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ANALYSIS OF SUM INSURED AND CO-OPERATORS' CONTRIBUTION TO NAIC PRODUCTS IN OYI AND AYAMELUM LOCAL GOVERNMENT AREAS OF ANAMBRA STATE, NIGERIA

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ABSTRACT: *The study investigated NAIC products and the performance of farmers focusing on the sum insured and farmers' contribution to NAIC products in Oyi and Ayamelum LGAs of Anambra State. Major objectives were to ascertain whether time has significant impact on total sum insured and co-operators' contribution over the observed period, to determine whether there exist significant difference between sum insured and farmers contribution for Oyi and Ayamelum LGAs and to ascertain the extent of relationship between sum insured and co-operators' contribution for the two local government areas. Secondary data was used for this case study research. Data for Oyi and Ayamelum LGAs were extracted sfrom NAIC Annual Reports 2010-2013, and were statistically analyzed, using time series models, paired sample T-test analysis and Pearson's product moment correlation coefficient. Result showed that time (month) has significant impact on monthly co-operators' contribution and time contributed significantly to the behavior of sum insured in the two local government areas. Thus, the seasonal analysis found sum insured to be least in the month of May and highest in October. Analysis showed that co-operators' contribution to NAIC products was least in the months of May and December. Paired sample T-test revealed the existence of a significance difference in sum insured for Oyi being greater than sum insured for Ayamelum with a mean difference of N3,190,690. 65.8% correlation was found to exist between sum insured for Oyi and Ayamelum LGAs. Paired Sample analysis revealed a significance difference between co-operators' contribution to NAIC products for Oyi and Ayamelum LGAs. Ayamelum co-operators contributed more to NAIC products than Oyi co-operators with an average contribution, difference of N5,727,550. It is suggested that governments should make effort to adequately fund the financial intermediaries through which credits associated with NAIC insurance cover are provided so as to make the distribution system efficient. Premium paid by Nigerian farmers at 50% for an insurance cover should be reduced to 25% by the federal and state governments to encourage and boost food security in Nigeria.*

KEYWORDS: Farmers, Food Security, Sum Insured, Agriculture Insurance,

INTRODUCTION

Peasant farmers are naturally keen to avoid taking risks which might threaten their livelihoods and this is often reflected in their farming practices. This behavior influences the levels and types of inputs they use and the aggregate levels of output produced. They are often reluctant to adopt output-increasing practices if these increase their exposure to risk (Chukwulozie, 2008). At least notionally there is a trade-off between the levels of risk that farmers can withstand and the aggregate level of food production in a country. Recognition of this trade-off by policy makers has led to the introduction of programmes that attempts to address peasant

farmers' aversion to risk. One such approach is to establish a scheme to offer insurance against agricultural risk.

Agricultural insurance has often been funded by Governments as doubts have been raised about its efficacy in the face of covariance of risk and the problems of asymmetry of information that are prevalent in developing agriculture. The doubts give rise to the twin problems of opportunistic behavior, namely adverse selection and morale hazard in insurance that could be expensive to control. According to Aina and Omonoma (2012), these twin problems have been identified as the bane of private sector investment in the business. Since the private sector has been reluctant to venture into agricultural insurance and the public are deprived of the associated benefits such as increased food supplies in the market, the onus has often been upon Governments to provide it. This government involvement is premised on the belief that it can readily absorb the possible consequences of information asymmetry (Arena, 2006). In order to mitigate the ill effects of risk on the economy and encourage both the private entrepreneurs and farmers to take advantage of the opportunities offered by agricultural insurance, various governments introduce incentives to ensure that agricultural insurance is patronized and that it is sustainable and beneficial to the insurer, farmers and the public (Uzomah, 2013). The insurer benefits from the returns on investment made from premiums payments while farmers benefit from the peace of mind of not solely carrying the burdens of farm production eventualities and the public benefits from increased food supplies in the market, as well as food security.

Agricultural risk management, including agricultural insurance, can contribute to raising the productivity of agriculture by helping farmers and herders invest in more productive, but sometimes riskier, agricultural business activities (World Bank, 2005). In general, insurance is a form of risk management used to hedge against a contingent loss. The conventional definition is the equitable transfer of a risk of loss from one entity to another in exchange for a premium or, a guaranteed and quantifiable small loss to prevent a large, and possibly devastating loss (Morduch, 2004).

In Nigeria, public-driven agricultural insurance scheme is being operationalized by the Nigerian Agricultural Insurance Scheme (NAIS), which was formerly launched on the 15 of December 1987 was later followed by the incorporation of the Nigeria Agricultural Insurance Corporation (NAIC) in 1988 to implement the scheme (Aina and Omonona, 2012).

The scheme was designed especially that such agricultural loans from commercial banks, microfinance banks, and cooperative society are insured under the scheme in addition to the Agricultural Credit Guaranteed Scheme Fund (ACGSF) which provides protection to the bank to the tune of 75%, while NAIC provides protection to the farmer to the tune of 100% (Uzomah, 2013). The perils in the crop sector are five, lightening, windstorm, flood, drought, pest and disease. Perils under livestock are death, injury due to accident, disease, fire, lightening, storm and flood. Burglary and fire are the perils under marketing/produce, (Uzomah, 2013). Crops under insurance cover by NAIC are maize, rice, cassava, cocoa, rubber, oil palm, bitter leaf, yam, vegetable and melon, while in livestock sector are poultry, cattle, fisheries, snail, horses, and rabbitry. According to Uzomah, 2013, rates chargeable are as follows: crop 2%, livestock 2.5%, marketing/produce 1.5% and other perils are negotiable. Challenges of the supply side in achieving the above goals may be high levels of illiteracy among the teeming Nigerian farmers, lack of adequate public awareness of insurance's benefit, inadequate investment. According to Thomas (2013), Nigeria has low level of financial literacy and low level of insurance penetration estimated at less than 6%.

The focus of the Nigeria Agricultural Insurance Corporation (NAIC) is to offer protection to the farmer from the effects of natural disasters and to ensure payment of appropriate compensation sufficient to keep the farmer in business after suffering a loss.

The scheme according to Uzoma (2013) was designed specifically to:

- Promote agricultural production since it would enhance greater confidence in adopting new and improved farm practices and in making greater investments in the agricultural sector of the Nigeria economy, thereby increasing the total production.
- Provide financial support to farmers in the event of losses arising from natural disasters;
- Increase the flow of agricultural credit from lending institutions to the farmers;
- Minimize or eliminate the need or emergency assistance provided by government during period of agricultural disasters.

Full premiums are usually paid for this contractual obligation to be effective. The farmer co-operator pays 50% of the premium, while the Federal and State Government share the other 50% at the rate of 37.5% and 12.5% respectively.

Olubiyo, Hill and Webster (2009) studied effectiveness of government involvement in agricultural insurance from the perspective of farmers in the Minna zone of NAIC in Nigeria, which frequently suffers from pest and disease invasion, inadequate rainfall that often leads to drought and increased incidence of fire outbreaks. In that study a sample of 87 insured and 95 uninsured farmers were randomly selected and interviewed. The study used the Cobb-Douglass production function in the comparative analysis. The result showed that the insured farmers were more commercially oriented in the choice of their enterprise combinations and in the inputs they used more modern farm inputs and choice of enterprises that are market oriented than the uninsured farmers. The uninsured farmers were found to be more productive and efficient in the use of their farm inputs. The findings from the study were surprising in the light of the rationale for initiating the insurance programme. Apart from the fact that insured farmers embraced modern farming practices, possibly because of their accessibility to farm credit, their farm output did not make them better farmers than the uninsured farmers.

Furthermore, there are no models in inexistence for estimating total sum insured under NAIC for Oyi and Ayamelum LGAs and for estimating farmers' contribution for Oyi and Ayamelum LGAs. Does time affect the behavior of total sum insured for Oyi and Ayamelum LGAs? Does time affect the behavior of farmers contribution for Oyi and Ayamelum LGAs? Does significant differences exist between farmers contributions for Oyi and Ayamelum LGAs? What is the measure of relationship between sum insured for Oyi and Ayamelum LGA farmers? What is the degree of relationship between farmers contribuition for Oyi and Ayamelum LGA farmers? It is against this background that this research was designed and considered imperative at this time and this study intends to fill the knowledge gap.

The objectives of the paper are to design time series models for estimating total sum insured and co-operators' contribution and then determine whether time has significant impact on total sum insured and co-operators' contribution over the observed period; to determine whether there exist significant difference between sum insured and co-operators' contribution for Oyi and Ayamelum L.G.A co-operative farmers; and to ascertain the degree and extent of relationship between sum insured and co-operators' contributions for Oyi and Ayamelum L.G.A co-operative farmers.

Hypotheses

$H0_1$: Time does not have significant impact on total sum insured.
H02: Time does not have significant impact co-operators' contribution.
$H0_3$: There is no significant difference between sum insured for Oyi and Ayamelum L.G.As.
$H0_4$: There is no significant difference between co-operators' contribution for Oyi and Ayamelum L.G.As

THEORETICAL FRAMEWORK

Theory of Portfolio Choice

This paper is anchored on the theory of portfolio choice. The theory of portfolio choice is based on traditional utility maximization framework. If utility function exhibits decreasing absolute risk aversion and decreasing prudence, an individual reduces exposure to risks when he or she is confronted with independent risks. According to the theory, household's portfolio decision is determined by relative share of assets to the expected values, risks, returns, transaction costs and indivisibilities. Other factors include uninsurable and non-diversifiable risks which reduce household's holding of risk assets in order to minimize or cut their overall exposure to risks. Uninsurable income risk and expectation of future borrowing constraint reduce the share of risk assets in the household's portfolio (Guiso, Jappechi and Terlizzese, 1996). The concept of Portfolio choice theory rules over individual households in making choice of amount, time and purpose of obtaining credit. The theory emphasizes the need for rural dwellers and farmers to make self-informed decisions on the nature of credit package available and accessible as determined by some factors including their relative share of assets to the expected livelihood improvement, risks involved in taking the credit package, its returns, and interest and transaction costs. However, Bendig et al, (2009) argued that it is the socio-economic factor that determines the household's decision on micro-credit package. Other scholars like Guiso et al (1996) enlisted some factors affecting the Portfolio choice where most of the socio-economic factors are also inclusive. In theory, household's decision on portfolio allocation is also determined by demographic factors including age, gender, occupation, inherited wealth, education and occupation of the household head. In general, Bendig, Lena and Susan (2009) opined that it is the socio-economic factor that determines the household's decision on micro-credit need.

METHODOLOGY

The research design adopted in this study is a case study research, which is an intensive investigation about pertinent aspects of a particular unit/units in a given situation. In this study, Oyi and Ayamelum local government areas were used for the case study research.The data used for the accomplishment of the objectives of this study and specifically for the estimation of the parameters ofthe model were based on secondary data. The sources of these data were mainly from the Nigerian Agricultural Insurance Corporation. The data were Annual Reports for 2010, 2011, 2012 and 2013.

The data for this study were analyzed using various statistical tools such as time series analyses,Paired sample T-test analysis and correlation analysis.

$$r = \frac{\Sigma x_i y_i - \Sigma x_i \Sigma y_i / n}{\sqrt{(\Sigma x_i^2 - (\Sigma x_i)^2 / n)(\Sigma y_i^2 - (\Sigma y_i)^2 / n)}}$$

Monthly sum insured for NAIC products in Anambra State was modeled using linear trend model. The model is

$$\gamma(t) = \alpha + \beta t$$

Where t is the time index. The "intercept" and "slope" of the trend line are usually estimated via a simple regression in which y is the dependent variable and the time index is the independent variable. Therefore, the trend model applied

$$\gamma(t) = 2{,}555{,}986 + 518385 * t \quad - \quad - \quad - \quad (1)$$

Where t is time in month, and $\gamma(t)$ is total sum insured by co-operators for NAIC products.

In addition, a model for estimating monthly co-operators' contribution was guaranteed as

$$\gamma(t) = 68085.8 + 9969.54 * t \quad - \quad - \quad - \quad (2)$$

Where t is time in month, and $\gamma(t)$ is monthly co-operators' contribution.

Data Presentation, Analysis and Interpretation of Findings

Table 1: Summary of Data on sum insured and farmers contribution for Oyi and Ayemelum LGAs, 2010-2013

Year	Month	Total sum Insured	Sum Insured Oyi	Sum Insured Ayamelum	Total farmers contribution	Farmers Contribution Oyi	Farmers Contribution Ayamelum
2010	Jan	120000	75000	45000	3000	1875	1125
*	Feb	1512000	945000	567000	37800	23625	14175
*	Mar	5228000	3267500	1960500	130700	81688	49013
*	Apr	400000	250000	150000	10000	6250	3750
*	May	1992000	1245000	747000	49800	31125	18675
*	Jun	5168000	3230000	1938000	208400	130250	78150
*	Jul	4248000	2655000	1593000	104600	65375	39225
*	Aug	10912000	6820000	4092000	210400	131500	78900
*	Sep	9688000	6055000	3633000	159400	99625	59775
*	Oct	12328000	7705000	4623000	256600	160375	96225
*	Nov	1968000	1230000	738000	49200	30750	18450
*	Dec	7816000	4885000	2931000	201600	126000	75600
2011	Jan	12400800	7750500	4650300	271200	169500	101700
*	Feb	0	0	0	0	0	0
*	Mar	0	0	0	0	0	0
*	Apr	0	0	0	0	0	0
*	May	4672000	2920000	1752000	93440	58400	35040

*	Jun	21536720	13460450	8076270	488110	305069	183041
*	Jul	0	0	0	0	0	0
*	Aug	15540000	9712500	5827500	316400	197750	118650
*	Sep	35560000	22225000	13335000	710720	444200	266520
*	Oct	16626000	10391250	6234750	337920	211200	126720
*	Nov	13672000	8545000	5127000	268000	167500	100500
*	Dec	21200000	13250000	7950000	456400	285250	171150
2012	Jan	11088000	6930000	4158000	223200	139500	83700
*	Feb	8336000	5210000	3126000	170720	106700	64020
*	Mar	9944000	6215000	3729000	197216	123260	73956
*	Apr	14936000	9335000	5601000	299520	187200	112320
*	May	11896000	7435000	4461000	241280	150800	90480
*	Jun	31824000	19890000	11934000	637320	398325	238995
*	Jul	31426200	15514200	15912000	629354	310694	318660
*	Aug	34608600	17901000	16707600	693086	358493	334593
*	Sep	32619600	21083400	11536200	653253	422225	231029
*	Oct	37393200	23868000	13525200	748851	477990	270861
*	Nov	44951400	28641600	16309800	900215	573588	326627
*	Dec	42564600	23470200	19094400	852416	470024	382392
2013	Jan	15612000	9757500	5854500	315640	197275	118365
	Feb	33392000	20870000	12522000	670560	419100	251460
	Mar	19440000	12150000	7290000	388800	243000	145800
	Apr	3429000	1905000	1524000	68580	38100	30480
	May	8504000	5315000	3189000	170080	106300	63780
	Jun	10280000	6425000	3855000	205600	128500	77100
	Jul	19056000	11910000	7146000	381600	238500	143100
	Aug	31152000	19470000	11682000	623640	389775	233865
	Sep	17742400	11089000	6653400	354848	221780	133068
	Oct	14856000	9285000	5571000	297120	185700	111420
	Nov	16080000	10050000	6030000	322720	201700	121020
	Dec	28589600	17868500	10721100	582992	364370	218622

Source: Extracted from Annual Reports, 2010-2013, NAIC Anambra State, Nigeria.

Time Series Analysis on Total Sum Insured

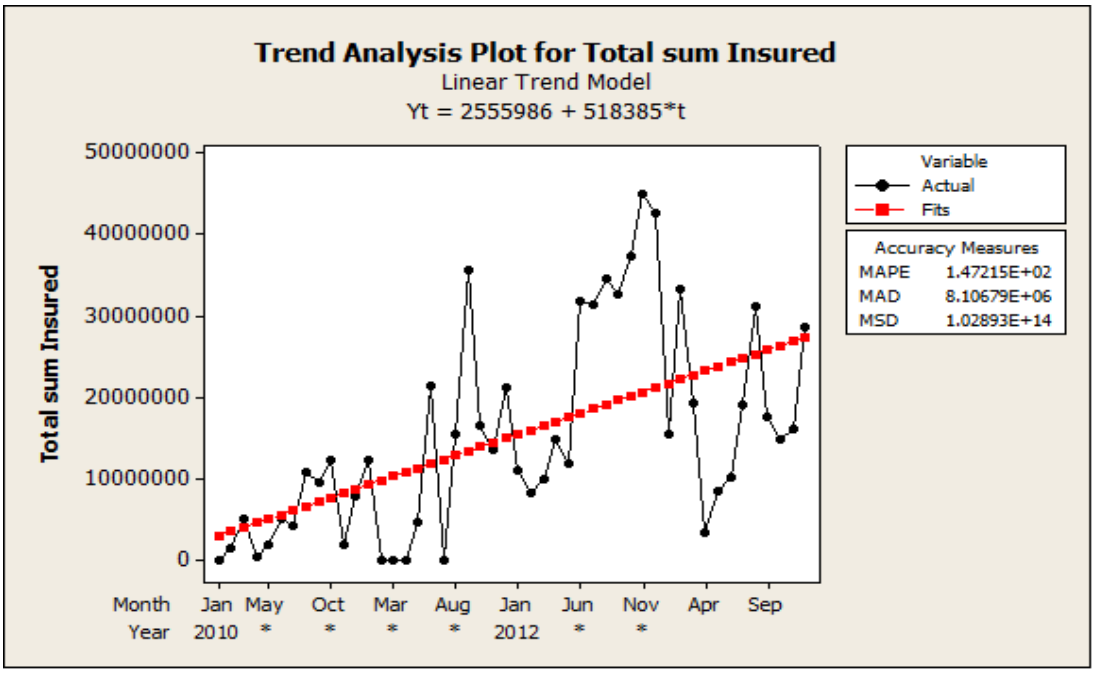

Figure 1: Time Series Plot of Total Sum Insured

1.1 Trend Analysis for Total sum Insured

H_0: Time does not have significant impact on total sum insured
H_1: Time has significant impact on total sum insured

Dependent Variable: TOTAL_SUM_INSURED				
Method: Least Squares				
Date: 01/31/15 Time: 11:54				
Sample: 1 48				
Included observations: 48				
TOTAL_SUM_INSURED= C(1) + C(2)*t				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	2555986.	3038551.	0.841186	0.4046
C(2)	518385.0	107958.9	4.801691	0.0000
R-squared	0.333876	Mean dependent var		15256419
Adjusted R-squared	0.319395	S.D. dependent var		12559945
S.E. of regression	10361801	Akaike info criterion		35.18592
Sum squared resid	4.94E+15	Schwarz criterion		35.26389
Log likelihood	-842.4622	Hannan-Quinn criter.		35.21539
F-statistic	23.05623	Durbin-Watson stat		1.007641

Prob(F-statistic)	0.000017			

Total

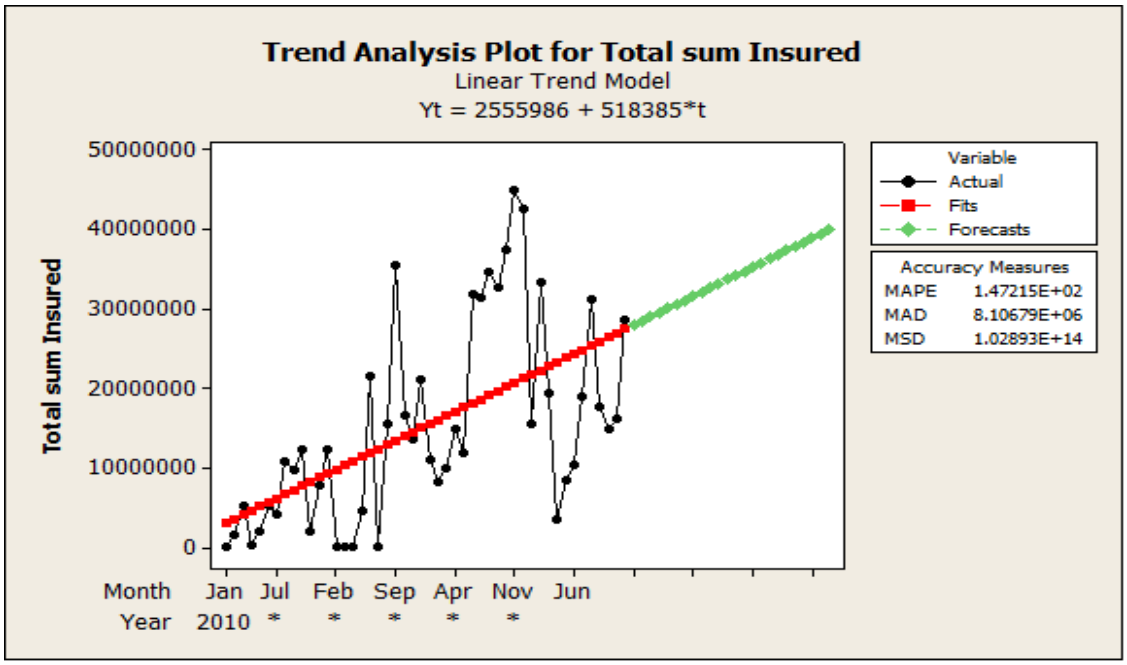

Figure 2: Trend Analysis and Forecast Plot for Total Sum Insured

Interpretation

The result of the trend analysis model found an R-squared value of 33.4% which connotes the explanatory variable time (month) was able to explain about 33.4% of the behaviour of the total sum insured by co-operators (farmers). The result also found that the independent variable (time) contributed significantly with an F-value of 23.06, T-statistics of 4.80 and a p-value of 0.00 which falls on the rejection region of the hypothesis.

The result of the trend analysis showed an increasing trend line of total sum insured (see Figure 2). The result revealed a Mean Absolute Percentage Error (MAPE) of 147.23, Mean Absolute Deviation (MAD) of 8106790 and a Mean Square Deviation of 102893 x 10^9. The obtained trend equation for predicting total sum insured for Oyi and Ayamelum LGAs given time is given as

Y(t) = 2,555,986 + 518,385*t

Where t is time in months.

Also, two years forecast was obtained using the trend analysis as shown in Figure 2.

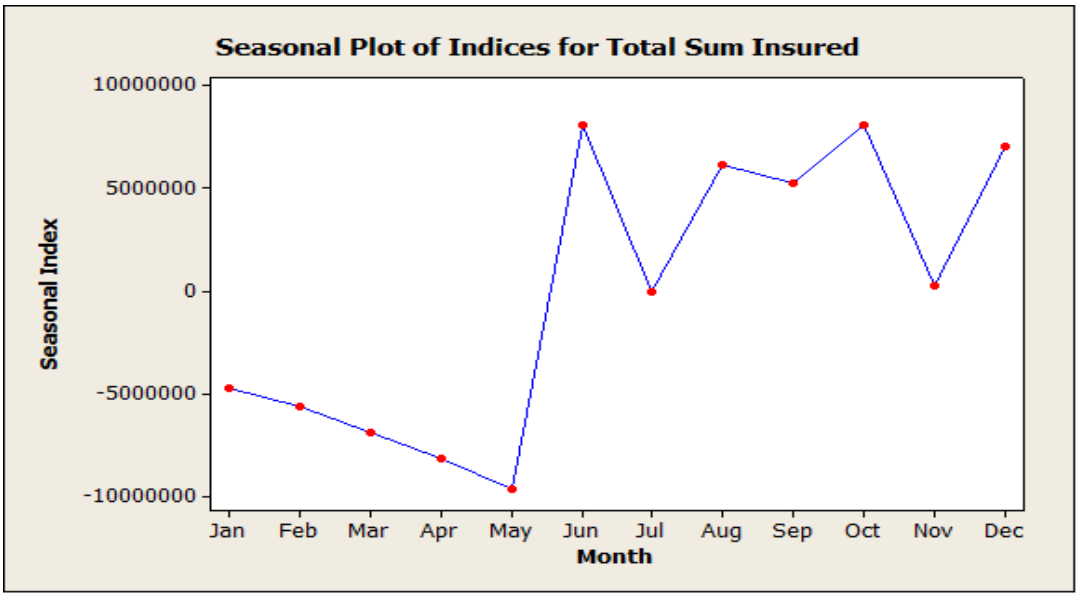

Figure 3: Time Series Plot of Seasonal Index for Total Sum Insured

Interpretation

The result of the seasonal analysis found that total sum insured is most in the months of June, October and December as shown above. This result implies that co-operators access loan more in the months of June, October and December and least in the month of May (see Figure 3). Sum insured is the maximum amount of money NAIC can indemnify at any loss or the net worth of the farm of a co-operator. From another perspective, it is the total amount of loan given to a co-operator (farmer) for investment in his agribusiness, which NAIC can indemnify in event of any loss.

Time Series Analysis for Total Co-operators' (Farmers') Contribution

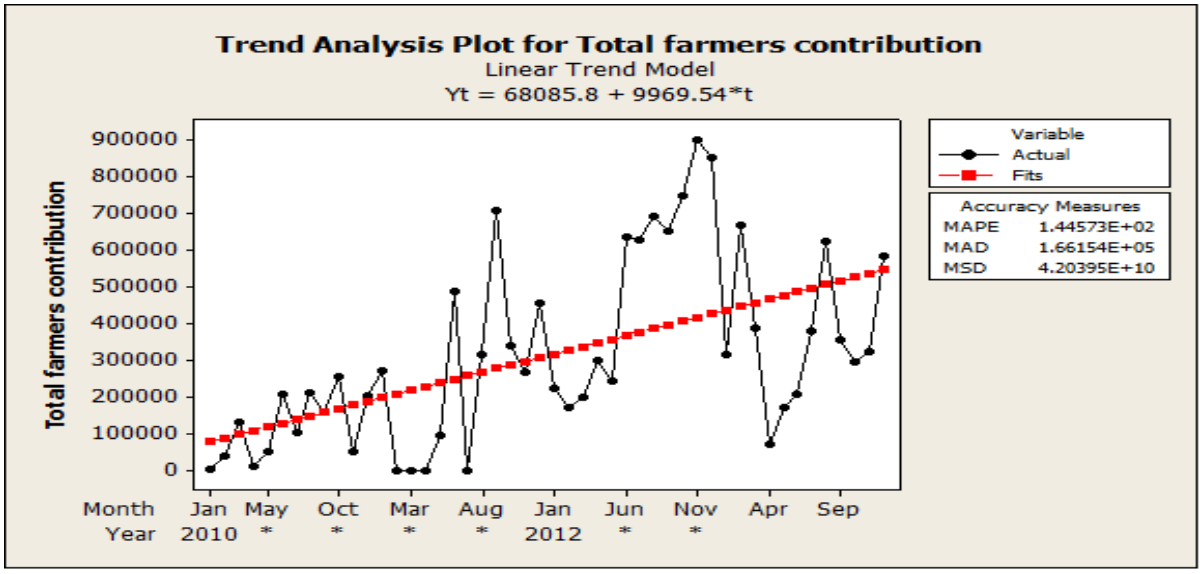

Figure 4: Trend Analysis Plot of Co-operators' Contribution

Trend Analysis for Total farmers' contribution

H_{01}: Time does not have significant effect on co-operators' contribution
H_{11}: Time has significant effect on co-operators' contribution

Dependent Variable: TOTAL_FARMERS_CONTRIBUTION				
Method: Least Squares				
Date: 01/31/15 Time: 11:50				
Sample: 1 48				
Included observations: 48				
TOTAL_FARMERS_CONTRIBUTI= C(1) + C(2)*t				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	68085.82	61418.92	1.108548	0.2734
C(2)	9969.542	2182.197	4.568581	0.0000
R-squared	0.312118	Mean dependent var		312339.6
Adjusted R-squared	0.297164	S.D. dependent var		249829.6
S.E. of regression	209445.4	Akaike info criterion		27.38309
Sum squared resid	2.02E+12	Schwarz criterion		27.46105
Log likelihood	-655.1941	Hannan-Quinn criter.		27.41255
F-statistic	20.87193	Durbin-Watson stat		1.075540
Prob(F-statistic)	0.000037			

Interpretation

The result of the trend analysis model found an R-squared value of 31.2% which connotes the explanatory variable time (month) was able to explain about 31.2% of the behaviour of the total co-operators' contribution. The result also found that the independent variable contributed significantly with an F-value of 20.9, T-statistics of 4.57 and a p-value of 0.00 which falls on the rejection region of the hypothesis.

The result of the trend analysis showed an increasing trend line of total co-operators' contribution (see Figure 4). The result of the trend analysis revealed a Mean Absolute Percentage Error (MAPE) of 144.57, Mean Absolute Deviation (MAD) of 166154 and a Mean Square Deviation of 420395 x 10^5.The obtained trend equation for predicting total co-operators' contribution for Oyi and Ayamelum LGA given time is given as

$Y(t) = 68085.8 + 9969.54*t$

Where t is time in months.

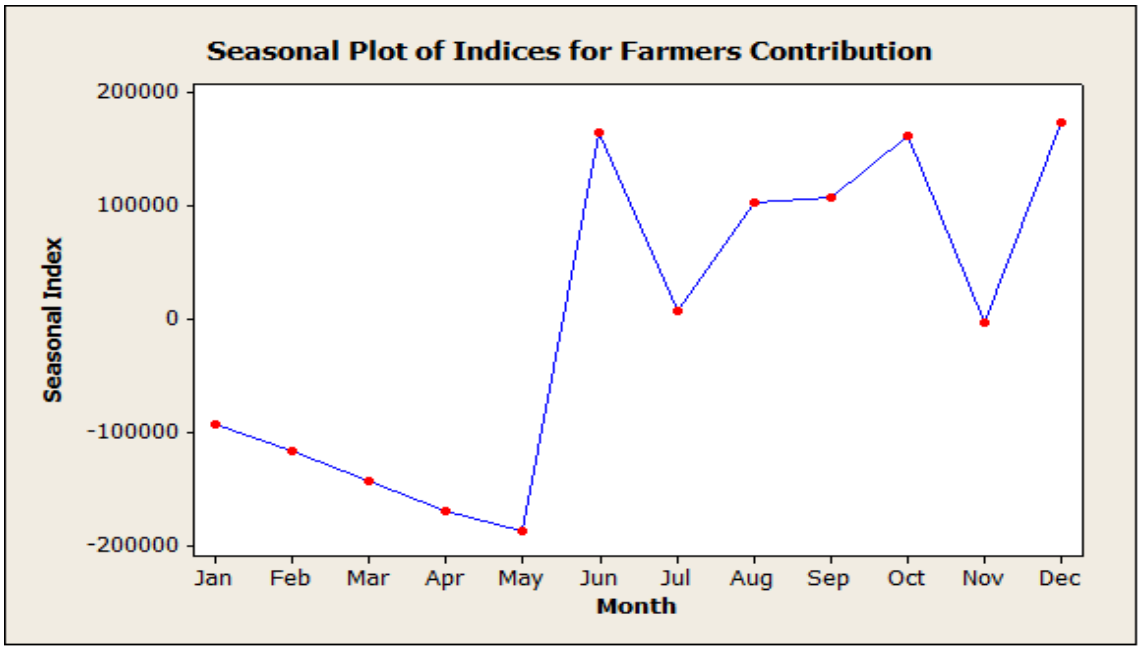

Figure 5: Time Series Plot of Seasonal Index for Total Co-operators (Farmers') Contribution.

Interpretation

The result of the seasonal analysis for total co-operators' contribution (see Figure 5) found that total co-operators' contribution is most in the months of June, October and December. This result implies that co-operators contribute more in the months of June, October and December and least in the month of May. The co-operators' (or farmers') contribution represents the committal of the co-operator or farmer to NAIC insurance contract. It is the premium paid by the co-operator (or the farmer). When this committal is made, the co-operator is said to be under insurance cover. The co-operators' (or farmers') contribution or commitment is 50% of the NAIC full premium. The other 50% premium is shared by the Federal Government and State Government at the rate of 37.5% and 12.5% respectively. The essence of this contractual obligation is to assist the co-operators.

Paired Sample T-test between Sum Insured for Oyi and Ayamelum L. G. A

H_0: There is no significant difference between sum insured for Oyi and Ayamelum L. G. As.
H_1: There is significant difference between sum insured for Oyi and Ayamelum L. G. As.

Table 2: Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Sum Insured Oyi L.G. A	9.3535E6	46	7.52734E6	1.10985E6
	Sum Insured Ayamelum L.G.A	6.1628E6	46	5.06284E6	7.46475E5

Table 3: Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Sum Insured Oyi L.G. A & Sum Insured Ayamelum	46	.658	.000

Table 4: Paired Samples Test									
		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	df	Sig. (2-tailed)
Pair 1	Sum Insured Oyi L.G. A - Sum Insured Ayamelum	3.19069E6	5.66788E6	8.35684E5	1.50753E6	4.87384E6	3.818	45	.000

Interpretation

The result of the paired sample T-test analysis between sum Insured for Oyi and Ayamelum local government areas revealed an average sum insured of N9,353,500 and N6,162,800 respectively (see Table 2 above). The result obtained in Table 2 found a positive correlation between sum insured for Oyi and Ayamelum LGAs with a correlation measure of 65.8%. Table 4 revealed a mean difference of N3,190,690 between sum insured for Oyi and Anyamelum LGAs with t-test value of 3.82 and a corresponding p-value of 0.00 which falls on the rejection region of the hypothesis (since, p-value= 0.00 is less than α=0.05). This result suggests that there exist evidence of significant difference between sum insured for Oyi and Anyamelum LGAs with sum insured for Oyi being more than Ayamelum with a mean difference of N3,190,690.

Paired Sample T-test between Cooperators' Contribution for Oyi and Ayamelum L. G. A

H_0: There is no significant difference between co-operators' contributions for Oyi and Ayamelum LGAs.

H_1: There is significant difference between co-operators' contribution for Oyi and Ayamelum LGAs.

Table 5: Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Co-operators' Contribution Oyi L. G. A	1.9125E5	48	1.51036E5	21800.09665
	Co-operators' Contribution Ayamelum L. G. A	5.9188E6	48	5.09346E6	7.35178E5

Table 6: Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Co-operators' Contribution Oyi L. G. A & Co-operators'Contribution Ayamelum L. G. A	48	.955	.000

Table 7: Paired Samples Test

		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Co-operators' Contribution Oyi L. G.A-Co-operators' Contribution Ayamelum L. G. A	-5.72755E6	4.94942E6	7.14388E5	-7.16471E6	-4.29039E6	-8.017	47	.000

Interpretation

The result of the paired sample T-test analysis between co-operators' contribution for Oyi and Ayamelum local government areas revealed an average co-operator's contribution of N191,250 and N5,918,800 respectively (see Table 5 above). The result obtained in Table 6 found a strong positive correlation between co-operators' contribution for Oyi and Ayamelum LGAs with a correlation measure of 95.5%. Table 7 revealed a mean difference of N5,727,550 between co-operators' contribution for Oyi and Ayamelum LGAs with t-test value of -8.02 and a corresponding p-value of 0.00 which falls on the rejection region of the hypothesis (since, p-value= 0.00 is less than α=0.05). This result suggests that there exist evidence of significant difference between co-operators' contribution for Oyi and Ayamelum LGAs with co-operators' contribution for Ayamelum being more than Oyi with a mean difference of N5,727,550. It could be inferred from this result that there are many small-holder farmer co-operators in Ayamelum LGA than in Oyi LGA.

- Findings from the analysis revealed that time (month) contributed significantly to the behavior of sum insured by farmers in the two local government areas. Also established was a model for estimating monthly sum insured for NAIC products in Anambra State. This model could be written as y(t)

- Since it was found that time has a significant impact on sum insured; thus the seasonal analysis found sum insured to be least in the month of May, and most (highest) in the month of June, October and December.

- The result of the seasonal analysis on series of cooperators' contribution for NAIC products showed that cooperators' contribution to NAIC products is least in the month of May.

- The result of the paired sample test analysis on equality of sum insured for Oyi LGA cooperators' and Ayamelum LGA cooperators revealed the existence of a significance difference with sum insured for Oyi being greater than sum insured for Ayamelum by an average difference of N3,190,690. Also a positive correlation was found to exist between sum insured for Oyi LGA and Ayamelum LGA with a correlation coefficient of 65.8%. Many factors might have given rise to sum insured for Oyi LGA being greater than Ayamelum LGA. O ne of them is the presence of many robust Microfinance Banks. Each of the five towns in Oyi LGA has a Microfinance Bank capable of credit delivery to cooperative farmers in line with the Guidelines o f NAIC. There are also presence of educational institutions and other establishments patronizing the output of the cooperative farmers giving rise to higher investment in agriculture in Oyi LGA than in Ayamelum LGA. Another factor Oyi's proximity to state capital. Perhaps there are more trustworthy cooperative farmers in Oyi LGA who ready to repay loans than in Ayamelum LGA, as well as presence of big time cooperative farmers in Oyi LGA than in Ayamelum LGA.

- The result showed that both sum insured and cooperator' contribution are least in the month of May, whereas May ought to be the month lending /financial institutions should deliver agricultural credits to cooperators because it is usually the onset of cropping season.

- The paired sample analysis on farmers contribution found a significant difference between farmers contribution to NAIC products for Oyi and Ayamelum LGAs farmers. It was found that Ayamelum LGA farmers contribute more to NAIC products than Oyi farmers with an average contribution differences of N5,727,550. Also, a strong positive correlation was found to exist between farmers contribution for Oyi and Ayamelum with a coefficient of 95.5%.There exist a high percentage of small-holder cooperative farmers in Ayamelum LGA who obtained credit from Bank of Agriculture, Commercial Banks and Microfinance Banks. All the eight towns of AyamelumLGA are home based of people whose occupation is predominantly farming.

RECOMMENDATIONS

Efforts should be made by Governments to fund adequately financial intermediaries through which credits, associated with NAIC insurance cover, are provided so as to make the distribution system efficient. Nigeria has low level of financial literacy, therefore, public awareness of the benefits of insurance should not be undermined. Adequate credit should be made available at the points of channels of distribution to enable farmers access these funds with ease. Nigeria has low level of insurance penetration estimated at less than 6% (Thomas, 2013). Premium paid by farmers at 50% for an insurance cover should be reduced to 25% by the federal and state governments to encourage and boost food security in Nigeria. This reduction will create insurance awareness and improve insurance penetration, as well as induce farmers to seek avenues for accessing credit for increased production frontiers.

CONCLUSION

Government should create and develop insurance culture among the low income group, and build consumer trust, loyalty and confidence through quality service. Intensive capacity building and development of expertise in insurance business should be intensified. Stakeholders in insurance business should create links to programmes and institutions serving the low income group. Terms, conditions and opportunities should be clearly defined through effective regulatory framework.

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