Journal of Agricultural Development and Policy, 2017
Volume 27, No. 1&2, 29-36

Income and Employment pattern of rural households: A case study of High Hill Temperate Zone Households of Himachal Pradesh

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Abstract

Income and employment pattern has been reported in the rural areas of high hill temperate zone of Himachal Pradesh, based on the primary data collected from 60 rural households. The results revealed that the average family size of examined area comprised of 6 members where the percentage of male was found to be 53 percent. The average number of females per thousands of males was 889 in the study area. In the present study, number of nuclear families was found to be higher than the joint families. The average proportion of active workers was worked out to be 58.27 per cent and the overall dependency ratio w.r.t. total workers was found to be 1:1.40. Literacy situation revealed that nearly 83.48 percent family members were literate with a literacy index of 1.84, indicating poor quality of education in the study area. Average number of animals was found between 5-6 per household where maximum proportion constituted by sheep/goat and cows. About 48.48 percent of the total land holding was cultivated area with cropping intensity of 172 per cent. Income generated from different resources helped to elevate the socioeconomic status where maximum income generated from fruits (36.66%) and variation in income was highest in vegetables (61.35%).

Keywords: Literacy, Livelihood, Land holdings, Income, Cropping intensity

JEL Classification: R11, R20

Introduction

The state of Himachal Pradesh is a unique physiographic unit in western Himalayas. It has an area of 55,673 sq.kms, which constitute roughly $1/10^{th}$ or 9.4 percent of the total area of Himalayan region. Himachal Pradesh is a part of complex Himalayan physiography. Depending upon the physical condition the society has adopted itself by evolving different responses to the limited resources. Socioeconomic characteristics depict an economic difference in society as a whole. Socioeconomic status used for deep understanding that how society works, or perhaps how it should work. While it is understandable that few go beyond a cursory understanding of the construct, among social scientists the term is serious business because it connotes one's position in the social hierarchy, how the hierarchy is structured, and very often one's consequent life chances. In other words, socioeconomic status indicates one's access to collectively desired resources, be they material goods, money, power, friendship networks, healthcare, leisure time, or educational opportunities. And it is access to such resources that enable individuals and/or groups to prosper in the social world.

Social hierarchy, or stratification, appears to be intuitively recognized by most everyone everywhere (Smith *et al*. 2011). During social interactions various indicators are typically displayed or revealed in order to convey one's

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socioeconomic status to other members of the social group. Common indicators include professional titles, clothing, hairstyles, automobiles, residential addresses and so forth. It is access to such resources that enables individuals and/or groups to thrive in the social world. Those with higher socioeconomic status tend to thrive and many aim to improve their socioeconomic status – or the socioeconomic status of their offspring – in order to improve their life chances.

In the studied area most of the farmers were marginal farmers and few were small farmers where both the categories managed to generate their income by adopting diversification among crops in their farms. They produce different variety of vegetables, fruits and other cereal crops in different seasons. Apart from size of land holding income also affected by education status, no. of male members per households and no. of livestock per household etc.

The major socioeconomic factors that affected livelihood choice of rural dwellers in the place are age, number of years in school and agriculture in order to develop the sector of agriculture. Many households remained undiversified as they had combined activities within farming, commerce, skilled non-farm and low skilled non-farm sectors. Agriculture is the dominant source of income for farm households in India but the non-farm sources also contribute at a significant amount. The share of non-farm income declines with landholding size, but has a positive relationship with total income. Livestock also contributes to the large extent in the total income in the rural area. Socioeconomic status of an area depicts the standard of living of the people living there. The present study was conducted in a rural area of Himachal Pradesh where source of income was very limited and rural dwellers had to generate their income through these limited resources. Therefore the present study was undertaken to account for income and employment pattern of rural households in Parvati Forest Division of Kullu circle of Himachal Pradesh.

Data Sources and Methodology

Present study was conducted in the High Hill Temperate Wet Zone of Himachal Pradesh. Parvati forest division of Kullu circle was selected randomly. This forest division has four ranges out of which Hurla and Kasol ranges were selected. Two blocks each i.e., Garsa and Thela from Hurla range and Pulga and Tosh from Kasol range were selected. Further from the selected blocks one village each i.e., Garsa, Thela, Pulga and Barsheni were selected respectively. Fifteen households were selected from the each village.

The data from 60 households were collected with the aid of structured and comprehensive questionnaire exclusively prepared for the study. The data collected included information on age, gender, literacy level, land holding, livestock, total annual earnings etc. The data were collected through a personal interview method from the selected households in the study area during the year 2014-15.

Analytical framework

To fulfill the specific objectives of the study and based on the nature and extent of availability of data, analytical tools and techniques have been employed for the analysis of the data. Simple tabular analysis was used to examine socio-economic status, their resource structure, income patter. Tabular presentation was adopted to compile the general characteristics of the sampled farmers.

Simple statistical tools like averages and percentages were used to compare, contrast and interpret the results. The sex ratio, literacy rate and index were calculated using the following formulas:

$$\text{Sex Ratio} = \frac{\text{No .of Females}}{\text{No .of males}} \times 100$$

$$\text{Literacy rate} = \frac{\text{Total no. of literate}}{\text{Total population}} \times 100$$

$$\text{Literacy Index} = \frac{\sum W_i X_i}{\sum X_i}$$

Where;

W_i = Weights (0, 1, 2, 3 and 4) for illiterate, primary, middle, matriculation, and secondary & above respectively.

X_i = Number of persons in respective category.

$$\text{Dependency ratio w.r.t total workers} = \frac{\text{No. of dependents in a family}}{\text{Total workers}}$$

$$\text{Dependency ratio w. r. t. average size of family} = \frac{\text{No. of dependents in a family}}{\text{Total workers}}$$

$$\text{Cropping intensity} = \frac{\text{Gross cropped area}}{\text{Net sown area}} \times 100$$

Results and Discussion

Socio-economic characteristics of sampled-households

To have a comprehensive profile of the farm households, a demographic base becomes more relevant. The social characteristics such as family size, age, work force and sex composition of farm households, dependency ratio and literacy affect the economic conditions and in turn affect social conditions. The significance of the social and demographic variables is discussed below. First, the farmers are classified in to two categories (marginal and small) on the basis of land holding. The distribution of the sampled households according to their holding size is presented in Table 1. It can be seen from the Table 1 that 63 per cent of the selected respondents belonged to marginal category and 37 per cent belonged to small category. Further it can be observed that average size of holding of the selected respondents varied between 0.38 ha to 1.13 ha with an average of size of 0.66 ha.

Size and structure of family

The size and structure of sampled households in the studied area are presented in Table 2. The perusal of table shows that at overall level the average family size was 6 members per household, 5 members per household in case of marginal farmers and 6 members per household in small farmers. Almost all the households in the sample were male-headed. In the study area the percentage of males was 53 per cent and females were 47 per cent. The number of females per thousand of males ranged between 839 in case of marginal farm category to 939 in small farms with an average of 889 at the overall level. Number of nuclear families was higher (40) than the joint families (20). A positive relationship was found between the farm size and the family in the study area.

Literacy status

The overall literacy rate varied from 82.35 per cent to 84.61 per cent in marginal and small farm categories respectively. Male literacy rate was higher (85.91%) as compare to the female literacy rate (80.77%). The table 3 showed a marked improvement in the literacy rate. However, literacy index varied from 1.80 to 1.88 among the different

Table 1. Distribution of sampled households according to their land holdings

Category of Farmers	Size of land holding (ha)	No. of farmers	Percentage of farmers	Average size of holding (ha)
Marginal	<1	38	63.00	0.38
Small	1-2	22	37.00	1.13
Total		60	100.00	0.66

Table 2. Demographic profile of sampled households

Particulars	Farm size		
	Marginal	Small	Overall
Average size of Family (No.)	5	6	6
Number of Males (%)	54	52	53
Number of Females (%)	46	48	47
Sex Ratio (Females/1000 males)	839	939	889
Structure of Family			
Joint Families (No.)	11	9	20
	(29.94)	(40.90)	(33.33)
Nuclear Families (No.)	27	13	40
	(71.05)	(59.09)	(66.66)

Figures in parentheses indicate percentage to total

Table 3. Educational status of sampled households in the study area

Particulars	Farm Size		
	Marginal	Small	Overall
Illiterate	0.71	0.63	0.68
	(13.10)	(10.84)	(12.23)
Primary	1.34	1.5	1.4
	(24.72)	(25.82)	(25.17)
Middle	1.5	1.54	1.57
	(27.70)	(26.51)	(27.15)
Secondary	1.15	1.4	1.25
	(21.22)	(24.10)	(22.48)
High secondary	0.21	0.22	0.21
	(3.88)	(3.80)	(3.77)
Non-school going	0.5	0.5	0.5
	(9.23)	(8.60)	(8.99)
Total	5.42	5.81	5.56
	(100.00)	(100.00)	(100.00)
Literacy rate (%)	82.35	84.61	83.48
Male literacy rate (%)	85.15	86.67	85.91
Female literacy rate (%)	79.07	82.46	80.77
Literacy index	1.8	1.88	1.84

Figures in parentheses indicate percentage to total

categories of the farms with an overall index of 1.84. This highlighted the fact that literacy rate was higher however; the quality of education was poor as indicated by low literacy index.

Table 4. Occupational distribution of the sampled households in the study area **(%)**

Particulars	Farm Size		
	Marginal	Small	Overall
Service	3.54	4.48	4.01
Business	8.85	5.97	7.41
Agriculture	87.61	89.55	88.58

Occupational distribution

Per household occupational structure of the selected households is given in Table 4 and Occupational distribution showed that in selected villages of Parvati forest division around 88.58 per cent of the population was engaged in agriculture which was major constituents of livelihood occupation whereas, 7.41 per cent households were engaged in business as secondary occupation at overall level followed by services (4.01%) in private/public sectors. Similar trends in occupational distribution were observed on small and marginal farm categories. In case of marginal farms workers engaged in service were 3.54 per cent and in business were as 8.85 per cent. More members of the small farm category were engaged in business (5.97%) than in services (4.48 %). Though the share of income was very small from non-farming but it helps to reduce the income inequality among the farmers. Similar results were found by Birthal *et al*., 2014 that the share of non-farm income declines with landholding size, but has a positive relationship with total income. The nonfarm income diversification in China has been found to reduce income inequality and poverty (de Janvry *et al*., 2005).

Workforce

The proportion of active workers was worked out to be 59.70 per cent in marginal farmers and 56.25 per cent in small farm categories shown in Table 5. It was assumed that persons in the
age group of 15-60 year are actively engaged in useful economic activities and were termed as working force. The dependents were found 43.64 per cent in case of small farmers and 40.29 per cent in the marginal farmers. The overall

Table 5. Farm category wise distribution of workers and dependents of the sampled Households

Particulars	Farm size		
	Marginal	Small	Overall
Average no. of workers	3.23	3.27	3.24
	(59.70)	(56.25)	(58.27)
Average no. of dependents	2.18	2.54	2.31
(<14 yrs & >65yrs)	(40.29)	(43.64)	(41.54)
Average family size (No.)	5.42	5.82	5.56
	(100.00)	(100.00)	(100.00)
Dependency ratio w.r.t. total workers	1:1.47	1:1.29	1:1.40
Dependency ratio w.r.t. Family size	1:2.5	1:2.3	1:2.40

Figures in parentheses indicate percentage to total

Table 6. Distribution of sampled households according to the size of land holding

	Farm size (ha)			
Particulars	**Minimum**	**Maximum**	**Average**	**CV(%)**
Marginal	0.16	0.8	0.38	46.79
Small	1.04	1.6	1.13	16.7
Overall	0.16	1.6	0.65	63

dependency ratio with respect to total workers was found to be 1:1.40 and among the different categories, it was observed 1:1.29 in small farms and 1:1.47 in marginal farms. Dependency ratio indicates that on an average one worker has to support more than one member in the family in the sampled area. Dependency ratio estimated with respect to family size was found 1:2.40 on an average.

Distribution of sampled households according to farm size

According to size of land holding the farmers were categorized in the two categories; marginal and small farmers. Most of the farmers in the study area were having marginal and small land holdings. In case of marginal farmers the minimum size of land holding was 0.16 hectares, whereas maximum was 0.8 hectares. In case of small farmers minimum land holding was 1.04 hectares and maximum was 1.6 hectares. The data presented in Table 6, showed higher variations in land holding in marginal farmers (46.79%) compared to small farmers (16.70%) with overall variation of 63 per cent.

Table 7. Land use pattern of sampled household (ha)

Particulars	**Farm size**		
	Marginal	**Small**	**Overall**
Cultivated Land	0.21	0.52	0.32
	(55.26)	(46.01)	(48.48)
Orchard	0.11	0.23	0.15
	(28.94)	(20.35)	(22.72)
Pasture	0.04	0.22	0.11
	(10.53)	(19.47)	(16.18)
Barren Land	0.02	0.16	0.07
	(5.26)	(14.16)	(10.89)
Total Land Holding	0.38	1.13	0.66
	(100.00)	(100.00)	(100.00)

Figures in parentheses indicate percentage to total

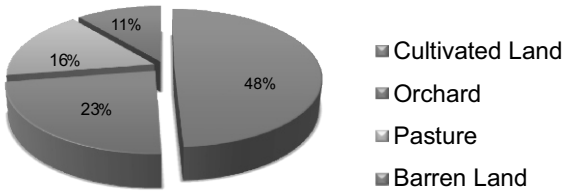

Fig 1. Land use pattern of sampled households in overall

Land use pattern of sampled households

Land use pattern determines the type of farming system in an area. Farm categories wise land use pattern of sampled farmers is summarized in Table 7. The average size of land holding on the overall category was found 0.66 hectares of which 48.48 per cent was cultivated area and 22.72 per cent was under fruit crops. The other uses of land were area under pastures/ghasnis (0.11 ha) and barren land (0.07 ha). The cultivated area of marginal and small farms was 55.26 per cent and 46.01 per cent respectively. The average size of holding on marginal and small farms was found to be 0.38 and 1.13 hectares, respectively. The results have also been presented in Fig 1.

Cropping pattern of sampled households

Cropping pattern in any region depends mainly on soil, altitude, micro-climate, availability of resources and management factors. The changes in the per cent share of area under different crops in the gross cropped area reveals the extent of agricultural diversification in sampled farms. This reflects the future scope of each crop along with tentative requirement of the inputs for different crops. A close scrutiny of the cropping pattern also suggests the status of agriculture in the area. The proportional share of a particular crop in gross cropped area on the farm suggests the importance that the farmer attaches to a particular crop. This importance can be both of economic nature as well as social considerations on the part of the farmer.

The cropping pattern of sampled farms was analyzed and the results have been presented in Table 8. It is evident from the table that the cropping intensity was higher (175%) on marginal farm category as compare to small farm category (168%). At overall level it was worked out to be 172 per cent, which indicates that there is a scope for increase in farm efficiency. Wheat in rabi and maize in kharif season were the predominant

Table 8. Farm category wise cropping pattern of the sampled households

Particulars	Farm size		
	Marginal	Small	
Overall			
Rabi			
Wheat	0.07	0.19	0.11
	(12.50)	(15.07)	(13.58)
Barley	0.07	0.10	0.08
	(12.50)	(7.93)	(9.88)
Pea	0.03	0.07	0.04
	(5.35)	(5.56)	(4.94)
Potato	0.03	0.07	0.04
	(5.35)	(5.56)	(4.94)
Kharif			
Maize	0.08	0.13	0.10
	(14.28)	(10.31)	(12.35)
Tomato	0.03	0.06	0.05
	(5.35)	(4.76)	(6.17)
Cabbage	0.02	0.05	0.03
	(3.57)	(3.97)	(3.70)
Cauliflower	0.02	0.05	0.03
	(3.57)	(3.97)	(3.70)
Urad	0.03	0.12	0.06
	(5.35)	(9.52)	(7.41)
Urad under	0.02	0.04	0.03
fruit area	(3.57)	(3.17)	(3.70)
Rajmah	0.03	0.11	0.06
	(5.35)	(8.73)	(7.41)
Rajmah under	0.02	0.04	0.03
fruit area	(3.57)	(3.17)	(3.70)
Fruit	0.11	0.23	0.15
	(19.64)	(18.25)	(18.52)
Gross Cropped	0.56	1.26	0.81
Area	(100.00)	(100.00)	(100.00)
Net sown area	0.32	0.75	0.48
Cropping	175	168	172
intensity (%)			

Figures in parentheses indicate percentage to total

crops. Vegetable crops were also grown in the study area however, area under kharif vegetable crops was found higher in comparison to rabi vegetable crops. Cereal crops were grown in cultivated land and small proportion was also grown under fruit crops. The area under fruit crops was 19.64 per cent on marginal farms and 18.25 per cent was on small farms. The analysis revealed that marginal farms were using the land more intensively.

Table 9: Livestock inventory of sampled households

(Number)

Particulars	Marginal	Small	Overall
Cow	1.47	1.54	1.49
	(26.39)	(30.92)	(28.38)
Milk	1.15	1.27	1.2
Dry	0.31	0.27	0.29
Sheep/Goat	2.82	1.81	2.44
	(45.24)	(36.34)	(46.47)
Young stock	0.76	1.04	0.86
	(13.64)	(20.88)	(16.38)
Bullock	0.52	0.36	0.46
	(9.33)	(7.22)	(8.76)
Total	5.57	4.98	5.25
	(100.00)	(100.00)	(100.00)

Figures in parentheses indicate percentage to total

Livestock inventory

Livestock was raised traditionally in the study area for wide spectrum of benefits such as cash income, food, manure, saving and insurance. Average number of livestock is summarised in Table 9. Overall number of animals was found to be 5.25 per household whereas, on marginal farms it was found 5.57 and on small farmers 4.98 animals respectively. Out of total livestock population, maximum proportion constituted sheep/goat (46.47%) followed by cows (28.38%) and young stock (16.38%). Bullocks were found to be very few in number 0.46 (8.76%). Similar trends were found on small and as well as on marginal farms.

Income and Employment Structure of Sampled Households

Income structure

In order to calculate income structure as a whole, income from different particulars (vegetables, fruit and cereals) have been calculated. The present study revealed that villagers earn good amount of income from vegetables, fruits and cereals. Average income of marginal farmers from farm is Rs. 93735 whereas small farmers' average income was Rs. 156885 and overall income from farm was Rs. 118023. In case of marginal farmers fruit, cereal and vegetable contributed 35.51per cent, 17.99 per cent and 16.48 per cent respectively whereas in case of small farmers fruits contributed 37.75 per cent, cereals contributed 21.31 per cent and vegetables contributed 21.41

Table 10 : Source of income of sampled households

(Rs./HH/year)

Particulars	Marginal		Small		Overall					
	Mini.	Max.	Average	CV (%)	Mini.	Maxi.	Average	CV (%)	Average	CV (%)
Vegetables			15454	41.9	1812		33602	44.9	22434	61.3
	5000	31150	(16.48)	5	5	73875	(21.41)	3	(19.00)	5
Cereal crops			16864	55.9	1590		33437	32.2	23238	55.0
	7950	42100	(17.99)	5	0	49900	(21.31)	8	(19.68)	2
Fruits			33292	48.3	2750		59233	42.3	43269	54.2
	0	70500	(35.51)	3	0	10100	(37.75)	4	(36.66)	9
Livestock			28125	26.0	2800	0	30613	15.2	29082	22.3
	0	44800	(30.00)	9	0	44800	(19.51)	5	(24.64)	1
Farm	5545	14621		25.2	9480	22286	156885	21.8	118023	35.3
	0	9	93735	3	0	3	(100)		(100)	2
			(100)							

Figures in parentheses indicate percentage to total

per cent. It shows maximum income came from fruits in both the cases and overall income also came from fruits (36.66%) followed by cereals (19.68%) and vegetables (19%). Livestock also played a very important role in their income in the studied area. In case of marginal farmers livestock contributed 30 per cent and in case of small farmers it contributed about 19.51 per cent whereas overall income from livestock was 24.64 per cent. Similar results were found by Biradar *et al*., 2013 that the percent contribution of livestock to the household income ranged from 18.60 to 33.90 percent . The average income obtained from buffalo farming was Rs. 75,236 (Sivaji *et al*., 2018)**.** Thus the study revealed that overall fruits played a very important role in the income of farmers of marginal as well as small farms followed by livestock, cereals and then vegetables.

Variation in income from different sources was also calculated and maximum variation was found in income from vegetables (61.35%) due to the variation in land holding. Overall variation in income from farm activities was recorded as 35.32 per cent.

Conclusion and Policy Implications

Socio-economic indicators revealed that majority of the sampled households have nuclear families where average family size ranged from 5 to 6 persons, out of which 53 per cent were males. Literacy situation revealed that nearly 83.48 per cent family members were literates at overall level

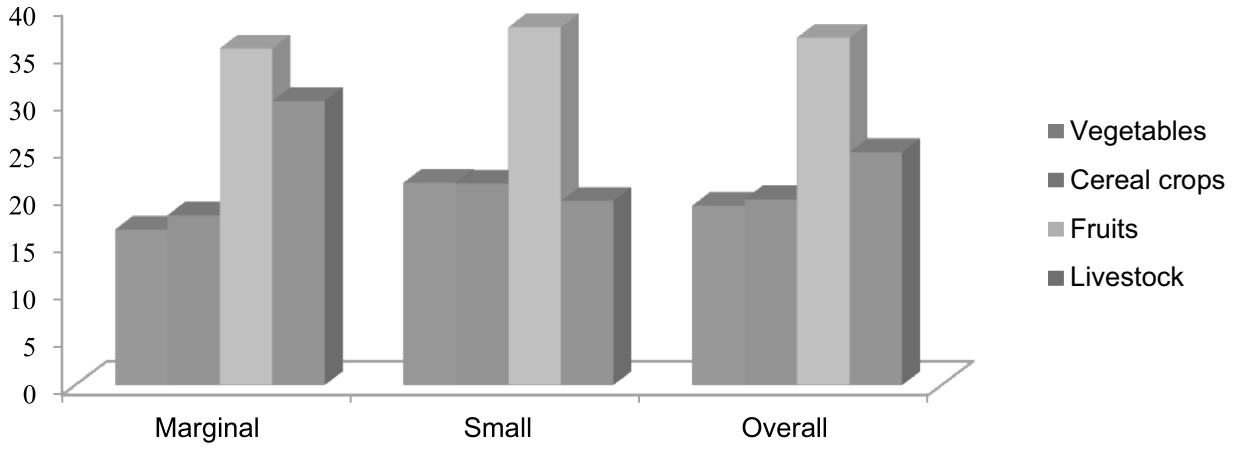

Fig 2. Income from different sources of sampled households

with a literacy index of 1.84, indicating poor quality of education in the studied area. Occupational distribution revealed that 88.58 per cent of work force in the sampled households practice farming, followed by business sector (7.41%) and service sector (4.01%). On an average 58.27 per cent were the workers in family in overall farms. The overall dependency ratio w.r.t. total worker was worked out to be 1:1.40 and dependency ratio w.r.t. family size was 1:2.40 indicating that on an average one worker has to support more than two family members. The average size of land holding was found 0.66 hectares of which 48.48 per cent was cultivated area. The cultivated land varied from 55.26 per cent to 46.01 per cent in marginal to small categories of the farm. The cultivation of cereal crops was more common followed by fruit crops. Cropping intensity was 172 per cent at the overall level. Fruits contributed maximum in the income of both small (35.51%) as well as large farm categories (37.75%). Average income of marginal farmers was worked out to be Rs. 93735 and in case of small farmers it was Rs. 156885/HH/year. Maximum variation was found in income from vegetables i.e. 61.35 % due to variation in land holding of farmers. There is a need for establishing basic infrastructures especially for health and education to increase the crop-production and productivity. Market structure should be developed at a sufficient rate to impact on the reduction of chronic poverty.

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Received: April 28, 2017 Accepted: August 10, 2017