IMPACTS OF MACROECONOMIC & DEMOGRAPHIC VARIABLES ON THE DEMAND OF LIFE INSURANCE

Impacts of Macroeconomic & Demographic Variables on the Demand of Life Insurance: A case study of State Life Insurance Corporation of Pakistan (1973-2010)

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ABSTRACT

This study empirically verifies the link between macroeconomic and demographic variables (i.e. financial development, income, savings, price of insurance, old age dependency ratio, birth rate, death rate and urbanization) with the demand for life insurance (by sums insured) in the context of Pakistan using annual time-series data from 1973 to 2010 of State Life Insurance Corporation of Pakistan. The basic objective of this study is to examine the following hypothesis i.e.; that financial development, gross savings, income level are directly linked while, price of insurance are inversaly linked with life insurance demand and the demographic variables of crude birth rate, crude death rate, old age dependency ratio, urbanization are positively related with life insurance demand for Pakistan. For this purpose, we have used Ordinary Least Squares (OLS) and the evidences shows the significant implications on policy establishment and the managing and marketing directors of Insurance Corporation. The results might be co-operative in maintaining pricing techniques to obtain sales targets for business.

Keywords: Demand of life insurance, macroeconomics and demographics variables, Ordinary Least Squares, State Life Insurance Corporation, Pakistan.

1. INTRODUCTION:

The services areas of the world have been grown sufficiently after World War II and in 1989; it reported 60 percent of the global gross domestic product.[1] The insurance industry is an important factor of the service sector by expanding over 10 percent yearly from 1950. The life insurance industry was flourishing at 30 percent while, the non life insurance industry has expanding 19 percent yearly during the mid of 1980's. Insurance industry plays a vital part in the advancement of the country by controlling and reducing risk and by playing part as an important institutional investor for the capital and financial structure tools, facilitating savings and providing term finance.

The demand of insurance relies on the real disposable income, individual preference for security and premium rates however, economic situation of a country, interest rates, inflation, cultural and religious beliefs informed about insurance facilities and individual have capacity to plan for future. While, supply of it's based on the life business services availability.[2]

Life insurance gives individuals and the economy many financial services. In the phase of urbanization, population mobility and formulization of economic links among individuals, families and communities, it has been taken as an important element for individuals and families to overcome risk attached with income. Also, life insurance items enhance long-term savings and the re-investment in private and public sector projects.

Pakistan Insurance Industry: An Overview

Pakistan's Financial Sector has shown great resilience to a challenging macroeconomic situations and world advancements. Insurance companies (both private and public) provide life, fire, accident, causality and many other forms of insurance in Pakistan. Assets of Pakistan financial sector enhanced from Rs 8.2 trillion in June 2009 to Rs 7.1 trillion in December 2007.[3]

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[1] United Nations Conference on Trade and Development, 1990.
[2] SBP Report 2003, p.95.
[3] State Bank's Financial Stability Review 2008-09.

Life insurance was working in the private scenario in Pakistan till 1972, then the state nationalized in to domestic and foreign companies under the aegis of the State Life Insurance Corporation of Pakistan. The state declared a monopoly in this respect reducing the incentives of the private sector. There were 77 insurance companies in 1947 now, which were only 52 companies conducting general business.

From last 65 years, Pakistani life business has shown the growth which not only increases the job facilities but also increases the business. Statistics shows that Pakistani companies possess 52% and 69% part of whole (life and non-life) insurance business in terms of net premiums and assets (Insurance Year Book, 2007). In 2001, State Life Insurance Corporation (SLIC) and National Insurance Company Limited (NICL) contributed 80.5 % of the total assets of life business. Till 2005, this part remains 74% of the whole business.[4]

Life insurance business needs large capital adequacy plus solvency margins and capital needs[5] so; assets of life business are normally larger than general insurance business. Pakistan insurance industry constitutes 74% assets of life insurance business while general insurance companies have 26% part in net assets of insurance. In Pakistan, till 2005, 62% of the net premium achieved from policyholders of general insurance business while 38% gets from life insurance. Education is the main area in which the insurance companies must themselves take the initiative for future progress of insurance business.

State Life Insurance Corporation (SLIC) of Pakistan is the only state owned company in Pakistan that was established from the combination of 41 companies on November 1, 1972 under the Life Insurance Nationalization Order, 1972. (SBP FSA Report 2005).

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[4] (SBP Report 2005; p.107).
[5] Pakistan general insurance business need low paid up capital of 80 million while life insurance business needs 150 million as capital requirement (SECP, 2007).

The Basic Function of the Corporation is to carry out Life Insurance Business; however, it also gives other facilities such as investment of policyholders fund in Government securities, Stock market, Real Estate etc.

Objectives:

- To run life insurance business on perfect paths and gives best facilities to their customers.
- To maximize return by decreasing costs and enhancing yield on investment
- Life insurance gives more suitable paths to mobilize national savings

The basic part of SLIC's investment consists of Government securities (69%), Corporate Debts (2%), Equities (11%), Investment Property (1%), Bank Deposits (9%) and Loans against policies (8%) at the end of 2010. The stable combination of the investment combination helps SLIC to earn good return, the advantage of this is benefited the customers. In 2010, State Life earns an investment income of Rs. 27.6 billion as compared to Rs. 21 billion in 2009.

1.1 Objective and Scope of the Study:

History shows that economic scenarios are closely related and has profound influence on the growth and performance of insurance industry. Macroeconomic conditions have vital effect on life business and till now this area has not been focused in Pakistan, that's why this research is undertaken to explore the life insurance demand from a macroeconomic perspective.

1.2 Hypothesis for Macroeconomic Variables:

Hypothesis I: There is a direct link between 'financial development' and the demand for life insurance in Pakistan.

Hypothesis II: There is a direct link between 'level of income' and the demand for life insurance in Pakistan.

Hypothesis III: There is an inverse link between 'price of life insurance' and the demand for life insurance in Pakistan.

Hypothesis IV: There is a direct link between 'savings' and the demand for life insurance in Pakistan.

1.3 Hypothesis for Demographic Variables:

Hypothesis I: There is a direct link between 'crude death rate' and the demand for life insurance in Pakistan.

Hypothesis II: There is a direct link between 'crude birth rate' and the demand for life insurance in Pakistan.

Hypothesis III: There is an inverse link between 'old age dependency ratio' and the demand for life insurance in Pakistan.

Hypothesis IV: There is a direct link between 'urbanization' and the demand for life insurance in Pakistan.

2. LITERATURE REVIEW:

2.1 Theoretical Studies:

Theoretical models for the life business demand have been established by Yaari (1965), Fischer (1973), Pissarides (1980), Campbell (1980), Karni and Zilcha (1985, 1986), Lewis (1989), and Bernheim (1991) were of the view that life insurance was the way by which risk in the household's income, linked to the expected premature death of a household's primary wage earner, was decreased.

Yaari (1965) and Hakansson (1969) were of the view that the life insurance demand was attached to a person's wish to bequeath funds for off-spring's and obtain money for retirement. The consumer maximizes lifetime utility subject to a vector of interest rates and prices including insurance premium rates.

Lewis (1989) treated the life insurance demand by maximizing the expected lifetime utility of the beneficiaries and the individual purchasing the life insurance product. Lewis's analysis is in line with the life insurance literature that suggests life insurance should be purchased to fulfill the needs of beneficiaries (see, for example, Rejda 1986).

Bernheim et al. (2001) did not found any significant link between the life insurance demand and financial vulnerability[6] of the old age households. People with larger vulnerabilities tend to insure low as compare to those who faces smaller vulnerabilities buy greater amounts of insurance.

However, Lin and Grace (2006) went further and introduce different things[7] in the Bernheim's study and they found the significant link among demand for life insurance and financial vulnerability. They concluded that elder the household, the life insurance demands will be lower to overcome the certain level of financial vulnerability.

2.2 Empirical studies:

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[6] Degree of household sensitivity to the loss of income as a result of death of a spouse.

[7] Decomposition of the whole demand into life and general insurance, addition of index of financial vulnerability etc.

Fortune (1973) analyzed the US insurance market from 1964 to 1971 and obtained a large level of sensitivity between the optimal quantity of life insurance, wealth and the real interest rate. He assessed the expected utility hypothesis of choice under risk for life insurance demand and found that demand based on income, non-human wealth and the discount rate.

Headen and Lee (1974) assessed the impacts of short run financial market behavior and consumer preferences on purchase of ordinary life insurance and established structural factors of life insurance demand. They found that life insurance demand was inelastic and directly influenced by changing in consumer behaviors while; interest rates play a part in both short and long run.

Beenstock et al. (1988) examined the link between property liability, insurance premium and income by using data of 12 countries over a period of 12 years and found that marginal propensity to insure varies from country to country and premium related positively with real interest rates.

Truett et al. (1990) compared the demand for life insurance in Mexico and United States during the period of 1964 to 1984. They found three times larger income elasticity in Mexico at less income levels as compared to the USA and the demographic variables like age, education level and income were significant elements that influencing the life insurance demand in both countries.

Outreville (1990) assessed the link among property-liability insurance (general insurance) in terms of premiums and gross domestic products and financial development by using a data of 55 less developed economies. Result indicated that income in terms of GDP and financial development were significantly contributed to the development of property liability insurance demand in less developed economies.

Browne et al. (1993) found that average life expectancy, dependency ratio and enrolment ratio at third level of education were not significant in assessing life insurance demand. They considered 45 economies for two different periods of 1980 and 1987 and found that income and social security expenditures were significant factors of insurance demand but inflation was found to have inverse link. Dummy variable of religion cleared that Muslim countries have significant inverse association towards life insurance.

Browne and Kim (1993) conducted the research on 6 Muslim countries including Pakistan on the demand of life insurance from 1980 to 1987. Different economic and demographic factors were used like; income, expected inflation rate, education level, dependency ratio, life expectancy, religion, policy loading charge and social security. They found that life insurance was directly linked with national income and social security and inversely related with inflationary expectations. Study also suggested that economic development and stability largely enhanced life insurance consumption.

Showers and Shotick (1994) examined the literature on insurance demand by assessing the effects of economic and social elements on the buying of insurance. They found that income and the number of earners was both directly linked to the insurance demand. However, they found inverse link between demographics variables, family size and age with the marginal increase in insurance expenditure.

Gandolfi and Miners (1996) investigated the link among macroeconomics variables and the overall performance of life insurance in the United States in 1984. They found that money income was the most significant determinant of life insurance. In addition to it, contributions of household production, total household income, age, education, and age of spouse, educational level of spouse, home ownership, and family size also affected the purchase of life insurance.

Outreville (1996) done the cross sectional analysis of life insurance demand of 48 less developed economies for the period 1986 and highlighted the fact that financial development and price stability in the insurance market of the country effected the demand. Study considered the variables such as; agricultural status of the country[8], health status of the country[9], percentage of labor force with higher education, the level of financial development with two dummy variables of level of competition in the local market and abroad insurer participation. Results showed that the life insurance demand was significantly directly linked to personal disposable income and the country's financial development level. He also found that monopolistic market was significantly less stable as compared to competitive markets in less developed economies.

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[8] In terms of percentage of agricultural labor force in total labor force.
[9] In terms of amenities like percentage of population with access to safe drinking water.

Rubayah and Zaidi (2000) estimated the life insurance demand from 1971 to 1997 by taking the number of policies as a dependent variable and the set of macroeconomic factors. Findings showed that income had a direct link and while, inflation rates had an insignificant direct link with life insurance demand. The personal savings rate and short-term interest rate were significant and inversely related with the life insurance demand, while the current interest rate was found to have no significant influence on life insurance demand.

Ward et al. (2000) was applying co-integration analysis on real GDP and insurance premiums from 1961 to 1996. They found that improved civil rights and political stability enhanced life insurance consumption both in the Asian and OECD regions.

Ward and Zurbruegg (2002) assessed the life insurance demand in 37 OECD and Asian countries from 1987 to 1998 and focused on political and legal elements by applying pooled OLS and panel regressions on selected countries. Findings cleared that because of the improvement in political stability and civil rights the demand rises in both regions. Results of the study were consistent with the S-curve relation proposed by Enz (2000) that the economies with large income streams had insurance consumption which was less sensitive to increase in income.

Beck and Webb (2002) highlighted the issues of finding the reasons behind the variations in life insurance consumption by using unbalanced panel data of 68 countries[10] from 1961 to 2000. They employed four various proxies of consumption, economic[11], demographic[12] and institutional[13] factors. Results cleared that countries with large income per capita, stable banking sector and lower inflation tend to use huge quantity of life insurance. In addition to it life insurance consumption was observed to be directly effected by private savings and real interest rate. Demographic elements such as

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[10] Both developed and developing countries covered the CEE region (Bulgaria, Czech Republic, Hungary, Poland, and Slovenia) and did not include the former USSR countries.
[11] Gini index and human development index
[12] young and old dependency ratio, life expectancy, greater levels of education and urbanization
[13] Political stability, access to legal advantages and an institutional development index.

education, urbanization, life expectancy, young and old dependency ratio had not any robust effect on the life insurance consumption.

Hwang and Gao (2003), examined the elements for life insurance demand in China by explaining the huge growth in this industry after the economic reforms of 1978. Study found that the basic element that have effected people to buy insurance policies are positively related to upper stages of economic security, the rise in the education level and the modification in social structure. However, this study had not found an inverse influence of inflation on life insurance consumption; even China faced large inflation in the mid-1990s.

Sen and Madheswaran (2007), investigated the role of economic and political variables in the life insurance consumption pattern of 4 SAARC, 6 Asian and 2 greater China region economies from 1994 to 2004. Insurance penetration and density were the dependents element in cross country analysis and the estimates of fixed and random effects model proved that incomes, savings and inflation were main variables in describing insurance consumption. Study also done the time series analysis of life insurance demand for India from 1965 to 2004 and findings cleared that income (GDP per capita), financial depth, per policy price of insurance products and real interest rates were significant factors.

Nesterova (2008) explored the modifications in life insurance demand for 14 countries of former Soviet Union and Central and Eastern Europe including Ukraine from 1996-2006. Panel results cleared that economies with greater life expectancy at birth, income and education level, old dependency ratio had larger life insurance consumption while, financial development, inflation and real interest rate decreased the life insurance demand across countries. Where as, young dependency ratio, urbanization level and institutional factors did not had any significant relation to life insurance demand.

Ade Ibiwoye, Joseph O. Ideji and Babatunde O. Oke (2010) explored the elements of life insurance consumption in Nigeria by using Co integration and Error Correction Model from 1970-2005. Study found the presence of a long run link and a short run dynamics among the factors. Co-integration results cleared that real gross domestic product and SAP directly and significantly effect Life Insurance

demand in Nigeria while indigenization policy and interest rate are statistically significant but negatively linked to life insurance demand. On the other side study found that return on investment, inflation, openness and political instability are insignificant determinants of life insurance demand.

3. METHODOLOGY:

There is no unique theory for demand of life insurance. Outreville (1996) considered the life insurance demand with in the life time allocation process of an individual. Number of researchers has taken interest in the research of life insurance demand such as, (Headen and Lee 1974; Anderson and Nevin 1975; Moffet 1979 Robertson 1982, Lewis 1989; Truett and Truett 1990) but only few studies considering the effect of macroeconomic elements on life insurance demand (Cargill and Troxel 1979; Babbel 1985; Browne and Kim 1993; Outreville 1996; Hau 2000; Rubayah and Zaidi (2000).

The previous models were of the view that life insurance was the source by which risk in the household's income flows, linked to the possible premature death of a household's primary wage earner was decreased. Lewis (1989) treatment for life insurance demand differentiating from previous researches by establishing the household's focus of maximizing the beneficiaries expected life time satisfaction.

Lewis's analysis was in line with the life insurance literature and suggested that life insurance should be purchased to fulfill the necessities of beneficiaries. His model did not explicitly rely on the primary wage earner but, required the preferences of the dependents that give the ground of purchasing the life insurance by the household. In Lewis's model there were two types of beneficiaries' i.e.; spouse and children. The spouse had a goal that he had capital stock at the time of death. Lewis shows that total life insurance demand can be written as follows:

$$(1 - lp)F = \max\{[(1 - lp)/l(1 - lp)]^{1/\delta}TC - W, 0$$

Where,

l Is the policy loading element. (The ratio of the cost of the insurance to its actual value)

p Is the probability of wage earner's death.

F Is the face value of all life insurance written on the primary wage earner's life.

δ A measure of the dependent's relative risk aversion.

TC The present value of consumption of each child.

W The household's net wealth.

Based on the above propositions, the life insurance demand was hypothesized to have the following link with the macroeconomic and demographic variables. For this purpose we follow the Lim and Haberman (2002) which was specified as;

Model 1:

Functional Form:

Demand = f [FD, IPC, Savings, Price]

Model Equation:

To test our Macroeconomic Hypotheses, Ordinary Least Squares was used to estimate the following log linear equation:

$$LnD = \beta_0 + \beta_1 FD_t + \beta_2 IPC_t + \beta_3 GS_t + \beta_4 P_t + \mu_t \qquad \text{Eq} \rightarrow 1$$

Where,

LnD Shows the Natural Logarithm of *Demand of Life Insurance* as the Dependent Variable in the study.

FD Shows the *Financial Development* at period t measured as M_2.

IPC Shows the *Income Per Capita* at period t.

GS Shows the *Gross Savings* at period t.

P Shows the *Price of Insurance* at period t.

μ Is the *Error Term* at period t.

Model 2:

Functional Form:

Demand = [Birth, Death, Old Age Dependency] Urbanization]

Model Equation:

To test our Demographic Hypotheses, Ordinary Least Squares was used to estimate the following log linear equation:

$$LnD = \alpha_0 + \alpha_1 BR + \alpha_2 DR_t + \alpha_3 OAD_t + \alpha_4 U_t + \mu_t \qquad \text{Eq} \rightarrow 2$$

Where,

LnD Shows the Natural Logarithm of *Demand of Life Insurance* as the Dependent Variable in the study.

BR Shows the *Crude Live Birth Rate* at period t.

DR Shows the *Crude Death Rate* at period t.

OAD Shows the *Old Age Dependency Ratio* at period t.

U Shows the *Urbanization* at period t.

μ Is the *Error Term* at period t

Note: Detailed description of all variables with data sources are given in Appendix.

Sample Data & Sources of Data:

The data used for this study is annual aggregate data from 1973 to 2010 of State Life Insurance Corporation of Pakistan and selected Macroeconomic and Demographic variables.

The data related to the demand and price of life insurance are obtained from the annual reports of State Life Insurance Corporation of Pakistan. The macroeconomic and demographic data are obtained

from International Financial Statistics (IFS), World Development Indicators (WDI) and State Bank of Pakistan.

4. EMPIRICAL ANALYSIS AND FINDINGS:

Results of Ordinary Least Square Estimates from Macroeconomic Variables:

Dependent Variable = LnD

Sample 1973-2010

Variable	Coef	Std	t-Statistic
C	4.944455	0.136924	274
FD	0.046123	0.015306	3.013439*
GS	0.015306	0.013501	646
P	-1.692228	0.355309	-4.762691*
IPC	0.333974	0.082887	4.029275*

R-squared	0.690569	Mean dependent var	335
Adjusted R-Squared	0.604578	S.D. dependent var	526
S.E of Regression	0.052287	Akaike info criterion	075
Sum squared resid	0.090218	Schwarz criterion	603
Log likelihood	60.89942	F-statistics	046*
-Watson stat	1.842329	Prob (F-statistics)	092

Note: *, ** and *** indicate the level of significance at 1%, 5% and 10%, respectively.

The results in above table clears the variation in insurance demand across Pakistan through Financial Development, Gross Savings, Income per Capita and Price of insurance. These macroeconomic variables have significant coefficient and shows robust predictor of life insurance demand. The savings, income and financial development are directly linked with the life insurance demand while, the link between price and demand for life insurance is inverse. The explanatory power of the independent variables in the model is also strong enough at 69 percent and the overall model is also significant. The Durbin Watson statistics of 1.84 shows the presence of no auto-correlation.

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The results shows that income per capita is positively linked to life insurance demand at 1% level of significance, which indicated that 1% increase in level of income enhances life insurance demand by 0.334% confirming that insurance is luxury good. The consensus on the direct influence of income level on the life insurance demand is widely accepted because purchasing powers of individuals are increasing.

The findings of research also postulate that gross savings influence demand of life insurance positively but it is insignificant, which shows that 1% increase in savings increases insurance demand by 0.0153%. Due to increase in savings, individuals have some specific part of money left after using it for consumption purposes which is easily invested for risk aversion purposes of future.

Results also shows that financial development is directly linked to life insurance demand at 1% level of significance, which indicated that 1% improvement in financial sector enhances life insurance demand by 0.046% confirming that how much our banking system is strongly developed and providing advance facilities, consumers getting awareness and purchasing life insurance policies which enhances demand of it. Results also clears that a change in the price of insurance has a significant inverse link with the life insurance demand at 1% level of significance. A 1% increase in price will tends to reduce insurance demand by 1.69%. Which clears that when the purchasing of life insurance becomes more expensive, it tends to discourage people from owning life insurance policies.

Results of Ordinary Least Square Estimates from Demographic Variables:

Dependent Variable = LnD

Sample 1973-2010

Variable	Coef	Std	t-St
C	-0.049866	1.624912	689
DR	0.084667	0.030246	251**
BR	0.020655	0.004250	)79*
OAD	0.047622	0.164235	)64
U	0.088623	0.014171	)09*
R-squared	0.6	Mean dependent var	4.6

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Adjusted R-Squared	0.6	S.D. dependent var	0.0
S.E of Regression	0.0	Akaike info criterion	-3.7
Sum squared resid	0.0	Schwarz criterion	-3.5
Log likelihood	76.	F-statistics	18.3
Durbin-Watson stat	1.9	Prob (F-statistics)	0.000000

Note: *, ** and *** indicate the level of significance at 1%, 5% and 10%, respectively.

The results in above table identifies the variation in insurance demand across Pakistan through crude Death Rate, crude Birth Rate, Old Age Dependency ratio and Urbanization. These demographic variables have significant coefficient and shows robust predictor of life insurance demand and all have directly related with the life insurance demand. The explanatory power of the independent variables in the model is also strong enough at 68 percent and the overall model is also significant. The Durbin Watson statistics of 1.90 shows no auto-correlation.

The results shows that crude death rate is positively linked to life insurance demand at 5% level of significance, which indicated that 1% increase in death rates enhances life insurance demand by 0.084% confirming that insurance gives protection to offspring's and family against wage earner individual sudden death in future. The consensus on the direct influence of crude death rate on the life insurance demand is widely accepted because it reduces risk associated with consumer life.

The findings of research also postulate that crude birth rate influence demand of life insurance positively at 1% level of significance, which shows that 1% increase in birth rates raises insurance demand by 0.020%. Due to increase in fertility in economy, wage earner individuals have facing greater risk for future and for reducing these future mishaps regarding their families more people prefer to purchase life insurance that's why life insurance demand increases.

Results also shows that old age dependency is directly linked to the life insurance demand, but it is insignificant. Which indicated that 1% improvement in old dependent ratio enhances life insurance demand by 0.0476% confirming that as many older dependents (older than 64 to the working-age population), purchasing of life insurance policies is larger because they want to avoid the risk attached with future which enhances life insurance demand. Results also clear that as large number of

population lives in urban areas has significant direct effect on the life insurance demand. A 1% increase in urban population tends to increase demand by 0.0886% because when there is large urbanization people get all facilities from financial sector and also have ability to afford these luxuries in their lives.

5. CONCLUSION:

This paper empirically estimates the determinants of life insurance demand in Pakistan by applying ordinary least square on time series data from 1973 to 2010. We find proof that all the macroeconomic and demographic variables are directly related except price of life insurance that is inversely linked to life insurance demand. As, all the variables are statistically significant at 1% level of significance except crude death rate which is significant at 5% while, gross savings and old age dependency are statistically insignificant. Empirical evidence shows the significant implications on policy establishment and the managing and marketing directors of Insurance Corporation. The results might be co-operative in maintaining pricing techniques to obtain sales targets for business.

In order to increase life insurance demand in Pakistan, policies that fostering real gross domestic product, economic liberalization and stable well functioning legal system should be pursued while policies that emphasize indigenization should be discarded. Moreover, efforts should be made towards reducing domestic interest rate, inflation rate and political instability to rises life insurance demand in the country. However, the impact of these determinants can differ across lines of coverage and various geographical areas.

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APPENDIX

Table of Variables Descriptions

Code	Variables	Definitions	Formula	Units	urce of Data ar Definitions
D	nd for Life Insu	of new sums insured in a the total sum insured in t ceding year of life insura business.	ew Sum Insure ÷ tal Sum Insured eceding Year × 1 M_2	s. In Millio	ual Report of S
FD	ncial Developm	n of currency outside bar d deposits other than th entral government; the t vings, and foreign curren osits of resident sectors o the central government; traveler's checks; and ot urities such as certificate osit and commercial pap		% of GDP	rnational Finar Statistics.
IPC	come Per Capi	s Domestic Product divide ear population. GDP is the oss value added by all res ucers in the economy plu oduct taxes and minus ar ies not included in the va the products. o of total annual premiur e to the total sums insure force in a year. savings are calculated as national income less tota nsumption plus net transf	ated without m tions for depred oricated assets tion and degrad natural resourc um in force ÷ In in force × 100 GNI-TC+NT	.In Millio	rnational Finar stics and data World Bank da he GDP deflato ual Report of S
	ice of Insuranc	ber of deaths occurring d		s. In Millio	orld Bank natio nts data, and (

		he year per 1,000 mid-ye population.			onal Accounts files.
P	Gross Savings		aken as proport pendents per 1 king-age popula	% of GDP	orld Developme Indicators
GS		mber of live births occurr g the year per 1,000 mid population.	aken as proport pendents per 1 king-age popula		
	rude Death Rat				orld Developme Indicators
		o of older dependents pe r than 64 to the working- pulation, those ages 15-6		1,000 peo	
DR	Crude Birth Rat	ople living in urban areas d by national statistical o		1,000 peo	bal Developme inance of Worl
			culated using Wo population estin nd urban ratios		elopment Indica
BR	ge Dependency			f working population	World Bank na unts data, and (onal Accounts files
				f Total Pop -tion	
OAD	rban Populatio OR Urbanization				
U					

Table of Variables, Research Questions and Expected Relationship/Signs

Variables	Research Questions	Expected Signs
Financial Development	the Financial Sector Development have any effe... life insurance Demand?	Positive
Income Per Capita	...come a significant factor in explaining life insura... demand?	Positive
Price of Insurance	...rice of Insurance a significant factor in explaining insurance demand?	Negative
Crude Live Birth Rate	...de Live Birth Rate a significant factor in explainin... insurance demand?	Positive
Crude Death Rate	...rude Death Rate a significant factor in explaining insurance demand?	Positive
Old Dependency Ratio	...mpact of growing population above 65 years of a... insurance consumption?	Positive
Urbanization	What relation exists between the rate of Urbanization and insurance consumption?	Positive
Gross Savings (GS Per Capita)	Gross Savings (GS Per Capita) a significant factor explaining life insurance demand?	Positive