

Factors Affecting on Demand for Agricultural Crop Insurance in West Azarbijan Province

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Abstract: Nowadays, agriculture has an important role as compared to other economic sectors, in terms of assuring required food for growing population in the world. The main objective of the present study is to study on effective factors on crop insurance demand in west Azarbaijan province. We study and analyze what factors does influence the farmers demand to adoption of crop insurance. This study was a descriptive-correlation research, carried out in 2011 in west Azarbaijan province. It was an applied research, which carried out by survey method and is descriptive-correlation. We collected data by means of a questionnaire and in-depth interviews. Out of universe population, 400 respondents were selected using cluster sampling method. Descriptive and inferential statistics were used to analyze the collected data. Result showed that the most important of effective factors on insurance demand were classified into seven factors *viz.*, includes “Product and raw materials price fluctuations”, “Manufacturing facilities and income”, “Information of insurance”, “government policies-insurance support”, “Risk factors”, “Market conditions & product demand” and “farmer’s position in society”, which explained 85.27% of variance of effective factors on crop insurance demand in west Azarbaijan province.

Key words: Insurance • Demand for Insurance • Effecting Factors • Agricultural Crops Insurance
• Azarbaijan provinc

INTRODOCTION

Nowadays, agriculture has an important role as compared to other economic sectors in terms of assuring required food for growing population in the world. The main objective of this paper is to understand which factors affect crop insurance decision in West Azarbaijan Province.

Agriculture, being a means of livelihood of almost two third of the population in the province represents Azarbaijan’s most important economic sector. The agriculture accounts for about 65% of the labor directly and indirectly, working mainly in small-holdings using basic tools. Together with livestock rising, it provides a 33% of her GDP. The agricultural sector is characterized by a strong exposure to risk which is still likely to increase in the near future. Production risk is expected to increase due to stricter uses as regards the use of

inputs creating potential environmental damages. Price risk is likely to rise because of agricultural trade liberalization [1].

Risk plays an important role in human livelihood, particularly for third world Countries farmers who are exposed to the vagaries of weather and price shocks [2]. Production risk is expected to increase due to rising quality requirements for some products and stricter rules as regards the use of inputs and medicines for animals [3]. The farmers do not have security because from one hand, natural factors mostly threaten them to reduce the quantity of their crops and from another hand; they are faced with fluctuation of prices in the market. Risk avoidance inhibits gains from specialization and prevents third world agriculture from achieving its full potential [4].

Smallholder farmers face a range of risks related to production, transactions and human resources which often impact on their farming operations as well as their

livelihoods [5]. However, due to increased complexity and variation in agriculture risk, farmers find it very difficult in making rational decisions when faced with risks. This decision-making process consists of a series of actions and choices over time, through which a farmer evaluates an innovation and decides whether to incorporate it into his ongoing practices. Due to the diversity of social, economic and natural factors influencing the adoption of an innovation, making such a decision is not a simple process [4].

Crop insurance is one of the solutions that farmers can use when faced with risks. On the other hand, farmers that are faced with many problems adopt the innovation of crop insurance. Crop insurance has been used in a variety of forms and purposes in more than 70 countries, according to an FAO survey published in 1991. In particular, developing countries have established crop insurance programs not only to provide farmers with another risk management tool, but also to promote other goals, such as improving farmers' access to credit, promoting production of high-value crops that might also have higher yield risk and providing more stability to agriculture and related industries [6].

Multiple peril crop insurance, that protects farmers against yield or revenue losses from multiple sources of risk on their own farms, has never been successfully offered by the private sector on a purely commercial basis [7, 8].

Several factors affect the amount a household is willing to invest to partially or completely mitigate the effects of events that result in losses. These factors are the size of the potential loss relative to the household's income or wealth, the frequency with which losses occur. Yield, cost of risk mitigation, the extent to which a risk management strategy provides protection against losses when they occur, the availability and relative costs and benefits of other risk management strategies [9]. Most studies of the demand for crop insurance have focused on individual yield insurance. The general findings of other studies, are as follows: almost all the studies of the demand for crop insurance have reported that higher premium rates (or lower expected returns, defined as the differences between expected indemnities and premium rates) result in substantially lower levels of participation in crop insurance programs [7, 10-13].

According to Krabasi [14] for attracting corporation of agricultural beneficiaries, related to acceptance of crop insurance, efficient factors on demand for this technique or estimating demand should be recognized [14].

Nikooei and Torkamani [15] in a survey of effective factors on demand for crop insurance in Fars province in Iran found that amount of wheat product during previous year, land ownership, wheat production, age, level of education, farmer's capital, risk taking and previous record for facing risk, have positive correlation in adoption of wheat insurance; but other factors like land value, have negative impact on adoption of wheat insurance [15]. Also findings of Torkamani [16] in Iran showed that size of farm and part-time activity, have negative influence on demand for insurance [16]. Moreover, satisfaction of the insurance, the bank's response to complaints, knowledge of insurance [17], payment of compensation, records of risk exposure [18], are influence the demand for insurance.

Shaik, *et al.* [19] focused their efforts on the demand for revenue insurance in Mississippi, Texas, Indiana Nebraska. They studied farmers' decision to purchase crop insurance and their decision to purchase revenue or yield insurance. Among other findings, their results indicate that farmers are more price sensitive when deciding between yield and revenue insurance than they are when deciding whether to purchase crop insurance. Furthermore, the authors concluded that farmers facing greater perceived yield risk and price risk are more likely to purchase revenue insurance.

Serra *et al.* [20] examined the demand for crop insurance in Kansas during the 1990's, using farm records obtained from the Kansas Farm Management Association. Results of their study suggest that the relationship between crop insurance purchase decisions and premium rates is inelastic. Accordingly, the authors contend that increasing participation in the federal crop insurance program through premium subsidies or premium discounts will be difficult.

The main objective of this paper is to study on effective factors on crop insurance demand in west Azarbaijan province. We study and analyze that what factors influence on farmers demand to adoption of crop insurance.

MATERIALS AND METHODS

This study was a descriptive-correlation research, carried out in 2011 in west azarbaijan province. The study employed principally quantitative and qualitative methodology: This study was an applied research, which was carried out by survey method and is descriptive- correlation. In order to achieve the goals of

study, we collected data from the individual by means of a questionnaire and in-depth interviews, among a cross of farmers population (208000). Out of universe population, 400 respondents were selected using cluster sampling method. For determining the validity of questionnaire, the content validity was used which was obtained by an experts' panel consisting of specialists in agricultural and development and rural development. Cronbach's alpha was used to measure reliability of the index that its extent was 0.80 and showed that mentioned variable has high reliability. Data were analyzed using Statistical Package for the Social Sciences (SPSS). Descriptive and inferential statistics were used to analyze the collected data. Factor analysis was used in the inferential analysis section to classify and extraction effective factors on demand of crop insurance.

RESULTS AND DISCUSSION

Personal and Socio-Economic Characteristics of Respondents: The research sample comprised of 400 respondents: all of them are males. Respondents were on average of 45 years old (Table 1). Educational qualification shows that majority of the sample population were illiterate and primary schools (36.5%), 18.5% Secondary school and 9.5% High school, 29.2% Diploma and Bachelor 6.2% Masters of science. Respondents experience of agriculture were 24.3 years on mean (Table 1).

Personal Characteristics of Effective Factors on Crop Insurance Demand: Majority of the respondent's agriculture ownership was private (90.2%), 9.8% rental. The average size of cultivated land holding was 12 hectares (62% rain-fed, 38% irrigated) were include 3 Patch. Majority of producers were having received Compensation from Insurance fund.

Factor Analysis of Effective Factors on Crop Insurance Demand: Factor analysis was utilized to summarize the variables of the research to a smaller quantity and to

Table 1: Age distribution of respondents.

Age groups (years)	Frequency	Valid percent (%)	Cumulative percent (%)
1- 30-40	140	35	35
2- 41-50	124	31	66
3- 51-60	114	28.5	84.5
4- 61 and above	22	5.5	100
Mean: 45	SD: 9.08	max: 65	min: 30

determine the effect of each one of the factors to confine the effective factors on crop insurance demand in west Azarbaijan province. The implemented computations revealed that the internal coherence of the data was appropriate (KMO = 0.78) and Bartlett's statistical data was at 0.01 level significant. According to Kaiser Criteria, from the viewpoints, there were 7 factors that their Eigen values were extracted more than 2 (Table 2). The research variables were categorized into 5 factors using Varimax Rotation Method.

Factor 1 explained 17.01% of the total variance. Comprising the following these variables as important effective factors. This factor was named "Product and raw materials price fluctuations". These factor's variables included: Market price of product, Damage rate in the previous year, Changes in commodity prices, Changes in product price of previous years (Table 3). This result have been approved by Mahul [1] and Sadati *et al.* [4].

Factor 2 explained 16.61% of the total variance. This factor was named "Manufacturing facilities and income". The main variable of these factors included: Ownership level, Income rate in the previous year, Performance of the previous year, (Table 3). This result have been approved by Vincent and Myles [9].

Factor 3 explained 11.50% of the total variance. This factor was "Information of insurance". These factors included: Education level, Participate in training, Timely information and awareness, Educating importance and benefits of insurance, Contact the experts, (Table 3). This result is also in line Shaik *et al.* [19].

Factor 4 explained 11.38% of the total variance explained. This factor was named "Government policies-insurance support". The main variable of these factors included: Government financial support, guaranteed price for the product, supportive and facilitating policies, rate

Table 2: Classification effective factors on crop insurance demand by using factor analysis.

Factors name	Eigen value	Variance by Factor (%)	Collective variance (%)
1- Product and raw materials price fluctuations	4.59	17.01	17.01
2- Manufacturing facilities and income	4.48	16.61	33.62
3- Information of insurance	3.11	11.50	45.11
4- Government policies- insurance support	3.07	11.38	56.49
5- Risk factors	2.90	10.74	67.23
6- Market conditions and product demand	2.88	10.65	77.89
7- farmer's position in society	1.99	7.38	85.27

Table 3: The main variable of each factor and their loadings.

Factors name	Variables	Loadings
1- Product and raw materials price fluctuations	Market price of product	0.818
	Damage rate in the previous year	0.809
	Changes in commodity prices	0.932
	Changes in product price of previous years	0.701
2- Manufacturing facilities and income	Ownership level	0.673
	Income rate in the previous year	0.622
	Performance of the previous year	0.794
3- Information of insurance	Education level	0.742
	Participate in training	0.567
	Timely information and awareness	0.921
	Educating importance and benefits of insurance	0.690
	Contact the experts	0.615
4- Government policies- insurance support	Government financial support	0.687
	Guaranteed price for the product	0.651
	Supportive and facilitating policies	0.608
	Rate of recompense	0.747
5- Risk factors	Production diseases in the region	0.844
	Product pests in the region	0.843
	Crop damage from frost in the previous year	0.601
	Damage caused by drought in the previous year	0.680
6- Market conditions and product demand	Premium rates paid	0.699
	Changes in consumer preferences and demand	0.937
	Product market access	0.824
7- farmer's position in society	Relationships with local community groups	0.874
	Position of the individual in society	0.715
	The contact with other progressive farmers	0.633

of recompense (Table 3). This result is strongly in agreement karami [17], Hojjati and bockstael [18] and Serra *et al.* [20].

Factor 5 explained 10.74% of the total variance explained. This factor was named “Risk factors”. The main variable of these factors included: Production diseases in the region, product pests in the region, crop damage from frost in the previous year, damage caused by drought in the previous year (Table 3). This result is in support of those explained by Mahul [1] and Kurosaki & Fafchamps [2].

Factor 6 explained 10.65% of the total variance explained. This factor was named “Market conditions and product demand”. The main variable of these factor included: Premium rates paid, Changes in consumer preferences and demand, Product market access (Table 3).

Factor 7 explained 10.47% of the total variance explained. This factor was named “farmer’s position in society”. The main variable of this factor included: Relationships with local community groups, position of the individual in society, the contact with other progressive farmers (Table 3). This result has been approved by Nikooei and Torkamani [15].

CONCLUSIONS

According to results of the study, the most important of effective factors on crop insurance demand in west Azarbaijan province were classified into seven factors includes “Product and raw materials price fluctuations”, “Manufacturing facilities and income”, “Information of insurance”, “government policies-insurance support”, “Risk factors”, “Market conditions and product demand”, “farmer’s position in society”, which explained 85.27% of variance of effective factors on crop insurance demand. Results show that “Product and raw materials price fluctuations” are important in first priority. This shows most of the farmers demand for insurance dependent on price of production and raw materials. Whatever Price volatility is much greater, demand for insurance is more. Afterward manufacturing facilities and income effective in explaining the demand. In other words, ownership is more effective in increasing demand, after there “Information of insurance” had an important role in explaining the demand for insurance.

To encourage the demand for insurance is necessary these factors to be considered. Considering to “Product and raw materials price fluctuations”, “Manufacturing facilities and income”, “Information of insurance”, “government policies-insurance support”, “Risk factors”, “Market conditions and product demand”, “farmer’s position in society”, can help to develop the demand for crop insurance in West Azerbaijan Province.

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