

# ACHIEVING SUSTAINABLE GOALS THROUGH REORIENTING INCOME AND CONSUMPTION IN BORDER AREAS: A CASE STUDY FROM RURAL PUNJAB, INDIA

Skattar Singh\* & Kuldeep Kaur\*\*

## Abstract

The study reveals about the level and pattern of gross income, determinants of per capita income, consumption expenditure, analysis of consumption expenditure of sampled rural labour and marginal farmer households in border area of Punjab. The average annual gross income of sampled rural labour households and marginal farmer households have been found to be Rs. 84438.42 per household and Rs. 234047.02 per household respectively. The study also evaluate the average annual consumption expenditure of sampled rural labour and marginal farmer households have been found to be Rs. 121327.90 per household and Rs. 144177.11 per household respectively. The major determinants of gross income for sampled rural labour households have also been found to be Size of Family (SZFM), Adult Males as a Percentage of the Family Size (ADMP), Earning Members as a Percentage of the Family Size (ERNP) and for sampled marginal farmer households have been found to be Size of Family (SZFM). The study also suggested that there are need to reduce income and consumption inequalities, welfare and employment programs for social well-being of the rural community, particularly on the border area of Tarn Taran district. Government should encouraged the new employment opportunities to fulfil the targets of Sustainable Development Goals such as SDG1, SDG2, SDG3, SDG4, SDG5, SG8, SDG10, SDG12.

**Keywords: Income, Per Capita Income, Consumption, Farmers, Rural Labour**

\* **Skattar Singh**, Research Scholar, Guru Nanak Dev University, Amritsar. India.

\*\***Kuldeep Kaur**, Professor, Dr. B.R Ambedhkar Chair, Guru Nanak Dev University, Amritsar, India

## Introduction

India is a vast country with more than 24.49 crore households, where 10.35 crore have found to be under deprived (SECC, 2015) with inadequate housing facilities. India has been sharing International border with several states such as Bangladesh, Myamar, China, Pakistan, Nepal, Bhutan. Bhangladesh and Pakistan share both land as well as maritime borders, while Shri Lanka share only maritime border through Adam's bridge. India and Bangladesh share International boundaries of 4096.7 kilometres. India also shared International boundary with Pakistan of 554 k.m. The states of India have also been sharing International boundary with Pakistan such as Punjab, Rajasthan, Gujrat and Union Territory Jammu and Kashmir. The problems of rural development and agrarian crisis house have long been faced by the population of border area, which is mostly regarded as rural economy with both men and women being labour force. In rural areas, where 80 per cent of its population live in over half

a million villages of various sizes, the housing stock is extremely inadequate. Although no exact estimates of the age of the existing housing stock are available, the fact that the majority of these are too old and unfit for human habitation remains undisputed

### **Review of Literature: Need for Comprehensive Assessment**

In Punjab, due to mechanization, the reducing employment opportunities have been led to rise of non-farm employment opportunities (Gill and Ghuman, 2001). The another study also revealed about the share of agriculture labour has reduced due to mechanization. The study also revealed that the association of dominant farmers fixed the wage rate for Paddy cultivation with their own decision which was always non-acceptable for poor rural labour. The study also revealed that marginal and small farmers also joined the army of agriculture or industrial labour to meet their daily needs, because insufficient land, high cost of agriculture operations, expensive technology forced them (Sukhpal, 2009). The house ownership of rural India has found to be 94.91 per cent among all rural and urban India households and 17.69 per cent among scheduled caste population, 48.56 per cent rural households with one or more deprivation criteria (SECC, 2011). The another study revealed in the same context that the average annual income of sampled farmers was Rs. 63372.87. The study also analysed the pattern of their income. The maximum proportion of their income was from farm income, followed by milk and milk products, salaries and their respective share is 18.96, 5.88 and 3.69 per cent respectively. The study also analysed per capita income of farmers on the basis of categories. The per capita income of marginal and small farmers is Rs. 8772.67 and Rs. 14981.96 respectively (Kaur, 2014). Another study about indebtedness of agricultural labour in Punjab by dividing it in three parts based on their agro-climatic conditions. The inequalities are sharper in case of the casual labour households than contractual ones. Other main finding of the study is that per household income is highest in the Central Plains (84736.33), followed by South-West region (Rs. 80219.39) and lowest in Shivalik Foothills regions, (75184.31) (Anupama et. el. 2017). The family size of rural labour and marginal farmer households have been found to be 4.75 and 4.87 of marginal farmers and rural labour households respectively. Their income is unable to meet their basic needs (Rupinder et.al., 2018). The digitalization of economy and technology driven investment has been creating income and social inequality, which led to deterioration of the living conditions of informal casual workers, still are facing problems in earning subsistence income and are living with dilapidated house conditions. The decent house conditions such as proper area and conditions of house, sanitation, electricity and size of family always create potential among workers the prosperous future of India 2047 will not be achieved without the strong base of rural economy of India. In the light of the above, the study will focus on the literacy level, family size, size of the households, number of rooms earning status and conditions of the houses etc. of sampled rural labour and marginal farmer households from the Fazilka district with respect of following objectives.

### **Objectives of the Study**

The major objectives of the study:

- (i) To evaluate level, pattern and determinants of income sampled rural labour and marginal farmer households in the border area of Tarn Taran district in Punjab.
- (ii) To draw some policy implications.

### Methodology for Gathering Data

Out of the total 22 districts of Punjab, six districts (Pathankot, Gurdaspur, Amritsar, Tarn Taran, Ferozpur and Fazilka) have been sharing boundary line with Pakistan. For the study purpose only Tarn Taran district had selected because the rural labour and farmers has been facing more employment problems. A multistage convenient sampling technique was used to select the ultimate respondents. The district being sample unit at first stage, all border blocks were selected sample unit at second stage, villages being at third stage and only rural labour households and marginal farmer households were the sample unit at fourth stage. From the above six district, only Tarn Taran district had selected because the rural labour and farmers has been facing more employment problems. Due to large scale of mechanization in agriculture it has reduced self-sufficiency of the rural population. Further, from the Tarn Taran district, all the development blocks (15 kilometers from boundary line as per the guidelines of Border Area Development Program) were selected. The selected blocks from Tarn Taran district such as Bhikhiwind, Gandiwind, and Valtoha were selected. From each block, one village selected randomly for study purposes. Further from each village, out of the total rural labour and marginal farmer households, 10 per cent households were selected and interviewed through well-structured questionnaires. Standard statistical tools such as mean, proportions were used while carrying tabular analysis. The suitable statistical techniques such as partial and multiple-correlation were also used to support the findings. Further, for the classification of class intervals regarding the gross income among labour households, first category defined is less than Rs. 70,000 annual income per household (C1). The Second category fall more than Rs.70,001 and less than Rs. 1,40,000 per household annually (C2). The third category more than Rs.140001 and less than 2,10,000 per household annually (C3). The fourth and the highest income category being more than Rs. 2,10,001 per households annually. Among the marginal farmers, first category considered is less than Rs. 1,50,000 annual per household. The Second category being with income more than Rs.1,50,001 and less than Rs. 3,00000 per household annually (C2). The third category is for income more than Rs.3,00001 and less than 4,50,000 per household annually (C3). The fourth category is more than Rs. 4,50,001 per household annually (C4). The average annual consumption expenditure was calculated as per the expenditure of 365 days as per the procedure of NSSO 72<sup>nd</sup> round.

### Results and Discussions

**Table 1: Farm Size of Sampled Marginal Farmer Households (in Acre's)**

Particulars	C1	C2	C3	C4	Overall
Own land	1.25	1.75	1.80	2.4	1.29
Land leased-in	0.04	0.11	2.33	0.89	0.46
Land purchased in	---	---	---	---	---
Land mortgaged in	---	--	---	---	---
Crop sharing in	---	---	---	---	---
<b>Sub-total (A)</b>	<b>1.29</b>	<b>1.87</b>	<b>4.13</b>	<b>3.29</b>	<b>1.75</b>
Land leased out (on rent)	---	---	---	---	---
Land mortgaged out	---	---	---	---	---
Land sold out	---	---	---	---	---

Crop sharing out	---	---	---	---	---
<b>Sub-total (B)</b>	---	--	---	---	---
<b>Total Operational Land (A+B)</b>	<b>1.29</b>	<b>1.87</b>	<b>4.13</b>	<b>3.29</b>	<b>1.75</b>

**Source:** Field Survey, 2020-21.

\*C1, C2, C3 and C4 denote category first, second, third and fourth respectively as defined in methodology..

The table 1 reveals the average farm size of sampled marginal farmer households in the border area of Tarn Taran district. The ownership of own land shows the status of farmers in the society. The category first respondents were found with only their own land (1.25 acre). As the level of gross income increases, the farm size also increases. The sampled respondents with category second, third and fourth were found with their own land and their respective size have also were 1.75, 1.80 and 2.4. acre's of land as the categories on the basis of their gross income change, the size of land leased (in) also increases. It was also found that in case of the all the respondents that they had put land on mortgage (out) to fulfill their financial needs in the family.

**Table 2: Distribution of Gross Income of Rural Labourer and Marginal Farmer Households of Tarn Taran District (Rs. Per annum)**

**(a) Rural Labourers**

Category	Agriculture Sector			Non-Agriculture Sector							Overall Total	Income Per Capita		
	CNLA	CSLA	Total	CNWK	BKFC	MNRG	PNSN	WKDR	OTHR	Total		PCAI	PCNI	PCTI
<b>C1</b>	1720.83 (3.06)	24163.54 (42.99)	<b>25884.38</b> <b>(46.05)</b>	16586.12 (29.51)	625.00 (1.11)	2736.38 (4.87)	3000.00 (5.34)	3125.00 (5.56)	4252.42 (7.57)	30324.91 (53.95)	<b>56209.29</b> <b>(100)</b>	5176.10	6191.45	11367.55
<b>C2</b>	25642.09 (26.56)	20403.73 (21.14)	<b>46045.82</b> <b>(47.70)</b>	15518.18 (16.07)	16609.09 (17.21)	512.27 (0.53)	4500.00 (4.66)	10207.27 (10.57)	3143.64 (3.26)	50490.45 (52.30)	<b>96536.27</b> <b>(100)</b>	9530.89	10623.05	20153.94
<b>C3</b>	58950.00 (31.48)	16012.50 (8.55)	<b>74962.50</b> <b>(40.03)</b>	32700.00 (17.46)	10300.00 (5.50)	1187.50 (0.63)	4500.00 (2.40)	40750.00 (21.76)	22875.00 (12.21)	112312.50 (59.97)	<b>187275.00</b> <b>(100)</b>	14077.50	20662.50	34740.00
<b>C4</b>	–	–	–	–	–	–	–	–	–	–	–	–	–	–
<b>Overall</b>	<b>16824.52</b> <b>(19.93)</b>	<b>21857.14</b> <b>(25.89)</b>	<b>38681.66</b> <b>(45.81)</b>	<b>17405.34</b> <b>(20.61)</b>	<b>8432.00</b> <b>(9.99)</b>	<b>1633.86</b> <b>(1.93)</b>	<b>3780.00</b> <b>(4.48)</b>	<b>9251.20</b> <b>(10.96)</b>	<b>5254.36</b> <b>(6.22)</b>	<b>45756.76</b> <b>(54.19)</b>	<b>84438.42</b> <b>(100)</b>	<b>7804.32</b>	<b>9299.04</b>	<b>17103.36</b>

**(b) Marginal Farmers**

Category	Agriculture Sector					Non-Agriculture Sector						Overall Total	Income Per Capita		
	WHET	PDDY	BSMT	MLKP	Total	CNSL	PNSN	DRVR	SMNY	OTHR	Total		Agri	Non-Agri	Overall
<b>C1</b>	38226.57 (26.56)	36818.75 (25.58)	4625.77 (3.21)	37082.73 (28.77)	<b>116753.81</b> <b>(81.13)</b>	4231.18 (2.94)	3272.73 (2.27)	6644.64 (4.62)	3818.18 (2.65)	9193.45 (6.38)	27160.18 (18.87)	<b>143914.00</b> <b>(100)</b>	25380.92	5606.34	30987.26

<b>C2</b>	55375.83 (23.60)	58453.9 4 (24.92)	5255.7 1 (2.24)	62177. 14 (26.50)	<b>181262</b> <b>.63</b> <b>(77.26)</b>	12708. 95 (5.42)	3000.0 0 (1.28)	23714. 29 (10.11)	4571.4 3 (1.95)	9340.1 0 (3.98)	53334. 76 (22.73)	<b>234597</b> <b>.40</b> <b>(100)</b>	41268. 49	12182. 66	53451.1 6
<b>C3</b>	135810.00 (34.27)	129662. 53 (32.72)	35248. 67 (8.90)	31697. 67 (7.99)	<b>332418</b> <b>.87</b> <b>(83.89)</b>	14537. 00 (3.67)	3000.0 0 (0.76)	12000. 00 (3.03)	4000.0 0 (1.00)	30313. 67 (7.65)	63850. 67 (16.11)	<b>396269</b> <b>.53</b> <b>(100)</b>	77689. 36	14526. 75	92216.1 1
<b>C4</b>	109725.00 (22.83)	68291.0 0 (14.21)	59717. 50 (12.42)	123080 .00 (25.61)	<b>360813</b> <b>.50</b> <b>(75.06)</b>	9478.0 0 (1.97)	3000.0 0 (0.62)	72000. 00 (14.98)	6000.0 0 (1.25)	29374. 50 (6.11)	119852 .50 (24.93)	<b>480666</b> <b>.00</b> <b>(100)</b>	90203. 38	29963. 12	120166. 50
<b>Overall</b>	<b>59736.89</b> <b>(25.52)</b>	<b>58327.2</b> <b>6</b> <b>(24.92)</b>	<b>10444.</b> <b>18</b> <b>(4.46)</b>	<b>55537.</b> <b>38</b> <b>(23.73)</b>	<b>184045</b> <b>.70</b> <b>(78.64)</b>	<b>10162.</b> <b>11</b> <b>(4.34)</b>	<b>3081.0</b> <b>8</b> <b>(1.32)</b>	<b>20299.</b> <b>76</b> <b>(8.67)</b>	<b>4378.3</b> <b>8</b> <b>(1.87)</b>	<b>12080.</b> <b>00</b> <b>(5.16)</b>	<b>50001.</b> <b>32</b> <b>(21.36)</b>	<b>234047</b> <b>.02</b> <b>(100)</b>	<b>42143.</b> <b>33</b>	<b>11378.</b> <b>71</b>	<b>53522.0</b> <b>4</b>

**Source:** Field Survey 2020-21.

**Note:** Data in the parenthesis are respective percentage to the total.

CNLA-Contractual labour in Agriculture, CSLA-Casual labour in Agriculture, CNWK- Construction, BKFC-Bricklin, MNRGA-MNREGA Scheme, PNSN-Pensions, WKDR- Working as a driver, OTHR-Other sources, WHET-Wheat, PDDY-Paddy, BSMT-Basmati, AGRI-Agriculture, Non-agri-Non-agriculture, PCAI- Per Capita Income from Agriculture, PCNI-Per Capita Income from non-agriculture, PCTI- Per Capita Total

Table 5.4 (a) shows the level, pattern and per capita income of sampled rural labour households in the border area of Tarn Taran district. The average annual gross income of sampled rural labour households were found to be Rs. 84438.42 per household, of which Rs. 38681.66 per household (45.81 percent) comes from agriculture sector and Rs. 45756.76 per household (54.19 percent) comes from non-agriculture sector. The informal contractual labour and casual labour played a significant role in their average annual gross income and their respective was found to be Rs. 16824.52 and Rs. 2185714.8. per household. From the overall non-agriculture, the construction sector contributed the highest proportion, followed by working as a driver and brick-klin factories. In terms of category-wise, the average annual gross income of first category respondents were found to be Rs. 56209.29 per household and of second category respondents were found to be Rs. 187275 per household. The agriculture sector contributed significantly among category first, second, third respondents. Among category third respondents, working as a informal contractual labour such as helper on a dairying farming, poultry farming played a vital role in their gross income. In terms of proportion-wise, the proportion of agriculture sector for gross income of sampled rural labour households were found to be significant. Among first category respondents, the construction sector, followed by other factors, working as a drivers played a important role in gross income and their respective share were found to be 29.51, 7.57 and 5.56 percent. Among second category respondents, the maximum contribution from non-agriculture sector was found in case of brick-klin factories, construction sector and working as a driver. Among category third respondents, the working as a driver, followed by construction sector and other factors contributed significantly and their respective share was found to be 21.76, 17.46 and 12.21 percent. Furthermore, the per capita income of sampled rural labour households in the Tarn Taran of first, second and third category respondents were found to be Rs. 11367.55, 20153.94 and 34740.00 per household respectively. From the non-agriculture sector, working as driver, other factors and construction sector played a significant role among all categories of sampled rural labour households. In this district, the share of agriculture sector has also been reduced due to mechanisation, pesticides, weedicides for category third respondents and these factors have reduced number of day employment and people has found non-farm employment to earn income to meet their daily needs.

The table 5.4 (b) analysis the level, pattern, per capita income of sampled marginal farmer households in border area of Tarn Taran district. The overall average annual gross income of sampled marginal farmer households were found to be Rs. 234047.32 per household, of which Rs. 184045.70 per household (78.64 percent) comes from agriculture sector and Rs. 50001.32 per household (21.36 percent) comes from non-agriculture sector. In the Tarn Taran district from the agriculture sector, the sale of crops wheat, paddy and sale of milk and milk products played a significant role in overall gross income and also in terms of category-wise. The sale of Basmati crop have negligible role in their gross income. The per capita income of category first, second, third and fourth respondents were found to be Rs. 30987.26, 53451.16, 92216.11 and 120166.56 per annum respectively. In terms of proportion wise, the proportion of gross income for category first, second, third and fourth respondents with their respective share was found to be 81.13, 77.26, 83.89 and 75.06 per cent. The non-agriculture sector also

played a vital role in gross income of sampled marginal farmer households in the Tarn Taran district. The benefits under social security schemes such as pensions, PM-Samhan Nidhi Yojna were also received by marginal farmer households. Furthermore, the per capita income of sampled marginal farmer households were found to be Rs. 53522.04, of which Rs. 42133.33 and 11378.71 are from agriculture and non-agriculture sector respectively. Further, the per capita income in terms of category-wise in Tarn Taran district was found to be Rs. 17103.36, of which Rs. 7804.32 and 9299.04 comes from agriculture and non-agriculture sector respectively. In terms of per capita income, the agriculture sector also play major role in their per capita income. The operational level of land holding size and crop sharing (in), sale of milk and milk products played a significant role in case of sampled marginal farmer households. The study also revealed the income from crops, dairy and off-farm activities on marginal and small farms in the South-West Punjab (Singh and Sachdeva, 2017).

## Part II: Identification of the Determinants of Income

An attempt have been made to identify the major determinants of income, separately for Marginal Farmers and Rural Labourers. For this purpose, we have sought the help of *Step-Up Multiple Linear Regression Analysis*. The analysis was performed at district level. In the analysis, per capita income was taken as the dependent variable, while a number of other variables viz., Type of Family (TPFM), , Adult Males as a Percentage of the Family Size (ADMP), Earning Members as a Percentage of the Family Size (ERNP), Average Number of Years of Schooling (ANYS), Operational Land Holding (OPLD) and the Category (CTGR) to which the respondent belonged.

It may be mentioned that the variable OPLD was considered only for Marginal Farmers (and not for Rural Labourers). Further, since the variable TPFM was *binary* and CTGR was *multi-categorical* (with 4 categories), we have therefore made use of *dummy variables*, as follows:

Size of Family  
TPFM = 1, if the family is nuclear and = 0, otherwise;

DMC1 = 1, if the respondent is from the 1<sup>st</sup> Category and = 0, otherwise;

DMC2 = 1, if the respondent is from the 2<sup>nd</sup> Category and = 0, otherwise;

DMC3 = 1, if the respondent is from the 3<sup>rd</sup> Category and = 0, otherwise;

It may further be mentioned that at the disaggregated levels, since we did not necessarily have respondents from each of four categories; therefore, the dummy variables for categories were defined accordingly. For instance, with three categories, we have made use of only DMC1 and DMC2, etc. As per the *Step-up iterative approach* adopted, the dependent variable, viz., income was regressed upon that particular independent variable (other than the *dummy variables for categories*) was most strongly associated, as assessed through *partial correlation coefficients*, with it. For the estimated equation, coefficient of determination ( $R^2$ ), adjusted coefficient of determination, and Akaike's information criterion (AIC) was computed. In the next step, the independent variable (out of the remaining list of variables) was identified which again had the highest association with income. This variable was regarded as the *newly entering variable*, and a fresh line of regression of income jointly upon the two variables was re-estimated. The yardsticks like  $R^2$ , Adj.  $R^2$  and AIC were computed again. This iterative process was continued until and unless the minimum value of AIC was



attained. The equation obtained at such a stage would provide us with the main determinants of income. In our analysis, we have presented such finally obtained optimum equations (both for marginal farmers and rural labourers) at the aggregated level as well as at the district level. Prior to carrying out the regression analysis, we have tables on *partial correlation coefficients* (PCC) of income with each of the explanatory variables, which assisted us in deciding the relative importance of the variables to be considered in the analysis.

**Determinants of Per Capita Income in Tarn Taran District**

**(a) For Marginal Farmers**

**Table 3: Partial Correlation Coefficients of Income with Different Explanatory Variables**

Quantity	Explanatory Variable								
	TPF M	SZF M	ADMP	ERN P	ANY S	OPL D	DMC 1	DMC2	DMC3
PCC	-0.106	-0.816	0.071	0.150	-0.421	0.398	-0.947	-0.918	-0.678
p-Value	0.5802	< 0.001	0.7102	0.4317	0.0159	0.0244	< 0.001	< 0.001	< 0.001
Significance	NS	***	NS	NS	*	*	***	***	***

\*\*\* Significant at 0.1% probability level; \* Significant at 5% probability level; NS Non-significant.

The table 3 analyse that the SZFM, ANYS, OPLD, DMC1, DMC2 and DMC3 were expressed to play a significant role in multiple linear regression and statistically non-significant variable were left out.

**Table 4: Results Obtained through Step-Up Multiple Linear Regression Analysis**

Variable	Beta	SE(Beta)	t-val	p-value	Significance
Intercept	179266.1	10347.2	17.325	< 0.001	***
SZFM	-10748.4	1199	-8.964	< 0.001	***
ANYS	-2208.9	876.6	-2.52	0.0173	*
OPLD	3790.7	1678	2.259	0.0313	*
DMC1	-84699.2	5372.2	-15.766	< 0.001	***
DMC2	-65456.5	5301.8	-12.346	< 0.001	***
DMC3	-40900.3	8374.2	-4.884	< 0.001	***

$R^2 = 0.945^{***}$ ;  $Adj R^2 = 0.934$ ;  $p < 0.001$ ;  $AIC = 764.99$

\*\*\* Significant at 0.1% probability level; \* Significant at 5% probability level; \* Significant at 10% probability level; NS Non-significant.

The table 4 shows the determinants of per capita income of sampled marginal farmer households in the border area of Tarn Taran district. The SZFM (size of the family), ANYS (Average number of year of schooling), OPLD (Operational size of land Holding) play significant role in the per capita income of sampled marginal farmer households. The exploratory power of the estimated regression model ( $R^2$  and adjusted  $R_2$ ) was as high as

0.945 and 0.934 respectively. It implies more than 94 per cent of per capita income variation due to SZFM, ANYS and OPLD, DMC1, DMC2 and DMC3. The SZFM, MDC1, DMC2 and DMC3 were tested at a level of 0.1 per cent, 5 per cent level significance for ANYS, OPLD respectively. Negative signs and very high significance of each of DMC1, DMC2 and DMC3 implied that family per capita incomes of the respondents of each of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> categories were substantially lower in comparison to the respondents of the 4<sup>th</sup> category. Highly significant value of the intercept term implies that apart from the list of variables considered, there might be certain other important variables (not known to us), which might also be influencing per capita income of the respondents

**(b) For Rural Labourers**

**Table 5: Partial Correlation Coefficients of Income with Different Explanatory Variables**

Quantity	Explanatory Variable						
	TPFM	SZFM	ADMP	ERNP	ANYS	DMC1	DMC2
PCC	-0.001	-0.680	0.191	0.262	0.143	-0.842	-0.740
p-Value	0.9989	< 0.001	0.2085	0.0780	0.3479	< 0.001	< 0.001
Significance	NS	***	NS	NS	NS	***	***

\*\*\* Significant at 0.1% probability level; \*\* Significant at 1% probability level; <sup>NS</sup> Non-significant.

The table 5 analyse that the SZFM, DMC1 and DMC2 were expressed to play a significant role in multiple linear regression and statistically non-significant variable were left out.

**Table 6: Results Obtained through Step-Up Multiple Linear Regression Analysis**

Variable	Beta	SE(Beta)	t-val	p-val	Significance
Intercept	45886.2	3257.5	14.086	< 0.001	***
SZFM	-2919.8	404.7	-7.215	< 0.001	***
ADMP	37.4	25.8	1.449	0.1540	NS
ERNP	56.6	31.7	1.786	0.0810	.
DMC1	-23496.2	1641.1	-14.318	< 0.001	***
DMC2	-15271.1	1665.9	-9.167	< 0.001	***

$R^2 = 0.880^{***}$ ; Adj  $R^2 = 0.867$ ;  $p < 0.001$ ; AIC = 947.31

\*\*\* Significant at 0.1% probability level; \*\* Significant at 1%; \* Significant at 5% probability level; . Significant at 10% probability level; <sup>NS</sup> Non-significant.

The table 6 shows the determinants of per capita income among sampled rural labour household in the border area of Tarn-Taran district. In this district, only SZFM, ERNP, DMC1 and DC2 Play significant role in their per capita income of the sampled rural labour households. The explanatory power of the estimated regression model ( $R^2$  and adjusted  $R^2$ ) was as high as 0.880 and 0.867 respectively. It means more than 88 per cent variation in per capita income only due to SZFM (size of the family), ERNP, DMC1 and DMC2. The SZFM, DMC1 and DMC2 were tested at level of 0.1 level of significance and ERNP was tested at 10

per cent level of significance. Negative signs and very high significance of each of DMC1 and DMC2 implied that family per capita incomes of the respondents of each of 1<sup>st</sup> and 2<sup>nd</sup> were substantially lower in comparison to the respondents of the 3<sup>th</sup> category. Highly significant value of the intercept term implies that apart from the list of variables considered, there might be certain other important variables (not known to us), which might also be influencing per capita income of the respondents

### Concluding Thoughts

In border area of Punjab, the study analysed the significant determinants of gross income of sampled rural labour and marginal farmer households in border area of Tarn Taran district of Punjab. The overall average annual gross income of sampled marginal farmer households have been found Rs. 234047.02 per household, of which 78.64 percent from agriculture sector which included sale of their crops, milk and milk products and 21.36 percent from non-agriculture sector. On the other hand, the overall average annual gross income of sampled rural labour households have been found to be Rs. 84438.42 per household, of which Rs. 45.81 percent comes from agriculture sector and 54.19 percent comes from non-agriculture sector. The construction sector plays significant role for both marginal farmer and rural labour households for their gross income. The SZFM (size of the family), ANYS (Average number of year of schooling), OPLD (Operational size of land Holding) play significant role in the per capita income of sampled marginal farmer households. The sampled rural labour households have been found to be landless and engaged in multiple informal employment activities in agriculture and non-agriculture sector. The government should launch schemes for the welfare of the construction workers such as health and accidental insurance, free medical facilities etc. The government should also increase the limit of funds for the proper implementation of MGNREGA for the 150 days per year and its wages need to be increased up to about Rs. 400 per days per person. The role of social security schemes such as transfer payments play a marginal role in the gross income of both rural labour and marginal farmer households, but the amount of pensions is quite low just Rs. 1500 per month, the government should increase the amount to atleast Rs. 3000 per month as Haryana Government does. The timely payment of PM-Samhan Nidhi Yojna is also important because under it the government give a Rs 6000 per year in to three installments to marginal farmer households and it has been providing a huge economic benefit to Marginal farmer households. Further, the government should also promote the dairy farming, mushroom farming, fish farming, poultry farming, bee keeping farming, other allied activities and Micro, Small and Medium enterprises to increase sustainable and inclusive employment opportunities in rural economy. Furthermore, the government should also promote the handicraft activities for rural women, Self-Help Groups, spirit of culture, peace and Harmony, brotherhood, vocational education, full restriction on proliferation of drugs, loan at low rate of interest, well established co-operative ecosystem, and proper vision for youth also to help use their potential to strengthen the economy and to meet Sustainable Development Goals such as SDG1, SDG2, SDG3, SDG4, SDG5, SG8, SDG10 and SDG12.

Author's Contribution

Skattar Singh: Conceptualization of data, data collection and preparing draft of the manuscript.

Kuldeep Kaur: Conceptualization, preparing and review draft of the manuscript.

**References:**

Anupama *et al* (2017). *Indebtedness and Poverty among Agricultural Labourers in Rural Punjab*, ISBN 978-93-83437-35-1, Unistar Publications, Patiala.

Dhaliwal, R.S. and Grewal, S.S. (1983). Levels of Living of Agricultural Labourers in Rural Punjab. *Indian Journal of Labour Economics*, 26(3), 257-263.

Government of India (2011), Socio-Economic Caste Census. <https://secc.gov.in/>

Kaur, Sukhvir and Singh, Gian (2014). Analysis of Income Distribution among Marginal and Small Farmers in Rural Punjab. *International Journal of Science and Research*. 3(3), 112-1116.

Kaur, R. (2017). Analysis of Income Determinants of Rural Households in Border Districts of Punjab. *Indian Journal of Labour Economics*. 55(11), 196-1208.

Singh, Sukhwinder and Sachdeva, Jatinder (2017). Factor Affecting Income and Employment of Marginal and Small Farmer Households in South-West of Punjab, *Journal of Agriculture Development and Policy*. 27(1&2),37-43.

Singh, Sukhpal (2009). Survival of Agriculture Labour in Punjab: A Burning Devestation, *Economic and Political Weekly*. 44(29), 24-25.