Effect of Risk Attitudes on the Success of the Agricultural Enterprises and Analysis of Affecting Factors*

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Abstract

Agricultural production has been occurred under natural, economic, technical and social numerous risks and uncertainties. In addition, saving rate is low because the turnover rate of the capital is low in agricultural enterprises. These reasons affect to the production decisions of the agricultural entrepreneurs. Hence, the wrong decisions can lead to a low income, and the effect of the low income can reveal in the following years. This situation can also cause to close an enterprise. Attitudes of the agricultural entrepreneurs against risk can also cause that the resources have been an inactive. Since, the production factors not used effectively because of risk perception is another reason of low income. Therefore, the risk attitudes of the entrepreneurs in the agricultural enterprises operating in Konya province and affecting factors were analyzed in this study. For this purpose, 396 sample enterprises were selected from the agricultural enterprises operating in Konya by stratified random sampling method. The risk attitudes of the agricultural entrepreneurs were determined by asking the questions about preference scale known as the reference game. The economic performance of the agricultural enterprises according to risk attitude was analyzed as regards Laur Accounting Systems. In addition, the factors affecting risk attitudes of the agricultural entrepreneurs were determined by using Logistic Regression Analysis. As a result, it was determined that 70.45% of the agricultural enterprises did not like risk (including indifferent to the risk) and 29.55% of them liked risk. The most important factor affecting the risk attitudes of the agricultural entrepreneurs is the size of the enterprise land. It was also found that the economic performance of the risk lover enterprises better than ones risk non-lover.

Key words: Risk attitude, the success of enterprise, agricultural enterprise

***Tarım İşletmelerinde Risk Tutumlarının İşletme Başarısı
Üzerine Etkisi ve Etkileyen Faktörlerin Analizi***
Özet

Tarımsal üretim doğal, ekonomik, teknik ve sosyal birçok risk ve belirsizlik altında gerçekleşmektedir. Ayrıca tarım işletmelerinde sermayenin devir hızının düşük olmasından dolayı tasarruf oranı da düşüktür. Bu nedenler tarım işletmecisi yöneticilerinin üretim kararlarını etkilemektedir. Nitekim alınacak yanlış kararlar düşük gelir seviyesine neden olabilecek ve gelir düşüklüğünün şiddeti takip eden yıllarda etkisini gösterebilecektir. Bu durum işletmenin tamamen kapanması noktasına da gelebilmektedir. Tarım işletmesi yöneticilerinin riske karşı tutumları gelir düşüklüğü ile birlikte kaynakların atıl kalmasına da neden olabilmektedir. Nitekim üretim faktörlerinin risk kaygısı ile etkin kullanılmaması da gelir düşüklüğünün diğer bir nedenidir. Bu nedenle bu çalışmada Konya ilinde faaliyet gösteren tarım işletmelerinin yöneticilerinin riske karşı tutumları ve bunu etkileyen faktörler analiz edilmiştir. Bu amaca yönelik olarak Konya'da faaliyet gösteren tarım işletmelerinden tabakalı tesadüfi örnekleme yöntemi kullanılarak 396 örnek işletme belirlenmiştir. Bu işletmelerin yöneticilerine referans kumarı olarak bilinen tercih ölçeği soruları yöneltilerek risk tutumları belirlenmiştir. Tarım işletmelerinin risk davranışlarına göre ekonomik performansları Laur muhasebe sistemine göre analiz edilmiştir. Ayrıca işletme yöneticilerinin risk tutumlarını etkileyen faktörler lojistik regresyon analizi kullanılarak belirlenmiştir. Sonuç olarak tarım işletmelerinin %70,45'nin risk sevmediği ve %29,55'nin ise risk sevdiği belirlenmiştir. İşletme yöneticilerinin risk tutumlarını etkileyen en önemli faktörün işletme arazisinin büyüklüğü olduğu belirlenmiştir. Ayrıca risk seven işletmelerin ekonomik performansının risk sevmeyen işletmelere göre daha iyi olduğu tespit edilmiştir.

Anahtar kelimeler: Risk tutumu, İşletme başarısı, Tarım işletmeleri

1. INTRODUCTION

Producers, who have to decide which product to produce how and for which amount at the agricultural enterprises, take these decision as being based on their observations and intuitions. It is a fact that this way of decision taking is far from being scientific and that it won't serve for agricultural purposes.

Farmers take into consideration human resources, capital, inputs, efficiency, product prices, technology, market, environment, and ecological conditions when they take their production decisions.

Majority of these factors bear risk and uncertainty within themselves. In this case, as farmer decisions are taken in an environment of risks and uncertainties, these particulars should absolutely be considered for the future planning (Yusuf and Malomo, 2007; Ndem and Osondu, 2018).

Depending on low agricultural production capital turnover, saving ratio is low. However, there are higher risks and uncertainties when compared with other sectors. Under these conditions, producers' taking decisions in a way to use the resources efficiently is important for sustainability of agricultural sector. Probable risks influence the decisions of enterprise managers, while risk attitudes of enterprise managers influence decision taking under risk environment. Therefore, within the context of this study risk attitudes of agricultural enterprise managers and factors influencing these are investigated together with the impact of their risk attitudes on the success of enterprise.

Various studies have been made for determining the risk attitudes of agricultural enterprise managers. However, no study has been made for evaluating the influences of risk attitudes on the success of enterprise and for specifying the factors influencing them. DilIon and Scandizzo (1978), have investigated risk attitudes of farmers dealing with production for subsistence at the north of Brazil and they have evaluated socioeconomic factors influencing them. Karberg (1993) has investigated marketing behaviors of farmers in agricultural production and he has tried to explain farmer attitudes with sample events. Ceyhan et al (1997) have investigated risk behaviors of farmers in the district of Terme in the city of Samsun. In the study, relationships between risk attitudes and socioeconomic features have been evaluated. Perry and Johnson (2000) have investigated the impact of socioeconomic features on the risk behaviors of farmers. In the study they conducted, Mickelsen and Trede (2001) have investigated learning ways for defining and applying particulars regarding the training of farmers in Iowa in the area of risk management. In the study, by using definers of Kolb learning method, the learning way that is preferred by farmers for risk management training has been specified. Vergara et al (2001) have investigated risk sources being confronted with in agricultural production in Mississippi, effectiveness of risk management tools, participation in operational policy alternatives and product insurance, desire for having risk training, participating in this training, pricing techniques before and after harvesting. In the study, in 133 enterprises questionnaires have been applied and the data being obtained were evaluated. Boakye (2017) has investigated risk attitudes, risk management and business success of agribusiness in Ghana and found that aged and married entrepreneurs showed more risk aversion behavior, and the entrepreneur's psychological disposition is significant on business success. Subjects such as features of enterprise, existence of capital, reasons for young farmers' leaving agricultural activities, reasons for their continuing to work in agriculture, social and economic factors helping farmers in agricultural activities, risk sources being effective on the enterprise income, risk management strategies, and agricultural insurance are evaluated.

The city of Konya which is defined as the study field is situated in the middle part of Turkey. Total agricultural land of Konya make up 8.25% of total land of Turkey. In the city of Konya total area of agricultural lands is 1.886.156 ha, whereas 73.69% make up cultivated land area, 22.49% make up fallowed area, 1.38% make up areas where vegetables are cultivated, 2.44% make up areas where fruits and spice plants are raised. 78.29% of cultivated agricultural areas are composed of cereals, 6.26% of them are composed of oily seeds, 5.03% of them are composed of forage plants, and %3.48 are composed of legumes.

With Konya 868.551 pieces of cattle, Konya has got 5.39% of total number of cattle in Turkey and with 1.200.489 tons of milk, it has got 3.37% of total cattle milk in Turkey. Besides, with 1.894.530 pieces of sheep, it has got 5.62% of total number of sheep in Turkey and with 79.320 tons of sheep milk, it has got 5.89% of total sheep milk. Number of goats in Konya is 240.367 pieces and its ratio within Turkey is 2.26% and regarding the production of goat milk production with a quantity of 10.395 tons, it has a share of 1.98% (TSI, 2017).

Agricultural potential of the city of Konya is too much and it bears very different ecological structures. The difference in ecological structures brings with it the differences in production activities and enterprise structures. Thus, the city of Konya bears enterprise structures having different risks and production activities as well. Investigation of this characteristic of the city of Konya and risk behaviors of enterprise managers and the results that will be derived from them shall have a value that can be globally used.

2.MATERIALS and METHOD

The data used in the study have been obtained by making face to face questionnaires with the agricultural enterprises operating in the city of Konya. Number of enterprises operating in the city of Konya is 107633 according to Farmer Registration System. According to Layered Random Sampling Method, 396 enterprises have been determined as samples and face to face questionnaires have been realized.

The number of the samples to be studied according to the stratified random sampling method has been calculated by using the formula below (Yamane, 1967).

$$n = \frac{\Sigma (N_h . S_h)^2}{N^2 D^2 + \Sigma N_h . S_h^2}$$

$$D^2 = d^2 / z^2$$

n   : Sample size
N   : Number of enterprises in the population
N_h : Number of enterprises in the stratum h
S^2h : Variance of the stratum h
d   : Permitted margin of error in the population mean
z   : Represents the z value from the standard normal distribution tablet o the error rate.
The formula $N_hS_h*n/\Sigma NhSh$ was used to determine the distribution of the defined sample size across the various strata.

2.1. Method Used for Determining the Risk Behavior of Producers

By using reference gambling and preference scale methods, the groups to which farmers, who have been applied questionnaires, belonged to with regards to their risk behaviors were specified. (risk lovers, risk averse ones, and those being indifferent to risks). Risk behaviors of producers have been determined by means of the choices they made among imaginary options. Points where people are indifferent between risky alternatives and alternatives, the outcomes of which are specific, reveal risk bearing tendencies (risk behaviors) of said people (Holloway, 1979).

The risk behavior groups to which the producers belonged to, were determined by following below stages (Ceyhan et al, 1997).

●   It has been stated that award will be given to the producer depending on a specific probability.

●   An award, which was smaller that the one in the first stage but which was guaranteed, was submitted to the producer as an alternative. Which one does the producer prefer? If he has chosen the first one, the value of second alternative has been increased. This process was continued until the person was indifferent between the two alternatives.

●   By increasing the probability value in the first step, the process in the second step was repeated.

●   In the end, a graphic was obtained where indecision (indifference) points were shown on the horizontal axis and the probabilities were shown on the vertical axis. (Preference curve). The results being obtained in the third step were transferred to this graphic and risk behaviors were determined.

The shape of preference scale revealing risk behaviors of farmers by using reference gambling in the study is given below (Holloway, 1979) (Figure 1).
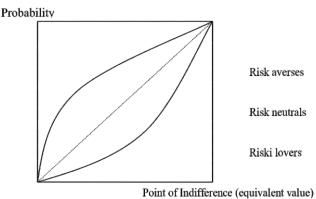

Figure 1. Preference Curves

2.2. Method Used for Determining the Success of Enterprise

Laur accounting system has been used for defining success of enterprises according to the risk behaviors of enterprises being investigated. In accordance, gross revenues, agricultural income, and net revenues of enterprises have been calculated and they have been comparably interpreted as per the risk behaviors (Erkus et al, 2005).

Net income = Gross revenue-operational expenses
Agricultural income = Net income + Corresponding family labor wage - Debt interest and rent amounts
Net Profit = Net income – (Operational costs + Active capital interest)

2.3. Logistic Regression Analysis

With reference gambling method, risk behaviors of enterprise managers have been determined. For analyzing the differences between enterprise managers being risk lovers and risk averse ones and for evaluating the factors influencing their risk behaviors, logistic regression analysis has been used.   Enterprise managers take their production decisions as per their own approaches. Therefore, production decisions of operators change as per their risk behavior attitudes. When a generalization is made, this particular becomes an important issue for all the agricultural sector. For defining the policies that will be applied on agricultural sector with respect to the supply side, it is required to know risk behaviors of enterprise managers taking the production decisions and to know the factors influencing them. Logistic regression analysis is important in that respect.

Logistic regression analysis is a technique which is used when dependent variable has a categorical structure and independent variables have continuous or categorical structure. Logistic regression analysis where the outcome variable has a categorical structure, is applied in three ways. These are named as binary logistic regression analysis if the dependent variable has two options, they are named as nominal logistic regression analysis if the dependent variable has at least three options with classifying measurement level and they are named as ordinal logistic regression analysis if dependent variable has sorting measurement level and at least three options again (Ozdamar, 2002).

If dependent variable is a discrete variable having binary layers such as 0 and 1 or more, it can be easily used since there is no requirement to meet normality assumption. Furthermore, as the model being obtained is very flexible with respect to mathematical aspects and as it can be easily interpreted, the interest shown in this method gets increased. Fundamental of logistic regression model is based on odds ratio. Odds ratio compares the probability of occurrence of an event to the probability of nonoccurrence of said event. Thus, logistic regression model is obtained by taking natural logarithm of odds ratio in predicting the parameters of logistic regression model which is obtained by taking natural logarithm of odds ratio, maximum likelihood method is widely used (Berenson−Levine, 1996). Logistic regression model with two variables is

$$P(Y) = \frac{\exp(\beta_0 + \beta_1 X)}{1 + \exp(\beta_0 + \beta_1 X)} = \frac{1}{1 + \exp(-\beta_0 - \beta_1 X)}$$

Coefficients in model were calculated;

$$ln\left(\frac{P(Y)}{Q(Y)}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n$$

$$\frac{P(Y)}{Q(Y)} = e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n} = e^{\beta_0} e^{\beta_1 X_1} e^{\beta_2 X_2} e^{\beta_n X_n}$$

Therefore, logistic regression model with two variables is calculated accordingly. Here calculations are made such that Q(Y), Q(Y) = 1- P(Y). As it will be remembered that odds ratio is OR = P(Y) / Q(Y), odds ratio value of each parameter should be considered as odds ratio. This value explains how many times more or with which percentage of probability dependent variable could be seen with the impact of independent variable (Ozçomak et al, 2005).

3.RESEARCH FINDINGS

Agricultural activities have been operated under a risky and uncertain situation (Akcaoz and Ozkan, 2005). Risks cause farmers to be less willing to take on investments (Alderman, 2008). The climate change, the complexity of biological processes, frequent natural disasters, the yield and prices variability of farm products, unbalanced input/output markets, finance failure are agricultural risks (Paudel et al, 2014). Risk attitudes of farmers change according to socio-economic factors, farmers' access to information and credit sources (Ullah et al, 2015).

3.1.Land Assets of Enterprises
In the investigated enterprises, average land assets were determined as 145.78 da. 76.98% of them property lands, 21.07% of them are leased and 1.95% of them are operated with partners. In the risk loving enterprises, operational wideness (156.43 da), is more than those of risk averse enterprises (120.30 da) (Table 1).

Table 1. Land Assets of Enterprises Examined According to Risk Groups

Risk Groups	Landlord		Tenancy		Sharecropping		Total Land	
	decare	%	decare	%	decare	%	decare	%
Risk Averse	89.03	74.00	30.56	25.41	0.71	0.59	120.30	100.00
Risk Lover	121.92	77.94	30.78	19.68	3.73	2.38	156.43	100.00
Province Average	112.23	76.98	30.72	21.07	2.84	1.95	145.78	100.00

3.2.Features of Enterprise Managers
As per the average of all enterprises, in the risk averse enterprises 5.72% of operational managers are within 20-30 age group, 14.06% of them are within 31-40 age group, 26.28% of them are within 41-50 age group, and 53.94% of them are 51 years of age or older. In risk loving enterprises, 6.86% of operational managers are within 20-30 age group, 11.90% of them are within 31-40 age group, 36.17% of them are within 41-50 age group and 45.07% of them are 51 years of age or older. As per the average of all enterprises, it is observed that ratio of operational managers in age groups of 20-30 and 41-50 was higher in risk loving enterprises when compared with risk averse ones (Table 2).

Table 2. Age Groups of Enterprises Managers

Risk Groups	Age Groups %				
	20-30	**31-40**	**41-50**	**51- +**	**Total**
Risk Averse	5.72	14.06	26.28	53.94	100.00
Risk Lover	6.86	11.90	36.17	45.07	100.00
Province Average	6.52	12.54	33.25	47.69	100.00

In risk averse enterprise groups, 62.18% of operational managers were elementary school graduates, 19.44% of them were junior high school graduates, 14.49% of them were senior high school graduates, and 3.89% of them were university graduates. In risk loving enterprises group, 62.53% of operational managers were elementary school graduates, 18.29% of them were junior high school graduates, 15.61% of them were senior high school graduates, and 3.57% of them were university graduates. It is seen that in risk loving enterprises group ratio of operational managers being elementary school and university graduates was high. 62.42% of operational managers were elementary school graduates, 18.63% of them were junior high school graduates, 15.28% of them were senior high school graduates, and 3.67% of them were university graduates (Table 3).

Table 3. Education Status of Enterprises Managers

Risk Groups	Education Status of Managers %				
	Primary school	Secondary school	High school	University	Total
Risk Averse	62.18	19.44	14.49	3.89	100.00
Risk Lover	62.53	18.29	15.61	3.57	100.00
Province Average	62.42	18.63	15.28	3.67	100.00

3.3. Proportional Distribution of Evaluated Enterprises as per Risk Groups

The investigated enterprises have been classified as per the specified risk groups and they have been given in table 4. The city of Konya, being the field of study, is composed of 5 agro-ecological regions. In this study, risk behaviors of enterprises in each region have been determined. In the investigated enterprises, it was found out that 70.45% of managers were risk averse ones and that 29.55% of them were risk lovers. While the ratio of risk averse managers was high in all regions, these ratios were different from one another. Hence, risk factors per regions and levels of perception of these risk factors by the enterprises show variations.

Table 4. Enterprises Typology and Proportional Distribution According to Risk Groups

Regions	Risk Group	Number of Enterprise	Rate
1. Region	Risk Averse	44	61.11
	Risk Lover	28	38.89
	Total	**72**	100.00
2. Region	Risk Averse	53	62.35
	Risk Lover	32	37.65
	Total	**85**	100.00
3. Region	Risk Averse	59	81.94
	Risk Lover	13	18.06
	Total	**72**	100.00
4. Region	Risk Averse	61	70.11
	Risk Lover	26	29.89
	Total	**87**	100.00
5. Region	Risk Averse	62	77.50
	Risk Lover	18	22.50
	Total	**80**	100.00
Province	Risk Averse	279	70.45
	Risk Lover	117	29.55
	Total	**396**	100.00

3.4. Enterprise Success as Risk Behaviors of Operational Managers

One of the most important criterions that is used to reveal outcome of agricultural enterprises from economic activities carried out in a year and to compare them with the results of other agricultural enterprises is the net revenue. Because in the calculation of net revenue, for enterprises net income calculation is made by assuming that enterprises have no debts and that they don't keep lands that are leased or has partners. Therefore, in the comparison of enterprises with one another, this criterion bears importance. Net income is calculated by subtracting operational costs from the gross income of an enterprise (Table 5).

Throughout all enterprises, net income per enterprise has been 18,573.81 $. In risk averse enterprises, net income per enterprise has been 15,123.95 $, while in risk loving enterprises it has been 20,015.36 $.

In order to determine the income that is obtained as the corresponding value for operations, owner's equity, and family labor force in agricultural enterprises, agricultural income criterion is calculated. Agricultural income is calculated by deducting debt interest amounts and rent amounts from net income and by adding the corresponding amount of family labor force (Table 5).

Throughout all enterprises, agricultural income per enterprise has been 7148.32 $. In risk averse enterprises, agricultural income per enterprise has been 6592.66 $ and in risk loving enterprises, it has been 7380.51 $.

Throughout all enterprises, net profit per enterprise has been 7189.52 $. As per the average of enterprises, in risk averse enterprises, net profit per enterprise has been 4780.92 $ and in risk loving enterprises it has been 7380.51 $.

Table 5. Success Criteria of Enterprises by Risk Attitudes

Success Criteria ($)	Risk Groups		Province Average
	Risk Averse	Risk Lover	
Gross Income (GI)	34,819.77	41,190.69	39,313.12
Operating Costs (OC)	19,695.82	21,175.33	20,739.30
Debt Interest (DI)	768.15	1,240.63	1,101.38
Rents (R)	936.83	943.40	941.47
Family Labor Wage (FLW)	4,887.68	5,196.48	5,105.47
Active Capital Intest (ACI)	10,343.03	11,819.39	11,384.29
Net Income (NI=GI– OC)	**15,123.95**	**20,015.36**	**18,573.81**
Agricultural Income (AI=NI + FLF-DI)	**6,592.66**	**7,380.51**	**7,148.32**
Net Profit (NP=GI – (OC+ ACI)	**4,780.92**	**8,195.97**	**7,189.52**

·*At the date of study 1$ = 2.61 Turkish Liras.*

3.5. Analysis of Factors Influencing Risk Behaviors of Producers

In this section of the research, factors influencing risk behaviors of producers operating in the city of Konya have been analyzed with logistic regression model. Descriptive statistics belonging to the variables which are used in logistic regression are given in table 6.

With the help of preference scale and reference gambling, risk behaviors of producers have been determined. Accordingly, while 29% of enterprises operating in the area of research were in risk loving group, 71% of them were in risk averse group. Risk behaviors of operational managers were used as dependent variable for logistic regression.

As the factors influencing the risk behavior, agro-ecological region of the enterprise, type of enterprise, age of producer, education level of producer, existence or absence of social security, existence of absence of non-agricultural revenues, wideness of operational land, and gross production value of enterprise have been used.

Table 6. Descriptive Statistics of Factors Affecting Risk Behavior

	CODE	Data scale	Explanation	Frequency	%	Average	Standard Dev.
Dependent Variable							
Risk Behavior	Y	Discrete	Risk lover 1	117	70.53	0.29	0.46
			Risk averse 0	280	29.47		
Independent variables							
Agro-ecological region	X_1	Discrete	I. Sub-region	71	17.88		
			II. Sub-region	86	21.66		
			III. Sub-region	72	18.14		
			IV. Sub-region	87	21.91		
			V. Sub-region	81	20.40		
Enterprise typology according to FADN	X_2	Discrete	Livestock entp. 1	10	2.52		
			Field cropping entp. 2	301	75.82		
			Horticulture entp. 3	11	2.77		
			Mixed (livestock and plant) entp. 4	38	9.57		
			Permanent crop entp. 5	34	8.56		
			Mixed cropping entp. 6	3	0.76		
Age	X_3	Continuous				50.66	11.53
Education	X_4	Discrete	Illiterate 0	2	0.50	1.58	0.88
			Literate or primary school graduate 1	249	62.72		
			Secondary school graduate 2	73	18.39		
			High school graduate 3	58	14.61		
			University 4	15	3.78		
Social security	X_5	Discrete	Yes 1	367	92.44	0.92	0.26
			No 0	30	7.56		
Non-agricultural income ($/month)	X_6	Continuous				200.42	361.15
Enterprise land (decare)	X_7	Continuous				146.26	121.16
Enterprise GPV ($/da)	X_8	Continuous				204.87	247.32

The research area is composed of 5 agro-ecological regions and by considering that the producers realizing production activities in different regions can have different production designs and that they may exhibit different risk behaviors due to reasons such as closeness to the market and industrialization, this situation has been included in the model as a variable. Relating with agro-ecological regions, data belonging to nearly equal number of enterprises have been used.

There are different types of enterprises and for their managers there are different risk sources and by considering that these particulars can cause variations in the risk behaviors of producers, typology in which the enterprise is included, has been placed in the model as a variable.

Age of the enterprise has been included in the model as a social variable that can influence risk behavior. It has been determined that average age of producers in the research field was 50. Level of education, being an important variable influencing risk behavior, has also been placed in the model. Average education level of producers being included in the questionnaire has been at the elementary graduation level.

Existence of social security of producers also explained their risk behavior to a certain extent. It has been determined that 92% of producers had social security. Obtaining non-agricultural revenue is one of the risk management strategies and it is among the factors influencing risk behavior. By considering that enterprise land scale influences risk behavior, it has been added to the model as a variable. Average operational wideness of the investigated enterprises is 146 decare. It is known that the level of income obtained by enterprises from the lands they use, influenced risk behavior of producers.

For the analysis of socioeconomic factors influencing risk behaviors of agricultural enterprises in the city of Konya, logit model has been predicted with maximum likelihood method. When the results relating with the general model are reviewed, it is understood that there is a good rapport between dependent variable and independent variables since likelihood value of chi-square distribution is less than %5. This outcome rejects H0 hypothesis which asserts that there are no differences between the results of model that is solved without including independent variables and the results of model to which independent variables are included. As the indicator showing that logistic regression model has been correctly established, mainly Mc Fadden and Pseudo definiteness coefficients (R2) are used (Greene, 2003). Among these coefficients the most widely used ones are Cox and Snell R2 and NagelKerke R2. At the end of the analysis, it has been found out that power of variables used in logistic regression model for explaining the dependent variable varied between %4 and %6.

Definiteness coefficient has been found out to be significantly low. In the research in order to establish the model having highest explanation power, many number of iterations have been realized and the model, results of which are given below, has been selected as the best model (Table 7).

Table 7. Results of Logit Model

Variables		Coeff.	z statistic	Marginal effect	Wald statistic	Odds rate
Constant		-0.2266	-0.26	-0.04623	0.068	
X1		-0.2471	-2.84***	-0.05041	8.091	0.78
X2		0.0327	0.29	0.00666	0.086	1.03
X3		0.0098	0.94	0.00200	0.879	1.01
X4		-0.0182	-0.13	-0.00371	0.017	0.98
X5		-0.0368	-0.09	-0.00756	0.008	0.96
X6		0.0001	0.16	0.00000	0.024	1.00
X7		-0.0026	-2.34**	-0.00052	5.480	1.00
X8		-0.0002	-0.85	-0.00003	0.724	1.00
-2LogLikelihood		465.81				
χ^2		15.61**				
McFadden, Psuedo R^2	Cox ve Snell R^2	0.04				
	NagelKerke R^2	0.06				
Accurate prediction rate		70.53%				

*** and ** mean significant at 1% and 5% respectively*

Among the variables being included in the model, a negative relationship has been determined between agro-ecological region where the enterprise is situated, education level at the enterprise, whether entrepreneur and his family has social security or not, size of operational area, Gross Production Value of enterprise and the risk behavior of the enterprise, while a positive relationship has been found out between the type of enterprise, age of enterprise, whether there are non-agricultural revenues or not and the risk behavior. When the prediction results of the model are investigated, it is seen that variables relating with agro-ecological region where the agricultural enterprise is located and those relating with the size of operational area were statistically meaningful. Apart from these, the other 6 explanatory variables were not found to be statistically meaningful. In order not to cause interpretation mistakes, explanations have not been made relating with variables that are not found to be meaningful. One of the fundamental reasons why the explanatory power of model was determined to be low was due to the fact that many of the explanatory variables were found to be meaningless.

A meaningful relationship could not be found between social and economical factors influencing risk behavior of the producers. This situation explains that risk behaviors of producers did not originate from socioeconomic structure.

4.CONCLUSION and DISCUSSION

Cultivation practices and operational capabilities have significant impact on the success of agricultural enterprises. Hence, in agricultural enterprises manager is not a professional person and he is the leader of family being sheltered by the enterprise. Managers of enterprise do not have formal education relating with cultivation practices and operational management. However, there is a way of learning based on traditional expertise. Decisions taken for the enterprise are being taken with a traditional and intuitive approach and they are not based on knowledge. While this situation has negative impact of effective usage of resources, it is also determinant on the agricultural policies being developed at regional and national basis. Aiming for this purpose, in this study risk behaviors of operational managers and their impact of the success of enterprise have been investigated. In determining success of enterprises annual activity results have been analyzed.

Among the managers of enterprises being investigated, 70.45% of them were found out to be risk lovers and 29.55% of them were found to be risk averse ones. While a significant difference is seen between risk lovers and risk averse ones as per the regions, ratio of risk averse ones is high in all the regions. In Turkish agricultural enterprises, generally operational managers are against risk taking. 83.4% of Turkish agricultural enterprises have land assets with area of 100 da or less and 99.6% of them have land assets with area of 500 da or less. It is a predicted outcome that managers of small-scale enterprises are against risk taking.

Furthermore, population existence has been compared as per risk loving and risk averse enterprises and it is seen that in risk loving enterprises, population existence (3,42), was more than that in risk averse ones (3,20). Existence of enterprise population constitute the source of labor force and it is an important factor with respect to risk strategy. Hence, existence of labor force is considered in production planning and production activities where demand for labor force is high as per the existence of labor force are being evaluated. If enterprises not having adequate population and labor force, deal with production activities with high demand of labor force, this situation would bear risk for them.

Most important factor revealing the quality of population is the level of education and it has influence on the success of enterprise. It has been determined that 63.83% of population being present at the working area and being at educational age were elementary school graduates and this situation reveals the general feature of rural areas. This value is lower for risk loving enterprise managers (62.47%), when compared with risk averse ones (67,46). Furthermore, among risk loving enterprise managers, those who are university graduates (7.25%) are higher when compared with risk averse ones (3.25%). According to this outcome, it could be stated that education is influential on risk behavior. Hence, in order to include risks in operational planning and to realize an effective planning, the most determining factor is related with data regarding the opportunities within and outside the enterprise. Obtaining and evaluating these data necessitate a certain level of education to be had.

The success of economic activities being realized by agricultural enterprises is measured with net revenues and they determine the success of production being realized by using all the equities and foreign resources owned by the enterprise. This value has been determined as 18,573.81 $ per enterprise and it is found to be higher in risk loving enterprises (20,015.36 $) when compared with risk averse ones (15,123.95 $). Net revenue is also used for determining the economic profitability of the enterprise. Economic profitability of enterprises has been determined to be 8.16% while this ratio is higher than the interest applied by Ziraat Bank on agricultural credits as being accepted to be the opportunity cost This situation explains that enterprises are profitable with respect to their economic profitability. In the risk groups, profitability of risk loving enterprises (8.47%), is higher than profitability of risk averse enterprises (7.31%). Financial profitability of risk loving enterprises is also higher. Financial profitability explains the revenue generated from the equity capital of the enterprise. This ratio is compared with the interest applied by Ziraat Bank to agricultural credits as opportunity cost. However, average value of financial profitability of enterprises is 4.33% as being realized to be low.

It has been determined by means of net income, agricultural income, gross profit, net profit, economic and financial profitability that risk loving enterprises were more successful in economic activities. Hence, fundamental purpose of activities of an enterprise is to maximize profit and this can be achieved by effective usage of resources. Risk loving enterprises approach to production at optimum input level by using more inputs when compared with the other ones. This situation improves the success of risk loving enterprises when compared with risk averse ones. It is considered that risk behavior has positive impact on the success of enterprise and it could be stated that risk loving enterprises are more successful. This situation is also reflected on country's economy and on the regional economy as well. Thus, final applicators of national and regional decisions are operational managers and approaches of operators are determinant on the success of decisions.

In the study, factors influencing risk behavior of operational managers have been investigated. A strong relationship could not be found between operational managers and socioeconomic features they have got. Hence, risk behavior is an individual characteristic and it is not easy to be specified with environmental factors. It could be stated that the most effective factor influencing risk behavior is related with personal features of operational managers. It could be stated that by affecting these features with educational and other directing tools, risk behaviors could be changed.

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