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Poverty Amongst Agricultural Labour, Marginal and Small Farmers in Central Punjab

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Abstract

The present study was undertaken to examine the extent of poverty its determinants amongst agricultural labour, marginal and small farmers in central Punjab. The data were collected from 120 households selected from Amritsar and Ludhiana districts. The study revealed that incidence of poverty was more in agricultural labour category i.e. 56 per cent of the total sampled agricultural labourers followed by marginal farm category i.e. 9.30 per cent of sampled marginal farmers. None of the small farmer was found to be living below the poverty line. The proportion of households that were deficit was more in agricultural labour category i.e. 60 per cent of sampled agricultural labour due to their low incomes. In small farm category the proportion of deficit households was more as compared to marginal farm category on account of higher expenditure on non-food items and social ceremonies. The study suggested that there is a need to create more employment opportunities as well as awareness programs to control the family size and to rationalize household expenditure especially on non-food items and social ceremonies which can enhance the surpluses of farming families.

Keywords: Poverty, determinants of poverty, economic surplus, agricultural labourers, marginal and small farmers

JEL classification: Q1, Q12

Introduction

Rural development and poverty alleviation have been on the national policy agenda for more than 50 years. The importance of provision of basic needs and reduction in poverty has been emphasized in all the five year plans, particularly since the fifth five year plan. Despite various efforts made over the last few decades, the problem of poverty, especially rural poverty still persists on a large scale and has drawn the attention of planners and policy makers in India (Sharma 2009). The poverty ratio is high in rural areas due to the dependence of rural population on agriculture. The agrarian structure of India has transformed into small size of holdings and has witnessed an increase in marginalization of holdings for the past several decades. Farming in India has become non-viable for marginal and small farmers. Their landholding is not sufficient to earn an adequate amount of income to maintain their standards of living (Zainab and Srikanthamurthy, 2019).

In Punjab, the per cent of population living below the poverty line was 8.26 according to the report of Expert Group in 2011-12. But the rural poverty ratio (7.66) was less than the urban poverty ratio (9.24) in the state. According to a study by World Bank Group (2012), the incidence of poverty was found to be higher in the central parts of Punjab than the rest of the state. The agricultural sector in Punjab has been passing through a phase of stagnant productivity due to nearly full utilization of available resources and technologies leading to increasing costs, shrinking resource base, declining productivity and incomes (Kalkat *et al.*, 2006). In 2010-11, marginal holdings increased to 1.64 lakh and small holdings to 1.95 lakh (Anonymous, 2018). These marginal and small farmers have little alternatives to go for intensive cultivation. Non-farm activities have not helped the small and marginal farmers much by

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providing little employment, also the agriculture sector has reached to the upper limit of labour absorption capacity and it is impossible to keep the rural workers engaged in agriculture throughout the year. This sector is unable to absorb the growing rural labour force due to their skill & resource constraints and falling output elasticities of employment within the sector (Singh, 2003).

Thus, this study has been devised to examine the incidence of poverty amongst the sampled agricultural labour, marginal and small farmers and to identify the determinants of poverty among these categories and suggest remedial measures.

Data Sources and Methodology

The present study has been undertaken in the central zone of Punjab state during the year 2018-19. Multi-stage random sampling technique was used to select two districts Amritsar and Ludhiana. Then two blocks from each selected district were selected. From each selected block one village was taken and hence four villages were selected to carry out the study. At the final stage, thirty households were selected from each village using probability proportional to size method from each category under study.

The sample households were categorised into agricultural labour, marginal and small farm size categories with respect to standard unit i.e. agricultural labour category with no operational holding and deriving 50 per cent the his income from agricultural wages, marginal category with operational holding up to 1 hectare and small category with operational holding between 1 to 2 hectares. The primary data on socio-economic parameters like age, education level, size of holding, family size and structure, nature of assets owned, household expenditure pattern on food items, non-food items etc., structure of house owned, income from different sources, surplus between income and consumption expenditure were also collected from the sampled households.

Analytical tools

Poverty line

According to expert group planning commission's report, poverty line was defined at Rs. 672.8 per capita per month for rural Punjab during 2009-10. The poverty line was inflated for the year 2018-19 by using general consumer price index for agricultural labour at 2009-10 base. Based on this index the poverty line for rural Punjab was estimated at Rs. 1374 per capita per month, which comes to be Rs. 16448 per capita per annum. The extent of rural poverty have been worked out by estimating the proportion of farm families living below poverty line i.e. getting less than Rs.16448 per capita per annum.

FGT index of poverty

Foster-Greer-Thorbecke (FGT) index was employed to measure the extent of poverty. By using FGT index of poverty, three different poverty indices were calculated i.e. Head count ratio, Poverty gap index and Squared poverty gap.

Head count ratio

H = q/n = proportion of total population below the poverty line

Poverty gap index

$$PGI = 1/n\Sigma(z-y_j/z)$$

Where j ranges from 0 to q, n is the total sampled population and q is the poor population who are living below the poverty line, $y_j$is the income of the poor households j and z is the poverty line.

Squared poverty gap

$$P_2 = 1/n \Sigma [(z-y_j)/z]^2$$

Determinants of poverty – Regression analysis was used to determine the factors affecting poverty. Best fit function was determined on the basis of level of significance of the explanatory variables, the value of coefficient of multiple determinants (R^2) and the logical signs of the explanatory variables included in the model.

Regression model for poverty based on income

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7$$

Where, Y = Gross income (Rs)

α = Constant term

X_1 = Number of earners

X_2 = Consumption expenditure (Rs/ annum)

X_3 = Education level

X_4 = Family size

X_5= Expenditure on social ceremonies

X_6= Proportion of livestock income

X_7= Proportion of non-farm income

Table 1. Extent of poverty in sampled households in central Punjab, 2018-19.

Category	Total no. of sampled families (Number)	No. of families below poverty line (Number)	Head count ratio (%)	Poverty gap index (%)	Squared poverty gap (%)
Agril. labourers	25	14 (56.00)	0.56	0.036	0.0048
Marginal Farmers	43	4 (9.30)	0.09	0.002	0.0001
Small Farmers	52	-	-	-	-

Figures within the parentheses are percentages of the total

Results and Discussion

Socio-economic parameters of sampled households.

Socio economic profile of the respondents clearly brought out that average family size i.e. 5.88 members and dependency ratio i.e. 3.08 was found to be higher in case of agricultural labour category as compared to marginal and small farmers. Illiteracy rate was high among agricultural labourers (92%). The average operational area of marginal and small farmers worked out at 0.75 and 1.68 acres, respectively. None of the agricultural labourers were found having any operational land. In case of dwelling house type, majority of the marginal farmers (97.67%) and all of the small farmers were living in pucca houses, while majority of the agricultural labourers (80%) were living in the semi-pucca houses. Majority of the agricultural labourers (72%) and marginal farmers (60.47%) were using hand pump as the main source of water supply while most of the small farmers (48.08%) were using tube well as a main source of water. All the marginal and small farmers were using LPG as a fuel, while 40 per cent of agricultural labourers were found using LPG. All the sampled households were having the electricity connectivity at their residence. In case of possession of household assets, it was found that the agricultural labourers were having lesser number of assets as compared to marginal and small farmers. The results with respect to annual income of sampled households from different sources showed that, the average annual gross income earned by the sampled households from all the sources came out to be Rs.111450 per household in agricultural labour category, Rs.331086 per household in case of marginal farmers and Rs.495620 per household in small farm category. The major source of income in agricultural labour category was wage earnings (91.34%), while on marginal and small farms was crop income accounting for 34.83 per cent and 51.05 per cent of the total income. The share of non-farm income was found to be high in marginal farmers (32.49%) as compared to small farmers (18.47%) and agricultural labourers (6.74%). The average annual domestic household expenditure on small farms (Rs.275765) was higher than that of marginal farmers (Rs.184452) and agricultural labourers (Rs.87754).

Extent of poverty in sampled households.

Some standard of minimum income is needed to define the poverty level below which a family is said to be poor. Such a standard specifies an amount of rupees needed to meet the minimum cost of living. The extent of rural poverty has been worked out by estimating the proportion of sample families living below the poverty line i.e. getting less than Rs. 16448 per capita per annum, through headcount ratio. Table 2 depicts that out of the total sampled agricultural labourers, 56 per cent of sampled households were below poverty line i.e. Rs 16448 per capita per annum. In marginal farmers, 9.30 per cent of farmers were below poverty line. In case of small farmers, none of the sampled farmers were living below the poverty line. The study clearly showed that the agricultural labourers were at the lowest strata of income as compared to marginal and small farmers.

Poverty gap index and squared poverty gap measures have been used to find the depth of the poverty as headcount ratio gave information about the proportion living below poverty line. The poverty gap

Table 2. Surplus/deficit household in central Punjab, 2018-19. **(Number)**

Category	Surplus	Deficit	Total
Agril. labourers	10	15	25
	(40.00)	(60.00)	(100.00)
Marginal farmers	25	18	43
	(58.14)	(41.86)	(100.00)
Small farmers	27	25	52
	(51.92)	(48.08)	(100.00)
Overall	**73**	**47**	**120**
	(60.83)	**(39.17)**	**(100.00)**

Figures within the parentheses are percentages of the total

index worked out to be more in agricultural labourers i.e. 0.036 per cent as compared to marginal farmers i.e. 0.002 per cent. These figures have been showing that the gaps between the income at poverty line and the incomes of individuals living below poverty line was more in agricultural labourers as compared to marginal farmers. The values followed the same trend in case of squared poverty gap i.e. more in agricultural labourers (0.0048%) as compared to marginal farmers (0.0001%) showed that the severity of poverty was more among agricultural labourers. The situation of agricultural labourers and marginal farmers was found to be more precarious.

Surplus/deficit households

Surplus/deficit or the gap between income and consumption is used as an indicator that reflects the financial viability of a household. This becomes an important indicator of poverty, whether household is in a position to provide for basic amenities in terms of expenditure with the income generated. Therefore, an analysis has been carried out to find surplus or deficit between income and consumption among the sampled household categories.

The results showed that out of total agricultural labourers, 10 (40%) were surplus households while the number of surplus households in case of marginal and small farmers was 25 (58.14%) and 27 (51.92%) respectively (Table 2). As the results have indicated that agricultural labourers were more deficit due to their low income levels. The proportion of surplus households was lower in small farmers, despite the fact that income of these farmers was more as compared to marginal farmers but their expenditure on non-food items such as vehicles, clothing, maintenance of household items and social ceremonies was found to be proportionately quite high.

Determinants of poverty amongst sampled household categories

Multiple regression was carried out to find the determinants of poverty amongst the sampled households. Socio economic factors namely number of earners, consumption expenditure, education level, family size, expenditure on social ceremonies, proportion of livestock income and proportion of non-farm income were included in the model for multiple regression analysis. The results of regression analysis on agricultural labour, marginal farmers and small farmers have been presented in the Table 3.

The value of coefficient of determination R^2 in agricultural labour has come out as 0.8418, it showed that 84.18 per cent of the variation in gross income is being explained by the explanatory variables included in the model. The results indicated that the factors namely number of earners, consumption expenditure and family size were found to be statistically significant. The value of regression coefficients corresponding to number of earners indicated that with one unit increase in the value of this factor, gross income would increase by Rs. 26166.47 per household. The negative sign of regression coefficient with regard to consumption expenditure and family size showed that one unit increase in consumption expenditure and family size would decrease the gross income by Rs.0.32 and Rs.3187.56 per household, respectively in the respondent category.

On marginal farms, three factors namely consumption expenditure, expenditure on social

Table 3. Category-wise regression coefficients for determinants of poverty in central Punjab, 2018-19.

Factors	Regression coefficient			
	Agricultural labour	Marginal farmers	Small farmers	Overall
Intercept	35334.58**	27470.92	69120.12***	594560.52
Number of earners	26166.47***	57114.05	74363.42***	19681.70**
Consumption expenditure	-0.32**	-2.29***	-1.11***	-2.31***
Education level	6452.43	7244.61	10512.02**	8454.31
Family size	-3187.56**	-22249.53	-34331.97	-20515.09**
Expenditure on social ceremonies	0.06	-1.97***	-1.02**	-2.12***
Proportion of livestock income	360.14	103.46	3778.43*	434.78
Proportion of non-farm income	23.25	1504.06**	4108.81**	341.11
R^2	0.8418	0.5397	0.6183	0.7106

****, **, * Significant at 1% level, 5% level, 10% level*

ceremonies and proportion of non-farm income were found to be significantly contributing towards the variations in gross income. The value of regression coefficient corresponding to proportion of non-farm income indicated that one unit increase in this factor would increase the income by Rs. 1504.06. The negative sign of regression coefficient with regard to consumption expenditure and expenditure on social ceremonies revealed that with one unit increase in consumption expenditure and expenditure on social ceremonies would decrease the gross income of these households by Rs.2.29 and Rs.1.97 per household, respectively. The value of coefficient of determination indicated that 53.97 per cent of total variation in gross income was explained by the factors included in this model.

Similarly, on small farms six factors namely number of earners, consumption expenditure, education level, expenditure on social ceremonies, proportion of livestock income and proportion of non-farm income were significantly affecting the gross income. The value of regression coefficient with respect to number of earners, education level, proportion of livestock income and proportion of non-farm income showed that with one unit increase in these factors, the gross income would increase by Rs. 74363.43, Rs. 10512.02, Rs. 3778.43 and Rs. 4108.81 per household, respectively. The magnitude of consumption expenditure and expenditure on social ceremonies has shown negative correlation with the gross income. The results showed that with one unit increase in consumption expenditure and expenditure on social ceremonies, the gross income would decrease by Rs. 1.11 and Rs. 1.02 per household, respectively. The value of R^2 indicated that 61.83 per cent of the total variation in the gross income was explained by the explanatory variables included in the equation.

Similar analysis was also undertaken for the total sampled households to find out the determinants of poverty among all the households under study. Overall, four factors out of the seven namely number of earners, consumption expenditure, family size and expenditure on social ceremonies were found to be statistically significant. The value of regression coefficient with respect to number of earners has shown that with one unit increase in this factor, the gross income by Rs 19681 per household. Consumption expenditure, family size and expenditure on social ceremonies have shown negative correlation with the gross income. The results showed that one unit increase in these factors would decrease the gross income by Rs. 2.31, Rs. 20515.09 and Rs. 2.12 per household, respectively. The value of coefficient of determination clearly indicated that 71.06 of the total variation in gross income was being explained by the explanatory variables included in the model.

Conclusion and Policy Implications

The study has examined the extent of poverty along with the determinants affecting poverty among the sampled household categories. It was found that the agricultural labour category was at lowest strata of

income as compared to marginal and small farmers. As a result, incidence of poverty was more in this category followed by marginal farmers while the small farmers were out of the grab of poverty. Sampled deficit agricultural labour households were more than the sampled households having surpluses while in farm categories the proportion of surplus households was higher. Despite having high incomes in small farm category the proportionate surplus households was less as compared to marginal farmers due to their higher expenditure on non-food items and social ceremonies. The study has revealed that the judicious expenditure on consumption items and social ceremonies can help in increasing the incomes and surpluses of households significantly. The study also suggested that there is a need to create more employment opportunities as well as awareness programs to control the family size which enhances the surpluses of households.

References

Anonymous 2018. Statistics of Punjab agriculture, Punjab Agricultural University, Ludhiana.

Kalkat G S, Pannu K S, Singh K and Rangi P S 2006. Agricultural and rural development of Punjab: Transforming from crisis to growth. The Punjab State Commission, Govt. of Punjab, Mohali. Retrieved from https://econpapers.repec.org on 15th January, 2018.

Sharma N 2009. Nature and extent of household savings and indebtedness among weaker sections in rural areas of Haryana: A study of Yamunanagar district. *Political Economy Journal of India* **18**: 59-64.

Singh S 2003. Economic analysis of farm and non-farm employment in rural Punjab, Master's Thesis, Punjab Agricultural University, Ludhiana, Punjab.

Zainab A and Srikanthamurthy P S 2019. Sources of income and pattern of expenditure of farm households in Karnataka. *Indian Journal of Economics and Development* **15**: 38-47.

World Bank Group 2012. Punjab-poverty, growth and inequality. Retrieved from http://documents.worldbank.org.on 16th April, 2018.

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