

## **GROWTH EFFECT OF INVESTMENTS MADE BY INSURANCE FIRMS IN THE PRIVATE SECTOR: EVIDENCE FROM CAMEROON**

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**Abstract:** The studies of the impact of insurance on the economy in African countries are still scarce. There is a definite limitation in the little research that exists on the relationship between the two variables: it is about the unexplored impact of the investments made in the private sector by insurance firms on the economy. However, most of these companies make short, medium and long run investments in private sector or in the financial market. The empirical evidence shows that the investments made in the private sector by insurance firms foster economic growth in Cameroun.

**Keywords:** insurance, private sector, economic growth

**JEL Classification:** G22, E22, O40,C22

### **1. INTRODUCTION**

A private investment increases the stock of capital and to this end, it is one of the essential means to generate an increase in productivity. This is why the various development strategies resort mainly to interventions on private investment in order to raise the rate of economic growth which is a necessary but not sufficient condition for ensuring social well-being. The dynamism of a private sector is also characterized by the presence of solid insurance companies. For example, a fire in an industry, a severe flood or a drought in a crop field can deprive a household of income. When these risks are covered by insurance, individuals and firms gain peace of mind and can more easily make decisions affecting their productivity and invest in the long run. By protecting them against loss of property, damage or difficulty repaying a loan, it helps to reduce credit risk. In addition, insurance companies generally invest the premiums collected and back their insurance liabilities with assets of the same duration. Health insurance premiums are frequently invested in short-run assets, while life insurance premiums or retirement products can be used to finance long run

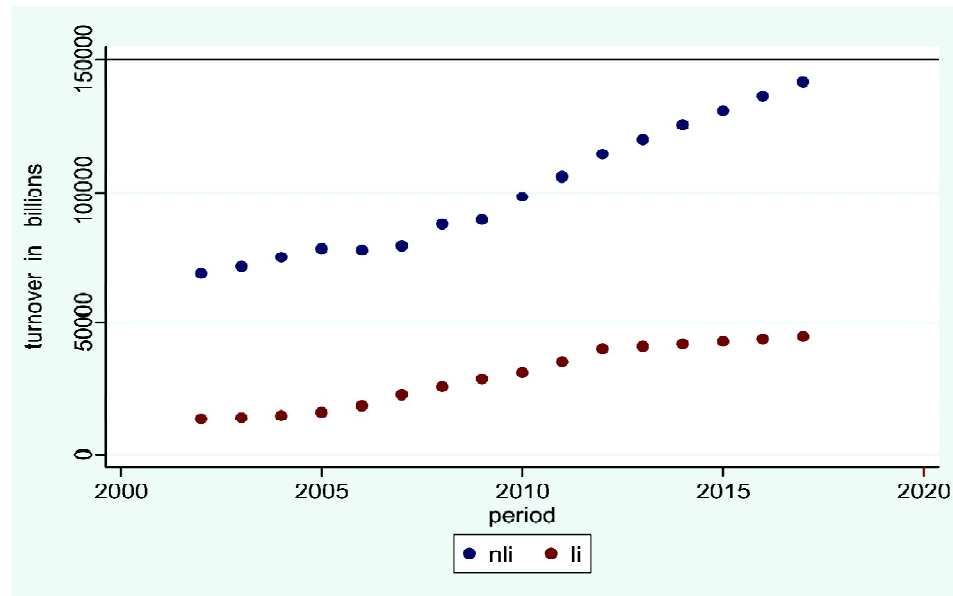
investments rather than short-run investments (Arena, 2008). The supply of insurance helps to increase the overall efficiency of the financial sector, in particular by facilitating the provision of credit to the private sector. Thus, insurance is a factor of stability and resilience to extreme events for local economies and households. Insurance spending is an important lever for the global economy as it represents 6.23% of world GDP (Sigma Swiss-Re, 2016). This highlights the fact that insurance is a necessary factor in increasing economic growth. Empirically, several studies have shown that there is empirical evidence between the development of the insurance sector and economic growth (Kugler and Ofoghi, 2005; Kjosevski, 2011; Mojekwu *et al.*, 2011; Ghimire, 2014; Alhassan and Fiador, 2014; Olayungbo and Akinlo, 2016 and Lee *et al.* 2018). These studies have some limitations. First, no study on the relationship between insurance and economic growth has focused in Cameroon. Next, none of them sought to verify whether the investments made in the private sector by insurance companies can affect the economy. This paper aims to fill this gap in the economic growth-insurance literature.

The remaining part of the paper is constructed as follows. Section 2 provides the cross-cutting evolution of the main variables in Cameroon, literature review is presented in section 3 and section 4 presents variable and definitions. Section 5 presents the methodology and the estimation results and discussions is reported in Section 6 while Section 7 provides conclusion.

## **2. CROSS-CUTTING EVOLUTION OF THE MAIN VARIABLES IN CAMEROON FROM 2002 TO 2017**

The crossed evolution of life insurance and non-life insurance is recorded in figure 1. This figure shows that the insurance activity in Cameroon is dominated by non-life insurance with regard to expansion of its turnover compared to that of life insurance, the trend of which is growing but not in the same proportions. This result can be explained by the fact that the level of income does not allow the large number of citizens to subscribe to life insurance because it is a country where 35% of the population lives below the poverty line according to World Bank statistics (2017). In addition, cultural habits such as the practice of insurance in meetings, which are mostly informal, hamper the emergence of life insurance. As for non-life insurance, its expansion can be explained by the fact that it is binding through regulations in sectors like transport and also because some investors would like to cover their activities with uncertainties. However, if life insurance seems to be a “luxury” for Cameroonians, it does not seem to be for non-life insurance, which has grown remarkably

**Figure 1: Cross-cutting evolution between life and non life insurance in Cameroon during the period 2002-2017**

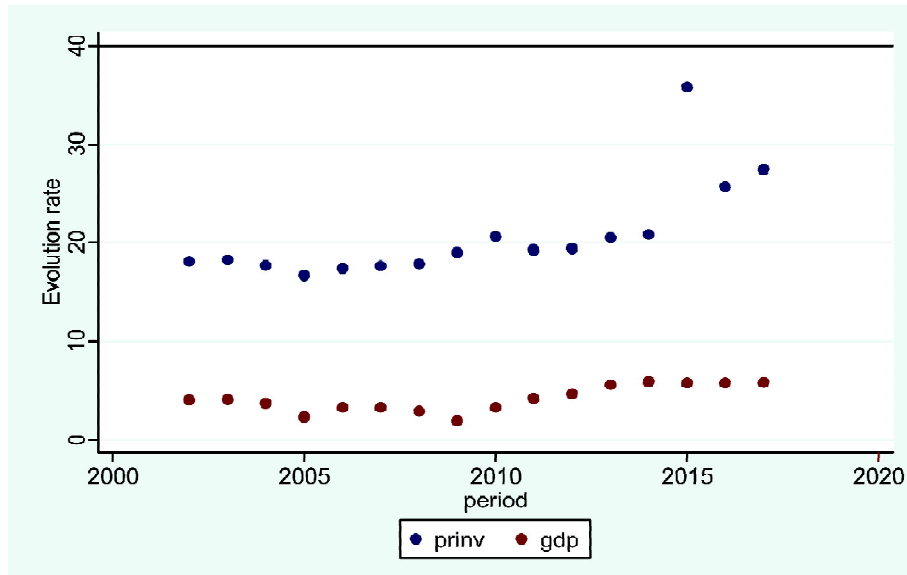


Source: Authors from data collected.

in recent years. Despite this expansion, it should be noted that the insurance penetration rate in Africa is very low since it represents only 1% of world insurance. In this 1%, South Africa and Morocco occupy 70% and 6% respectively, the other 52 African States occupy the remaining 24% (FANAF, 2017).

While the insurance sector is in its expansion phase, the development of private investment and economic growth doesn't seem to follow this trend. Figure 2 represents the crossover evolution between private investment and growth in Cameroon during the period 2002-2017. This figure shows the growing trend of private investment in Cameroon. This expansion is the result of the accumulation of the capital stock. Despite this increase in investment, growth does not follow because between 2002 and 2012, annual growth rates are less than 5% and from 2013 to 2017, they oscillated in the interval from 5 to 5.8%. This situation can be explained by the fact that after the end of the HIPC initiative, the subprime crisis of 2008 and the security crises ("Boko Haram" in 2010 and the Anglophone crisis of 2016) succeeded each other and affected the Cameroonian economy.

Figure 2: cross-cutting evolution between private investment and economic growth from 2002 to 2017



Source: Authors from data collected.

### 3. LITERATURE REVIEW

Very few studies have analyzed the effect of insurance on economic growth in Africa. Among the authors who have studied this relationship in African countries, some have found a positive relationship (Mojekwu *et al.*, 2011; Alhassan and Fiador, 2014; Olayungbo and Akinlo, 2016 and Alhassan, 2016), others found a negative relationship (Olayungbo and Akinlo, 2016) while others found no relationship (Omoke, 2012).

Mojekwu *et al.* (2011) analyzed the impact of the contribution of insurance on economic growth in Nigeria during the period 1981-2008 using a dynamic factor method. The results of this study reveal that there is a positive relationship between the contribution of insurance as measured by the volume of the premium and economic growth in Nigeria. Omoke (2012) follows suit by also analyzing the influence of the insurance sector on economic growth in Nigeria. The use of an error correction vector and Johansen's cointegration approach shows that insurance measured by the per capita premium had no significant effect on economic growth during the period 1970-2008. Alhassan and Fiador (2014) examined the causal relationship between the penetration of insurance and economic growth in Ghana during the period 1990-2010. The authors use the Autoregressive staggered delay (ARDL) approach of Pesaran *et al.* (2001). This study

demonstrates the existence of a positive relationship between insurance penetration and long run economic growth. In addition, a unidirectional causality ranging from the penetration of insurance towards economic growth on the one hand and from the penetration of life and non-life insurance towards economic growth on the other hand has been revealed. Olayungbo and Akinlo (2016) assessed the effect of insurance penetration on economic growth in eight African countries during the period 1970-2013. By using a Bayesian Time Varying Parameter Vector Autoregression (TVP-VAR), the authors found a positive relationship between the two variables in Egypt while in Kenya, Mauritania and South Africa, the authors found a negative and positive relationship in the short and long run respectively. However, the negative effect has been observed in Algeria, Nigeria, Tunisia and Zimbabwe. Alhassan (2016) analyzed the causal relationship between insurance penetration measured by life and non-life insurance premiums and economic growth in eight selected countries. By applying the ARDL bounds approach to cointegration on time series data from 1990 to 2010 to test the causal relationship between the two variables, the results of the bound test shows a long run relationship between insurance market activities and economic growth in Kenya, Mauritius, Morocco, Nigeria and South Africa. Moreover, causality analysis within the vector error correction model indicates a uni-directional causality from insurance market development to economic growth except Morocco where there is evidence of bidirectional causality. Causality analysis within the vector autoregressive framework also provides a uni-directional causality for Algeria and Madagascar while mixed causality was found for Gabon.

In conclusion, it is clear that studies on the relationship between insurance and economic growth in Africa are scarce. To our knowledge, no known study has been made in Cameroon in one part and in another part, no author has thing to verify the indirect relationship between the two variables. Our paper, therefore, fills this gap in the insurance-growth literature by seeking to verify the effect of investments made in the private sector by insurance companies on the economy. More specifically, it will first be a question of estimating the share of private investment generated by insurance and then a second will be a question of assessing the contribution of the latter to economic growth.

#### **4. VARIABLES AND DEFINITIONS**

This study uses quarterly data covering the period 2002 Q1 to 2017Q4. The choice of the period of study is related to the availability of data on interest variables such as insurance. The dependent variable is economic growth, measured as the rate of the gross domestic product (GDP). We also include

a set of control variables in the growth equations. The trade openness variable is measured in this study as the sum of exports and imports as a share of GDP (trade). According to Jouini (2015), there is a positive association between trade openness and economic growth. The foreign direct investment variable (FDI) is measure as foreign direct investment as share of GDP. It's positively and significantly impact the economic growth (Cambos and Kinoshita, 2002). Financial development variable is measure in this study by domestic credit to private sector in percentage of GDP (DCPS). Puatwoe and Piabuo (2017) have found that financial development positively and significantly affects economic growth. The share of private investment generated by insurance (priins) is used in this study as a proxy of insurance. To obtain this indicator, we will first regress the insurance variable to that of private investment. The residual from the estimation of this model represents all the variables (except insurance) which influence private investment in Cameroon but which were not taken into account in the model. Suppose that the number of the variables that help explain private investment are "n". If we subtract the insurance variable because it is present in the model, there remain "n-1" to variables. The "n-1" variables are concentrated in the residual of the regression. This residual can then be used to measure the marginal contribution of insurance to private investment. Used in this way, the residual takes the name of "*usable residual*". The authors as Mojekwu *et al.* (2011) have demonstrated that insurance influences significantly economic growth. All the variables of this study are coming from African Development Indicators ADI (2017) except the insurance variable which is coming from Federation of African National insurance companies FANAF (2017). All the variables of this study are initially in the year period. Indeed, we used the Deaton method to quarterlyse them. The descriptive statistics are reported in table 1.

**Table 1 : Descriptive Statistics**

<i>Variables</i>	<i>Obs</i>	<i>Mean</i>	<i>Std. dev</i>	<i>Min</i>	<i>Max</i>
PRINV	61	20.64	4.46	16.67	35.77
TRADE	61	51.74	4.99	41.19	61.98
DCPS	61	12.18	2.35	9.15	15.28
FDI	61	1.72	1.01	0.089	5.53
GDP	61	4.09	1.25	1.93	5.93
INSURANCE	61	99666.52	23450.65	68797	141703

*Source:* Authors from data collected.

## 5. METHODOLOGY

There are two main equations in this section: the first relates to the private investment equation and the second refers to the growth equation.

To determine the share of private investment generated by insurance, we specified the following private investment equation:

$$Prinv_t = \beta_0 + \beta_1 Insurance_t + \mu_t \quad (1)$$

Where  $Inpr_t$ ,  $Insurance_t$  and  $\mu_t$  represent private investment, insurance and the error term respectively at time  $t$ . The residual of equation (1) will be considered as a proxy for the share of private investment generated by insurance ( $Priins_t$ ). Since equation (1) is a simple linear regression model, GLS estimators are BLUE estimators because it is robust to autocorrelation and heteroskedasticity problems.

Taking into account the variable of interest (private investment generated by insurance) and other control variables, the growth model can be expressed as follows:

$$Y_t = \alpha + \sum_{p=1}^k \beta_p X_t^p + \gamma priins_t + \varepsilon_t \quad (2)$$

Where  $Y_t$  is GDP at time  $t$ ,  $X$  is the vector of control variables, including foreign direct investment, financial development and trade openness.  $\varepsilon_t$  is an error term, and  $\alpha$  represents a constant. Given the fact that the  $Priins$  variable represents the residual from the regression of insurance on private investment, it is likely to be endogenous in the growth equation. To this end, only the instrumental variable methods make it possible to solve this type of problem. In addition, these methods are robust to heteroskedasticity and autocorrelation without forgetting that they are also a solution for the problems of omitted variables and measurement errors in a model. It is for these different reasons that the instrumental variable methods (GMM and TSLS) are used in this work to estimate the coefficients of the variables of model 2.

## 6. EMPIRICAL RESULTS

The presentation of the results of this paper will be done in two stages. It will first be a question of estimating the share of private investment generated by insurance companies, which is captured in this work by the turnover of non-life insurance. In a second step, it will be a question of regressing the variable share of private investment generated by insurance on economic growth. The estimation of the share of private investment generated by insurance is reported in table 2.

**Table 2: Regression of insurance variable on private investment**

Variable	Coefficient	t-Statistic	Prob
Insurance	0.0001375	2.41	0.019
C	7.251915	1.52	0.133
R <sup>2</sup> = 0.3392	Prob (F-stat) = 0.0193		

Source: Authors by software Stata 12.

The estimation of the private investment model by the GLS (through the *prais* command with the *robust option*) method shows that insurance measured by the turnover of non-life insurance has a positive and significant effect on private investment in Cameroon. This result can be explained by the fact that insurance companies use part of their turnover to make investments in certain private companies. As we explained at the methodology level, the residual from of the estimation of this model is used to measure the marginal contribution of insurance to private investment (priins). However, before proceeding to estimate the growth model, it is important to have an idea of the property of the variables. The results of the unit root tests of the variables are reported in Table 3.

**Table 3 : Unit root tests**

Variables	ADF test		PP test		Integration order		Decision
	At level	1 <sup>st</sup> difference	At level	1 <sup>st</sup> difference			
PRIINS	0.0116	/	0.0108	/	I(0)	Yes	
TRADE	0.5104	0.0054	0.4175	0.0033	I (1)	No	
DCPS	0.9370	0.0184	0.9970	0.132	I(1)	No	
FDI	0.0887	0.0054	/	/	I(0)	Yes	
GDP	0.6658	0.0066	0.8296	0.0039	I (1)	No	

Source : Authors from Eviews 9.

The unit root tests show that the Trade, DCPS and GDP variables are stationary in first difference while the FDI and PRIINS variables are rather stationary at level. This result shows that the variables of our model are cointegrated. The estimation of the growth model by instrumental variable methods is shown in Table 4.

**Table 4: Estimation of the growth model**

Variables	GMM (I)	2SLS (II)
PRIINS	0.0960**	0.0960**
TRADE	-0.0255*	-0.0255
DCPS	0.4327***	0.4327***
FDI	-0.0542	-0.0542
CONS	0.2403	0.2403
R-SQUARED	0.6754	0.6754
WALD CHI2	441.42***	128.90**
STOCK AND YOGO STATISTIC	955.32	1314.11
CHI2/ Prob (WU-HAUSMAN)	0.032	0.0365
Nb. Obs	61	61

\*\*\*p < .01, \*\*p < .05, \*p < .1, respectively. Source: Authors from Stata 12.



The estimation of the growth equation by generalized moment methods robust to autocorrelation, heteroskedasticity and endogeneity problem shows that the  $R^2$  equals to 67.54% and the Wald statistic is significant at 1%. This means that the model is well specified. The probability of the Wu-Hausman test (or CHI2) shows that the variable share of private investment generated by insurance (PRIINS) is an endogenous variable at the 5% threshold. We have chosen private investment as the instrument for this endogenous variable. For this purpose, the statistic of the Stock and Yogo test (955.32) is higher than that of the critical value of the Wald test at 5% (10%, 16.38; 15%, 8.96; 25%, 5.53), which means that our instrument is not weak. The Table 4 also shows that the share of private investment generated by insurance has a positive and significant effect on economic growth. Thus, a 1% increase in the investments made in the private sector by insurance firms leads to a 0.09% increase in economic growth. This result validates the hypothesis that insurance contributes to economic growth through private investment. This result is consistent with the work of Alhassan and Fiador (2014). In order to verify the robustness of this result, we regressed the same growth model by the 2SLS method with instrumental variables. This estimate shows results similar to those of GMMs except for the Trade variable which is significant in the GMM estimate and not significant in the 2SLS estimate.

## **7. CONCLUSION**

The studies of the impact of insurance on the economy in African countries are still scarce. There is a definite limitation in the little research that exists on the relationship between the two variables: it is about the unexplored impact of the investments made in the private sector by insurance companies on the economy. However, most of these companies make short, medium and long term investments in private companies or in the financial market. It is in this context that we explored the existence of an indirect relationship between insurance and economic growth through the channel of private investment in Cameroon. Using the GLS method allowed us to determine the share of private investment generated by insurance. This variable was then used in the growth model as an insurance proxy. The use of the GMM method indicates that insurance has a positive impact on economic growth in Cameroon, thus materializing that private investment is a transmission channel between insurance and economic growth. The use of the Two Stages least squares method to test the robustness helped to confirm this result. Therefore, the Cameroonian government must implement effective economic policies to stimulate the increase in the level of income, which will lead to greater underwriting of insurance products.

It must put in place mechanisms to further encourage private investment. Insurance companies should also and above all make citizens more aware or educate them about the importance of taking out insurance.

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