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Analysis of the Factors that Affect the Reliability of Farmers in Insurance Institutions

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Abstract:

Agriculture is the sector that faces most of the danger of natural disasters.

Risks from natural disasters are different in different areas. Risk transfer to insurance institutions is a scheme that is often used in different parts of the world to minimize adverse effects on agriculture.

How is the state of the insurance institutions in Albania? Is the risk to agriculture covered? Do farmers have information about insurance contracts in agriculture? And what are the factors that affect the credibility of farmers in insurance institutions?

These questions will be answered through the study of the macroeconomic situation in Albania and through field research through questionnaires on farms in Vlora.

We will analyze, by means of econometric methods, the factors that affect the credibility of farmers in insurance institutions. The study will first bring a review of the current situation of insurance institutions in Albania.

Next, we will analyze the data from the questionnaires in the Vlora Zone. Questionnaires were made to 136 grape farmers and 250 citrus farmers in the Vlora area during 2017. The interviewed farmers were randomly selected.

The purpose of the study is to analyze the factors that affect the reliability of farmers in insurance institutions. Also, we will identify whether there is a change depending on the products that produce the farms. Linkages between variables will be analyzed through econometric methods and mainly logistic regression.

Finally, the document will end with conclusions and suggestions to be taken into account in further studies.

Key words: reliability, natural disaster, agriculture, risk.

INTRODUCTION

Farmers often face the risk of natural disasters. Negative effects affect both macroeconomic and microeconomic aspects. Reducing income negatively affects the well-being of farmers and rural areas.

To manage the risks they face, farmers must adopt a number of strategies, including farm measures such as: diversification or selection of less risky methods of production, and risk sharing strategies with others. A well-known strategy for minimizing risks from natural disasters that farmers can share risks with others is to buy a risk-based insurance (Rejda, 1998).

The concept underlying agricultural insurance is no different from that of other forms of insurance except it is specific to agriculture just as insurance may be solely for health or property. Adams (1995) defined insurance as a signed contract between two parties involving an exchange in the form of a premium from one party to another party who is responsible for paying a fixed amount to the other party when an unpredicted event occurs. It works by exchanging a small amount of money regularly paid for a large irregular yet unforeseen loss likely to occur.

How is the state of the insurance institutions in Albania?

Is the risk to agriculture covered?

Do farmers have information about insurance contracts in agriculture?

And what are the factors that affect the credibility of farmers in insurance institutions?

These questions will be answered through the study of the macroeconomic situation in Albania and through field research through questionnaires on farms in Vlora.

Short Information on Insurance Sector

Insurance market in Albania is small and underdeveloped. About half of premiums are collected on compulsory insurance types. This is a clear indicator of immature insurance sector. There are 10 licensed insurance companies in Albania. Seven of them operate in non-life sector while two companies offer life insurance

Most insurance companies sell motor insurance (CASCO, T.P.L, Green Card and border insurance), fire and catastrophe insurance for property. Property and voluntary life insurance growth during the last 5 years was stimulated by the expansion of banks' credit programs, especially for individuals.

Agricultural Insurance in Albania

Agricultural insurance is practically non-existing in Albania.
Insurance companies have few clients. They focus on livestock (mainly cows) and greenhouse insurance around big cities. Such subtypes of agricultural insurance are lower-risk ones comparing to the field crops or fruit tree insurance. Analysis of the insurance contracts provides that insurance companies prefer to cover infrequent catastrophic risks that are lower in cost to clients.

Several insurance companies think about entering agricultural insurance sector but they lack knowledge and specialists. The insurance companies don't have the full package of documents for quality insurance products. They will

need assistance in designing and introduction of new insurance products.

The insurance companies consider agricultural clients to be high-risk ones. Currently the companies consider reinitiating agricultural insurance business line though this needs to be coordinated with the government (according to the legislation applied to state-owned companies).

Sigal started to offer agricultural insurance from 2009. The company does not have professional agricultural underwriters in staff and have to outsource expertise for occasional transactions. The company has contractual relations with Greenmarket Company with the latter providing specialists for conducting crop survey and assessing losses.

All insurance companies have neither strategy nor specialists to launch the agricultural insurance program. At the same time, management sees agricultural sector as an opportunity to expand operations.

The insurers consider that farmers are not aware of agricultural insurance. This is seen as the main reason for low demand in insurance for crops and livestock. At the same time the insurers do not conduct specialized informational events or marketing campaigns to reach potential clients within farming community.

PURPOSE OF THE STUDY

The study aims to make an analysis of the factors that influence reliability of farmers in insurance institutions and an analysis of the willingness to pay insurance between farmers that produce different fruits.

DATA

Sources of important information from where we collected the primary data are 386 farmers in Vlora district, 136 grape

farmers and 250 citrus farmers. The study was conducted through questionnaires conducted in this area during 2017. The farmers were randomly selected.

The questionnaire was designed in three sections. A. Demographic and social data, B. Risk perception factors, and C. Economic farm situation.

Research hypotheses

Based on the research questions we constructed the following hypotheses:

1. **H_0: Previous experiences with insurance contracts and information on insurance institutions have a positive impact on the reliability of insurance institutions**
2. **H_0: The willingness to pay insurance is different depending on the fruits that farmers produce.**

The empirical analysis of the problem was carried out using the econometric models of Logistic Regression analysis, based on the literature review. The SPSS program was used for the analysis.

Methodology

Logistic regression is the appropriate regression analysis to conduct when the dependent variable is dichotomous (binary). Like all regression analyses, the logistic regression is a predictive analysis. Logistic regression is used to describe data and to explain the relationship between one dependent binary variable and one or more nominal, ordinal, interval or ratio-level independent variables.

Logistic Regression Formula:

$$Logit_i = \ln\left(\frac{prob_{ngjarjes}}{1 - prob_{ngjarjes}}\right) = b_0 + b_1 X_1 + \cdots + b_n X_n$$

Characteristics of Logistic Regression

Cases are independent. Does not assume a linear relationship between the dependent variable and the independent variables, but it does assume linear relationship between the logit of the explanatory variables and the response.

Independent variables can be even the power terms or some other nonlinear transformations of the original independent variables.

The dependent variable does not need to be normally distributed, but it typically assumes a distribution from an exponential family (e.g. binomial, Poisson, multinomial, normal...); binary logistic regressions assume binomial distribution of the response.

The homogeneity of variance does not need to be satisfied.

Errors need to be independent but not normally distributed.

It uses maximum likelihood estimation (MLE) rather than ordinary least squares (OLS) to estimate the parameters, and thus relies on large-sample approximations.

Goodness-of-fit measures rely on sufficiently large samples, where a heuristic rule is that not more than 20% of the cells counts are less than 5.

Usually some grouping of the data is needed.

ANALYSIS AND RESULTS

The data collected through questionnaires were processed in the SPSS program.

According to the logistical regression of the reliability of insurance institutions depends on different social and economic factors.

1. **H_0: Previous experiences with insurance contracts and information on insurance**

institutions have a positive impact on the reliability of insurance institutions

Data processing in the SPSS[1] program for the regression of the first hypothesis gives us the results according to the following tables:

According to the ANOVA table regression is important, Sig<0.001.

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55.552	10	5.555	14.932	.000a
	Residual	139.518	375	.372		
	Total	195.070	385			

Model 1

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.638	.453		1.409	.160
	Age	-.006	.004	-.075	-1.658	.098
	Experience of farms.	.027	.014	.138	1.976	.049*
	Educ_con	-.003	.013	-.010	-.223	.824
	Extension	-.060	.075	-.038	-.801	.424
	Product of Farms	.775	.136	.521	5.701	.000**
	Family size	-.090	.033	-.126	-2.767	.006*
	Farm size	-.012	.004	-.142	-2.809	.005*
	Farms income from product	-.003	.001	-.156	-2.418	.016*
	Information for insurance institutions	.431	.054	.384	7.977	.000**
	Did you have experiences in insurance contract for car?	.182	.078	.126	2.327	.020*

a.Dependent Variable: How reliable do you consider the insurance companies?
** Sig. 0.001
* Sig. 0.05

[1] LOGISTIC REGRESSION; METHOD=ENTER /CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

According to the table, the coefficient of the independent variable is important Sig. <0.05, for variables: Experience of farms; Family size; Farms income from product; and experiences in insurance car contract. For variables: Product of Farms and Information for insurance institutions; Sig.< 0.001. For independent variables: Age, Education and Extension; the coefficient is not significant, Sig. >0.05 .

The link between the variables; experiences with insurance contracts and information on insurance institutions, with dependent variable, is positive. So the first hypothesis is proved.

2 H_0: The willingness to pay insurance is different depending on the fruits that farmers produce.

In the second hypothesis we will analyze whether there is a change in willingness to pay (WTP) according to farms with different products.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1a	prod	1.663	.233	50.786	1	.000	5.277
	Constant	-1.990	.381	27.289	1	.000	.137

But how important is this connection? Let's see the following test indicators.

Omnibus Tests of Model Coefficients have Chi – Square more significant (p< 0.001).

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	53.951	1	.000
	Block	53.951	1	.000
	Model	53.951	1	.000

And Nagelkerke R Square is not so high, 18 %, that means that this model explain 18.1 % of variance.

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	440.609	.130	.181

As we saw in regression regarding reliability, the "product" variable was very important. Also, the willingness to pay for this variable is important even though it has a small weight on the model is 18% of the variance.

But if we put other variables in model we can see this situation:

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1a	Prod	-1.833	.502	13.348	1	.000**	.160
	D1B	-.041	.022	3.546	1	.060	.960
	F10.2	-1.600	.284	31.659	1	.000**	.202
	F12	-1.446	.288	25.120	1	.000**	.236
	Farm Incom.	.009	.008	1.183	1	.277	1.009
	Extension	1.322	.492	7.222	1	.007*	3.751
	Constant	6.895	1.240	30.895	1	.000	987.050

But how important is this connection? Let's see the following test indicators.

Omnibus Tests of Model Coefficients have Chi – Square more significant ($p < 0.001$).

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	143.997	6	.000
	Block	143.997	6	.000
	Model	143.997	6	.000

And Nagelkerke R Square is higher, 55.3 %, that means that this model explain 55.3 % of variance.

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	175.669[a]	.311	.553

So the second hypothesis is proved.

CONCLUSIONS AND RECOMMENDATIONS

This study brought a general analysis of the current situation in the insurance sector related to insurance in agriculture. The macroeconomic situation has shown that insurance companies have a lot to do with agricultural insurance. The market is still underdeveloped and farmers are interested in this product. Reliance on insurance institutions is an element that depends largely on the information that farmers have for insurance institutions. Also previous experience with insurance companies has great impact on reliability. From the questionnaire data analysis it turned out that farmers of different products have different credibility. Also the willingness to pay is greatly affected by the product. But the product is not the only factor affecting willingness to pay. Important factors in the willingness to pay are the reliability, information and farm extension.

This study points out that insurance companies should turn their attention to the agricultural sector. Farmers 'information, the creation of adequate insurance contracts with their products, increased reliability and knowledge of farmers' needs are important targets in the work of insurance institutions.

REFERENCES

- Collett, D (1991). Analysis of Binary Data.
- Fey, M. (2002). Measuring a binary response's range of influence in logistic regression. American Statistician, 56, 5-9.
- Hosmer, D.W. & Lemeshow, S. (1989). Applied Logistic Regression.
- McCullagh, P. & Nelder, J.A. (1989). Generalized Linear Models. 2nd Ed.

- Pregibon, D. (1981) Logistic Regression Diagnostics. Annals of Statistics, 9, 705-724.
- Rice, J. C. (1994). "Logistic regression: An introduction". In B. Thompson, ed., Advances in social science methodology, Vol. 3: 191-245. Greenwich, CT: JAI Press. Popular introduction.
- Field, A. (2009). Discovering Statistics Using SPSS. London: SAGE Publications Ltd.
- Osmani.M., Econometric Module, Agricultural University of Tirana, – Albania – 2002.
- www.intat.com
- www.bujqesia.gov.al