

# Role of Agriculture in Socio-economic Development: A case study of Mid Hills, Sub Humid Zone of Himachal Pradesh

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## ABSTRACT

For the current study, mid hills, sub-humid agro-climatic zone i.e. Zone II of Himachal Pradesh was selected. 30 blocks of 8 different districts i.e. Kangra, Hamirpur, Bilaspur, Mandi, Shimla, Kullu, Solan, and Sirmaur, were considered for the current study. Multistage random sampling technique was used for the selection of the 320 respondents. The data about the socio-economic conditions of rural people and their dependence on agriculture was recorded using the questionnaire method. The study's objective was to analyze agriculture's role in improving the rural people's socio-economic status. For the comparison, farmers were divided into marginal, small, and medium according to the size of their land holdings. It was analyzed that no. of marginal and small farmers were more than medium. The literacy rate of medium farmers was highest i.e., 85.65 percent, and the literacy index of small farmers was found to be highest, i.e., 2.84. The dependency ratio of marginal farmers was highest i.e., 0.27. Total annual farm income was estimated as ₹ 1190540.67, and non-farm income was estimated as ₹ 463634.20.

**Keywords:** Socio-economic condition, mid hills, sub humid zone, land holdings, dependency ratio, literacy rate, livestock inventory, income distribution

Agriculture is a very vital sector in any economy of the world, it not only employs a large portion of the population but also ensures food security, which is undoubtedly one of the less recognized requisites for development (Alston, 2012). There is a number of socio-cultural, economic, political, technological, and infrastructural factors which also determine the agricultural land use, cropping patterns, and agricultural processes. The development of improved agricultural practices and the emphasis that various local and international development agencies, as well as government agencies put on irrigation system and smallholder agricultural

development, necessitates a holistic approach to the revitalization of this important agricultural sector in the country (Berg, 2013).

Agriculture is called as the backbone of the Indian economy frequently. The agriculture sector has been facing hardship for a long time. Agricultural workers are generally bifurcated as cultivators and

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laborers (Yuvraja, 2019). A higher rate of return in the agriculture sector is mainly dependent up on land holding, dependency ratio, education, livestock, crops sown and labor force, etc. The agriculture sector is the backbone of an economy that provides the basic ingredients to mankind and now raw material for industrialization. It has already made a significant contribution to the economic prosperity of advanced countries, and its role in the economic development of less developed countries is of vital importance (Praburaj, 2018). Cross-country studies show that on average, in the developing world, agriculture tends to have an impact on both national growth and poverty reduction that is greater than its simple share of national GDP. The econometric evidence strongly suggests that the agriculture sector contributes to growth more than its share of GDP (Valdes and Foster, 2010).

The present study endeavors to examine the potential of agriculture in promoting an integrated development in a regional rural economy by capturing and recording its interconnections with other sectors of economic activity. Agriculture is an essential driver of growth throughout the region, contributing to the increase of the local gross output by approximately ₹300mil. Only by the inflow of funds, while 14% of it is diffused into sectors other than agriculture (Loizou *et al.* 2019).

### Methodology

For the current study, mid hills- sub-humid agro-climatic zone i.e., Zone II of Himachal Pradesh, was selected. A multistage random sampling technique was used to select the respondents. For information collection from respondents, 30 percent of districts were selected from 8 districts i.e., Kangra, Kullu, and Solan districts. 20 percent blocks among all the blocks representing a good cross-section was selected for each district as first-stage units. Further, two village panchayats were selected randomly from each block as second stage units, and from these village panchayats, two villages were selected as third stage units. Data from 10 respondents of each village was recorded. In this way a sample of 320 respondents was taken to study our objectives in mid hills- sub-humid agro-climatic zone of Himachal Pradesh.

To achieve the objectives of the present study, the primary data was collected on well-designed and

pre-tested schedules from the selected households by personal interview method.

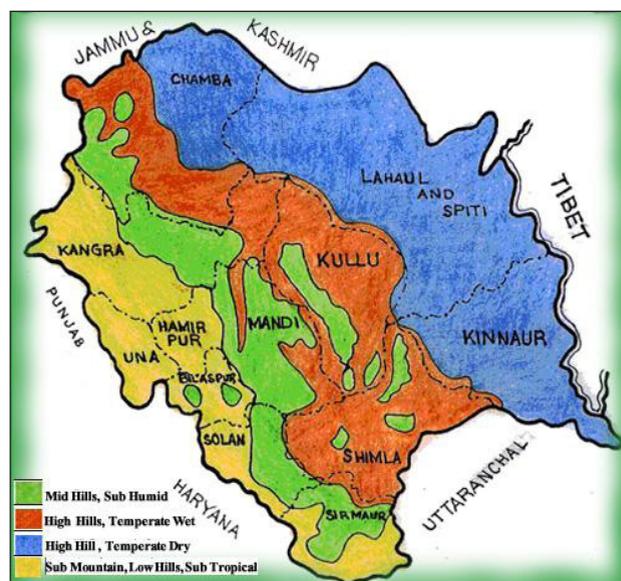


Fig. 1: Map of Agro-climatic Zones of Himachal Pradesh

Detailed information was collected on demographic features such as family size, age, education, socio-economic parameters, economic parameters, land utilization, livestock, cropping pattern, income.

For socio-economic analysis following tools and techniques were employed:

#### (a) Average

The arithmetic mean or simply average is obtained by dividing the sum of given values by their number. If the variable is denoted by  $x$  is given, viz.,  $x_1, x_2, \dots, x_n$  then the arithmetic mean of  $x$  is;

$$\mu = \sum_{i=1}^n \frac{x_i}{n}$$

#### (b) Age-Dependency Ratio

The dependency ratio is computed with the help of the following formula:

$$\text{Dependency ratio} = \frac{P_{65+} + P_{0-14}}{P_{15-64}} \times 100$$

Where  $P_{0-14}$ ,  $P_{60+}$  and  $P_{15-59}$  denote the population in the age groups 0-14, 60+ and 15-59, respectively.

### (c) Crude Literacy Rate

This may be expressed as follows:

$$\text{Crude literacy Rate} = \frac{L}{P} \times 100$$

where  $L$  and  $P$  indicate number of literate persons in the population and total population, respectively.

### (d) Sex ratio

This may be expressed as follows:

$$\text{Sex ratio} = \frac{\text{Total population of females}}{\text{Total population of males}} \times 1000$$

## RESULTS AND DISCUSSION

The socio-demographic profile of the sampled households is presented in table 1. The total numbers of households sampled were 320, out of which 81,

124, and 115 were found to be marginal, small, and medium, respectively. The average family size in the study area was found to be 5.10, the highest family size was found to be 5.23 for small farm size, and the lowest was found to be 4.99 for medium farm size families. Overall male percentage in the study area was found to be 51.81%, with a maximum male percentage of 52.30% in marginal farm size families and a minimum male percentage of 51.23% in small farm size families. Kavita (2018) also categorized the farmers based on the size of the land holdings and found that 38.2% of total farmers are marginal and own below 1-hectare land. 25% of farmers hold 1-2 hectare of land. 11 farmers have 2-4 hectares of land, constituting 18.3%. 7 farmers, 11.7% have 4-10 hectares of land.

Table 2 literacy status of the sampled households according to their farm size. This table revealed that medium farm size farmers showed a maximum

**Table 1:** Socio-demographic profile of sampled household

| Particulars                            | Farm Size  |            |            |             |
|--|------------|------------|------------|-------------|
|  | Marginal   | Small      | Medium     | Overall     |
| Number of sampled households           | 81         | 124        | 115        | 320         |
| Average size of family member (number) | 5.09       | 5.23       | 4.99       | 5.10        |
| Males (%)                              | 52.30      | 51.23      | 51.91      | 51.81       |
| Females (%)                            | 47.69      | 48.77      | 48.08      | 48.18       |
| Sex ratio                              | 912.04     | 951.80     | 926.17     | 930         |
| <b>Structure of family</b>             |            |            |            |             |
| Joint Families (number)                | 35 (43.20) | 51 (41.13) | 50 (43.47) | 136 (42.50) |
| Nuclear Families (number)              | 46 (56.79) | 73 (58.87) | 65 (56.53) | 184 (57.50) |

\*Figures in parentheses indicate percentage of the overall.

**Table 2:** Literacy status of respondents according to farm size

| Farm Size |         | Particulars |            |             |             |             |             |           |              |             |
|-----------|---------|-------------|------------|-------------|-------------|-------------|-------------|-----------|--------------|-------------|
|           |         | I           | P          | M           | HS          | SS          | G           | NS        | LR           | LI          |
| Marginal  | Male    | 21 (9.72)   | 36 (16.67) | 40 (18.52)  | 37 (17.13)  | 39 (18.06)  | 37 (17.13)  | 6 (2.78)  | 87.50        | 2.70        |
|           | Female  | 27 (13.71)  | 29 (14.72) | 44 (22.34)  | 41 (20.81)  | 34 (17.26)  | 17 (8.63)   | 5 (2.54)  | 83.76        | 2.41        |
|           | Overall | 48 (11.62)  | 65 (15.74) | 84 (20.34)  | 78 (18.89)  | 73 (17.68)  | 54 (13.08)  | 11 (2.66) | 85.63        | 2.56        |
| Small     | Male    | 26 (7.83)   | 37 (11.14) | 46 (13.86)  | 64 (19.28)  | 65 (19.58)  | 77 (23.19)  | 17 (5.12) | 87.04        | 3.07        |
|           | Female  | 44 (13.92)  | 36 (11.39) | 55 (17.41)  | 74 (23.42)  | 46 (14.56)  | 46 (14.56)  | 15 (4.75) | 81.33        | 2.60        |
|           | Overall | 70 (10.80)  | 73 (11.27) | 101 (15.59) | 138 (21.30) | 111 (17.13) | 123 (18.98) | 32 (4.94) | 84.26        | <b>2.84</b> |
| Medium    | Male    | 22 (7.38)   | 43 (14.43) | 43 (14.43)  | 40 (13.42)  | 72 (24.16)  | 62 (20.81)  | 16 (5.37) | 87.25        | 3           |
|           | Female  | 37 (13.41)  | 27 (9.78)  | 55 (19.93)  | 67 (24.28)  | 51 (18.48)  | 32 (11.59)  | 7 (2.54)  | 84.06        | 2.61        |
|           | Overall | 59 (10.28)  | 70 (12.19) | 98 (17.07)  | 107 (18.64) | 123 (21.43) | 94 (16.37)  | 23 (4.01) | <b>85.65</b> | 2.81        |

\*I - Illiterate, P- Primary, M- Medium, HS- High Secondary, SS- Senior Secondary, G- Graduation, NS- Non School going, LR- Literacy Rate, LI- Literacy Index.

literacy rate of 85.65 percent, whereas small farm size farmers showed a minimum literacy rate of 84.26 percent. Literacy index of small farm size farmers was found to be highest with a value of 2.84, which showed the prevalence of good quality education. Gummagolmath *et al.* (2020) showed that irrespective of the land holding size, the average family size was 5-6 members per family and the average education level was 7 to 10 years.

To work out the dependency ratio, it was assumed that persons aged 14-65 years should be engaged in useful economic activities and were termed a work force. Above and below this age group were considered as dependents for the present study.

**Table 3:** Distribution of workers and their dependents based on farm size

| Particulars                             | Farm Size       |                        |                        |
|---|-----------------|------------------------|------------------------|
|   | Marginal        | Small                  | Medium                 |
| Average number of workers per family    | 3.71<br>(72.88) | <b>4.03</b><br>(77.16) | 3.49<br>(70.03)        |
| Average number of dependents per family | 1.38<br>(27.12) | 1.19<br>(22.84)        | <b>1.50</b><br>(19.97) |
| Average family size                     | 5.09            | 5.23                   | <b>4.99</b>            |
| Dependency ratio                        | <b>0.27</b>     | 0.22                   | 0.19                   |

\*Figures in parentheses indicate percentage of the total (N=320).

Table 3 shows the distribution of workers and their dependents based on farm size. The average number of workers per family was found to be highest for small farm size, i.e., 4.03, and lowest was found for medium farm size, i.e., 3.50 in the study area. The average number of dependents per family was found to be highest for medium farm size i.e., 1.50 and the lowest was found for small farm size, i.e., 1.19 in the study area. The average family size was highest for medium farm size i.e. 5.65 and the lowest was found for marginal farm size, i.e., 5.10 in the study area. The dependency ratio was found to be highest for marginal farm size i.e., 0.27, and lowest was found for medium farm size, i.e., 0.19, in the study area. Thakur (2012) estimated that 45.62 percent of the total sample population in economically active aged between 18-60 years in mid hill area of Himachal Pradesh.

Table 4 shows the land utilization pattern of the sampled households. The average cultivated land

holding in the study area for marginal, small, and medium farm size families was found to be 0.33, 0.83, and 1.58 ha, respectively. The overall average cultivated land holding for the study area was found to be 0.98 ha i.e., 62.07 percent of the total land holdings. The average area under field crop in the study area for marginal, small, and medium farm size families was found to be 0.26, 0.54, and 0.96 ha, respectively.

**Table 4:** Land Utilisation Pattern of the sampled households (ha)

| Particulars                       | Farm Size (Average) |       |        | Overall      |
|-----------------------------------|---------------------|-------|--------|--------------|
|                                   | Marginal            | Small | Medium |              |
| Cultivated land                   | 0.33                | 0.83  | 1.58   | 0.98 (62.07) |
| Area under Field Crop             | 0.26                | 0.54  | 0.96   | 0.62 (35.64) |
| Area under Vegetables             | 0.04                | 0.10  | 0.37   | 0.18 (16.88) |
| Area under Orchards               | 0.04                | 0.20  | 0.30   | 0.20 (10.28) |
| Ghasnis and Forestland            | 0.23                | 0.55  | 0.91   | 0.60 (33.14) |
| Non-Agricultural land             | 0.05                | 0.07  | 0.11   | 0.08 (3.52)  |
| Irrigated Land                    | 0.11                | 0.27  | 0.46   | 0.30 (26.49) |
| Un-irrigated Land                 | 0.22                | 0.55  | 1.15   | 0.68 (73.51) |
| Average landholding per household | 0.95                | 2.29  | 4.23   | 2.65         |

\*Figures in parentheses indicate percentage of the total.

The overall average area under field crop for the study area was found to be 0.62 ha i.e. 35.64 percent of the total land holdings. The average area under vegetables in the study area for marginal, small, and medium farm size families was found to be 0.04, 0.10, and 0.37 ha, respectively. The overall average area under vegetables for the study area was found to be 0.98 ha, i.e., 16.88 percent of the total land holdings. The average area under orchards in the study area for marginal, small, and medium farm size families was found to be 0.04, 0.20, and 0.30 ha, respectively. The overall average area under orchards for the study area was 0.20 ha i.e., 10.28 percent of the total land holdings. The average area under ghasnis and forestland in the study area for marginal, small, and

medium farm size families was found to be 0.23, 0.55, and 0.91 ha, respectively. The overall average area under ghasnis and forestland for the study area was found to be 0.60 ha, i.e., 33.14 percent of the total land holdings. Bardhan and Tewari (2010) showed the change in the land utilization pattern of Himachal Pradesh from 1992-93 to 2005-06.

Table 5 shows the livestock inventory per household for the study area. The standard animal unit shown in table 5 were given by Sirohi *et al.* (2019) for different regions of India. The major agricultural animals found in the study area per household and their respective standard animal unit were cow (0.70), buffalo (0.60), bullock (0.32), goat (0.31), and sheep (0.30). The Standard Animal Unit (SAU) per household for marginal, small, and medium farm categories was found to be 2.61, 2.57, and 2.18, respectively. The overall SAU per household for the study area was 2.44.

Table 6 shows the average annual income of households in the study area. The farm average

annual income of marginal, small, and medium land-holding farmers in the study area was estimated as ₹ 176707.00, 380798.67, and 633035.00, respectively. The non-farm average annual income of marginal, small, and medium land-holding farmers in the study area was estimated as ₹ 92272.33, 184028.54, and 187333.33, respectively. A total average annual income of marginal, small, and medium land-holding farmers in the study area was estimated as ₹ 268979.33, 564827.21, and 820368.33, respectively. Total annual farm income was estimated as ₹ 1190540.67, and non-farm income was estimated as ₹ 463634.20. Agriculture has been found to be the most significant source of income for farm households, and it makes up 42.91 percent of the total income on an average, while wages and salaries activities, with a share of 32.01 percent of the total income, comprise the second largest income source after agriculture and non-farm income contributes only 13.52 percent to the total household income (Dev K *et al.* 2022).

**Table 5:** Livestock inventory per household

| Livestock                         | Standard Animal Unit | Farm Categories |       |        |         |
|-----------------------------------|----------------------|-----------------|-------|--------|---------|
|                                   |                      | Marginal        | Small | Medium | Overall |
| <b>Cow</b>                        |                      |                 |       |        |         |
| a) Milking                        | 1.00                 | 1.05            | 1.13  | 1.34   | 1.19    |
| b) Dry                            | 1.00                 | 0.19            | 0.28  | 0.26   | 0.25    |
| c) Young Stock                    | 0.63                 | 0.57            | 0.57  | 0.78   | 0.65    |
| Total                             | —                    | 0.60            | 0.66  | 0.79   | 0.70    |
| <b>Buffalo</b>                    |                      |                 |       |        |         |
| a) Milking                        | 1.70                 | 0.21            | 0.15  | 0.52   | 0.30    |
| b) Dry                            | 1.70                 | 0.09            | 0.06  | 0.36   | 0.18    |
| c) Young Stock                    | 0.63                 | 0.11            | 0.07  | 0.19   | 0.12    |
| Total                             | —                    | 1.34            | 0.14  | 0.09   | 0.60    |
| Bullock                           | 1.11                 | 0.32            | 0.27  | 0.38   | 0.32    |
| Sheep                             | 0.20                 | 0.21            | 0.17  | 0.50   | 0.30    |
| Goat                              | 0.20                 | 0.25            | 0.23  | 0.45   | 0.31    |
| Average Animal Unit per household | —                    | 2.61            | 2.57  | 2.18   | 2.44    |

**Table 6:** Average annual income of farmers in the study area

| Average Annual Income (₹) | Farm Categories |           |           | Total      |
|---------------------------|-----------------|-----------|-----------|------------|
|                           | Marginal        | Small     | Medium    |            |
| Farm Income               | 176707.00       | 380798.67 | 633035.00 | 1190540.67 |
| Non-farm Income           | 92272.33        | 184028.54 | 187333.33 | 463634.20  |
| Total                     | 268979.33       | 564827.21 | 820368.33 | 1654174.87 |

## CONCLUSION

It was concluded that no. of marginal and small farmers was more than medium farmers. The literacy rate of medium farmers was highest i.e., 85.65 percent, and the literacy index of small farmers was found to be highest, i.e., 2.84. Dependency ratio of marginal farmers was highest i.e., 0.27. Total annual farm income was estimated as ₹ 1190540.67, and non-farm income was estimated as ₹ 463634.20. Farmers were found to be more oriented towards agricultural activities for their income rather than non-farm activities.

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