The Effect of Insurance Sector Development on Economic Growth In Algeria.

أثر تطور قطاع التأمين على النمو الاقتصادي في الجزائر

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Abstract:

This paper investigates the effect of insurance sector on economic growth in Algeria using ARDL models and time series data for the period of 1980-2017.

In the long run, all variables are cointegrated where a significant positive effect of non-life insurance premiums is found with an insignificant effect of life insurance premiums growth on real GDP. In the short run, there is a significant negative effect of non-life-insurance premiums and a significant negative effect of inflation on economic growth. The negative significant error correction term ECT means a 89.89% of the long run disequilibriums are corrected each year.

Keywords: life insurance; non-life insurance; cointegration.

Jel Classification Codes: C11, G22, O11, O16.

ملخص:

تهدف هذه الدراسة لمحاولة معرفة أثر قطاع التأمين على النمو الاقتصادي في الجزائر باستخدام نماذج الانحدار الذاتي ذات الابطاء الموزع $ARDL$ في الفترة 1980-2017.

توصلت الدراسة في المدى الطويل لوجود تكامل مشترك بين المتغيرات وتأثير إيجابي معنوي لأقساط التأمين على الممتلكات والمسؤولية وغير معنوي لأقساط التأمين على الحياة على GDP، في المدى القصير هناك أثر سلبي معنوي لأقساط التأمين على الممتلكات والمسؤولية والتضخم على GDP إضافة

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إلى حد تصحيح الخطأ ECT السلبي والمعنوي الذي يدل على تصحيح الانحرافات ب89.89٪ سنويا.

كلمات مفتاحية: التأمين على الحياة، التأمين على الممتلكات والمسؤولية، التكامل المشترك.

تصنيف JEL: C11, G22, O11, O16.

1. INTRODUCTION

The relationship between financial sector and economic growth has been a debatable issue. The supply-leading hypothesis implies that a good financial system comes first and promotes economic growth. The demand-following hypothesis adopts the idea that financial system is a result of economic growth where growth in the real economy stimulates the demand for financial services and that an expanding economy creates the demand for financial services.

In examining this two previous hypothesis, most of researchers focused on the contribution of banking sector and financial markets in economic growth and few of them took into account insurance sector as an important part of financial systems. The importance of insurance services has begun to increase gradually in the 20th century especially after the first session of the United Nations Conference on Trade and Development (UNCTAD) in 1964 where acknowledged, in the first act and report of the Proceeding of the (UNCTAD), " a sound national insurance and reinsurance market is an essential characteristic of economic growth." Moreover, the importance of the insurance-growth nexus is growing due to the remarkable increasing share of total written insurance premium to global GDP.

In addition, growth in real economy could also have an impact on insurance consumption. A higher income from an expanded economy may lead individuals to demand more insurance services which leads to an increase in total written insurance premiums.

Insurance companies play the same role as banks and capital markets in serving the financial intermediation needs of business units and private household. Insurance is a very key part in financial sector. In developed markets, the insurance sector accounts for a significant portion of the economy such as US, UK and EU.

In addition, financial intermediation can be achieved by insurers through collecting relative premiums from many small individuals in the economy which constitutes a large pool of funds that could be invested in both short and long term periods (Akinlo & Apanisile, 2014, p. 120).

It is also mentioned that life insurance reduces the demand for liquidity in the form of money and durable goods, and shifts the composition of individuals' portfolios of savings to more productive assets. On the other hand property/liability insurers reduce the likelihood of distress liquidation of firms in the face of catastrophic losses. As an example risk-neutral shareholders have an interest in insuring against losses to avoid bankruptcy costs (Webb, Grace, & Harold, 2002, p. 5).

Another aspect, provided by Ward and Zurbruegg, is risk transfer and indemnification. Offering risk transfer and indemnification services aids risk-averse individuals in purchasing large-expense items, such as automobiles and real estate as indemnification encourages their innovation (Ward & Zurbruegg, 2000, p. 491).

Generally, the African insurance market remains very weak in comparison with other parts of the world as it represents 1.36% of world's insurance market versus 30.6% in North America and 30.24% in Europe in 2017. The Algerian insurance market is ranked in the 69th place in the world and in the fifth one in Africa with total written insurance premiums of 1215 million USD in 2017. In addition, the volume of total expenditure on insurance services in Algeria has been steadily increasing over the period of the study as total written insurance premiums were approximately tripled, in the period 1980-2013, from 466 million USD to 1215 million USD in 2017 as it is mentioned in the 3rd Sigma review publication in 2018.

In light of this remarkable development of insurance activity in Algeria, it seems, from statistics, that there is a need to investigate, in order to know, the effect of insurance sector development on economic growth in Algeria .

2. Literature Review :

Haiss and Sumegi investigated the impact of insurance on economic growth on a sample of 29 European countries in the period 1992-2005. The researchers found a positive impact of life insurance on economic growth in

Norway, Switzerland, Iceland and 15 countries while there is a positive impact of non-life insurance on economic growth in other countries of Central and Eastern Europe as well as Turkey and Croatia. (Haiss & Sümegi, 2008)

Arena examined the existance of causal relationship between insurance market activity and economic growth. He used the Generalized Method of Moments (GMM) for dynamic models of panel data for 55 countries between 1976 and 2004. The study concluded that there is a robust evidence of causal relationship between insurance market activity and economic growth where life and non-life insurance activity were found to have positive and significant causal effect on economic growth. For life- insurance branch, only high-income countries drive the result unlike non-life insurance where both high-income and developing countries are drive the results (Arena, 2008).

Han and others investigated the relationship between insurance development and economic growth by employing GMM models on a dynamic panel data set of 77 economies for the period 1994–2005. Insurance density was used to represent the development of insurance sector. the study concluded that insurance development is positively correlated with economic growth. As the sample is divided into developed and developing economies, the overall insurance development, life insurance and non-life insurance development in the developing economies play a much more important role than they do for the developed economies (Han, Li, Moshirian, & Tian, 2010).

Alhassan and Fiador conducted a study on the case of Ghana in an attempt to determine the causal link between insurance penetration rate and economic growth between 1990 and 2010 using Autoregressive Distributed Lags models ARDL. Per capita real GDP is the dependent variable representing economic growth, while the independent variables are as follows: foreign trade volume , life insurance penetration rate, non-life insurance penetration rate, consumer price index to express inflation and capital represented by Gross fixed capital formation. The study concluded that there is a positive causal relationship in the long term between insurance penetration rate and economic growth, which means that funds mobilized by insurance institutions positively affect long-term economic growth. The

study also found a unidirectional causal relationship from insurance activity towards economic growth which is consistent with the Supply-Leading Hypothesis (Alhassan & Fiador, 2014).

In 2015, Olayungbo used VAR models and Toda-Yamamoto causality test (T-Y) in order to examine the nature of the dynamic relationship between demand for insurance, financial development and economic growth in South Africa for the period 1970-2012. The VECM model showed that financial development stimulates demand for insurance in the short term. Results of Toda-Yamamoto (TY) test showed that financial development and insurance promote economic growth, as well as a unidirectional causal relationship from insurance activity and financial development towards economic growth which supports the Supply Leading hypothesis (Olayungbo, 2015).

Using the Generalized Method of Moments (GMM), Muye and Shiekh Hassan studied a sample of 22 member countries of the ASEAN and GCC in order to understand the relationship between the development of the Islamic Takaful insurance sector and economic growth during the period 2004 - 2012. The study used real GDP per capita as a dependent variable in addition to the following independent variables : CPI as a proxy of Inflation, Islamic insurance market expressed by total Takaful insurance premiums, government spending proxied by gross fixed capital formation GFCF and foreign trade which is represented by total exports and imports. The study concluded that there is a positive and significant relationship between Islamic Takaful insurance market and economic growth (Muye & Shiekh Hassan, 2016).

Another study was provided by Olayungbo where he used the Autoregressive Distributed Lags model (ARDL) to study the effect of both life insurance and non-life insurance on economic growth between1976-2013 in Nigeria. He found that there exist a significant positive, in the long and the short run dynamics, contribution of life and non-life insurance on economic growth in Nigeria. (Olayungbo, 2016).

3. Data and Methodology:

3.1. Sources of Data and Variable Definitions :

This paper employs annual time-series data from 1980 to 2017 of real GDP, aggregate insurance premiums, life and non-life insurance premiums,

foreign trade volume, gross fixed capital formation and inflation rate. Data of insurance premiums were sourced from Sigma review publications issued by Swiss-Re Institute's research. The other macroeconomic variables were sourced from the world development indicators (WDI) database.

Variables are gross domestic product growth GDPG as the annual percentage growth in the monetary values of all final goods and services produced in Algeria computed using 2010 base year in US dollars, life insurance premiums growth LIPRG, non-life insurance premiums growth NLIPRG, foreign trade volume FTV as a share of GDP represents the openness of an economy and it is supposed to have a positive effect on economic growth, inflation INF as the annual percentage change in consumer price indicator CPI and is supposed to negatively affect economic growth and gross fixed capital formation GFCF as a share of GDP and it contains investments on plants, machinery, equipment and infrastructure. It is supposed to positively affect economic growth.

3.2.Models Specification and Methodology :

In estimating the relationship between insurance premiums and economic growth in Algeria, the model and the linear time series used in the above previous studies will be adopted, especially those of Alhassan and Fiador (Alhassan & Fiador, 2014, p. 99) and Muye and shiekh hassan (Muye & Shiekh Hassan, 2016, p. 370). The main regression equation to be evaluated can be specified as follows:

$Y_t = \beta IPt + \gamma X_t + \varepsilon_t$ **……..(1)** WhereY_t iseconomic growth in year t, IPtis the insurance premium indicator (further decomposed into life and non-life insurance) in year t, X is a vector of controls (gross fixed capital formation, inflation and trade) and ε_t is a disturbance term.

This paper adopts the ARDL model, proposed by (Pesaran et all 2001), which involves bounds test to check the existance of coitegration between variables. According to Nkoro and Uko this model is advantageous because of the following reasons (Nkoro & Uko, 2016, p. 79):

- Since each of the underlying variables stands as a single equation, endogeneity is less of a problem in the ARDL technique because it is free of residual correlation. Also, it enables us to analyze the reference model;

- When there is a single long run relationship, the ARDL procedure can distinguish between dependent and explanatory variables. That is, the ARDL approach assumes thatonly a single reduced form equation relationship exists between the dependent variable and the exogenous variables.

In addition to the above advantages, the test is relatively more efficient in small sample data (Olayungbo, 2016, p. 36).

The unrestricted error correction model (UECM) of ARDL model used to examine the long run and the short run relationship takes the following form (Olayungbo, 2016, p. 36):

$$\Delta LRDP_i = \alpha_{0.} + \beta_1 LIPRG_{t-1} + \beta_2 NLIPRG_{t-1} + \beta_3 FTV_{t-1} + \beta_4 INF_{t-1} + \beta_5 GFCF_{t-1}$$
$$+ \sum_{i=1}^{P} \alpha_i \Delta LIPRG_{t-i} + \sum_{j=1}^{P} \alpha_j \Delta NLIPRG_{t-j} + \sum_{i=1}^{P} \alpha_k \Delta FTV_{t-k} + \sum_{i=1}^{P} \alpha_q \Delta INF_{t-q} + \sum_{i=1}^{P} \alpha_s \Delta GFCF_{t-s} + \varepsilon \ldots\ldots\ldots (1)$$

3.3.Stationarity Test and Cointegration :

5.3.1 Stationarity Test

A stationary time series is the one that has no unit root and a constant mean and variance at level form i.e. I(0). A non-stationary one has a unit root and a changing mean and variance as it can be usually transformed into a stationary time series by making first or second difference and hence it can be I(1) or I(2) respectively.

The Augmented Dickey-Fuller test of 1981 is one of stationarity tests. It is based on the hypothesis that $|\varphi_j| < 1$ and the Ordinary Least Squares OLS to estimate the following three models (Bourbonnais, 2015, p. 250) :

$$\Delta x_t = \alpha_{0.} + \rho x_{t-1} - \sum_{j=2}^{p} \varphi_j \Delta x_{t-j} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

$$\Delta x_t = \alpha_{0.} + \rho x_{t-1} - \sum_{j=2}^{p} \varphi_j \Delta x_{t-j+1} + c + \varepsilon_t \ldots\ldots\ldots\ldots\ldots (2)$$

$$\Delta x_t = \alpha_{0.} + \rho x_{t-1} - \sum_{j=2}^{p} \varphi_j \Delta x_{t-j+1} + c + b_t + \varepsilon_t \ldots\ldots\ldots\ldots (1)$$

Where Δ is the change operator, x_t are variables series, x_{t-1} are lagged values, Δx_{t-i} are first differences, $\alpha_0$is constant, b_t is trend, t represents time variable and εt indicates error term. The guideline is if ADF test statistic

value was higher than the critical values at 5% significance level then we call it stationary series but if the test statistic value was lower than the critical values then we call it non stationary series.

3.3.2 Bounds testing of Cointegration

The ARDL bounds testing, of cointegration approach, can be achieved by determining the existence of the long run relationship of variables then choosing the appropriate lag length for the ARDL model and estimating the long run estimates of the selected ARDL model. Finally, reparameterizing of the ARDL model into error correction model.

When the computed F-statistic is greater than the upper bound critical value, then the H_0 on the null hypothesis of non-existence of the long-run relationship is rejected (variables are cointegrated). If the F-statistic is below the lower bound critical value, the H_0 cannot be rejected (there is no cointegration among the variables). If the computed F statistic falls within(between the lower and upper bound) the critical value band, the result of the inference is inconclusive (Nkoro & Uko, 2016, p. 82).

However, According to (Narayan, 2005, p. 1981), the existing critical values provided by Pesaran (Pesaran, SHIN, & Smith, 2001) cannot be applied for small sample sizes because they are based on large sample sizes. Hence, another set of critical values that can be applied on small sample sizes ranging from 30 to 80 observations was provided by Narayan.

In addition to f-Bounds Test, the t-Bounds Test is also used to confirm the result of cointegration (Pesaran, SHIN, & Smith, 2001, p. 303).

4.Tests of Residual Diagnostics and Stability :

In order to check the stability of the short-run and long-run coefficients, the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) tests proposed in 1975 be used (Brown, Durbin, & Evans, 1975). When the graphical representation of CUSUM and CUSUMSQ statistics are provided and If the plots of the CUSUM and CUSUMSQ remain within the 5 per cent critical bound, it means that the parameters are constant and hence the model is stable.

are some conditions of errors, in autoregressive distributed lag models, that must be checked such as heteroskedasticity, serial correlation and normality. Hence, Breusch-Pagan-Godfrey, Breusch- GodfreySerial

Correlation LM test and Jarque-Bera statistic will be used for the sake of making sure that the model is not suffering from heteroskedasticity, serial correlation and normality problems repectively.

5. Results and Discussion

5.1Unit root test

Using ADF unit root test and based on the SIC criteria, the results, In Table01, show that all time series have a unit root at level except life insurance premiums growth LIPRG where the test showed that it is stationary at level which means that it is I(0). In other words, the the null hypothesis of non stationarity can not be rejected at level only in the case of LIPRG.

Using the same unit root test on the first difference, all time series are found to be stationary i.e. they are I(1) as it is clear from the result of Table01.

In fact, one of the most important things in unit root test results before moving to the ARDL cointegration is to make sure that there is no I(2) time series because critical values in bounds test are calculated only for I(0) and I(1).Hence, having I(2) series makes the ARDL cointegration test invalid.

Table 1. ADF Unit Root Test Results

	AtLevel			**At First Difference**		
	Constant	**Constant & Trend**	**No Constant & Trend**	**Constant**	**Constant & Trend**	**No Constant & Trend**
	t-Stat	t-Stat	t-Stat	t-Stat	t-Stat	t-Stat
GDPG	-3.79***	-3.72**	-1.43	-6.23***	-6.14***	-6.37***
LIPRG	-4.12***	-4.28***	-3.96***	-10.18***	-5.63***	-10.3***
NLIPRG	-2.789*	-2.787	-3.43***	-9.398***	-9.27***	-9.52***
FTV	-1.415	-2.605	-0.085	-4.5***	-4.56***	-4.57***
INF	-1.83	-2.089	-1.309	-5.537***	-5.45***	-5.60***
GFCF	-2.612	-2.591	-0.543	-4.672***	-4.66***	-4.79***

Source: Based on the outputs of Eviews-10 software.

Notes:

- (*)Significant at the 10%; (**) Significant at the 5% and (***) Significant at the 1%.
- The significance means the degree at which the null hypothesis of non stationarity is rejected.

5.2 Bounds Test

Due to the fact that the time series in our model are not cointegrated in the same order, the ARDL bounds testing of cointegration approach can be applied in the study to test the existence of a long run relationship between variables using boundary test. The ARDL model proposed by (Pesaran et al .2001) including boundary testing is applied in case the time series are integrated from the same order 0 or 1 and when they have different levels of stationarity but only I(0) or I(1)

Table 2. Bounds Test

Null Hypothesis: No levels relationship				
Actual Sample Size 35		**k=5**	**Finite Sample: n=35**	
Test Statistic	**Value**	**Signif.**	**I(0)**	**I(1)**
		10%	2.508	3.763
F-statistic	5.5461	5%	3.037	4.443
		1%	4.257	6.04
t-statistic	-5.0079	10%	-2.57	-3.86
		5%	-2.86	-4.19
		1%	-3.43	-4.79

Source: Based on the outputs of Eviews-10 software

The results in Table 02 show that there is cointegration between variables since the F-statistic5.546 is greater than the upper boundary critical values 4.44 and 6.04 at5% and 1% level significance respectively. Therefore, the H_0 hypothesis, which says that there is no cointegration between variables , is rejected and rather the H_1 hypothesis that says there is cointegration is accepted.

This result is also confirmed by the t-Bounds Test asthe absolute value of t-statistic5.007 is greater than the absolute value of the upper boundary critical values 4.19 and 4.79 at5% and 1% level of significance respectively.

5.3 Long and Short Run Estimations

After providing evidence of a long run equilibrium relationship (cointegration), The long and the short run estimations are as follows :

5.3.1Long Run estimation

Table 3. Estimated Long-run coefficients using the ARDL (1, 0, 3, 0, 3, 0) Approach with GDPG as a dependent variable.

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**

LIPRG	0.000119	0.02392	0.004984	0.9961
NLIPRG	0.289194	0.08925	3.240247	0.0038
FTV	0.031967	0.048569	0.658184	0.5172
INF	0.157485	0.087751	1.794691	0.0865
GFCF	0.004425	0.063591	0.069586	0.9452

Source: Based on the outputs of Eviews-10 software

From Tble03, there is a positive and significant long run effect of non-life insurance premiums growth (NLIPRG) on Algerian GDP growth at a significant level of 1% where a 1% increase in NLIPRG leads to an increase of 0.28% in GDPG).This is inconsistent with the argue of (Webb et all, 2002, p3) who said "Property/liability insurers do not mobilize medium and long-term savings to the extent that life insurers do".This is also in line with the result of (Alhassan & Fiador,2014, p90).

Life insurance premiums growth LIPRG, trade FTV inflation INF and gross fixed capital formation GFCF has a positive but not significant effect on GDP growth in Algeria in the long run .

5.3.2 Short Run Estimation

From Table 04 the error correction term ECT is negative and significant at 1% which confirms the existence of a long run relationship among variables as it means that the long run disequilibrium is corrected, in the short run, by 89.89% each year. In addition, there is a significant negative effect at 1% of the second lag of non-life-insurance growth $NLIPRG_{-2}$ in the short term on GDPG at a rate of 0.096% of decrease for each 1% increase in $NLIPRG_{-2}$ while inflation INF_{-2} showed a significant negative impact in the short term at the level of 10% where a decrease rate of 0.0048% in LRGDP is per 1% increase in $INF_{-1.}$

Table 4. Estimated short-run coefficients of the ARDL model(1, 0, 3, 0, 3, 0) with GDPG as a dependent variable.

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-1.679999	0.350936	-4.787191	0.0001
NLIPRG	0.053807	0.032872	1.636886	0.1159
$NLIPRG_{-1}$	-0.081636	0.041695	-1.957935	0.063
$NLIPRG_{-2}$	-0.096457	0.032024	-3.01199	0.0064
INF	0.007015	0.06017	0.116578	0.9083
INF_{-1}	-0.074289	0.056437	-1.316325	0.2016

INF_{-2}	-0.249322	0.06022	-4.14021	0.0004
ECT_{-1}	-0.89893	0.140664	-6.390607	0
R-squared	0.69353	**Meandependent var**		-0.1343
Adjusted R-squared	0.614075	**S.D. dependent var**		2.36978
S.E. of regression	1.472174	**Akaike info criterion**		3.80899
Sum squared resid	58.51697	**Schwarz criterion**		4.1645
Log likelihood	-58.6573	**Hannan-Quinn criter.**		3.93171
F-statistic	8.728581	**Durbin-Watson stat**		1.87546
Prob(F-statistic)	0.000014			

Source: Based on the outputs of Eviews-10 software

From the fact that the significant positive effect of insurance premiums growth is only found in non-life insurance sector, it seems that the Algerian insurance sector is mainly driven by non-life branch of insurance activity. This could be a result of the weak contribution of life insurance activity in the aggregate insurance premiums as well as it might be a result of religious reasons since such kind of insurance policies are not supported in Algeria from a religious point of view. It is also supported by the findings of (Browne & Kim, 1993, p. 627) as life insurance consumption is less in predominantly Islamic countries which is the case of Algeria. These findings are also confirmed by those of (Arena, 2008, p. 922) which found evidence that in the case of life insurance, the impact on economic growth is driven by high-income countries only. On the other hand, in the case of non-life insurance, its impact is driven by both high-income and developing (middle and low-income) countries.

5.4 Residual Diagnostics and Stability Tests

5.4.1 Residual Diagnostics Tests :

Table05: Breusch-Godfrey Serial Correlation LM Test:

F-statistic	**p-valeu**
0.17084	0.8442

Source: Based on the outputs of Eviews-10 software

Table06: Heteroskedasticity Test: Breusch-Pagan-Godfrey:

F-statistic	**p-valeu**

0.731826	0.7073

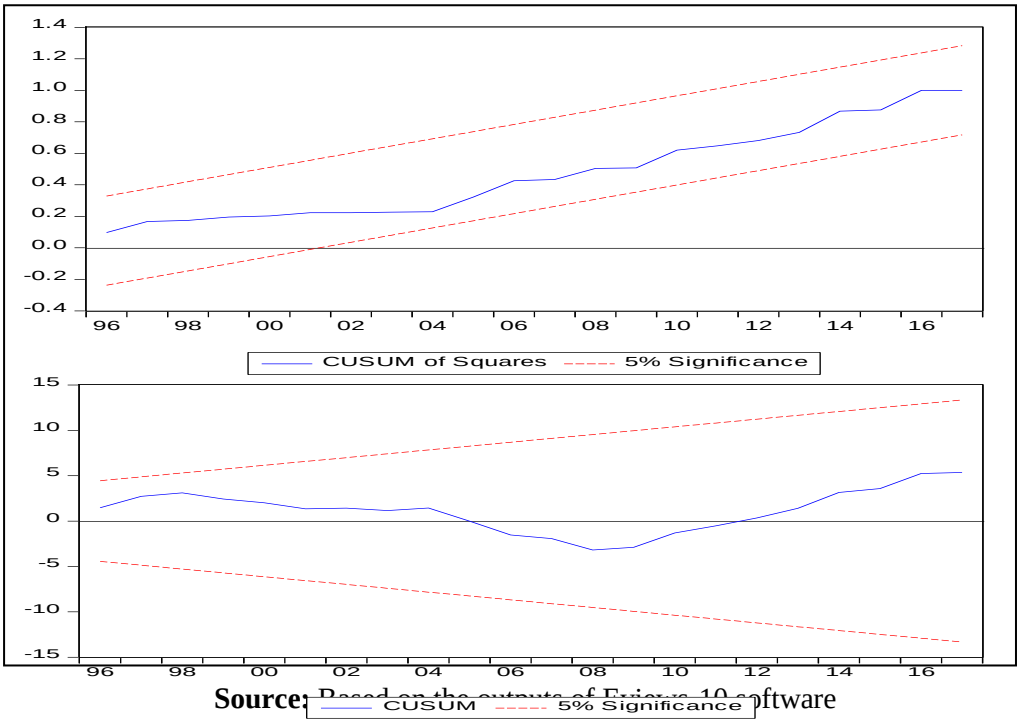
Source: Based on the outputs of Eviews-10 software

From table05 and table06, the P-statistic is greater than 10%. Thus, the null hypothesis cannot be rejected and the model is free of serial autocorrelation problem and the variance of errors is homogenous. Moreover, The P-value of The Jarque-Bera test, computed by Eviews 10 software, is 0.834 which means that residuals of the model have a normal distribution.

5.4.2Stability Tests

From Fig.1, The plots of CUSUM and CUSUMSQ statistics, are within the 95% critical bounds, indicating that all coefficients in the estimated ARDL model are stable over the sample period. In addition, the R-squared value 0.693 means that 69.3% variations in growth are explained by the estimated model.

Fig.1.cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) tests results



Source: Based on the outputs of Eviews-10 software

6. CONCLUSION

This paper is an attempt to study the effect of insurance activity on economic growth in Algeria using time series data for the period 1980-2017. The model contains the percentage growth of gross domestic product

(GDPG) as a dependent variable and the following independent vairibles: life insurance premiums growth (LIPRG), non-life insurance premiums growth (NLIPRG), foreign trade volume (FTV), inflation (INF) and gross fixed capital formation (GFCF). Due to the relatively small sample size (37 observations), the different order of cointegration of time series and the absence of I(2) time series, the Autoregressive Distributed Lags models (ARDL) are used. The ARDL model is based on bounds testing as a method of detecting cointegration where the study found a long run relationship between variables .

In the long run, there is a positive and significant long run effect of non-life insurance premiums growth (NLIPRG) on Algerian GDP growth at a 1% level of significance where a 1% increase in NLIPRG causes an increase of 0.28% in (GDPG).The rest of variables remains positive but not significant effect on GDP growth in Algeria in the long run.

In the short run, there is a significant negative effect at 1% of the second lag of non-life-insurance growth ($NLIPRG_{-2}$) on (GDPG) with a rate of 0.096% of decrease for each 1% increase in ($NLIPRG_{-2}$) while the second lag of inflation (INF_{-2}) showed a significant negative impact in the short term at the level of 10% where a decrease rate of 0.0048% in(LRGDP) is per 1% increase in (INF_{-1}).The error correction term ECT is negative and significant at 1% which confirms the existence of a long run relationship among variables as it means that the long run disequilibrium is corrected, in the short run, by 89.89%.

In other words the effect of insurance activity on economic growth in Algeria is found to be positive and significant only for the branch of non-life insurance and not for life insurance branch.

This could be a result of the weak contribution of life insurance activity in the aggregate insurance premiums as well as it might be a result of religious reasons. Life insurance policies are less demanded in Algeria from a religious point of view as it was concluded in the study of (Browne & Kim, 1993, p. 627) where life insurance consumption is less in predominantly Islamic countries which is the case of Algeria. These findings are also confirmed by those of (Arena, 2008, p. 922) who found evidence that, in the case of life insurance, the impact on economic growth is driven by high-

income countries only. In the case of non-life insurance, the impact is driven by both high-income and developing (middle and low-income) countries.

The diagnostic tests revealed that the model is stable and the model's residuals are free from the problems of srial correlation and heteroskedasticity as they are normally distributed which indicates the

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