Distress among small farmers of Punjab: Impact of market and labour factors

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Abstract- Punjab is a land of villages and agriculture is the main occupation of the population of Punjab. After having a high growth up to 1990s, agriculture in Punjab slowed down thereafter. The small/marginal farmers had to go for capital-intensive farming as they had a little alternative beyond it. A review of the literature notes that farmers are experiencing high level of stress due to the impact of various uncontrollable factors in the work environment.With different APMC acts in different states, there is lack of clarity on the prices set by these agencies, so there is exploitation of farmers by middlemen and crops are not fetching the right price. Farmers are also not getting proper labour , there are several problems related to labour as wellA small study is conducted on 385 farmers; data were analyzed by factor analysis and multivariate regression test under convenient sampling technique. The results showed that there is a significant impact of the market and labour factors on the distress among small farmers.

I.   INTRODUCTION

Indian agriculture has started dating back in ten thousand years. The agriculture was and is a way of living of many people. This sector in India, as also in many other developing countries, is still in the developing shape. This sector poses a variety of challenges. Punjab is a land of villages and agriculture is the main occupation of the population of Punjab. This is the reason for selecting the topic of farming sector by the researcher. Agriculture in Punjab had high growth for a long time up to early 1990s. It slowed down after that because the potential resources and technology is getting exploited which leads to increasing costs, declining profitability, productivity and incomes (Kalkat et.al. 2006; Singh, 2009). The Punjab peasantry especially the small farmers had to go to the capital-intensive farming.

Distress among farmers in Punjab

Distress, an essential part of the human existence, is said to have a massive influence over the lives of individuals and the organizations. In the present period, the nature and strength of distress is so violent that the present age has been named as 'Age of Anxiety, Distress and Depression' (Pestonjee, 1992; Horwitz, 2010).Distress is a situation in which person is not able to utterly become accustomed to stressors and their resulting stress and shows maladaptive behaviours e.g. aggression, passivity or withdrawal etc.People do find ways to compact with distress, in both negative and positive ways

Distress Symptoms: Distress can have an effect on the different aspects of the life. It includes emotions, thinking ability, behaviors, and physical health. No part of the body is invulnerable from the distress. But as people handle distress in altered ways, symptoms of distress can also diverge person to person. Signs of distress can be cognitive, emotional, physical, or behavioral.The large farmers do not face many problems as they have enough sources (land and money) to earn their living, but the small farmers aresuffering.

Most of them are under debt and are not able to manage the modern technology, costly seeds and pesticides. Many farmers in Punjab opt for land leases because the size of landholding has been shrinking all these years. With the monsoon playing truant for two years in a row and prices of farm produce fluctuating wildly, the financial position of such farmers is going to worsen in the coming months. According to official data, 65 per cent of farmers in Punjab own 1-4 hectares (1 hectare = 2.471 acre) of land. Only seven per cent own 10 or more hectares of land. Taking land on lease is increasingly becoming a necessity. Incidentally, the percentage of rural households in Punjab without land at nearly 65 per cent is one of the highest in the country, according to the socio-economic and caste census (business-standard, 2015).

Most of the farmers own less than 5 acres of land. Given the yield and average price of output in the last few years, they hope to make more by adding land to what they own. It is not viable to cultivate leased land. It cannot be hoped that even if farmers manage to save Rs 2,000 an acre, it is extra income; the most a farmer can make by cultivating an acre of land is Rs 50,000 in a year. Higher prices of a particular crop make them believe they can earn more. Experts say there is another reason for farmers leasing land. Most farmers in Punjab are heavily in debt. Having exhausted all limits from the formal banking channel, they turn to local money lenders. They have to show they are cultivating more land and are in a position to pay the lender back. Most of what farmers borrow from banks is spent on household expenses. They need working capital. After a while it becomes a vicious cycle. It becomes difficult for the farmers to get rid of it.

Socio economic factor

Agriculture plays an important role in the socio-economic development of India. Agriculture is the biggest economic sector in India. Most of the working in agricultural sector is small and marginal scale farmers. They depend on informal resources for loan where they have to bear the high rate of interest burden. Farmers depend on the agricultural income for managing their family expanses, education of the children and also the marriage of the children and also the marriage of their children. The agriculture in India is in crisis. Farmers of various states in India are under distress due to indebtedness, failure of crops repeatedly, exploitation by money lenders, poor quality of seeds, impact of globalization and various other factors are causing distress among farmers. The suicidal tendency among the farming community owes its origin from Telangana region of Andhra Pradesh and also the Vidharbha region of Maharashtra since the end of 1990. This disturbing phenomenon has been observed since 1997 in four Indian states: Punjab, Maharashtra, Karnataka and Andhra Pradesh after India undertook liberalization of its economy and opened its markets to direct foreign investment (Hodge, J. M. 2007).

II.   LITERATURE REVIEW

BoniphaceNobeji S. et. al.(2014) found that level of sales and market participation of small holder rice farmers are constrained by a number of factors. These constraints are socio-economic, technological and institutional factors, these may also include less education which may lead to improper access to extension services, less use of the improved seed and also application fertilizer, poor infrastructure (rural roads, irrigation schemes and market). A sample of 842 households from high rice producing regions (Mbeya, Morogoro, Shinyanga, Mwanza and Tabora) was extracted from the dataset. Quantitative as well as quantitative analyses were performed; quantitative analysis involved estimation of Weighted Least Squares (WLS) and the Tobit regression models were also used to analyze factors affecting volume of sales and determinants of market participation respectively.

Jalalzadeh, Mohammad at. el. (2014) investigated the Marketing Channels of Agricultural Crops in West Azerbaijan Province, Iran; the authors saw the major problems of agricultural economy. The existence of many brokers and intermediaries in the transfer of goods from the producer to the consumer Data was analyzed using descriptive and inferential statistics such as: percentage, frequency, t-test, Mann-Whitney (u-test), Eta test and One-way ANOVA. . Eight main marketing channels were recognized. The author found the most appropriate channel as well as the least appropriate channel for the farmers to sell their crops.

Jyothi, K.C. (2014) found the various problems in the marketing of agricultural produce and also given various solutions to have sustainable development with the proper and good agricultural marketing. A good marketing system is that where there are fair price for agricultural produce. This can happen only if the number of intermediaries between the farmer and the consumer would be small; the farmers would have proper storing facilities so that farmers are not compelled to indulge in distress sales, proper transport facilities, the malpractices of middlemen are to be regulated, regular market information would be provided to the farmers etc.

Matsane, S.H, and Oyekale, A.S (2014) identified and analysed factors affecting (constraints) marketing of vegetables among small-scale farmers. Data were collected with structured questionnaire and analyzed using descriptive and regression analysis. Results showed that prominent constraints of marketing vegetables among the small-scale farmers were: lack of access to credit, lack of access to storage facilities, lack of market information, lack of finance for farming, poorly developed village markets, poor producer prices, high perish ability of produce, low patronage, inadequate access roads, small size of transport and high transportation costs.

Prakash M. (2014) found that there are a number of criterions, which affect the sales of the products. The sample size in the study was 150 respondents and the data were analyzed by percentage and chi square test. Convenient sampling technique was used to collect the data. It has been found out that there are number of factors which affect the farmers as cost of transporting, inference of the middleman, storage, insurance etc.

III.   IMPORTANCE OF THE STUDY

Most of the studies related to one factor i.e. indebtedness. These studies have ignored the other causes such as social, labour, marketing etc. these are also some of the important factors which create distress among the small farmers. This study would consider some other important factors which create agricultural distress among the small scale farmers. There are various other reasons which are creating distress among the small scale farmers. The factors causing distress may vary from area to area. The importance of other factors of distress is increased in the dynamic environment. Globalization and materialistic behavior of society bring a lot of changes in condition of the farmer community. Thus other factors along with the economic factors require to be studied for identifying the solid reasons behind the distress among farmers of Punjab.

Objectives of the study
1) To study the impact of market factor on distress among the farmers.
2) To study the impact of labour factor on distress among the farmers.

IV.   METHODOLOGY

In this study the main purpose is to study the impact of the market and labour factors on the distress among small farmers of Punjab. The hypotheses have been formulated and tested using SPSS software and the results have been arrived at. The total analysis was carried out by using PSAW Statistics 18 (SPSS) software package. Various other statistical tools and tests used for analysis included Cronbach's Alpha, reliability analysis, Kaiser-Meyer-Olkin measure of sampling adequacy, descriptive statistics, means, averages, tabulation of data, factor analysis, total variance analysis, principal component analysis using EIGEN values, rotated component matrix, correlation analysis, regression analysis, crosstab etc.The study is inclusively based on primary source of data. Convenient sampling has been used as the time period was short.Thefarmers were from the Ludhiana district. The data is collected from the 385 respondents from the different villages.The primary data has been collected on the basis of field survey by administering a well-designed schedule. The schedule contained questions and statements pertaining to the sub matter of the study. The questions and statements have been derived from literature review, Experts opinion and self-understanding of sub matter.To achieve objectiveshypothesis have been framed:

(a) H_{01}: There is no significant impact of market factor on distress among small farmers.
(b) H_{02}: There is no significant impact of labour factor on distress among small famers.

V.   RESULTS AND DISCUSSION

Reliability Measures: The standardized Cronbach's alpha has been calculated for each measure. Cronbach's alpha measures the internal consistency of a scale. It represents the degree to which instrument items are homogeneous and reflect the same underlying constructs (Stevens, 1995). Bohrnstedt and Knoke (1994) suggest that researchers should strive for alphas of 0.70 or higher. As the data below shows that all the scales are reliable and coherent. The data collected from all 385 valid or completely filled in schedules have been analyzed through PASW Statistics (SPSS) and results of data analysis are presented below.

Cronbach's Alpha
Reliability Testing: Cronbach's Alpha is designed as a measure of internal consistency of items in the schedule. It varies between zero and one. The closer alpha is to one, the greater the internal consistency of the items in the schedule. Total number of questions or items in the schedule is on LIKERT scale are 22 in two factors and 13 items related to demographic variables. Hence "N" of items in the below Cronbach's Alpha test is 22 (14, 8).it can be seen in Table no.-1 below

Table 1

Reliability Statistics for market factor and labour	
Cronbach's Alpha	N of Items
.704	14
.607	8

Inference: Cronbach's alpha test was performed to check the reliability of questions or items. The above tables display the reliability of the items in the schedule. The Cronbach's alpha test was performed and it resulted in scores of .704 and .607 indicating internal consistency of the items.

Factor analysis: It was used to reduce more number of variables resulting in data complexity to a few manageable factors. Factor analysis is a statistical approach that is used to analyze interrelationships among more number of variables and to explain these variables in terms

of a few dimensions (factors). The statistical approach involves finding a way of condensing the information contained in a number of original variables into a small set of dimensions (factors) mostly one or two with a minimum loss of information. Factor analysis identifies the smallest number of common factors that best explain or account for most of the correlation among the indicators.

Factor analysis is a collection of methods used to examine how underlying constructs influence the responses on a number of measured variables. Factor analysis was done by using exploratory methods. A factor is an underlying dimension that account for several observed variables. Factor Analysis is a data reduction technique and helps in structure detection among the variables as well as in studying the underlying crucial factors that cause the maximum variation.

KMO (Kaiser-Meyer-Olkin) and Bartlett's test

KMO (Kaiser-Meyer-Olkin) and Bartlett's test: This test is used to measure the sampling adequacy and it also decides the need to conduct factor analysis. After a positive KMO Bartlett's test, factor analysis was performed. The KMO measures the sampling adequacy which should be close than 0.5 for a satisfactory factor analysis to be proceed. Kaiser (1974) recommend 0.5(value of KMO) as minimum, values between 0.7-0.8 acceptable, and values above 0.9 are superb. Looking at the table no.2 below, the KMO value is .715 which is more than 0.5 and therefore it is accepted.

Table 2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.715
Bartlett's Test of Sphericity	Approx. Chi-Square	792.209
	df	45
	Sig.	.000

Similarly for labour factor, the KMO value is .568 and therefore it is accepted. (See table no.3)

Table.3.KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.568
Bartlett's Test of Sphericity	Approx. Chi-Square	445.053
	df	78
	Sig.	.000

Extraction Method-Principal Component Analysis: To find the total variance, principal component extraction method was used. Since the initial number of factors and the number of variables used were found to be equal, not all 18 factors were retained. For the labour problems factor, first three factors are retained since their Eigen value found was greater than one. For the market factor also, three factors were retained.

Initial Eigen values: An Eigen value represents the variances of all the factors. In the table no.4 below, total column provides the Eigen values. The first factor will always account for the maximum variance and the next factor will account for lesser variance compared to the first factor as observed and others so on. Hence each successive factor will account for lesser and lesser variance

Table 4. Total Variance Explained

	Component	Initial Eigenvalues[a]			Extraction Sums of Squared Loadings		
		Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Raw	1	2.786	29.783	29.783	2.786	29.783	29.783
	2	1.485	15.869	45.652	1.485	15.869	45.652
	3	1.196	12.787	58.439	1.196	12.787	58.439
	4	.893	9.545	67.984			
	5	.715	7.643	75.627			
	6	.624	6.667	82.294			
	7	.540	5.775	88.069			
	8	.466	4.986	93.055			
	9	.355	3.792	96.847			
	10	.295	3.153	100.000			

Here we are only concerned with the Extracted sums of Squared Loadings. It is the percent of variance attributable to each factor after extraction. This value is of significance to us and therefore we determine in this step that there are three factors which contribute towards why there are labour problems for farmers. The cumulative variance of the factor shows the total percent when added to the previous factor after attraction.

Table 5. Total Variance Explained

	Component	Initial Eigenvalues[a]			Extraction Sums of Squared Loadings		
		Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Raw	1	4.607	26.305	26.305	4.607	26.305	26.305
	2	2.828	16.147	42.452	2.828	16.147	42.452
	3	1.922	10.976	53.428	1.922	10.976	53.428
	4	1.562	8.919	62.347	1.562	8.919	62.347
	5	1.249	7.132	69.479	1.249	7.132	69.479
	6	.985	5.625	75.104			
	7	.816	4.659	79.762			
	8	.677	3.865	83.627			
	9	.609	3.478	87.105			
	10	.518	2.960	90.066			
	11	.406	2.316	92.381			
	12	.394	2.252	94.634			
	13	.371	2.119	96.752			
	14	.303	1.730	98.482			
	15	.266	1.518	100.000			

The above Table no.5 determines that there are five factors which contribute towards why there are market problems for farmers..

Rotation of factors helps in the better interpretation of factors. With a factor loading value of 1.030 which is observed to be the highest, the first factor represents cleanliness facilities in market campus. Since the second factor is observed to be heavily loaded with (1.263), the factor two represents bank and restaurant in the market. Subsequently other factors could be interpreted based on their respective Eigen values.

With the help of factor analysis, 8 factors have been retained out of 18 variables. After retaining these factors multivariate regression has been applied in order to check the impact of these markets and labour factors on distress among farmers. These factors are cleanliness and facilities in market campus, bank and restaurant in the market campus, security in the market, godowns, platforms and lights, campus location, performance of labour, efficiency of labour and availability of labour.

The Following table consist multivariate regression analysis results

Table 6. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.822[a]	.675	.668	2.74940	1.826

The above regression table summarizes the model performance with relevant analysis and overall fit statistics. R (.822)represents the multiple correlation coefficients with a range lies between -1 and +1. As the R value is 0.822 it means relationship between economic factors and distress among small farmers has a close relationship with availability of labour, efficiency of labour, performance of labour, cleanliness and facilities in market campus, security in the market, campus location, godowns, platforms and lights, bank and restaurant in the market campus.

R square represents the coefficient of determination and ranges between 0 and 1. Since the R square value is 0.675, 67.5 % of the variation in relation between market and labour factors and distress among small farmers is explained. The Durbin Watson d= 1.843, which is between the critical values of 1.5<d<2.5. Therefore, we can assume that there is no first order linear auto-correlation in our multiple linear regression data.

VI.   CONCLUSION

The study found that there is an impact of the market and labour factors on the distress among farmers.As the R value is 0.822 it means relationship between market and economic factors and distress among small farmers has a close relationship with availability of labour, efficiency of labour, performance of labour, cleanliness and facilities in market campus, security in the market, campus location, godowns, platforms and lights, bank and restaurant in the market campus. The above results show that there is a significant impact of the economic factors on the distress among small farmers. Market and labour problems are also there which the farmers face and these problems have an influence on the distress among the farmers. There is a great need to look upon these problems in order to reduce distress among the farmers.

VII.   REFERENCES

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