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# Determinants of Life Insurance Demand: Evidence from Ethiopia

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**Abstract:** Life insurance is a financial product that aims to protect dependents against the risks of premature death or disability of the insured party. Various pieces of evidence and literature show that the level of life insurance business and its demand in Ethiopia is very low. As a result, this thesis paper focused on potential ways of increasing the life insurance demand by investigating the determinants of the demand for life insurance in Ethiopia. Specifically, this study aims to investigate the effect of savings, growth in per capita income, total population growth, urbanization, political instability, and health expenditure to GDP on demand for life insurance in Ethiopia in both the short run and long run by using a secondary source of data collected between 1995 and 2019. The study employed both descriptive statistics and the Autoregressive distributive lag model (ARDL) to compute the characteristics of institutional, social security, macro-economic and demographic factors and to identify their effect on demand for life insurance respectively. The findings of the study revealed that savings, growth in per capita income, total population growth, urbanization, and political instability have a positive and significant effect on demand for life insurance in Ethiopia. Whereas, health expenditure to GDP has been found insignificant in the long run. In addition, all variables apart from total population growth and political instability which has a positive effect do not affect life insurance demand in the short run.

**Keywords:** Life Insurance, Autoregressive Distributive Lag Model, Political Instability, Urbanization, Total Population Growth

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## 1. Introduction

### 1.1. Background of the Study

According to Madura [1] Insurance is a financial service provided by insurance companies. Insurance can be defined either from the financial and legal point of view. In finance, insurance involves a financial arrangement that redistributes the cost of unexpected losses. Thus, insurance involves the transfer of loss exposure to an insurance pool, and the redistribution of losses among the members of the pool.

Insurance is majorly divided into two i.e., general and life insurance. Life insurance is part of insurance that pays compensation upon the death of the insured covered in the policy. It is a contract between the insured and the insurer in which the insured agreed to pay payment [premium] periodically and the insurer agreed to provide financial safety for beneficiaries upon the policyholder's death [1].

Although life insurance is very important socially,

economically, and financially, different indicators show that there is a low demand for life insurance in Ethiopia. Based on the National bank of Ethiopia annual report for 2019/20 Although a total of 18 insurance companies are found in Ethiopia, only ten of them offer life insurance products currently. Besides that, as of June 2020 from the total market gross written premiums [GWP] [life and non-life combined] and total insurance industry assets, only 5% and 8% are contributed by life insurance respectively [2] and its penetration rate (0.03%) is too low compared other international markets. Since one of the reasons for a low proportion of the contribution of life insurance in gross written premiums (GWP) and assets is the low demand for life insurance, it can conclude that in Ethiopia there is a low demand for life insurance.

Previously different authors and researchers tried to find out the problems related to life insurance demand in Ethiopia. According to Ayalew [3], Sulaiman *et al.* [4], and Amrot [5], Price of insurance, income, inflation, real interest rate, level of

education, life expectancy, and age dependency ratio are the main determinants of life insurance demand in Ethiopia. But the above researchers didn't assess the impacts of political instability, urbanization, social security expenditure, savings, and total population growth on demand for life insurance in Ethiopia. In addition, previous researches had inconsistent results and didn't determine the short and long-run effect of each variable on demand for life insurance in Ethiopia.

Generally, although life insurance has a lot of benefits to the society and economy, still in Ethiopia there is low performance and demand for life insurance in Ethiopia. So, the objective of this paper is to assess determinants of life insurance demand in Ethiopia by including the omitted variables. And also, contradictory findings of previous literature would be checked by using more recent data. Besides, the short- and long-term effects of each variable on demand for life insurance in Ethiopia would be determined by applying a proper econometric model.

## 1.2. Objectives of the Study

The general objective of this study is to investigate determinants of life insurance demand in Ethiopia. In addition to the general objective, this study has the following specific objectives:

- 1) To check whether life insurance demand in Ethiopia is influenced by growth in per capita income.
- 2) To examine the effect of savings on demand for life insurance in Ethiopia.
- 3) To investigate the effect of health expenditure to GDP on demand for life insurance in Ethiopia.
- 4) To explore the effect of urbanization on demand for life insurance in Ethiopia.
- 5) To test the impact of the total population growth on life insurance demand in Ethiopia.
- 6) To detect the effect of political instability on demand for life insurance in Ethiopia.
- 7) To examine the short-run and long-run effects of the explanatory variables on life insurance demand in Ethiopia.

## 2. Literature Review and Hypothesis Formulation

Under this study, the researcher used four Factor categories and six independent variables as control variables, which explain the demand for life insurance in Ethiopia. Those factors are the following:

- 1) *Macro-Economic factors*: Growth in per capita income and savings.
- 2) *Social security factor*: health expenditure to GDP.
- 3) *Demographic factors*: Total population growth and urbanization.
- 4) *Institutional factor*: political instability.

Based on previous theoretical and empirical studies related to life insurance demand, the researcher proposes the expected hypothesis of each independent variable as follows:

### 2.1. Macro-Economic Factors

#### 2.1.1. Growth in Per Capita Income

The Income level of the people is one of the major factors which can affect the demand for life insurance. Growth in per capita has been used as a proxy to measure income since Costanza *et al.* [6] Indicated that GNP and GDP less accurately reflect the amount of disposable personal income in a country than GDP per capita.

Fischer [7], Fortune [8], and Campbell [9] develop a theoretical framework that has shown that a strong correlation between demand for life insurance and income. Previous empirical pieces of evidence also claimed that as income increases, the need to invest surplus funds, and wealth increases and life insurance is one of the attractive instruments for the absorption of such funds. Moreover, income is thought to increase the affordability of life insurance products, hence increasing its consumption. Preceding studies typically explain that there is a positive relationship between the level of income (GDP per capita) and demand for life insurance [10-13].

Based on this, the variable is hypothesized as follow:

$H_1$ : *Growth in per capita income has a positive and significant effect on the demand for life insurance in Ethiopia.*

#### 2.1.2. Savings

As per Ouma *et al* [14] Saving is the excess of disposable income over consumption or simply Savings is the portion of income not spent on current expenditures. Beck & Webb [15], Savvides [16], and Redzuan *et al.* [17] Indicated that savings have a negative and significant impact on life insurance purchasing because buyers of life insurance product favor to consider further alternatives of saving if the real return within an insurance policy is lower when they compared to those offered by other saving mechanisms. Savvides [16] also argued that the higher the savings that an individual has, the less would be the reason to buy life insurance to supplement these financial resources to reach a targeted level of wealth for retirement or for bequeaths.

On the other hand, other results show that saving has a positive association with life insurance demand. Sen & Madheswaran [18] and Sen [19] suggested that an increase in saving activity will improve life insurance demand by increasing per capita insurance expenditure or financial ability. Based on the above previous research outputs the following hypothesis is developed.

$H_2$ : *Savings has a negative and significant effect on the demand for life insurance in Ethiopia.*

### 2.2. Social Security Factor

#### *Health Expenditure to GDP*

Social security programs such as health expenditure may affect the demand for life insurance in numerous different ways. Since social security benefits are financed by charging high taxes, they result in a reduction of available income to purchase life insurance and results in lower demand for life insurance products [20]. Browne & Kim [10] and Beck &

Webb [15] showed that the need for life insurance purchasing demand is reduced when government spending on social security is improved. Based on this the researcher hypothesizes health expenditure to GDP as follow:

*H<sub>3</sub>: Health expenditure to GDP has a negative and significant effect on the demand for life insurance in Ethiopia.*

### 2.3. Demographic Factors

#### 2.3.1. Urbanization

Urbanization refers to a concentration of people in urban areas [21]. The same wise with other financial products the demand for life insurance is related to a country's urbanization status due to the availability of infrastructures to promote it. As Beck & Webb [15] conclude urbanization results in the mobility of the population, and formalization of economic relationships between individuals, families, and communities, so life insurance becomes critical for individuals and families to manage income risk. Hammond *et al.* [22] and Outreville [23] also argued that a higher degree of urbanization is likely to increase life insurance sales. The hypothesis concerning this variable is stated as follow:

*H<sub>4</sub>: Urbanization has a positive and significant effect on the demand for life insurance in Ethiopia.*

#### 2.3.2. Total Population Growth

The total Population growth is another factor that can affect life insurance demand. Çelik & Kayali [11], Mantis & Farmer [24], and Emamgholipour *et al.* [25] indicated that the larger the population, the more demand will exist for life insurance since it increases market availability and demand for life insurance. Based on this the researcher develops the following hypothesis.

*H<sub>5</sub>: Total population growth has a positive and significant effect on the demand for life insurance in Ethiopia.*

### 2.4. Institutional Factor

#### *Political instability*

Political instability is used as a proxy for institutional factors which affect life insurance consumption. The political stability of the country can be measured by the political stability index developed by the World Bank as a world governance indicator annually and show the level of political stability of the given country.

Different theoretical and empirical research results indicate the negative relation between political instability and life insurance demand. Kjosevski [26] shows that political instability is negatively correlated with life insurance demand since life insurance is a long-term contract between the insured and insurer, it requires better political stability of the country. Sephehdoust & Ebrahimnasab [27] conclude that an exciting life insurance market depends to a large extent on the political stability of a country. [28] Also found that the Political stability of states provides a peaceful and secure environment for economic activities that increases incentives for investment in productive activities such as long-term life insurance investment. But to the opposite of the findings Dragos *et al.* [29] Political instability have not a significant

effect on life insurance consumption. Based on this the researcher hypothesizes political instability as follows.

*H<sub>6</sub>: Political instability has a negative and significant effect on the demand for life insurance in Ethiopia.*

## 3. Methodology

### 3.1. Research Approach

This study was constructed based on deductive and quantitative research approach because it aims to test the validity theories related to life insurance demand by developing hypothesis based on previous related literature.

### 3.2. Research Design

Since this study aims to detect factors that affect life insurance demand in Ethiopia, it was based on an explanatory research design. The explanatory design was used because it employs research hypotheses that explicitly state the nature and direction of the relationships among variables. According to Cooper & Schindler [30], unlike descriptive studies, explanatory studies go beyond observing and describing the condition and try to explain the reasons for the phenomenon. So, an explanatory research design is useful for this study to find the relationship between the dependent variable (life insurance demand) and independent variables (Growth in per capita income, political instability, health expenditure to GDP, urbanization, savings, and total population growth).

### 3.3. Population of the Study

The target population of this study is the life insurance industry in Ethiopia over the last twenty-five (25) years period spanning from 1995 to 2019 using time series data. Simply to detect the factors which determine life insurance demand in Ethiopia; the Life Insurance Industry of Ethiopia was considered as the population of this study. Unavailability of data on political instability and health expenditure to GDP for longer than 25 years forced the researcher to bound the research length only for 25 years of observations. Reddy *et al.* [31], Hwang & Gao [32], Simon [33], and Sulaiman *et al.* [34] also used data collected for less than 30 years to analyze the determinants of life insurance demand.

### 3.4. Datatype and Source

The researcher was primarily be based on secondary data that were collected from annual reports and publications of the National bank of Ethiopia and Ethiopian insurance corporation (related to the life insurance premium), world governance index (about political stability score), and World Bank (linked to health expenditure to GDP, real GDP of Ethiopia, the total population of Ethiopia, urbanization, growth in per capita income, total population growth of Ethiopia, and savings).

### 3.5. Model Specification

The autoregressive distributed lag (ARDL) approach which is proposed by Pesaran *et al.* [35] used to estimate the short-run

and long-run effects of the macroeconomic, social, institutional, and demographic variables on life insurance demand in Ethiopia. Recent research in social sciences has indicated that the ARDL approach also called the “Bound Testing Approach” to co-integration is more superior and has many advantages than other conventional co-integration approaches such as [36, 37].

ARDL has many advantages over other regression methods used in time series data. First, the ARDL model is a significant approach to determine the co-integration relation in small samples [35]. Since the sample size is small in this study ARDL approach is appropriate to estimate the impact of the mentioned independent variables on demand for life insurance in Ethiopia. A second advantage of the ARDL approach is that while other cointegration techniques require all of the regressors to be integrated of the same order; but the ARDL approach can be applied whether the regressors are purely order zero [I (0)], purely order one [I (1)], or a mixture of both. In the other words, the ARDL model approach avoids the pre-testing problems related to standard co-integration, which needs that the variables are already classified into I [1] or I [0] or a mixture of both [35]. The possibility to have different variables that have different optimal numbers of lags is

$$LID = \beta_0 + \beta_1 INC_t + \beta_2 POS_t + \beta_3 HEX_t + \beta_4 URB_t + \beta_5 SAV_t + \beta_6 TOP_t + e_t$$

Where

LID: Life insurance Density

INC: growth in per capita income

POS: political instability

HEX: Health expenditure to GDP

SAV: savings

URB: urbanization

TOP: Total population growth

$e_t$ : is the error term at time t assumed to have mean zero  $E[e_t]=0$

$\beta_0$ : is the constant value of the regression

$\beta_{1,2,3,4,5,6}$ : are parameters to be estimated by the model and t: number of years 1. .... 25.

Additionally, below the following ARDL model was used to estimate the short-run and long-run effects of the explanatory variable on life insurance demand. Based on this the generalized ARDL [p, q] model is specified as follows:

$$\Delta LID_t =$$

$$\alpha_0 + \alpha_1 LID_{t-1} + \alpha_2 INC_{t-1} + \alpha_3 POS_{t-1} + \alpha_4 HEX_{t-1} + \alpha_5 URB_{t-1} + \alpha_6 SAV_{t-1} + \alpha_7 TOP_{t-1} + \sum_{i=1}^p \beta_1 \Delta LID_{t-i} + \sum_{i=1}^q \beta_2 \Delta INC_{t-i} + \sum_{i=1}^q \beta_3 \Delta POS_{t-i} + \sum_{i=1}^q \beta_4 \Delta HEX_{t-i} + \sum_{i=1}^q \beta_5 \Delta URB_{t-i} + \sum_{i=1}^q \beta_6 \Delta SAV_{t-i} + \sum_{i=1}^q \beta_7 \Delta TOP_{t-i} + \varepsilon_t$$

Where:  $\alpha_0$ : intercept

$\alpha_i$ : long-run coefficients

$\beta_i$ : Short-run coefficients

$\varepsilon_t$ : white noise error terms

p: Optimal lag order of dependent variable

q: Optimal lag order of independent variable

Then, once co-integration [existence of a long-run relationship among the variables is established the conditional ARDL (p, q<sub>1</sub> ... q<sub>6</sub>) short-run model was estimated as follows:

$$\Delta LID_t = \sum_{i=1}^p \beta_1 \Delta LID_{t-i} + \sum_{i=1}^q \beta_2 \Delta INC_{t-i} +$$

another advantage ARDL approach over Johansen-type models which are not permitted to do so [37]. Fourthly, in the ARDL approach it is possible to determine the long-run and short-run parameters of the model simultaneously [35]. Finally, by Applying the ARDL technique it is possible to obtain unbiased and efficient estimators of the model [38].

### 3.6. ARDL Model Specification

To capture the relationship between institutional, social security, macroeconomic, and demographic variables and life insurance demand which is measure by Life Insurance Density the researcher specifies the following functional relationship:

Life Insurance demand=f (Growth in per capita income, political instability, Health expenditure to GDP, savings, urbanization, total population growth)

The following model is specified to caught institutional (political instability), social security (Health expenditure to GDP), macroeconomic (savings and growth in per capita income), and demographic (urbanization and total population growth) variables effect on life insurance demand in Ethiopia. So, the following general model is developed.

$$Y_t = \gamma_0 \sum_{i=1}^p \alpha_i y_{t-i} + \sum_{i=1}^q \beta_j x_{t-i} + \varepsilon_t$$

Where:

$\gamma$ : intercept of the model

$\alpha$  &  $\beta$ : coefficients of the model

$\varepsilon_t$ : vector of the error terms

$y_t$  &  $x_t$ : co-integrated stationary variables

p: optimal lag order of dependent variable

q: optimal lag order of independent variables

Since the above general ARDL model includes p lags of the dependent variable it is said to be autoregressive and q lags of the explanatory variables it is said to be a distributed lag model.

After determining the general ARDL model the following ARDL model was estimated to test the long-run relationship or to test cointegration among the variables of the study.

$$\sum_{i=1}^q \beta_3 \Delta POS_{t-i} + \sum_{i=1}^q \beta_4 \Delta HEX_{t-i} + \sum_{i=1}^q \beta_5 \Delta URB_{t-i} + \sum_{i=1}^q \beta_6 \Delta SAV_{t-i} + \sum_{i=1}^q \beta_7 \Delta TOP_{t-i} + \gamma ECT_{t-i} + \varepsilon_t$$

Where:

$\beta_i$ : short-run dynamics coefficients of the model

$\gamma$ : speed of adjustment towards the long-run equilibrium and should have a negative sign

ECT: error correction term which captures the long-run relationship in the model and

$\varepsilon_t$ : white noise error terms

N.B. The error correction term indicates the speed of the

equilibrium restoring adjustment in the dynamic model. The ECM coefficient shows how quickly/slowly variables return to equilibrium and it should have a statistically significant coefficient with a negative sign [39].

### 4. Data Analysis and Interpretation

#### 4.1. Optimal Lag Order Selection Criteria

The lag order selection is important in the ARDL model since it determines the results of the model. There are several

methods to obtain the optimal lag length (K) for the ARDL model such as; the Akaike Information Criterion (AIC), Schwarz Bayesian Criterion (SC), or Hannan-Quinn Criterion (HQC). However, as noted by Pesaran & Shin [40] the AIC criteria provide slightly better estimates than the SC criteria in small samples in the ARDL framework. The SC criteria also tend to overestimate the number of lags to be included, which is not favorable in small samples as by increasing the lag the number of observations decreases [40].

Table 1. Optimal Lag order Selection.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-17.66978	NA	0.464269	2.058242	2.354458	2.132739
1	-0.996423	23.19772*	0.119717*	0.695341*	1.040926*	0.782255*
2	-0.812405	0.240024	0.129860	0.766296	1.161251	0.865626

\* Indicates lag order selected by the criterion.

This study adopted the Akaike Information Criterion (AIC) technique to select the optimal lag length of the variables and found an optimal lag of one for variables as shown in the above table 1. and based on this the researcher applied a lag of one throughout the study for estimation.

#### 4.2. ARDL Bounds Tests for Co-Integration

After completing the ADF, PP tests, and lag order selection and the next is checking the order of cointegration for each variable. The concept of cointegration is introduced by Nobel laureates Robert Engle and Clive Granger in 1987. Cointegration is a technique used to find a possible correlation between time series variables in the long term. In this case, when we say that the two variables are cointegrated it refers they have a long-term, or equilibrium, relationship between them [41].

To test the order of cointegration of this model, Life insurance density is taken as a dependent variable and gross domestic savings to GDP, Growth in per capita income, health expenditure to GDP, total population growth, total urban population, and political instability as independent variables. To test the order of cointegration, the study used F-statistics as shown in Table 2 below. The null hypothesis shows the non-existence of a long-run relationship [cointegration], while the alternative hypothesis shows the existence of a cointegrating relationship.

#### 4.3.1. Long-Run Regression Output

Table 3. Long-run regression output.

ARDL long-run regression output					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
SAV	0.049828	0.022436	2.220828	0.0464	
INC	0.014899	0.006126	2.432245	0.0316	
HEX	-0.020392	0.012117	-1.682867	0.1182	
TOP	0.048722	0.021284	2.289169	0.0410	
URB	0.046137	0.005432	8.493395	0.0000	
POS	0.010267	0.003212	3.196423	0.0077	
C	-62.74185	5.597349	-11.20921	0.0000	
LID=(0.0498*SAV + 0.0149*INC - 0.0204*HEX + 0.0487*TOP + 0.0461*URB + 0.0103*POS - 62.7419)					

#### Decision rule:

If F-statistic > the I (0) and I (1) critical value=>> reject the null hypothesis

If F-statistic < the I (0) and I (1) critical value=>> fail to reject the null hypothesis

Table 2. Long-run form and bound test or co-integration test.

F-Bounds Test	Value	Signif.	Null Hypothesis: No levels relationship	
			(0)	I(1)
Test Statistic			Asymptotic: n=1000	
F-statistic	7.581387	10%	1.99	2.94
K	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99

It must be noted, that F-statistic is 7.581387 and is greater than the lower and the upper bounds at 1%, 2.5%, 5%, and 10% significance levels. The researcher, therefore, rejected the null hypothesis and accept the alternative hypothesis. So, it is possible to decide that there is a long-run relationship between the independent variables and the dependent variable.

#### 4.3. Empirical Results and Discussions

In this section, the researcher presents the long run and short run regression output of the model and a brief discussion of the finding of the study. Finally, the hypothesis of the study is tested.

### 4.3.2. Short Run [Ecm] Regression Output

Table 4. Short-run regression output.

ECM Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SAV)	-0.003887	0.010553	-0.368350	0.7190
D(HEX)	-0.000326	0.003372	-0.096802	0.9245
D(TOP)	0.222983	0.032206	6.923625	0.0000
D(POS)	0.013026	0.002252	5.785322	0.0001
CointEq [-1] *	-0.910902	0.092954	-9.799536	0.0000
R-squared	0.789596	Mean dependent var		0.184783
Adjusted R-squared	0.745300	S.D. dependent var		0.297762
S.E. of regression	0.150274	Akaike info criterion		-0.769661
Sum squared resid	0.429063	Schwarz criterion		-0.524234
Log-likelihood	14.23594	Hannan-Quinn criter.		-0.704549
Durbin-Watson stat	2.166838			

Source: Author's computation using E views 10.

Tables 3 and 4 show the long-run and short-run regression results of the ARDL model of the study respectively. As evidenced in the above Table 4 short-run result, the coefficient of determination or the R-squared and Adjusted R-squared values of the model shows approximately 0.789 and 0.745 respectively, this is an indication that the model has a good fit. This means 78.9% of variations in the Life insurance Demand of Ethiopia were explained by the independent variables included in the model. However, the remaining 21.1% changes in Life Insurance Demand of Ethiopia are caused by other factors which are not included in the model.

On the other hand, the adjusted R-squared can be interpreted as the fraction of the variance of the dependent variable explained by the independent variables. Here in the study adjusted R-squared of 74.5% indicates that the change that occurs in the dependent variable (LID) is occurred due to the independent variables (SAV, INC, HEX, TOP, URB, & POS). In addition, it is possible to conclude the model is fit for predicting the determinants of life insurance demand in Ethiopia.

In addition, it is essential to interpret the error correction term's coefficient as it has a significant meaning. The error correction term [specified as CointEq (-1) \* under Table 4 estimates the speed at which a dependent variable returns to equilibrium after a change in an independent variable. Accordingly, the short-run error correction estimate of this study reveals that the error correction term's coefficient is -0.91 and is statistically significant at a 1 percent level of significance. Therefore, 91 percent of deviations from the long-term equilibrium are adjusted every year. Moreover, the coefficient of the error correction term has a negative sign and is statistically significant.

### 4.3.3. Discussions and Interpretations of ARDL Regression Result

#### (i). The Long-run and Short-run Effects of Savings on Life Insurance Demand

As indicated in the long-run regression result in Table 3, savings (SAV) has a positive and significant effect on life insurance demand in Ethiopia at a 5% significance level with a

P-value of 0.0464. The estimated coefficient of gross domestic savings is about 0.049828. The coefficient of this variable showed that other things held constant the level of saving positively affects life insurance demand in the long run.

Previous researchers had contradictory ideas on the impact of saving on life insurance purchasing demand. Beck & Webb [15], Savvides [16], and Redzuan *et al.* [17] find the negative relationship between saving and life insurance demand. Redzuan *et al.* [17] suggested that buyers of life insurance exchange life insurance products for savings for higher returns offered by other saving mechanisms. And also Savvides [16] indicated that savings can be used as a substitute for life insurance purchase reasons which are to reach a targeted level of wealth for retirement or bequeaths.

On the other hand, other results showed that there is a positive association between saving and life insurance demand. Sen & Madheswaran [18] and Sen [19] indicated that an increase in savings will improve the income of buyers to purchase life insurance products. Mahdzan & Victorian [42] also find that saving has a positive impact on life insurance demand. They indicated that the motives for saving, more specifically wealth accumulation and bequest motive increase the life insurance demand since savers can use life insurance products as a substitute for those saving motives.

The result of this study indicated that there is a positive relationship between savings and life insurance demand; and this finding is consistent with the findings of [19, 42]. The reasons for the positive correlation between savings and life insurance consumption is might be: savings gives a financial ability to purchase life insurance, saving motives which push to acquire life insurance and increase the awareness regarding life insurance. In general, this study implies saving has a positive effect on the demand for life insurance in Ethiopia, and all stakeholders like government, customers, and financial institutions should implement different mechanisms to increase savings and this, in turn, could increase life insurance demand on the long run.

On the other hand, the above short-run regression output shows that other things holding constant the one-year lagged effect of level of savings has a negative but highly insignificant effect on life insurance demand in the short run.

This result indicates that consumers of life insurance products in Ethiopia will not respond immediately to change in his/her saving level or savers will take a long period to decide whether to acquire life insurance or not.

**(ii). The Long-run and Short-run Effect of Health Expenditure to GDP on Life Insurance Demand**

Based on the above long-run regression result under Table 3 health expenditure to GDP (HEX) has a negative and insignificant effect on life insurance demand at a 5% significance level with a P-value of 0.1182. The regression result indicates that although health expenditure to GDP has a negative impact on life insurance demand in Ethiopia, its effect is insignificant. This means in currently in Ethiopia, the Ethiopian government's social security expenditures do not highly affect the purchasing power of life insurance buyers.

The above negative regression result of health expenditure is consistent with other research findings. Beck & Webb [15], Beenstock *et al.* [20], and Li *et al.* [43] showed that Social security programs like health expenditure of the government may affect the demand for life insurance because the social security expenditure mainly comes from taxes, which reduce available income to purchase life insurance; thus high social security expenditure is might be the reason to reduce the consumption of life insurance. Ward & Zurbrugg [28], Skipper & Kwon [44], and Sliwinski *et al.* [45] also showed that the need for life insurance purchase is reduced when government expenditure on social security is increased.

Similar to the above, the short-run regression output shows that the one-year lagged effect of level of health expenditure is highly insignificant and cannot show the effect on life insurance demand in the short run.

Generally, the long-run and short-run results of this study implied the impact of health expenditure to GDP is insignificant on demand for life insurance in Ethiopia.

**(iii). The Long-run and Short-run Effects of Growth in Per Capita Income on Life Insurance Demand**

The above long-run regression result shows that the growth in per capita income (INC) has a positive and significant with respect to life insurance demand at a 5% significance level with a P-value of 0.0316. The estimated coefficient of per capita income equals 0.014899. The coefficient of this variable shows that other things holding constant growth in per capita income have a positive effect on life insurance demand in Ethiopia in the long run.

This result implied that an increase in one-person income results in a greater demand for life insurance to safeguard the income potential of the insured and the expected consumption of his/her dependents. In addition to this, an increase in income also might be the reason why people direct a part of their earnings toward retirement and buy insurance products particularly life insurance as a saving alternative. This result is confirmed with the theoretical finding of Yaari [46] which suggests the demand for insurance is dependent on the expected earning of an individual during his lifetime which is as an individual expects to earn more income his demand for insurance will increase and vice versa. In addition, the positive

relationship between growth in per capita income and life insurance demand in Ethiopia is also consistent with previous empirical results which are conducted on the area of life insurance demand such as [10-12, 47].

On the other hand, the above short-run regression output shows that other things holding constant the one-year lagged effect of level of growth in per capita income do not affect life insurance demand in the short run. This means in Ethiopia in the short run, the income of people doesn't affect their demand for life insurance products.

Generally, based on the regression results of this study, growth in per capita income has a positive and significant effect on life insurance demand in Ethiopia. So, all respective bodies should try to increase income to increase life insurance demand.

**(iv). The Long-run and Short-run Effect of Total Population Growth on Life Insurance Demand**

The above long-run regression result revealed that the total population growth rate (TOP) has a positive and significant effect on life insurance demand at a 5% significance level with a respective P-value of 0.0410. This result is parallel with the null hypothesis. The estimated coefficient of total population growth is 0.048722. The coefficient of this variable tells that, other things holding constant, there is a positive relationship between total population growth and demand for life insurance in Ethiopia in the long run.

Similarly in the short run regression result, the total population growth also has a positive and significant effect on life insurance demand in Ethiopia at a 5% significant level with a p-value of 0.0000 and with an estimated coefficient of 0.222983. The coefficient of this variable shows that other things holding constant, total population growth has a positive effect on life insurance demand in Ethiopia in the short run.

Both the long and short-run results of the study indicate that as the total population increase the demand for life insurance demand will be inflated in the short as well as in the long run. This result implies that as the total population increase the demand, size of the current market, and availability of new market for life insurance products. This result shares the same views with previous research outputs founded by Çelik & Kayali [11], Mantis & Farmer [24], and Schlag [48] who got a positive relationship between total population growth and life insurance demand.

The regression results of this study show a positive relationship between population and life insurance demand and this implied that life insurance providers should implement different policies like the creation of awareness and branch expansion to increase life insurance consumption to cultivate population growth in Ethiopia.

**(v). The Long-run and Short-run Effects of Urbanization on Life Insurance Demand**

The above long-run regression result urbanization (URB) has a positive and significant effect on life insurance demand at a 1% significance level with a respective P-value of 0.0000. The estimated coefficient of urbanization is about 0.046137. The coefficient of this variable tells that other thing holding

constant, there is a positive relationship between the total urban population and life insurance demand in the long run.

The long-run regression result of urbanization shows the positive and significant effect of urbanization on the life insurance demand of Ethiopia. This result confirms that a higher concentration of the population simplifies the delivery of life insurance products and information about them to the potential consumers, as it decreases costs for the life insurance providers. Consequently, countries with a higher share of the urban population are likely to have a higher demand for life insurance products. Beck & Webb [15] also conclude that a higher degree of concentration of the population in urban areas can reduce the insurers' expenditures for marketing, for the distribution of policies, for underwriting, and claims administration. In general, the positive correlation between urbanization and life insurance demand is also evidenced by [23, 49, 50].

On the other hand, in the short run, the regression output shows that the one-year lagged effect of the level of urbanization rate is highly insignificant and cannot show the effect on life insurance demand in the short run. This result indicates that Ethiopia's life insurance market responds to changes in the urbanization level over a long period.

The findings of this study show there is a positive relationship between life insurance demand and urbanization in Ethiopia and this finding implied the Ethiopian government should take actions to increase urbanization like industrialization and expansion of infrastructures. In addition, insurance companies should expand their effort to get higher life insurance demand in urban centers.

#### **(vi). The Long-run and Short-run Effects of Political Instability on Life Insurance Demand**

As shown from the above long-run regression result, political instability (POS) has a positive and significant effect on life insurance demand at a 1% significance level with a P-value of 0.0077. The estimated coefficient of political stability is about 0.010267. The coefficient of this variable tells that, other things holding constant, political instability, and life insurance demand have a positive relationship in the long run.

Similarly in the short run regression result, the political instability also has a positive and significant effect on life insurance demand in Ethiopia at a 5% significance level with a p-value of 0.0001 and with an estimated coefficient of 0.013026. The coefficient of this variable shows that other things holding constant, the one unit increase in the level of political instability index will lead to an increase in life insurance demand by 1.3026 percent in the short run.

The short and long-run regression output indicated that political instability positively affects life insurance in both long and short run-time periods. To the opposite previous pieces of literature showed a negative relationship between the bad political condition of the country and the life insurance business. According to Kjosevski [26] since life insurance is a long term contract it requires a stable political environment of the country if not the political instability could hamper life

insurance demand by affecting insurer's investment, decreasing the insurer profitability, and increasing the insurance price or in general it diminish the development of a healthy life insurance market. Emamgholipour *et al.* [25] and Ward & Zurbruegg [28] indicated that the stable political condition of the country would result in a higher willingness of contracting parties to initiate the business. In addition, the Presence of political stability encourages the private sector companies in the life insurance industry and get the opportunity to participate effectively in the financial market to face the increased demand of society for life insurance. political instability shortens the economic horizon of both potential buyers and suppliers of life insurance products, diminishing the development of a healthy life insurance market [27].

Although previous authors got a negative relationship between life insurance demand and political instability, the researcher got a positive and significant relationship between them. The positive impact of political instability on life insurance demand in the both short and long run can arise due to different reasons.

Firstly as the political condition of the country worsens violence and crime become common World Bank [51], and this pushes the breadwinner's demand for life insurance to make safe his/her dependents from different risks if something happens to him/her due to the political instability. This in turn may increase life insurance demand.

Secondly as indicated by Yuningsih & Taufiq [52] the presence of political instability results in bad psychological factors such as loss aversion and the illusion of control bias in investment choice. So, the political instability condition urges people to shift their investment from real assets to financial assets like life insurance due to psychological factors created by the bad political condition, since the latter has better security, liquidity, and return during those periods.

As indicated Klomp & De Haan [53] regime or political instability has a negative relationship with the health of individuals, and this increases the chance of death and death-related funeral costs. Besides that, the model developed by Lesar [54] shows expected death-related funeral expenses are one of the reasons to buy life insurance. So, the researcher concluded that political instability will increase life insurance demand since it increases the chance of death, and this, in turn, increases funeral expenses that need life insurance coverage.

Plus the above, during the period of political instability life insurance providers implement Aggressive promotion to create awareness about the purpose and benefit of life insurance [55]. The increased level of awareness due to life insurance providers' advertising efforts will result in higher life insurance demand and the country.

The last but not least reason is maybe political instability increases the awareness of people about life insurance since they live in a highly unsafe environment. As indicated by Hagos & Shewakena [56] lack of awareness on life insurance is one of the reasons for the low demand for life insurance; so

the unsafe political environment will trigger peoples to think about ways to avoid the consequences of worsening conditions resulting by bad political conditions and those people may consider life insurance purchase as one alternative. The increased awareness about life insurance due to political instability may increase the demand for life insurance.

Frynas [57] and Nurudeen *et al.* [58] also, get the positive relationship between political instability business environment although it was not done in the life insurance case.

## 5. Conclusions

The long-run regression result of this study confirmed that the country's saving level has a positive and significant effect on life insurance demand. The study result has consistency with previous studies' outputs. Thus, as the level of saving increases the financial ability, awareness, motives to purchase life insurance increase and this will further increase demand for life insurance in Ethiopia. On the other hand, the short-run regression output shows that the one-year lagged effect has a negative and insignificant effect on life insurance demand in Ethiopia in the short run.

The study found pieces of evidence that the level of growth in per capita income has a positive and significant effect on the life insurance demand of Ethiopia in the long run. Most previous studies also got the same relationship between income and life insurance demand. This result shows that as the level of income increases life insurance products become affordable and can be acquired easily and this will result in an increase in the life insurance demand in Ethiopia. On the other hand, the short-run regression result shows that growth in per capita income has no impact on life insurance demand in Ethiopia.

The study found that health expenditure to GDP has a negative and insignificant effect on life insurance demand in both the long run and short run.

The total population growth has a positive and significant effect on life insurance demand in both long-run and short-run. The positive effect of the total population growth is evidenced in the result of previous studies' outputs. This result tells that, the growth in the total population will increase the life insurance demand in Ethiopia since it creates a large demand and market for life insurance.

Urbanization has found a positive and significant effect on Ethiopia's life insurance demand in the long run. The study result has consistency with previous study results. The estimated coefficient of this variable tells that, growth in the urban population will increase life insurance demand in the long run since it increases the accessibility of life insurance products by minimizing marketing costs and with better infrastructure. On the other hand, the short-run regression output shows that urbanization does not affect life insurance demand in the short run.

The long-run and short-run regression results of political instability have found a positive and significant effect on life

insurance demand in Ethiopia although most previous studies got a negative relationship. Simply this study implies Political instability will increase life insurance demand since it creates a favorable ground for inflating life insurance demand such as increasing risks, a shift of investment from real to financial assets, increasing the chance of death and death-related costs, increasing awareness regarding life insurance.

## 6. Recommendation

Based on the above-given conclusions the following recommendations are forwarded to increase the life insurance demand in Ethiopia.

As indicated in the regression result savings has a positive impact on life insurance demand. So, all institutions which have a strong impact to promote savings such as the National bank of Ethiopia (NBE), commercial banks, microfinance and credit unions, etc. are advised to implement different alternatives to increase the saving level of Ethiopia. Those institutions can use different methods to increase savings are like deposit rate increment, tax decrement to decrease consumption, enhance financial institutions capacity in all matters, encourage savers through different mechanisms, create awareness regarding saving benefit, etc. and these measurements could result in a higher demand for life insurance in Ethiopia.

This study revealed that there is a positive relationship between growth in per capita income and life insurance demand. So, another important measure that should be taken to increase life insurance consumption is increasing the per capita income of the country. The government of Ethiopia and other stakeholders should implement different strategies and policy measure packages to increase the size of the workforce and workforce productivity to increase the per capita income of the country.

Insurance companies should implement different strategies and marketing mechanisms like market development or branch expansion, market penetration by charging lower premiums and aggressive promotion regarding life insurance products, and create more awareness about life insurance products to capture the advantage population growth in Ethiopia and current political instability situation of Ethiopia. If those measures are taken the knowledge about life insurance, the need for life insurance and consumption of life insurance will increase in Ethiopia.

Finally, as indicated in the regression result urbanization has a positive effect on life insurance demand in Ethiopia, accordingly Insurance companies in Ethiopia better to focus on expanding their distribution channels in urban centers where they may be benefited from the lower cost of marketing, distribution, underwriting as well as the cost of claims management because a higher concentration of population simplifies the delivery of life insurance policy and information to the potential consumers. Plus, to that, the government should have to focus on developing infrastructures that are basic for the establishment of more urban centers.

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