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Financial Analysis of Rural Households: Evidences from Sub-Mountainous Region of Punjab

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Abstract

The present study was carried out to assess the status of assets, income and liabilities of Punjab farmers. The results revealed that about 24 per cent of the farmers owned two tractors each while 70 per cent of the farmers had one tractor each and 6.25 per cent of the farmers did not have any tractor. Over 27 per cent marginal and 12.50 per cent small farmers did not have any tractor. About 81 per cent of the sampled farmers were having one trolley, 12.50 per cent had two trolleys and 6.25 per cent did not have any trolley. Overall, 2.5 per cent of the farmers did not have any electric motor, and the remaining 97.50 per cent of the farmers were having one electric motor. However, 45.45 per cent of the marginal farmers did not have any electric motor. Total number of animals per farm was 2.56.The farm income constituted about 87 per cent of the total income. In farm income, the major source of income was from crops which was 68 per cent followed by dairy i.e. 19 per cent. The non-farm income constitutes about 12 per cent of the total income. In the study, 25 per cent of the farmers were bankrupt and about 68 per cent of income is taken as loan. There is need to evacuate the farmers from the debt trap by improving the credit delivering system.

Keywords: Rural households, indebtedness, income, farm assets, livestock assets

JEL Classification: Q10, Q12, Q14

Introduction

The green revolution technology had made India self-sufficient in food grain production. Punjab is that state, where green revolution technology found its push since mid1960s. That is why, Punjab is known as 'Granary of India'.The urban to rural population ratio in Punjab is 37:63. About 63 per cent rural population lives in 12581 villages. The total geographical area of Punjab is just 1.53 per cent of India, with roughly producing 12 per cent of the cereals, 17 per cent of wheat and 11 per cent of paddy (Sharma, 2018). Punjab state has an inventory of 4.52 lakh tractors,14.19 lakh tube wells, 80 thousand threshers and 13 thousand harvesting combines (Anonymous 2020). The heavy farm investment made by the farmers in the state is facilitated by easy availability of credit from institutional and non-institutional sources. The increase in the cost of production and insufficient increase in minimum support prices have made agriculture less remunerative. The money lending system attained full bloom with the green revolution. Farmers regularly borrow huge amount of loans from various institutional credit agencies and non-institutional credit agencies. As a result, their debt burden keeps on accumulating and they fall into the vicious circle of indebtedness.

The incidence and extent of indebtedness has considerably increased over the past one decade across the states in India. The extent of indebtedness is higher among the agriculturally developed states (Narayanamoorthy and Kalamkar, 2005). High input costs, stagnant productivity and lack of remunerative prices are other reasons of falling profitability. Indebtedness of the Punjab farmers has been aggravated by the decline in agricultural income, the increasing cost of inputs, commercialization of agriculture and dependence on borrowed funding. One of the major causes of indebtedness is continuous decline in the farmers' income because they do not receive adequate

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prices for their crop produce. The level of education, non-farm income, farm size and non-institutional credit were the main factors which affect the level of farmers' indebtedness. The farmers face a large number of problems in availing institutional credit which drives them to fall into the debt trap of the crafty and exploitative non-institutional sources of credit (Singh et al. 2014).Thus, the present study was conducted to find the debt position of the farmers in relation to income in the sub-mountainous region of Punjab.

Data Sources and Methodology

Punjab is divided into three well defined regions, namely, sub-mountainous region, central region and south-western region. Among these regions, sub-mountainous region was selected for this study. This region is confined to districts namely, Gurdaspur, Hoshairpur, Ropar and Pathankot. Among these districts, Gurdaspur was randomly selected. Three stage random sampling technique was used to draw representative sample of the study. Two blocks namely Gurdaspur and Dinanagar were selected. Two villages from each block were selected, in total four villages were selected. Village Pahra and Sadhuchak were selected from Gurdaspur block while Rasulpur Bet and Bhatoa villages were selected from Dinanagar block. 20 farmers, were selected from each block, depending upon the size of their operational holdings. In total a sample of 80 farmers formed the ultimate sample. Farmers were categorized based upon PPS method, farmers having less than 2.5 acres were marginal farmers, 2.5-5 acres were small farmers, 5-10 acres were semi-medium farmers, 10-25 acres were medium farmers and above 25 acres were the large farmers. Primary data for the year 2019-20 were collected through pre-tested schedule by personal interview method for the purpose of study. Averages, percentages and proportions were used to analyze the data. In the present study, we also classify the farmers on the basis of debt in relation to income expressed in percentage; no stress (<50%), under stress (50-100 %), serve stress (100-200 %) and bankruptcy (>200%).

Results and Discussion

Ownership of farm assets

The main purpose of defining ownership details was to have an idea about the investment made by the farmers on different farm assets. It is revealed in Table 1 that the two most common assets which were owned by almost all the farmers were tractor and trolley. In the sampled area, all the farmers were having their own tractors. Among the owners of tractors, 23.75 per cent of the farmers owned two tractors, 70 per cent of the farmers owned one tractor and 6.25 per cent of the farmers do not have any tractor. 27.27 per cent marginal and 12.50 per cent small farmers do not have any tractor. About 81.25 per cent of the sampled farmers were having one trolley, 12.50 per cent had two trolleys and 6.25 per cent were having trolley. About 18.18 per cent marginal and 18.75 per cent small farmers did not have any trolley. Overall 2.5 per cent of the farmers do not have any electric motor, and the remaining 97.50 per cent of the farmers were having one electric motor. 45.45 per cent of the marginal farmers do not have any electric motor.

Overall, 76.25 per cent of the farmers were having one seed drill each and remaining 23.75 per cent had no seed cum fertilizer drill. In case of spray pumps, 2.50 per cent of the farmers did not possess any spray pump, 86.25 per cent had one spray pump and 11.25 per cent had two spray pumps. Other farm assets like- generator, harvesting combine, cultivator, disc-harrow, leveler, mulcher, straw reaper were owned by 73.75 per cent, 1.25 per cent, 88.75 per cent, 93.75 per cent, 95.00 per cent, 13.75 per cent and 32.50 per cent of the total sampled farmers.

Ownership of livestock assets

Livestock is another very important asset for farmers. It serves as a source of additional income and imparts security against risk arising out of agricultural enterprise. The Table 2 shows that on an average marginal farmers had 0.27 buffaloes per farm whereas large farmers had 2 buffaloes per farm. Average number of buffaloes possessed by farmers was 0.85.

Marginal and small farmers did not have any cross bred cows. 0.52 crossbred cows were possessed by small farmers, 1.32 by medium and 1.50 by large farmers. Average number of cross bred cows per farm was 0.61, large farmers owned more cross bred cows as compared to other categories. Indigenous cows possessed by marginal farmers were 0.45 whereas on large farms was one. In overall, there were 0.62 indigenous cows per farm. The total milch animals were 2.08. The number of animals in milk was 1.51 per farm. Number of calves and heifers per farm was 0.34 and number of bulls

Table 1. Distribution of farm households as per ownership of different farm assets in sub-mountainous region of Punjab **(Number)**

Ownership of farm assets	Marginal	Small	Semi medium	Medium	Large	Overall
Tractor						
Nil	3 (27.27)	2 (12.50)	0	0	0	5 (6.25)
One	8 (72.72)	12 (75.00)	26 (96.29)	10 (45.45)	0	56 (70.00)
Two	0	2 (12.50)	1 (3.70)	12 (54.54)	4 (100.00)	19 (23.75)
Trolley						
Nil	2 (18.18)	3 (18.75)	0	0	0	5 (6.25)
One	8 (72.72)	12 (75.00)	27 (100.00)	18 (81.81)	0	65 (81.25)
Two	1 (9.09)	1 (6.25)	0	4 (18.18)	4 (100.00)	10 (12.50)
Electric motor						
Nil	5 (45.45)	0	0	0	0	2 (2.5)
One	6 (54.54)	16 (100.00)	27 (100.00)	22 (100.00)	4 (100.00)	78 (97.50)
Two	0	0	0	0	0	0
Seed-cum-fertilizer drill						
Nil	11 (100.00)	5 (31.25)	3 (11.11)	0	0	19 (23.75)
One	0	11 (68.75)	24 (88.88)	22 (100.00)	4 (100.00)	61 (76.25)
Two	0	0	0	0	0	0
Spray pump						
Nil	2 (18.18)	0	0	0	0	2 (2.50)
One	9 (81.81)	16 (100.00)	24 (88.88)	20 (90.90)	0	69 (86.25)
Two	0	0	3 (11.11)	2 (9.09)	4 (100.00)	9 (11.25)
Generator	0	8 (50.00)	25 (92.59)	22 (100.00)	4 (100.00)	59 (73.75)
Harvesting combine	0	0	0	0	1 (25.00)	1 (1.25)
Cultivator	8 (72.72)	12 (75.00)	25 (92.59)	22 (100.00)	4 (100.00)	71 (88.75)
Disc-harrow	7 (63.63)	15 (93.75)	27 (100.00)	22 (100.00)	4 (100.00)	75 (93.75)
Leveler	9 (81.81)	14 (87.50)	27 (100.00)	22 (100.00)	4 (100.00)	76 (95.00)
Mulcher	0	0	3 (11.11)	5 (22.72)	3 (75.00)	11 (13.75)
Straw reaper	0	0	7 (25.92)	15 (68.18)	4 (100.00)	26 (32.50)

Figures in parentheses are percentages to total sample

Table 2. Ownership of livestock assets in sub-mountainous region of Punjab (Number)

Particulars	Farm size categories					
	Marginal	Small	Semi-medium	Medium	Large	Total
Buffaloes						
In milk	0.18 (66.66)	0.50 (66.66)	0.44 (63.16)	0.82 (69.23)	1.50 (75.00)	0.57 (67.64)
Dry	0.09 (33.33)	0.25 (33.33)	0.26 (36.84)	0.36 (30.76)	0.50 (25.00)	0.27 (32.35)
Cross bred cows						
In milk	0	0	0.37 (71.43)	0.95 (72.41)	1.00 (66.66)	0.44 (72.41)
Dry	0	0	0.15 (28.57)	0.36 (57.14)	0.50 (14.28)	0.17 (27.58)
Indigenous cows						
In milk	0.36 (80.00)	0.56 (81.82)	0.33 (81.82)	0.68 (71.43)	0.75 (75.00)	0.47 (76.00)
Dry	0.09 (20.00)	0.12 (18.18)	0.07 (18.18)	0.27 (28.57)	0.25 (25.00)	0.15 (24.00)
Total milch animals	0.72 (100.00)	1.43 (100.00)	1.63 (100.00)	3.45 (100.00)	4.50 (100.00)	2.08e (100.00)
Total wet animals	0.54 (75.00)	1.06 (73.91)	1.15 (70.45)	2.45 (71.05)	3.25 (72.22)	1.51 (72.59)
Calves and heifers	0.27	0.44	0.18	0.36	1.00	0.34
Bulls	0.09	0.12	0.07	0.14	0.25	0.11
Total animals	1.09	2.00	1.88	3.95	5.75	2.56

Figures in parentheses are percentages of total sample

per farm was 0.11. Total number of animals per farm for marginal, small, semi-medium, medium and large farmers was 1.09, 2.00, 1.88, 3.95, 5.75 respectively. Overall, total number of animals per farm was 2.56.

Sources of Income

The various sources of income of the farmers are presented in Table 3. The farm income constituted about 88 per cent of the total income. In farm income, the major source of income was from crops which was 68.53 per cent followed by dairy i.e. 19.14 per cent. The non-farm income constituted12.32 per cent of the total income. About 7 per cent of the total income was incurred from pensions. Income from services formed just 1.52 per cent while 2.16 per cent of the income comes from business, remittance from abroad was only 0.53 per cent and other sources constituted only 0.59 per cent. The total farm income wasRs. 8.20 lakh,with the total non-farm income being Rs. 1.15 lakh. Thus the total income from both sources amounted to Rs. 9.35 lakh. The total income from crops was Rs.6.41 lakh. The total income from dairy corresponds to Rs. 1.79 lakh, the income from dairy was the highest in case of marginal farmers, and it decreases with an increase in farm size

Debt Position of farmers

Extent and magnitude of debt

The extent and magnitude of debt among different farm size categories has been depicted in the Table 4. The table depicts that 76.25 per cent of the farm households in sub-mountainous region of Punjab were under debt. There are certain variations across different farm size categories. As many as about 91 per cent of the marginal farm households were reeling under debt,

Table 3. Distribution of selected farmers according to different sources of income (Rs/annum)

Sources of income	Marginal		Small		Semi-medium		Medium		Large		Overall	
	Amount	%age	Amount	%age	Amount	%age	Amount	%age	Amount	%age	Amount	%age
Farm Income												
Crop farming	102359	52.27	202799	53.04	430284	63.42	1222332	74.71	2093262	86.41	640659	68.53
Dairy farming	70909	33.06	115000	23.68	210148	22.83	249090	16.58	135000	5.57	178924	19.14
Total farm income	173268	85.33	372600	76.73	793832	86.26	1371000	91.30	2228262	91.99	819584	87.67
Non-Farm Income												
Pensions	21818	10.17	68000	14.00	84444	9.17	64545	4.29	0	0	62849	6.72
Service	0	0	42750	8.80	16740	1.82	0	0	0	0	14199	1.52
Business	0	0	0	0	4444	0.48	36363	2.42	175000	7.22	20249	2.16
Foreign Remittances	8674	4.04	0	0	12111	1.32	17273	1.15	0	0	10030	1.07
Miscellaneous	956	0.44	2230	0.46	8654	0.94	12398	0.82	18960	0.78	7856	0.84
Total non-farm income	31449	14.66	112980	23.26	235395	25.58	130580	8.69	193960	8.00	115186	12.32
Total	214464	100.00	485580	100.00	920227	100.00	1501580	100.00	2422223	100.00	934771	100.00

**Miscellaneous includes income from transport, sale of trees etc.*

while in case of small, semi-medium, medium and large farmers these figures were 81.25 per cent, 77.77 per cent, 68.18 per cent and 50 per cent respectively.

The average amount of debt per indebted farm household was Rs 8.20 lakh and the study revealed that the farm expenditure increased as the farm size increases because large farm size requires more fixed as well as variable expenses. The category-wise amount of debt per acre decreased as the farm size goes up. For an average farming household, the amount of debt per acre per indebted farm household was Rs 96 thousand. The category-wise amount of debt per acre decreased as the farm size goes up. The amount of debt per acre was the highest among the small farm-size category, followed by the marginal, semi-medium, medium and large farm-size categories. This has an important implication that the intensity of debt was greater on the smaller farm-size categories as compared to the large farm-size categories. Some of the reasons identified for indebtedness among marginal and small farmers were lower income due to small size of landholdings, low productivity levels, economies of scale, rising cost of living and inadequate institutional credit.

Degree of Indebtedness

The degree of indebtedness in relation to income has been presented in the Table 5. The debt in relation to income has been categorized as- 1.No stress (<50%) in which the amount of debt of different categories of farmers was less than 50 per cent of level of their income. 2. Under stress (50-100 %), in which the amount of debt of different categories of farmers lies between 50 per cent to 100 per cent to level of their income. 3. Severe stress (100-200%), when amount of debt is more than their income level 4. Bankruptcy (>200%) in which the amount of debt exceeds the level of income to a greater extent. The table reveals that 5.26 per cent of marginal, 15.80 per cent small, 31.58 per cent semi-medium, 36.84 per cent medium and 10.53 per cent large farmers were under no stress, as their income level was higher than their debt. About 22.22 per cent marginal, 33.33 per cent small, 16.67 per cent semi-medium, 27.78 per cent medium and no large farmers were under stress. 17.39 per cent of marginal, 13.04 per cent of small, 34.78 per cent of semi-medium, 30.43 per cent of medium and 4.35 per cent of large farmers were under severe debt, their amount of debt exceeds their level of income. About 10 per cent of marginal, 20 per cent of small, 50 per

Table 4. Extent and magnitude of indebtedness among farmers in sub-mountainous region of Punjab

Farm size categories	Percentage of indebted farm households	Total debt (Rs/farm)	Total debt (Rs/acre)
Marginal	90.90	261564	169846
Small	81.25	592416	182844
Semi-medium	77.77	690888	94254
Medium	68.18	923636	68064
Large	50.00	1611500	52460
Overall	76.25	820456	95624

Table 5. Degree of indebtedness among farmers in relation to income, 2019-20 **(Number)**

Farm size categories	Debt in relation to income (% of holdings)				Loan as % of income
	No stress (<50%)	Under stress (50-100%)	Severe stress (100-200%)	Bankruptcy (>200%)	
Marginal	1 (5.26)	4 (22.22)	4 (17.39)	2 (10.00)	103.22
Small	3 (15.80)	6 (33.33)	3 (13.04)	4 (20.00)	113.02
Semi-medium	6 (31.58)	3 (16.67)	8 (34.78)	10 (50.00)	66.03
Medium	7 (36.84)	5 (27.78)	7 (30.43)	3 (15.00)	55.06
Large	2 (10.53)	0	1 (4.35)	1 (5.00)	51.09
Overall	19 (100.00)	18 (100.00)	23 (100.00)	20 (100.00)	67.88

Figures in parentheses are percentages of total

cent of semi-medium, 15 per cent of medium and 5 per cent of large farmers were bankrupt. In case of loan as per cent of income the percentages were 103.22, 113.02, 66.03, 55.06 and 51.09 for marginal, small, semi-medium, medium and large farm size categories.

Conclusion and Policy Implications

The study concluded that about 88 per cent of the total income was farm income, while the remaining 12.32 per cent came from the non-farm activities. In case of farm income, 68.53 per cent of the income was from crops followed by 19.14 per cent from dairy. Over 76 per cent of the farmers in sub-mountainous region of Punjab were reeling under debt. The percentage of indebtedness decreased with increase in farm size. The average amount of debt per indebted farm household was Rs 8.20 lakh and average amount of debt per sampled farm household was Rs 6.34 lakh. Hiring of heavy farm machinery and equipment on custom hiring basis from these centres should be encouraged for reducing cost (fixed as well as variable costs) without any direct individual investment for the same. There should be institutional support for the self-employed ventures including the institutional credit at subsidized rate of interest to increase the income of the farmer.

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