EFFECTIVENESS OF THE AGRICULTURE INSURANCE IN TELANGANA STATE – A STUDY

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ABSTRACT:

The study have aimed to know regarding the Effectiveness of agriculture insurance in Telangana state. The study have considered the secondary data from the period of 2016-17 to 2019-20 year in Telangana state. It have considered Weather Based Agriculture Insurance scheme. The Pradhan Mantri Fasal Bima Yojana has been implemented from the year 2016-17 onwards. This study have done the analysis with the software using SPSS and E-views software and the tools used are Paired t-test and Ordinary least squares. Here, the study will analyze to know the role of sum insured on the Agriculture insurance schemes in Kharif and Rabi seasons and examine the difference in the growth of Agriculture Insurance Schemes in Kharif and Rabi seasons. The study have found that kharif and Rabi both have the positive influence but Kharif season is receiving the more claims paid by the farmers than the Rabi season. This study concludes that awareness should be created among the farmers so that they can have the insurance coverage for their crops.

Keywords: Keywords: Agriculture, insurance, Pradhan Manthri Fasal Bima Yojana

INTRODUCTION

The Telangana Department of Agriculture has been created by the Government of Telangana mainly to provide agricultural extension services to farmers and to transfer the latest technical knowledge to the farming community Crop insurance is purchased by agricultural producers, and subsidized by the federal government, to protect against either the loss of their crops due to natural disasters, such as hail, drought, and floods, or the loss of revenue due to declines in the prices of agricultural commodities. The

two general categories of crop insurance are called crop-yield insurance and crop-revenue insurance. On average, the federal government subsidizes 62 percent of the premium. In 2019, crop insurance policies covered almost 380 million acres. Major crops are insurable in most counties where they are grown, and approximately 90% of U.S. crop acreage is insured under the federal crop insurance program. Four crops corn, cotton, soybeans, and wheat typically account for more than 70% of total enrolled acres. For these major crops, a large share of plantings is covered by crop insurance. Telangana state in Indian is the major producer of food grain contributing national rice production

There have been tendencies of more withdrawal of this auspicious resource. As indicated, there is absence of any risk in the production of food crops in Telangana state, whereas unconventional risks are rising due to climatic changes which impacts the production system. They further elaborate the unconventional risk to Telangana states agriculture the critical periods of crop and increasing incidents of insect pest attacks on the cotton crop due to rise in humidity. So, there lies a good amount of risk to the agriculture in the state which needs to be addressed by all the stakeholders. Here comes the need of insurance to agriculture, which is a highly risky economic activity, on account of its critical dependence on weather conditions. Thus agricultural insurance can be considered as not only as a hedge to protect farm economy from the adverse effect of crop failure but also as an incentive to the farmer to shoulder risk of using new technology and affecting improvement in farming. Agriculture insurance may broadly be defined as an institutional response to risks faced by the farmers. The basic principle of Agricultural Insurance is that the loss incurred by the few farmers is shared by many in an area and losses incurred in bad years are compensated from resources accumulated in good years. Managing agricultural risk is an important ingredient of our development process. The idea is to encourage farmers to adopt improved farming technology and agricultural practices which, though with potential of higher return could be riskier. Thus, this study examines various agricultural schemes operating in the state of Telangana.

REVIEW OF LITERATURE

Vitor Augusto Ozaki (2009): This paper applies Hierarchical Bayesian Models to price farm-level yield insurance contracts. This methodology considers the temporal effect, the spatial dependence, and spatio-temporal models. One of the major advantages of this framework is that an estimate of the premium rate is obtained directly from the posterior distribution. These methods were applied to a farm-level data set of soybeans in the State of the Paraná (Brazil), for the period between 1994 and 2003. The

model selection was based on a posterior predictive criterion. This study improves considerably the estimation of the fair premium rates considering the small number of observations.

Peter B R Hazell (2010): This paper reviews the potential role for and experience with index based insurance for managing drought risks in agriculture and rural areas in the dry areas of developing countries. It argues that while index insurance is not a panacea for risk management, it could make important, market-based contributions in catalyzing sustainable safety nets and promoting agricultural growth. And though the private sector should be the main supplier, there are still important enabling and facilitating roles that need to be played by the public sector.

Ezdini Sihem, (2017): This article examines the relationship between the development of the agricultural insurance market (using the penetration measure) and the agricultural productivity growth in the context of various factors potentially influencing such relationships. We employ a panel data static model for 23 countries in two continents during the 2000-2015 period. Our main finding is that the development of agricultural insurance market has a positive effect on agricultural productivity growth.

Yashobanta Parida et al (2018): The study examines the effects of drought and flood on farmer suicides using state-level panel data from 17 Indian states for the period 1995–2011. The empirical estimates based on unconditional fixed effect Negative Binomial model show that while drought significantly increases farmer suicides, flood has no direct impact on the same. The results also show that incidence of farmer suicides is higher in cotton producing states of India because these states experience frequent drought conditions.

Sridhar Gummadi et al (2020): Climate variability and change pose ever-growing challenges in the semiarid tropics, where majority of the population depend on climate-dependent activities such as agriculture. This has rendered these countries more vulnerable to climate change induced variability. In spite of the uncertainties about anticipated magnitude of climate change on regional scale, an assessment of the possible changes in key climatic elements to identify most vulnerable locations becomes important for formulating adaptation strategies. This study compiles the existing knowledge about observed climate and projections of future change in Telangana state of India.

Chattopadhyay N (2020): Long period data and information indicate that India faced number of droughts-like situation from colonial period. In this study, an effort has been made to monitor agricultural drought based on exploitation of new data, methodologies and metrics that would aid the

experts to make best judgments of regional-scale drought conditions through CDI using geospatial technology.

Prasun K Gangopadhyay et al (2019): This paper presents a scientific and integrated approach to identify areas of high agriculture vulnerability to climate change and availability of ICT services for dissemination of CSA information in the vulnerable areas. This study was illustrated for India where the majority of the population depends on agriculture for their livelihoods, and this sector is highly vulnerable to climate change. This study also showed that there is a need to improve the quality of existing climate information and agro-advisory services in the climate risk-prone areas.

Ashok Kadaverugu (2020): Urban floods have become more frequent across the globe. The transformation of the urban landscape with increased concretization and dwindling green cover has resulted in excess run-off generation thereby causing the flash floods. Hence in this study, we quantified the flood mitigation service of green spaces and estimated the tangible economic damage to the built infrastructure in the Hyderabad metropolitan city, India using the Integrated Valuation of Ecosystem Services and Trade-offs model.

Narendra K Tyagi (2020): Food security concerns, which are very intricately linked with water and energy, are being amplified by climate change; and it requires maintenance of optimal balance between synergies and trade-offs generated in the food production processes. An analysis of the current and projected WEF security situations in India and the assessment of agro-hydro-technologies and development policies, through which the food security is to be achieved, are reviewed. A suite of technology and policy refinements required to meet the challenges arising due to multiple transitions, which impact the WEF security in India, are outlined.

Jitendra Mishra (2020): The main objective of this review is to highlight the developing trend in the field of biocontrol products in India. Apart from this, the review also focuses on the technological perspectives that are required for the long-term sustainability of biological control products in Indian agriculture and market.

OBJECTIVES OF THE STUDY

1. To examine the difference in the growth of Agriculture Insurance Schemes in Kharif and Rabi seasons.

2. To understand the role of sum insured on the Agriculture insurance schemes in Kharif and Rabi seasons.

HYPOTHESES OF THE STUDY

H0: There is no difference between the growths of select agriculture Insurance schemes in Kharif and Rabi seasons

H0: There is no impact of Sum insured on the Agriculture Insurance Schemes.

SCOPE OF THE STUDY: The present study has been focused on the effectiveness of the agriculture insurance in Telangana state. The study has been bifurcated into two segments i.e., Kharif and Rabi seasons. The following are the agriculture insurance schemes were considered, which were implemented during the period of 2016-17 to 2019-20 year in Telangana state.

- Weather Based Crop Insurance Schemes - WBCIS
- Pradhan Mantri Fasal Bima Yojana Schemes - PMFBYS

RESEARCH METHODOLOGY

The study is considering the secondary data. The study applying the following are the statistical methods based on the framed objectives. They are,

Paired t test: The study applied the paired t test to identify the significant difference between the agriculture insurance schemes of Kharif and Rabi seasons.

Ordinary Least square: The study has considered the ordinary least square test to know the impact of agriculture insurance schemes on the sum insured

TABULATION OF DATA ANALYSIS

Objective 1: To examine the difference in the growth of Agriculture Insurance Schemes in Kharif and Rabi seasons

H0: There is no significant difference in claims paid by the farmers in Kharif and Rabi.

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	claims paid-k - claims paid-r	1008.176	2708.021	1211.065	-2354.271	4370.631	.832	4	.052

Table represents the Pair t test with respect to the Claims paid by the farmer in Kharif and Rabi season. Here, the mean value is 1008.1, implies the claims paid by the farmer in kharif is higher than the claims paid by the farmer in the rabi season. As the p-value is observed to be less than 0.05, indicates rejection of Null hypothesis and Acceptance of Alternative hypothesis. Hence it is concluded there is significant difference in claims paid by the farmers in Kharif and Rabi season.

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	premium-k - premium-r	600.246	333.685	149.207	185.9964	1014.495	4.023	4	.016

Table represents the Pair t test with respect to the premium paid by the farmer in Kharif and Rabi season. Here, the mean value is 600.246, implies the premium paid by the farmer in kharif is higher than the premium paid by the farmer in the rabi season. As the p-value is observed to be less than 0.05, indicates rejection of Null hypothesis and Acceptance of Alternative hypothesis. Hence it is concluded there is significant difference in premium paid by the farmers in Kharif and Rabi season.

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	sum insured-k - sum insured-r	14007.72	8784.55	3928.57	3100.269	24915.102	3.566	4	.023

Table represents the Pair t test with respect to the sum insured by the farmer in Kharif and Rabi season. Here, the mean value is 14007.722, implies the sum insured by the farmer in kharif is higher than the claims paid by the farmer in the rabi season. As the p-value is observed to be less than 0.05, indicates rejection of Null hypothesis and Acceptance of Alternative hypothesis. Hence it is concluded there is significant difference in sum insured by the farmers in Kharif and Rabi season.

Objective 2: To understand the role of sum insured on the Agriculture insurance schemes in Kharif and Rabi seasons

H0: There is no impact of Farmers insured on Sum insured by the farmers in kharif and Rabi season.

Table- Farmers insurance on Sum insured

Dependent Variable: SUM_INSURED				
Method: Least Squares				
Sample: 1 5				
Included observations: 5				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
FARMERS_INSURED_K	191.1473	11.88391	16.08454	0.0001
FARMERS_INSURED_R	77.4346	26.34860	14.32466	0.0024
R-squared	0.819700	Mean dependent var		24202.36

Adjusted R-squared	0.819700	S.D. dependent var	8217.926
S.E. of regression	3489.480	Akaike info criterion	19.32975
Sum squared resid	48705871	Schwarz criterion	19.25164
Log likelihood	-47.32437	Hannan-Quinn criter.	19.12010
Durbin-Watson stat	1.436114		

Table represents the ordinary least square with respect to Farmers Insured in Kharif and Rabi Season. The coefficient value of Farmers insurance in kharif is 191.14 and in rabi is 77.43, implies farmers insures has positive impact on sum insured. From p-value it indicates that rejection of null hypothesis and acceptance of alternative hypothesis i.e., Farmers Insured in Kharif and Rabi has significant impact on Sum insured by the farmers. Furthermore, R-square of the model is 0.819, indicates the model is strongly fit and statistically significant at 5% level.

Table – Premium Impact on Sum insured

Dependent Variable: SUM_INSURED				
Method: Least Squares				
Sample: 1 5				
Included observations: 5				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
PREMIUM_K	22.57178	1.035995	21.78755	0.0000
PREMIUM_R	12.95188	4.623945	11.45167	0.0003
R-squared	0.901050	Mean dependent var		24202.36
Adjusted R-squared	0.901050	S.D. dependent var		8217.926
S.E. of regression	2585.059	Akaike info criterion		18.72974
Sum squared resid	26730117	Schwarz criterion		18.65163
Log likelihood	-45.82435	Hannan-Quinn criter.		18.52009
Durbin-Watson stat	2.801593			

Table represents the ordinary least square with respect to premium paid to farmers in Kharif and Rabi Season. The coefficient value of premium paid to farmers in kharif is 22.57 and in rabi is 712.95, implies that premium paid to farmers has positive impact on sum insured. From p-value it indicates that rejection of null hypothesis and acceptance of alternative hypothesis i.e., premium paid to farmers in Kharif and Rabi has significant impact on Sum insured by the farmers. Furthermore, R-square of the model is 0.901, indicates the model is strongly fit and statistically significant at 5% level.

Table – Claims paid Impact on Sum Insured

Dependent Variable: SUM_INSURED				
Method: Least Squares				
Sample: 1 5				
Included observations: 5				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CLAIMS_PAID_K	6.698789	3.498769	1.914613	0.0031
CLAIMS_PAID_R	2.413503	28.37766	1.037261	0.0012
R-squared	-5.179069	Mean dependent var		24202.36
Adjusted R-squared	-5.179069	S.D. dependent var		8217.926
S.E. of regression	20427.90	Akaike info criterion		22.86405
Sum squared resid	1.67E+09	Schwarz criterion		22.78594
Log likelihood	-56.16012	Hannan-Quinn criter.		22.65440
Durbin-Watson stat	0.346302			

Table represents the ordinary least square with respect to claims paid in Kharif and Rabi Season. The coefficient value of claims paid in kharif is 6.698 and in rabi is 2.413, implies that claims paid has positive impact on sum insured. From p-value it indicates that rejection of null hypothesis and acceptance of alternative hypothesis i.e., claims paid in Kharif and Rabi has significant impact on Sum insured by the farmers. Furthermore, R-square of the model is 5.17 indicates the model is significantly fit and statistically not significant at 5% level.

Table - Overall Agriculture insurance

Dependent Variable: SUM_INSURED				
Method: Least Squares				
Sample: 1 4				
Included observations: 4				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
FARMERS_INSURED	3.729502	1.028843	3.624948	0.0014
PREMIUM	18.15351	5.155624	3.521108	0.0062
CLAIMS_PAID	0.329003	1.431818	-0.229780	0.0062
R-squared	0.887834	Mean dependent var		6254.720
Adjusted R-squared	0.663503	S.D. dependent var		880.6517
S.E. of regression	510.8518	Akaike info criterion		15.42374
Sum squared resid	260969.6	Schwarz criterion		14.96346
Log likelihood	-27.84748	Hannan-Quinn criter.		14.41369
Durbin-Watson stat	2.494390			

Table represents the ordinary least square with respect to Farmers Insured, premium paid and claims paid in both Kharif and Rabi Season. The coefficient value of Farmers insured is 3.729, premium paid is 18.153 and claims paid is 0.329 implies farmers insured, premium paid and claims paid has positive impact on sum insured. From p-value it indicates that rejection of null hypothesis and acceptance of alternative hypothesis i.e., Farmers Insured, premium paid and claims paid in both Kharif and Rabi has significant impact on Sum insured by the farmers. Furthermore, R-square of the model is 0.887, indicates the model is strongly fit and statistically significant at 5% level.

FINDINGS:

1. The study have found through paired t-test that claims and premiums paid are higher in the Kharif season than the Rabi season and farmers have paid the insured amount more in the kharif season.
2. It reveals from Ordinary Least Square that Agriculture Insurance has significant positive impact on

Sum insured in case of Kharif as well as in Rabi season

3. , implies both the seasons having the positive impact whereas kharif is observed to be having more with respect to claim paid, farmers insured, premiums paid. It also reports, Premium paid by the farmers, the overall results signifies that there is more premiums (18.15) paid by the farmers of the Telangana state in Kharif season.
4. It determines that there is an impact of the farmers insured on sum assured by farmers is more in the Kharif season than that of Rabi season meaning that farmers are benefitted or earning profits by selling the rice in kharif season, since rice is the staple food of India, it will be sold more than the wheat mustard, sesame and etc.

CONCLUSION:

The present study has been focused on the agriculture insurance with respect to Telangana state. The study have considered two schemes namely Weather based Crop Insurance Schemes (WBCIS) and Pradhan Mantri Fasal Bima Yojana Schemes (PMFBYS). The study have considered the claims paid and premiums collected in this study. The study have found that settlement of the claims is a time consuming method and can't be able to take the funds. Hence, the study concludes that there is an impact of the kharif more than the Rabi that should be known to the farmers in the Telangana state so that they can take insurance coverage that will protect the agriculture products. Hence, there is a scope for the further research in this area by involving the factors that will create the effectiveness in the agriculture insurance in other states of the country.

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