth of reforms had a positive influence on economic development.

IIhan EGE, Taha Bahadir(2011) studied the role of insurance in changing economic growth using data of twenty-nine countries from 1999 to 2008. They found positive relationship between insurance and economic growth.

PAN Guochen, Su Chi Wei(2012) studied the patterns of interaction between insurance development and economic growth . Their study revealed that demand following pattern is significant only for provinces of high income in both life and non-life insurance sectors while supply leading pattern prevails through most provinces at different developing stage except for provinces of low income level in life sector.

Taiwo Akinlo, Olumuyiwa Tolulope Apanisile(2014) studied the relationship insurance and economic growth in sub-Saharan Africa over the period 1986-2011. Pooled regression is used. the results show that insurance has positive and significant impact on economic growth in Sub-Saharan Africa .

2.1 literature Gap:

The literature on the study of insurance development 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, 2008) . In many research paper the focus is to build up the relationship between economic growth and insurance use or development in the global context (Peter R Haiss, Kjell sumegi 2006, Chi-wei Su, Angela Concha & Rodrigo Taborda, 2014).

The role of insurance sector and its linkage with other financial sectors have grown in importance. It is observed in the existing literature that there are ample of research on the causal relationship between bank lending and economic growth and capital markets and economic growth where as insurance and economic growth has got less attention comparatively.

The theoretical research pointed out that insurance should contribute to the economic growth, but empirical study to establish the relationship between insurance and economic growth is hardly documented in comparison to other financial markets.

There are very few conceptual research available in Indian context and on global context as well. Available research have studied the relationship between insurance and economic growth in global context and compared with other countries. 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 examine the relationship

between insurance and economic growth in India considering the state level data and contributing to the existing literature.

3. Methodology

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

3.1 Measurement of variables and Data Source

For this empirical research panel data is used. The data is collected for twenty-five states of India and covers the time period for 2000 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.

In this study the dependent variable is the percentage growth of GDP. The key independent variables are Gross premium income which is measured by total sum of premium income from life and non-life business. Physical capital is measured by Gross fixed capital formation as a percentage of GDP. Human capital is measured by the total work force. State-wise education and investment data are another two independent variables. The missing values on some of the variables are taken care of by interpolation.

3.2: Explanatory Variables

The variables used for the regression model are as follows:

The dependent variable is the percentage growth of GDP. The key independent variables are Gross premium income which is measured by total sum of premium income from life and non-life business. Physical capital is measured by Gross fixed capital formation as a percentage of GDP. Human capital is measured by the total work force. State-wise education and investment data are another two independent variables.

3.3 Statistical Techniques

The main objective of this paper is to examine the relationship between insurance and economic growth. For this purpose, endogenous growth model with a modified Cobb-Douglass production function is used. This approach is also used by several authors. (Eller at al., Fink et al, Webb et al.) The descriptive analysis is done to check with the statistical properties of the variables. To examine the possible degree of association among the variables correlation analysis is performed.

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 1: Descriptive Statistics

	GDP	GROSS PREMIUM	HUMAN CAPITAL	PHYSICAL CAPITAL	EDUCATION	INVESTMENT
Mean	21.66	5.90E-05	14.81	3.93	9.43	4.21
Median	22.21	-0.105	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
Std.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 -1 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 fall within the minimum and maximum values of the series implies there exists high level of consistency. Low standard deviations in the results reveal that the actual deviation of the data 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 2 : 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	
INVESTMENT	-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. it is also found that human capital has a positive relation with GDP with 0.2772 coefficient where as physical capital has a negative correlation with GDP with -0.571coefficient. Education is positively correlated with GDP with a coefficient of 0.068. Investment is positively correlated with GDP with a coefficient of 0.009.

Three functional estimation techniques say pooled OLS, fixed effect and GMM are performed to study the relationship between insurance and economic growth. The results is is as follows:

Table 3: Panel data Estimates

Variables	**Pooled OLS Result**	**Fixed Effect**	**GMM**
Constant	10.75***	22.99***	
	-8.697	-7.087	
GDP			0.755***
			-9.159
GROSS_PRM	0.597***	-0.0343	0.0173
	-6.347	(-1.530)	-0.3324
HUMAN_CAPITAL	1.226***	-0.115	0.1254***
	-17.32	-0.5133	-4.88
PHYSICAL_CAPITAL	-0.587	-0.0051	0.0668
	(-23.59)	(-0.161	-1.965
EDUCATION	0.0344	0.0256***	0.0025
	-0.43	-2.832	-0.3324
INVESTMENT	-1.1115***	0.1286***	-0.001
	-5.465	-5.21	(-0.024)
R^2	**0.58**	**0.91**	
Adjusted R^2	**0.57**	**0.91**	
F-Statistics	**127.92**	2547.92	
	0.00	0.00	
D-Watson Stats	0.042	0.44	
J –Statistics			27.05

The pooled OLS results show that premium, human capital, physical capital, education, investment is found to be significant variables. The F-statistics is found to be statistically significant in all the models. The results reveal premium has a positive and significant relationship with economic growth. human capital has also positive and significant relationship with economic growth which is confirmed at 1% level of significance. Physical capital is significant at 1% under pooled OLS and it has a negative relationship with economic growth. GMM estimation confirms the robustness check of the results.

6.Implication of the study:

This result implies 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 the policies of infrastructure like health facilities, road etc.

This research work could be useful for the state Governments to improve the economic growth. The results clearly reveal the need of implementation of strategical and operational with regard to different macro-economic variables those are the significant indicator of economic growth of the states which ultimately lead to India's economic growth. The results is also very useful for the development of the insurance sector in India.

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