Chapter Four

Rural Urban Linkages and Rural Livelihoods in Punjab: Impact of Commuting and Outsourcing

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Introduction

Punjab is an important agricultural state in India which contributes around 55-65% of wheat and 35-45% of rice to the national pool of food grains annually. It manifests highly intensive agriculture with the dominance of rice-wheat cropping system with the cropping intensity of about 190% and almost entire area under assured irrigation. The state ranks at the top in terms of the use of fertilizers and agro-chemicals per unit of area with combined productivity of wheat and paddy crop being around 10.5 tons/ha. With the success of green revolution, there has been a tremendous increase in the production and productivity of food grains as the productivity of wheat rose from 1.1 ton/ha during 1960-61 to 4.5 ton/ha during 2007-08 and that of paddy from 1.6 ton/ha to 6.0 ton/ha over the same period.

The share of agriculture sector in GDP of India has come down below 15% without any corresponding decline in the share of workforce in agriculture. Though there was an increase in the employment opportunities in agriculture due to increase in productivity and cropping intensity during 1960s and 1970s, the capacity of agriculture declined considerably afterwards. With continuously declining profitability in agriculture and no options for diversification, the agriculture sector has been plagued with huge unemployment and under-employment. Even the non-farm sector has not been able to absorb such growing rural labour force and is largely distress driven providing even less remuneration. Despite the distress nature of the non-farm

sector, it supports the rural poor by supplementing their meager incomes. Various studies have highlighted the role of non-farm sector in promoting rural employment and income opportunities. Agriculture-industry linkages can play important role in improving rural livelihoods and same is the case for rural-urban linkages.

This paper intends to highlight the role of rural income generation through industrial linkages. It analyses two sources of employment; i) Employment in urban industries which involves daily commuting of the rural workers and ii) outsourcing of the ancillary work by urban industries to the rural households via intermediaries. The specific aim of this paper is to analyze the extent of such employment and income vis-à-vis other types of employment and income in the rural areas. It also examines the distribution of such income across various categories of rural household along with examining the potential of such sources in poverty alleviation and income distribution.

The primary data were collected for the study. One village named Nangal was selected from Dehlon block of Ludhiana district in Punjab. The village was selected purposively as a large proportion of workers were commuting daily to the nearby urban industries for employment and some embroidery work of a hosiery unit named Oster was being outsourced to many women workers of this village through a village resident. Village household was the ultimate unit of data collection and a sample of 108 village households was selected for this study. A complete list of all the households was prepared with the help of villagers and information on the size of land holding, caste and major employment activity was compiled. Later, the villagers were selected randomly from this list. The classification of the sample households according to the size of their owned holdings is given in Table 1.

Table 1: Distribution of various households in the sample

Household category	Number of sample households
Landless	69
Marginal farmers (below 1 ha)	17
Small farmers (1 to 2 ha)	6
Medium farmers (2 to 6 ha)	9
Large farmers (above 6 ha)	7
Overall	108

The average size of operational holdings for different categories of rural households is given in Table 2. The marginal and small farmers were leasing-in almost two-third of their operational area to achieve economic viability in the absence of some alternative

non-farm source of income. But the incidence of leasing-out was also very high amongst the small farmers showing their tendency to look out of agriculture for their livelihoods. The average size of operational holding was 2.40 acre with the owned land accounting for about two-third of the operational area.

Table 2: Distribution of operational holdings across various categories of sample households

Household category	Owned land	Leased-in land	Leased-out land	Total operational area
Landless	-	0.02 (100.00)	-	0.02 (100.00)
Marginal farmers	1.31 (51.98)	1.62 (64.29)	0.41 (16.27)	2.52 (100.00)
Small farmers	3.31 (68.25)	3.31 (68.25)	1.77 (36.49)	4.85 (100.00)
Medium farmers	7.94 (73.86)	3.94 (36.65)	1.13 (10.51)	10.75 (100.00)
Large farmers	16.00 (78.05)	8.50 (41.46)	4.00 (19.51)	20.50 (100.00)
Overall	1.63 (67.92)	1.27 (52.92)	0.50 (20.83)	2.40 (100.00)

Note: Figures in parentheses are % of the total operational holding for a given category.

1. Overall Pattern of Rural Employment and Income

The pattern of employment seems to be much diversified with only 21.22 per cent of the workers employed in farming (crop production, sale of milk animals, sale of milk) and 10.61 per cent of the workers were engaged in agricultural wage labour (Table 3). It means that more than 68 per cent of the rural workers were employed in the non-farm activities. Manufacturing was the major employment activity with the highest proportion of workers at 31.84 per cent. The manufacturing was further classified into three sub-categories namely factory employment, embroidery work and other manufacturing. While factory work provided employment to 12.65 per cent workers, embroidery employed 19.59 per cent workers. Community-social-personal services was the other important source of employment (15.10 per cent) followed by transport-storage-communication and trade-hotel-restaurants.

Table 3: Pattern of employment or rural workers

Industrial category	Male	Female	Overall
Farming	27.78	3.08	21.22
Agricultural labour	14.44	-	10.61
Manufacturing	16.11	75.38	31.84
Utilities	2.22	-	1.63
Construction	8.33	-	6.12
Trade	5.56	4.62	5.31
Transport	10.56	-	7.76
FIR	0.56	-	0.41
CSP	14.44	16.92	15.10
Factory work	15.00	6.15	12.65
Embroidery	-	73.85	19.59
Other manufacturing	4.44	-	3.27

Note: Figures are % of total workers in a given category.

There were wide differences between the pattern of male and female employment. Pattern of male employment was comparatively more diversified. Only about 28 per cent of the male workers were employed in farming and 14.44 per cent as agricultural wage workers. Factory work provided employment to 15 per cent male workers followed by 14.44 per cent share of community-social-personal services and 10.56 per cent share of transport-storage-communication. More than 8 per cent of male workers were also employed in the construction sector. The employment of female workers was concentrated only in a few industrial categories. Almost 74 per cent of the female workers were engaged in embroidery work and about 17 per cent were employed in community-social-personal services. A small proportion of them were also involved in factory work, trade and farming activities.

2. Access to Income Sources and Pattern of Household Income

Table 4 highlights the proportion of rural households having access to different sources of income. Almost 53 per cent of the rural households were having access to income from farming and more-than two third were deriving income from the non-farm sources. It is interesting that income from factory work and embroidery work was accruing to 17.59 per cent and 30.56 per cent rural households, respectively. Agricultural wage labour, construction, transport-storage-communication and community-social-personal services were the other sources, each providing income to

about 15-20 per cent of the rural households. Other point, which needs to be highlighted, is that transfer income was also accruing to about 48 per cent of the households. Within the transfer income sources, pensions were the most important source with 34.26 per cent of the households dependent on them.

Table 4: Access of rural households to different sources of income

Income source	% households
1. Agricultural income	52.78
2. Crop income	35.19
3. Sale of animals	14.81
4. Sale of milk	48.15
5. Agricultural labour	20.37
6. Non-farm income	67.59
7. Manufacturing	21.30
8. Factory work	17.59
9. Embroidery work	30.56
10. Other manufacturing	-
11. Utilities	1.85
12. Construction	15.74
13. THR	7.41
14. TSC	16.67
15. FIR	1.85
16. CSP	19.44
17. Transfer income	48.15
18. Pension income	34.26
19. Rental income	12.96
20. Remittances	12.04

An average rural household was earning Rs 259,208 per annum (Table 5). Agricultural income accounted for more than 52 per cent of the total income and the share of non-farm income was 32.79 per cent. Relatively higher proportion of workers employed in the non-farm sector but its lesser share in income, reveal the distress prevalent in this sector. Such distress is even more pronounced in case of agricultural wage labour which accounted for just 2.79 per cent of the household income. Transfer income accounted for a considerable 15 per cent share in the household income. Within the agricultural income, income from crop production was the most important component with about 37 per cent share in the household income (Table 6).The share of income from sale of milch animals and sale of milk was 4.63 per cent and 7.68 per cent, respectively.

Table 5: Distribution of rural household income

Income source	Annual income (Rs)
Agricultural income	128416.73 (49.54)
Income from agricultural labour	7222.22 (2.79)
Non-farm income	84995.57 (32.79)
Transfer income	38573.14 (14.88)
Total income	259207.66 (100.00)

Note: figures in parentheses are % of total household income

Table 6: Distribution of agricultural income of the rural households

Income source	Annual income (Rs)
Crops	96516.92 (37.24)
Sale of animals	11990.74 (4.63)
Sale of milk	19909.07 (7.68)
Agricultural labour	7222.22 (2.79)
Total agricultural income	128416.73 (49.54)

Note: figures in parentheses are % of total household income

The non-farm income accounted for about one-third of the total household income (Table 7). Within the non-farm income, manufacturing accounted for the highest share of 7.46 per cent, followed by community-social-personal services (6.96 per cent) and transport-storage-communication (6.12 per cent). The factory work accounted for about 5 per cent income and the share of embroidery work was 1.32 per cent. The embroidery work is not very remunerative but it helps the female work to generate some earnings and to contribute towards the household income. One important reason for outsourcing of the embroidery work to the rural areas is also its less remunerative character. Construction work also accounted for about 3 per cent of the household income. The transfer income seemed to be more evenly distributed across pensions, rental income and remittances with the latter accounting for the largest share of 6.64

per cent (Table 8). The respective shares of rental income and pensions were 5.15 per cent and 3.09 per cent.

Table 7: Distribution of non-farm income among rural household

Income source	Annual income (Rs)
Manufacturing	19332.57 (7.46)
Factory work	19332.04 (4.90)
Embroidery	12712.04 (1.24)
Other manufacturing	3203.33 (1.32)
Utilities	3416.67 (0.32)
Construction	833.33 (3.06)
THR	7930.56 (1.07)
TSC	2777.78 (1.07)
FIR	15856.48 (6.12)
CSP	898.15 (0.35)
Total non-farm income	84995.57 (32.79)

Note: figures in parentheses are % of total household income

Table 8: Distribution of transfer income among rural households

Income source	Annual income (Rs)
Income from pension	8022.22 (3.09)
Rental income	13337.96 (5.15)
Remittances	17212.96 (6.64)
Total transfer income	38573.14 (14.88)

Note: figures in parentheses are % of total household income

3. Who Gets What in the Village: Analysis across Income Quintiles

While the analysis of pattern of employment and income has revealed a diversified pattern of male employment as compared to female employed and heavy dependence of rural households on agriculture as well as non-farm sources for their livelihoods, it is important to examine the employment pattern and income distribution across different quintiles so that the equity aspects of different income sources are identified. In the following section, the entire sample of 108 rural households was divided into five quintiles[1] on the basis of per capita income. The lowest quintile has been named as the poorest quintile and the top one as the richest quintile.

The pattern of employment across income quintiles, not only reveals the differential access of employment but also highlights the relationship of these employment categories with income, further pointing towards their remunerative character. Table 9, 10 and 11 show the overall pattern and pattern of employment of male and female workers, respectively. While only 2 per cent of the workers belonging to the poorest quintile were employed in farming such proportion was the highest at about 66 per cent for the richest quintile. The positive relationship of employment with the income quintiles is due to highly skewed land distribution which largely determines the possibility of employment crop production, sale of milch animals and sale of milk. The employment in manufacturing declined from the poorest to the richest quintile. While such proportion was the highest at around 42 per cent for the poorest two quintiles, it was the least at 11.43 per cent for the richest quintile. A negative relationship with income quintile points largely towards the distress character of the employment in manufacturing sector. The workers from poor households resort to such activities as they provide regular employment and thus a secured source of income. The dependence on employment in construction and other manufacturing activities also declines with an increase in income, again showing the distress character. However, the employment activities in the construction sector are largely casual in nature. It is interesting to note that the factory employment has no clear relationship with the income levels. It may be due to the reason of regular employment as cited above. With declining profitability in agriculture and rising cost of cultivation coupled with increased working-age population, even the households from relatively richer quintiles would have preferred to look for regular employment activities in factories in the nearby urban areas. It somehow reflects that industrialization holds the key to absorb growing rural labor force in future. On the other hand, employment in

trade, transport-storage-communication and community-social-personal activities does not show any relationship with the income quintiles. It may be due to dual character remunerative character of employment opportunities in these employment activities. While the poor are involved in petty trade activities and less remunerative transport activities, the rich get engaged in trade and transport involving larger volumes and generating higher incomes. Such differences are due to differences in the access to capital, which is the most important determinant of productivity of these employment activities. Productivity in community-social-personal services is largely determined by the extent of education and skills and hence the richer households derive much higher remuneration than their poorest counterparts.

Table 9: Employment pattern of overall workers across quintiles

Industrial category	Poorest quintile	Second quintile	Third quintile	Fourth quintile	Richest quintile
Farming	2.22	5.71	10.42	40.43	65.71
Agricultural labour	2.22	11.43	22.92	8.51	5.71
Manufacturing	42.22	41.43	25.00	29.79	11.43
Utilities	4.44	1.43	-	-	2.86
Construction	13.33	7.14	6.25	2.13	-
Trade	6.67	8.57	-	8.51	-
TSC	11.1	4.29	16.67	4.26	2.86
FIR	-	-	2.08	-	-
CSP	17.78	20.00	16.67	6.38	11.43
Factory work	15.56	11.43	10.42	17.02	8.57
Embroidery	20.00	28.57	14.58	23.40	2.86
Other manufacturing	8.89	4.29	2.08	-	-

Note: Figures are % of total workers in a given quintile.

It is important to highlight the gender differences in the pattern of employment. The dependence of male employment also increases with an increase in the income quintile (Table 10). While no male worker from the poorest quintile is employed in farming activities, the proportion is almost 72 per cent for the richest quintile. The dependence of male employment in manufacturing, construction and community-social-personal services declines with the income quintiles. Even the dependence on factory work declines with the in[crease in income levels. In case of female worker, there does not seem to be any clear relationship between the employment and income quintiles. It

may be due to very limited employment opportunities for the rural females which are largely less remunerative in character. The employment of females may not be prompted by in extent of remuneration but rather by the fact that it helps them to utilize their free time to supplement their household incomes and provide them more independence in spending these earnings on social ceremonies, education of the kids and dire needs of household consumption. However, it is very amazing that 70-80 per cent of the women workers from the first four quintiles were engaged in embroidery work. Only two-third of the female workers were employed in community-social-personal services due to their better education. Thus their dependence on embroidery work was comparatively less at about 33 per cent as this work was not providing them sufficiently large income.

Table 10: Employment pattern of male workers across quintiles

Industrial category	Poorest quintile	Second quintile	Third quintile	Fourth quintile	Richest quintile
Farming	-	7.32	12.50	57.58	71.88
Agricultural labour	2.94	19.51	27.50	12.12	6.25
Manufacturing	29.41	21.95	12.50	6.06	9.38
Utilities	5.88	2.44	-	-	3.13
Construction	17.65	12.20	7.50	3.03	-
Trade	8.82	9.76	-	9.09	-
TSC	14.71	7.32	20.00	6.06	3.13
FIR	-	-	2.50	-	-
CSP	20.59	19.51	17.50	6.06	6.25
Factory work	20.59	19.51	12.50	12.12	9.38
Embroidery	-	-	-	-	-
Other manufacturing	11.76	7.32	2.50	-	-

Note: Figures are % of total workers in a given quintile.

Table 11: Employment pattern of female workers across quintiles

Industrial category	Poorest quintile	Second quintile	Third quintile	Fourth quintile	Richest quintile
Farming	9.09	3.45	-	-	-
Agricultural labour	-	-	-	-	-
Manufacturing	81.82	68.97	87.50	85.71	33.33
Utilities	-	-	-	-	-
Construction	-	-	-	-	-
Trade	-	6.90	-	7.14	-
TSC	-	-	-	-	-
FIR	-	-	-	-	-
CSP	9.09	20.69	12.50	7.14	66.67
Factory work	-	-	-	-	-
Embroidery	81.82	68.97	87.50	78.57	33.33
Other manufacturing	-	-	-	-	-

Note: Figures are % of total workers in a given quintile.

4. Access to Income Sources and the Extent of Income across Income Quintiles

The nature of the employment activity or its remunerative character is also reflected from the extent of rural households being dependent on them. While about one-third of the poorest two quintiles were having access to agricultural income, the proportion was as high as 76 per cent for the fourth quintile and 67 per cent for the richest quintile. The sub-components of agricultural income such as crop production, sale of milch animals and sale of milk showed a similar relationship with income levels. The dependence on non-farm income also declined with an increase in income. More than 86 per cent of the households from the poorest quintile and more than 95 per cent from the second quintile were deriving income from the non-farm sources, while the proportion of such households was only about 29 per cent for the richest quintile. There was no clear relationship between the proportion of households dependent on factory work and the income levels, though such relationship was negative in case of deriving income from embroidery work.

Table 12: Access to different sources of income

Industrial category	Poorest quintile	Second quintile	Third quintile	Fourth quintile	Richest quintile
Agricultural income	36.36	36.36	50.00	76.19	66.67
Crop income	18.18	9.09	22.73	61.90	66.67
Sale of animals	-	4.35	9.09	33.33	28.57
Sale of milk	27.27	36.36	50.00	66.67	61.90
Agricultural labour	4.56	36.36	31.82	19.05	9.52
Non-farm income	86.36	95.45	72.73	52.38	28.57
Manufacturing	9.09	22.73	27.27	19.05	28.57
Factory Work	9.09	18.18	22.73	14.29	23.81
Embroidery work	31.82	54.55	22.73	28.57	14.29
Utilities	-	-	4.55	-	4.76
Construction	-	27.27	31.82	14.29	4.76
Trade	-	13.64	13.64	-	9.52
TSC	4.55	9.09	22.73	23.81	23.81
FIR	-	-	9.09	-	-
CSP	4.55	27.27	22.73	23.81	19.05
Transfer income	50.00	31.82	54.55	52.38	52.38
Pension income	45.45	27.27	40.91	38.10	19.05
Rental income	9.09	-	11.64	23.81	19.05
Remittances	-	9.09	9.09	14.29	28.57

Note: Figures are % of the total households.

Further, the analysis of average household income across different quintiles reveals huge inequality in rural income distribution. Average annual income of the rural households ranging from the poorest to the richest quintile was Rs 24457, Rs 95122, Rs 153,903, Rs 338,530 and Rs 708,032, respectively (Table 13). The share of agricultural income in total household income of the poorest quintile was 21.69 per cent, such share was 15-16 per cent for the next two quintiles and as high as 49.69 per cent and 62.88 per cent for the fourth and fifth quintiles, respectively. On the other hand income from agricultural wage labour was not very prominent source of income for almost all the quintile groups with its share with the respective quintiles being 5.58 per cent, 11.40 per cent, 9.75 per cent, 1.69 per cent and 0.40 per cent. Non-farm income emerged as the major source of income, especially for the first three quintiles, where its share varied between 53 per cent and 70 per cent of the total household income. It declined to 34 per cent for the fourth quintile and 21 per cent for the richest quintile. It is important to highlight the inequality in income distribution and it is revealing that an average household from the richest quintile was earning almost 29

times the average income of an average household from the poorest quintile. In case of agricultural income, such ratio was about 84, which shows comparatively much higher inequality in agricultural incomes. It owes largely to highly skewed land distribution which is the most important determinant of agricultural income. Non-farm income was comparatively more equally distributed with this ratio of about 11. Such ratio for the transfer income was more than 24. Further, within the agricultural income, income

Table 13: Distribution of total household income across different quintile groups

Income source	Poorest quintile	Second quintile	Third quintile	Fourth quintile	Richest quintile
Agricultural income	5304.09 (21.69)	15229.55 (16.01)	24363.72 (15.83)	168215.19 (49.69)	445178.39 (62.88)
Income from agricultural labour	1363.64 (5.58)	10909.09 (11.47)	15000.00 (9.75)	5714.29 (1.69)	2857.14 (0.40)
Non-farm income	13107.27 (53.59)	66938.19 (70.37)	87066.36 (56.57)	116339.06 (34.37)	145711.44 (20.58)
Transfer income	4681.82 (19.14)	2045.45 (2.15)	27472.73 (17.85)	48261.91 (14.26)	114285.72 (16.14)
Total income	24456.82 (100.00)	95122.28 (100.00)	153902.81 (100.00)	338530.45 (100.00)	708032.69 (100.00)

Note: Figures are income in Rs/annum. Figures in parentheses are % of the total household income.

Table 14: Distribution of agricultural income across different quintile groups

Income source	Poorest quintile	Second quintile	Third quintile	Fourth quintile	Richest quintile
Crops	681.36 (2.79)	4629.55 (4.87)	6491.00 (4.22)	119712.33 (35.36)	364296.48 (51.45)
Sale of animals	-	1818.18 (1.91)	3636.36 (2.36)	20238.10 (5.98)	35714.29 (5.04)
Sale of milk	4622.73 (18.90)	8781.82 (9.23)	14236.36 (9.25)	28264.76 (8.35)	45167.62 (6.38)
Agricultural labour	1363.64 (5.58)	10909.09 (11.47)	15000.00 (9.75)	5714.29 (1.69)	2857.14 (0.40)
Total agricultural income	5304.09 (21.69)	15229.55 (16.01)	24363.72 (15.83)	168215.19 (49.69)	445178.39 (62.88)

Note: Figures are income in Rs/annum. Figures in parentheses are % of the total household income.

from sale of milk acquired greater prominence for the first three quintiles, while crop income assumed more prominence for the richest two quintiles. The crop income of the richest quintile was almost 535 times that of the poorest quintile (Table 14).

Due to comparatively higher dependence of the rural poor on non-farm employment activities and income sources, it is important to examine the constituents of such income across different quintiles. For the poorest quintile, income from manufacturing was the largest component of the non-farm income with 23.95 per cent share in the total household income (Table 15). Though the share of non-farm income in the total income of a household declined with an increase in the income levels, such income of the households from the richest quintile was almost five times the non-farm

Table 15: Distribution of non-farm income across different quintile groups

Income source	Poorest quintile	Second quintile	Third quintile	Fourth quintile	Richest quintile
Manufacturing	5858.18 (23.95)	17341.82 (18.23)	16658.18 (10.82)	28831.43 (8.52)	28834.29 (4.07)
Factory work	2522.73 (10.32)	8181.82 (8.60)	12181.82 (7.92)	14571.43 (4.30)	26828.29 (3.09)
Embroidery	3335.45 (13.64)	6660.00 (7.00)	2749.09 (1.79)	2831.43 (0.84)	291.43 (0.04)
Other manufacturing	-	2500.00 (2.63)	1727.27 (1.12)	11428.57 (3.38)	1714.29 (0.24)
Utilities	-	-	272.73 (0.18)	-	4000.00 (0.56)
Construction	-	12931.82 (13.59)	14522.73 (9.44)	10238.10 (3.02)	1785.71 (0.25)
THR	-	6954.55 (7.31)	3681.82 (2.39)	-	3142.86 (0.44)
TSC	818.18 (3.35)	2250.00 (2.37)	19227.27 (12.49)	21047.62 (3.02)	37142.86 (5.25)
FIR	-	-	4409.09 (2.86)	-	-
CSP	572.73 (2.34)	10118.18 (10.64)	11636.36 (7.56)	27390.48 (8.09)	41971.43 (5.93)
Total non-farm income	13107.27 (53.59)	66938.19 (70.37)	87066.36 (56.57)	116339.06 (34.37)	145711.44 (20.58)

Note: Figures are income in Rs/annum. Figures in parentheses are % of the total household income.

income of the household from the poorest quintile. The income from embroidery work was quite evenly distributed with the average earnings of the poorest household being Rs 3335 per annum as compared to Rs 2831 per annum for the household from fourth quintile. Further, the income from pension of the poorest quintile was less than one-fifth of such income of the richest quintile (Table 16). The rental income and remittances were even more unequally distributed with the ratio of income of the richest and the poorest quintile being 15 and 80, respectively.

Table 16: Distribution of total household income across different quintile groups

Income source	Poorest quintile	Second quintile	Third quintile	Fourth quintile	Richest quintile
Income from pension	2318.18 (9.48)	1227.27 (1.29)	7609.09 (4.94)	16714.29 (4.94)	12814.57 (1.82)
Rental income	2363.64 (9.66)	-	11000.00 (7.15)	18404.76 (5.44)	36190.48 (5.11)
Remittances	-	818.18 (0.86)	8863.64 (5.76)	13142.86 (3.88)	65238.10 (9.21)
Total transfer income	4681.82 (19.14)	2045.45 (2.15)	27472.73 (17.85)	48261.91 (14.26)	114285.72 (16.14)

Note: Figures are income in Rs/annum. Figures in parentheses are % of the total household income.

5. Income diversification and extent of income inequality

In this section, an effort has been made to highlight how the rural households were diversifying their income sources to come out of distress. The extent of income inequality has also been discussed in terms of the share of the poorest and the richest rural households. The diversification index[2] estimates the extent of diversification of household income and its value varies between 0 and 1. Higher value represents larger extent of income diversification. For estimation of diversification index for agricultural income, non-farm income and transfer income, these incomes have been further divided into various components. The agricultural income is divided into income from crop farming, income from sale of milch animals, income from sale of milk and income from agricultural wage labour. The non-farm income has been divided into 9 components such as factory income, income from embroidery work,

other manufacturing, utilities, construction, trade-hotel-restaurants, transport-storage-communication, finance-insurance-real estate and community-social-personal services. The transfer income has been divided into three components namely pension income, rental income and remittances. Though the value of diversification is influenced by the number of income sources into which the income is further divided, the comparison within the same component of income still remains meaningful to draw conclusions on the extent of inequality.

It is interesting to find that the diversity of agricultural income was less with the poorest income quintile (Table 17). It increased for the second and third quintile group but again followed a decline. The reason for less agricultural income diversity amongst the poorest households is lack of agricultural land which limits their chances to earn the crop income and also the income from sale of milk. As access to land improves for the second and third income quintile, the income diversity also increases for these groups. For the richest two quintiles, income agricultural income tends to get concentrated to the crop income and hence a decline in the income diversity. A similar pattern in the pattern and extent of diversification of non-farm income, transfer income as well as total household income was observed, where there was comparatively less diversification of the income of the poorest quintile, it increased for the next two income quintiles and declined for the richest two quintiles.

Table 17: Extent of income diversification across different quintile groups

Quintile	Farm Income	Non-farm income	Transfer income	Total income
Poorest	0.47	0.65	0.50	0.85
Second	0.68	0.82	0.48	0.89
Third	0.69	0.82	0.66	0.91
Fourth	0.49	0.78	0.66	0.81
Richest	0.32	0.72	0.56	0.68
Overall	0.46	0.81	0.64	0.60

An investigation into how the total income from various components is shared by various quintile groups reveals that the richest households are appropriating a huge chunk of all the components of rural household income. While the richest 20 per cent households accounted for 67 per cent of agricultural income, 33 per cent of the non-

farm income, 58 per cent of the transfer income and 53 per cent of the total income, the share of the poorest 20 per cent households was 0.84 per cent, 3.14 per cent, 2.47 per cent and 1.92 per cent, respectively (Table 18). Even the poorest 40 per cent of the rural households accounted for as low as 3.26 per cent of agricultural income, 19.18 per cent of non-farm income, 3.55 per cent of transfer income and 9.40 per cent of total income. It reveals that non-farm income was comparatively more equally distributed than the agricultural income and transfer income. Further, income from factory work and embroidery work were even more equally distributed. This is a good sign of the impact of rural-urban linkages on the livelihoods of rural poor.

Table 18: Share in different kinds of rural household income

Income source	Poorest 20%	Poorest 40%	Richest 20%
Agricultural income	0.84	3.26	67.41
Crops	0.14	1.12	73.39
Sale of milch animals	-	3.09	57.92
Sale of milk	4.73	13.72	44.11
Agricultural labour	3.85	34.62	7.69
Non-farm income	3.14	19.18	33.33
Manufacturing	6.17	24.45	29.00
Factory work	4.04	17.15	41.04
Embroidery work	21.21	63.56	1.77
Other manufacturing	-	14.91	9.76
Utilities	-	-	93.33
Construction	-	33.22	4.38
Trade	-	51.00	22.00
TSC	1.05	3.94	45.55
FIR	-	-	-
CSP	0.65	12.08	45.25
Transfer income	2.47	3.55	57.61
Pension income	5.89	9.00	31.16
Rental income	3.61	3.61	52.76
Remittances	-	0.97	73.70
Total income	1.92	9.40	53.11

Note: The income share is in per cent.

The gini ratio, factor inequality weights and extent of contribution of different sources of income to overall income inequality has also been examined. Non-agricultural income showed comparatively less inequality as than other sources of income (Table 19). The gini coefficient (G) was estimated as follows $G = \frac{2}{n\mu}\mathrm{cov}(y, r)$

Where, n = number of rural households, μ = Mean level of income of the rural household, y = series of income, and r = series of corresponding income ranks, the values of G were calculated for the total rural household income as well as for different sources of household incomes separately. The relative concentration coefficient was calculated as follows:

$$g_i = R_i \frac{G_i}{G}$$

Where, g_i = Relative concentration coefficient, G_i =Gini coefficient for the i[th] income source, and, G = Gini coefficient for the total income, and

$$R_i = \frac{\mathrm{cov(yi,r)}}{\mathrm{cov(yi,ri)}} = \frac{\text{covariance bewteen source income amount and total income rank}}{\text{covariance bewteen source income amount and source income rank}}$$

The value of g_i greater than unity indicated that the income source was income inequality increasing and a value of less than unity represented an income inequality decreasing source.

Factor inequality weight of a particular income source gives the proportional contribution of that source to the overall income inequality. The sum of factor inequality weights from all the sources is unity.

$$FIW = w_i g_i$$

Table 19: Contribution of different sources towards income inequality

Income source	Gini	Factor Inequality weight	Contribution towards income inequality (%)
Agricultural income	0.82	1.30	
Crops	0.86	1.38	56
Sale of milch animals	0.82	1.08	5
Sale of milk	0.70	0.90	7
Agricultural labour	0.93	0.14	-
Non-farm income	0.62	0.17	4
Manufacturing	0.87	0.53	4
Factory work	0.89	0.45	2
Embroidery work	0.79	0.34	-
Other manufacturing	0.98	0.83	1
Utilities	0.99	1.45	1
Construction	0.81	0.01	-
Trade	0.95	0.01	-
TSC	0.91	0.28	2
FIR	0.98	0.02	-
CSP	0.92	0.83	6
Transfer income	0.84	0.91	15
Pension income	0.90	0.49	2
Rental income	0.92	0.84	5
Remittances	0.94	1.16	8

Where, FIW = Factor Inequality Weight, and $wi = \frac{\mu i}{\mu}$, μi = Average income of the rural households from i[th] source, μ = Average income of the rural households

Further, factor inequality weights were pointing to the fact that while agricultural income had the inequality inducing character, the non-farm income and transfer income were reducing the inequality. While the contribution of agricultural income to the overall income inequality was 68 per cent, it was only 17 per cent through the non-farm income and 15 per cent through the transfer income.

6. Conclusions

The pattern of rural employment seems highly diversified with merely 21.22 per cent of the workers employed in farming and more than 68 per cent of them in the non-farm activities. Almost three-fouth of the female workers were engaged in embroidery work and most of the remaining in the community-social-personal services. The factory work accounted for about 5 per cent income and the share of embroidery work was 1.32 per cent. The embroidery work is not very remunerative but it helps the female work to generate some earnings and to contribute towards the household income. It is interesting to note that the factory employment has no clear relationship with the income levels. It may be due to the reason of regular employment as cited above. With declining profitability in agriculture and rising cost of cultivation coupled with increased working-age population, even the households from relatively richer quintiles would have preferred to look for regular employment activities in factories in the nearby urban areas. It somehow reflects that industrialization holds the key to absorb growing rural labor force in future. Amazingly, 70-80 per cent of the women workers from the first four quintiles were engaged in embroidery work. The income from embroidery work was quite evenly distributed with the average earnings of the poorest household being Rs 3335 per annum as compared to Rs 2831 per annum for the household from fourth quintile.

7. Further activities

The relationship of the embroidery work and factory work with income enhancement and its impact on reduction of poverty and income inequality will be explored. Important strategies to enhance such employment activities for the rural workers will also be identified.

NOTES

1. All the 108 households were arranged in terms of increasing per capita income. Later first 22 households were classified into the poorest quintile, next 22 into second quintile, next 22 into third quintile, next 21 into fourth quintile and the top 21 into the richest quintile.
2. The diversification index was estimated as $DI = 1 - \sum_{i=1}^{k} S_i^2$, Where, $S_{i,}$ = Proportion of income from i^{th} source.