A Geographical Analysis of Agricultural Workers in Punjab-Haryana Plains: 2011

Poonam Bharti[1],   Dr. Shivjeet Kaur[2]

Research Scholar, Assistant Professor

Department of Geography, PunjabiUniversity Patiala, Punjab

Department of Geography, Punjabi University Patiala, Punjab

[1]Poonam 4601@gmail.com

ABSTRACT

The major objective of the paper is to analyze the existing patterns of agricultural workers, cultivators and agricultural laborers in Punjab-Haryana Plains during 2011. For achieving the above objective, the study is divided into five parts. Firstly, the proportion of workers to total population is discussed. The second part deals with variations in agricultural workers. But the third part explains the spatial patterns of cultivators. While in fourth part agricultural laborers are discussed. Finally conclusions are drawn and suggestions are made in fifth part. It is observed from the study that average share of workers in the study region is 35.07 per cent which varies between 20.04 per cent in Rohtak district to 42.67 per cent in Mansa district. In case of proportion of agricultural workers to total workers is 40.06 per cent for the study region and recorded lowest of 9.83 per cent in Faridabad district and highest of 63.51 per cent in Jind district. In case of cultivators to total agricultural workers, the region's average is 68.17 per cent which ranges between 40.67 per cent in Fazilka district to 79.55 per cent in Mahendragarh district. The proportion of agricultural laborers to total agricultural workers in the study region is 41.29 per cent. It is found lowest of 20.45 per cent in case of Mahendragarh district and highest of 59.33 per cent in Fazilka district. It is also found that these spatial variations in total workers, agricultural workers, agricultural laborers and cultivators are governed by the physio-socio-economic factors. It is also observed that urbanization and industrialization play their significant role in the spatial patterns of these variables. The present study is empirical in nature and is based on secondary sources of data. District is taken as unit of study. Simple statistical methods are used for deriving the results and cartographic techniques are used for mapping the results.

INTRODUCTION

In today's world the agricultural sector employs half of the world's labor force with an estimated 1.3 billion works active in agricultural production worldwide. The majority of agricultural workers are found in developing countries. A great majority are small scale farmers. They have been more often victims rather the beneficiaries of the green revolution, the technological development and globalization trends which characterized the 20th century (Manigandan and Vetrivel, 2013). According to the National Commission on labor "an agricultural laborer is one who is basically unskilled and unorganized and has little for its livelihood other than personal

labor". All those persons who derive a major part of their income as payment for work performed on the farms of others can be designated as agricultural laborers. For a major part of the year they should work on the land of the others on wages. One of the most distinguished features of the rural economy of India has been the growth in the number of agricultural workers, cultivators and agricultural laborers engaged in crop production. (Padhi, 2007).

Mamaoria (1976), states that one of the most disquieting features of the rural economy of India has been the growth in the number of agricultural workers (cultivators and agricultural laborers) engaged in crop production. Morgan and Pugh (1971) observed that the phenomenon of under-employment, under development and surplus population are all simultaneously manifested in the daily lives and livings of agricultural laborers. The level of labor input per unit of land or capital depends on its availability, its cost and the need to achieve a given level of output. Systems of production vary in their total labor requirements as well as in the seasonality of their demands Farming remains a traditional occupation for a majority of farmers (cultivators) and farm laborers. This helps to explain the fact that the agricultural laborer is less occupationally mobile than other forms of employment. The size of agricultural labor is declining in the western world but labor productivity increasing, due mainly to the substitution of machinery for men. The level of labor inputs depends on various interrelated factors, including its cost and availability, land quality, the desire to obtain a particular level of output and the type of farm system practiced (Ilbery, 1985). The availability of labor is also an important factor in farming. Labor requirements for different crops and different livestock vary immensely (Symons, 1968).

The availability of labor is also a major constraint in the agricultural land use and cropping patterns of a region. Labor represents all human services other than decision making and capital. The availability of labor, its quantity and quality at the period of peak labor demand have great influence on decision making process of the farmers. The different crops and agrarian system vary in their total labor requirements. The labor inputs vary considerably round the year for most of the agricultural enterprises with the result that many farmers employ a mixed system of production in order to keep their labor fully employed. Even then in many parts of India, seasonal unemployment remains on most of the holdings, while during the peak periods of sowing (rice, wheat, sugarcane, vegetables and potatoes) and harvesting there acute shortage of labor which influences the sowing and harvesting operations and there by affect the decision of a farmer whether to grow or not a crop (Husain, 1997).

OBJECTIVES

The major purpose of the present paper is to reveal the spatial distribution of agricultural workers in Punjab-Haryana Plain. It is also the aim of the paper to know the factors responsible for distribution of agricultural work force in 2011.
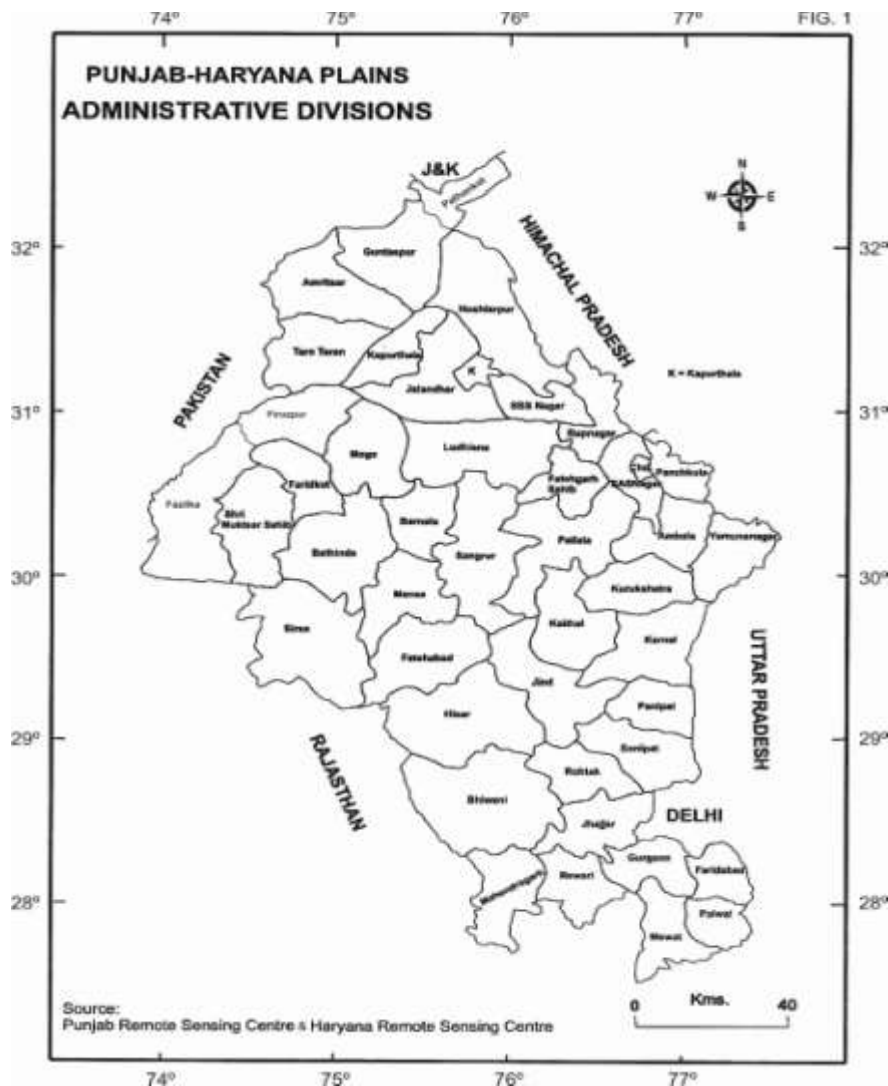
METHODOLOGY

This study is empirical in nature and secondary sources of data are taken. Simple statistical techniques are used for deriving the results and cartographic techniques are applied for mapping the results.

STUDY AREA

It is situated in north-west of India and contains Punjab and Haryana states with total reporting area of 94,572 sq km which comprises 2.88 percent of the total reporting area of India. Its extent ranges between 27°37' North latitude to 32°32' North latitude and between 73°55' East longitude to 77°46' East longitude.

The study area is a homogenous plain with exception of Shiwaliks in north-east and shoot outs of Aravallis in the south. Average annual rainfall is 60 cm. There are severe winters and severe summers. Annual co-efficient of variability in annual rainfall is over 20 per cent. There are 43 districts. Out of total population of 53057317 persons, 33853551 persons are rural and 19241249 are urban.

DISCUSSION

This paper is divided into four parts and is discussed as under:

- Total workers
- Agricultural workers
- Cultivators
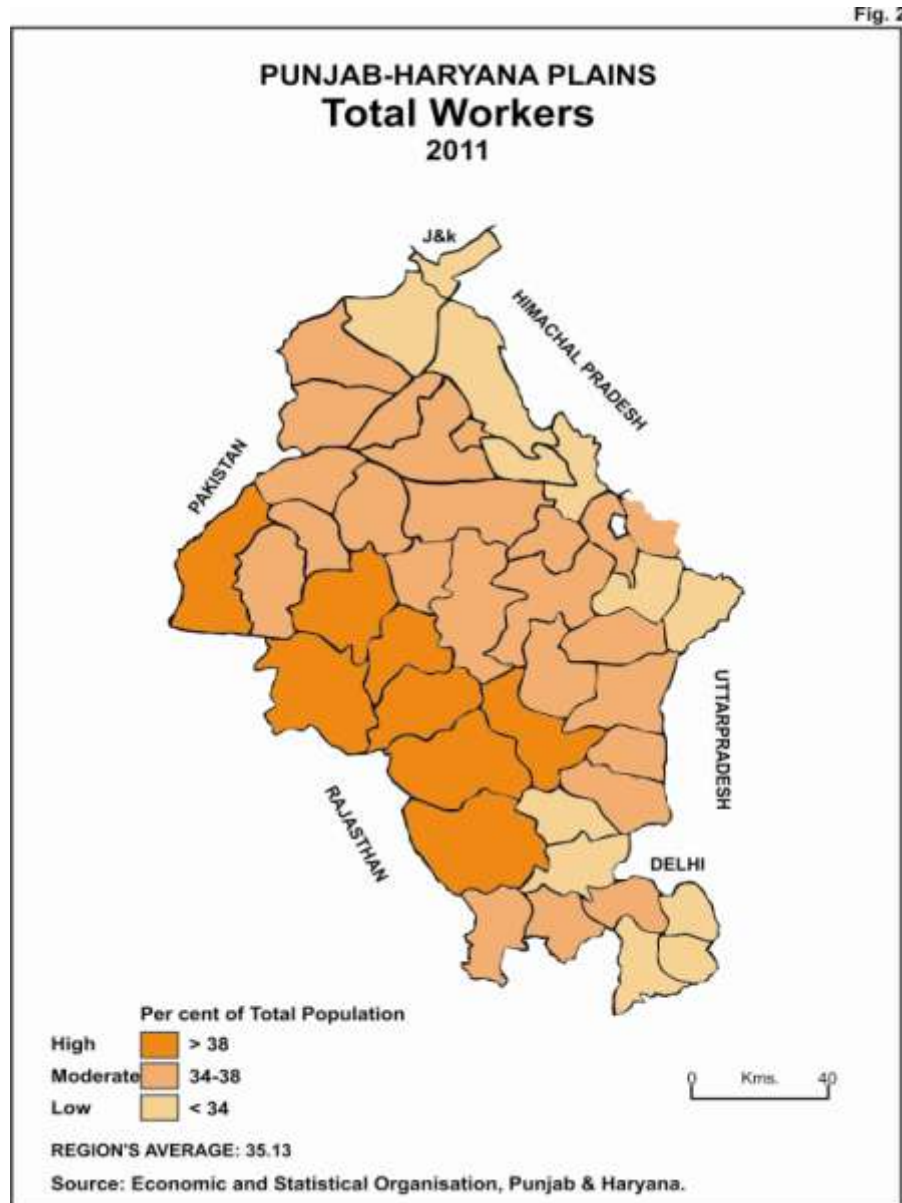- Agricultural Laborers

TOTAL WORKERS

There are 18680313 workers out of 53174800 of the total population of the study region which yield 35.13 per cent of the total population. The per cent age of the total workers to the total population is lowest of 24.04 per cent in Rohtak district and highest of 42.67 per cent in Mansa district. The region's average of 35.13 is not uniformly distributed. Some districts have high per cent of work force as compared to other districts. For knowing the spatial variations in workers Fig.2 is mapped which portrays 3 categories. These are discussed below:

1. **Areas of high work force (above 38 per cent):** This category is confined to western parts of the region and is found in a continuous belt which runs from Bhiwani district to Bathinda district. 7 districts form this belt namely Bhiwani, Hisar, Jind, Fatehabad, Mansa, Sirsa and Bathinda. Except this compact belt there is one more district namely Fazilka. These are the lagging behind districts of the study region where most of the population is engaged in agricultural activities and there either cultivators or agricultural laborers. The level of literacy is low. Socio-economic condition is also poor because majority of the population is working on farms.

2. **Areas of moderate work force (34-38 per cent):** Twenty three districts form this category and region's average of 35.13 per cent also falls in it. It is found in one compact belt and one patch. The belt contains 20 districts namely Amritsar, Tarn Taran, Kapurthala, Jalandhar, Firozpur, Muktsar, Faridkot, Moga, Ludhiana, Barnala, sangrur, fatehgarh sahib, s.a.s nagar, Panchkula, Patiala, Kurukshetra, Kaithal, Karnal, Panipat, Sonipat. Here it varies between 34-38 per cent. These areas are mixture of agricultural and non-agricultural activities. Literacy is also varying between moderate to high. Industrial developed districts like Jalandhar, Ludhiana, Panchkula, S.A.S. Nagar, Karnal, Panipat, Gurgaon, etc. also fall in it. From agricultural point of view this belt is highly developed. Agriculture is highly mechanized which requires comparatively less labor force. Most of the people working in industrial town. The main reasons for moderate work force in these industrialized districts are migrated labor from

Uttar Pradesh, Bihar and Madhya Pradesh. Another patch of this category is lying in the south comprising the districts of Gurgaon, Rewari and Mehandragrh. Gurgaon is highly industrialized and Rewari and Mehandragarh are highly developed industrially in recent times. But majority of work force is from outside the region. Secondly some workers shifted to Delhi permanently which also affected the workers proportion of total population.

Fig. 2

PUNJAB-HARYANA PLAINS
Total Workers
2011

Per cent of Total Population

High — > 38
Moderate — 34-38
Low — < 34

REGION'S AVERAGE: 35.13

Source: Economic and Statistical Organisation, Punjab & Haryana.

3. **Areas of low work force (less than 34 per cent):** There are total 12 districts in this category and are lying along the eastern part. There is one belt and three patches of this category. The belt runs from Pathankot to Rupnagar along the shiwalik.and covers districts of Pathankot, Gurdaspur, Hoshiarpur, Nawashaher, Rupnagar. Here there shiwalik foothills, piedmont plains, high density of population. Owing to difficult terrain most of the people are in government jobs even the literacy level is also high. These are some of the reasons for low work force in this belt. Other districts are Ambala, Yamunanagar, Rohtak, Jhajjar, Faridabad and Mewat which have recorded low proportion of total workers.

From above discussion, it is concluded that areas with high proportion of workers (over 38 per cent) are found in western parts of the study region which are agriculturally lagging behind, comparatively low density of population and far away from industrialized areas. While, the categories of low share of workers (less than 34 per cent) lying along the eastern parts which are problematic areas from agricultural point of view which are Pathankot, Gurdaspur and Hoshiarpur lying along Delhi. Most of the people of these districts have migrated to Delhi and as a result work force is low. Whereas it is moderate in areas between these two categories which are industrially advanced and are having six districts with high magnitude of industrialization. In addition to it these are agriculturally developed also.
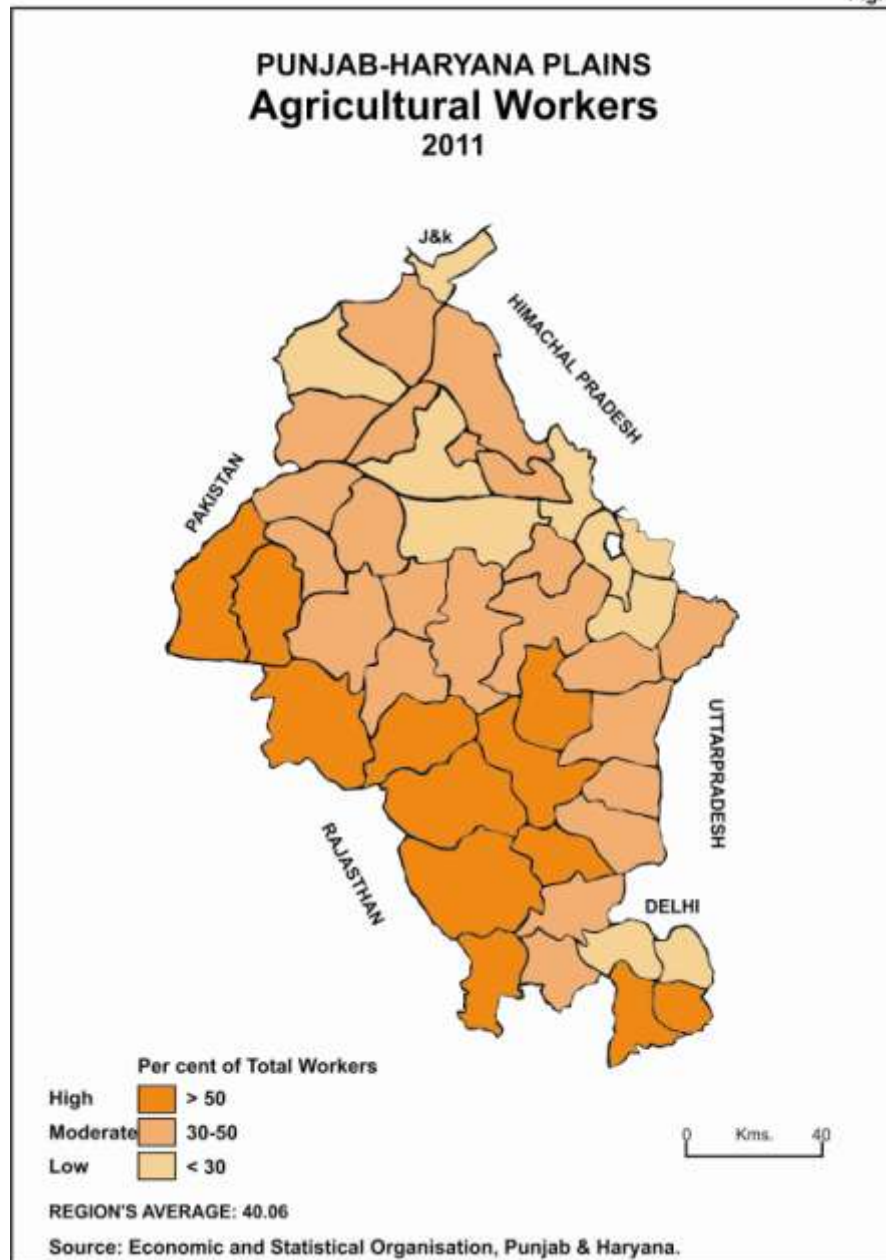
AGRICULTURAL WORKERS

An agricultural worker is someone who works on a farm, maintaining the quality of farms, crops, and by operating machinery and doing physical labor. He may be cultivator or laborer on wages. Out of 1,86,80313 workers the number of agricultural workers is 74,83,371 in Punjab-Haryana plains during 2011.In other words, agricultural workers constitute 40.06 per cent of the total workers. But this figure of 40.06 per cent is not uniformly distributed in all districts of the study region and owing to different reasons like presence of industries, urban centers, literacy rate, predominance of agricultural activities, tertiary activities etc. The proportion of agricultural workers in the study region ranges between 9.83 per cent in Faridabad district and 63.51 per cent in Jind district. Thus for making an in depth study of the spatial distribution of agricultural workers an attempt is made and for this purpose figure is mapped which depict three categories which are as follow:

1. Category of high proportion of agricultural workers (over 50 per cent): It is found in south-western and western parts of the study region. It covers the districts of Fazilka, Muktsar, Sirsa, Mansa, Fatehabad, Hisar, Jind, Kaithal, Rohtak, Bhiwani, Mahendragarh, Mewat and Palwal. These are lying far away from the major industrial and urban centers like Amritsar, Jalandhar, Ludhiana, S.A.S. Nagar, Faridabad, Gurgaon and the National Capital Delhi and region's capital Chandigarh. Moreover, degree of infrastructural development, level of literacy etc. are also low. Owing to above reasons for majority of the workers opted for work in agricultural sector either as cultivators or agricultural laborers. Due to all these factors, the share of agricultural workers is recorded high.

Fig. 3

PUNJAB-HARYANA PLAINS
Agricultural Workers
2011

Per cent of Total Workers

High   > 50
Moderate   30-50
Low   < 30

REGION'S AVERAGE: 40.06

Source: Economic and Statistical Organisation, Punjab & Haryana.

2. Category of moderate proportion of agricultural workers (30-50 per cent): Region's average of 40.06 per cent falls in this category. It is lying between the categories of low and high per cent share of

Table no. 2

Punjab-Haryana plains: per cent share of agricultural workers to total workers-2011

Sr.No.	Districts	Per cent of Total workers
1	Gurdaspur	38.78
2	Pathankot	18.00
3	Amritsar	26.82
4	Tarn taran	51.76
5	Kapurthala	34.36
6	Jalandhar	19.67
7	Nawashaher	31.92
8	Hoshiarpur	32.83
9	Rupnagar	28.74
10	S.A.S. Nagar	17.60
11	Ludhiana	18.63
12	Firozpur	40.01
13	Fazilka	59.6
14	Faridkot	48.42
15	Muktsar	58.92
16	Moga	48.45
17	Bathinda	49.07
18	Mansa	59.76
19	Sangrur	43.77
20	Barnala	48.15
21	Patiala	30.64
22	Fatehgarh Sahib	30.56
23	Ambala	29.60
24	Panchkula	18.68
25	Yamunanagar	34.62
26	Kurukshetra	45.96
27	Kaithal	57.14
28	Karnal	47.67
29	Panipat	32.61
30	Sonipat	46.65
31	Rohtak	58.26
31	Jhajjar	48.14
33	Faridabad	9.83
34	Gurgaon	15.26
35	Rewari	38.76
36	Mahendragarh	55.36
37	Bhiwani	62.97
38	Jind	63.51
39	Hisar	58.60
40	Fatehabad	62.38
41	Sirsa	62.01
42	Mewat	55.01
43	Palwal	49.16
	Average	40.06

Source: Economic and Statistical Organization of Punjab and Haryana

.
agricultural workers. The districts which are found in this category are Gurdaspur, Tarn Taran, Kapurthala, Hoshiarpur, S.B.S. Nagar, Firozpur, Faridkot, Muktsar, Moga, Bathinda, Barnala, Sangrur, Fatehgarh Sahib and Patiala of Punjab and Yamunanagar, Kurukshetra, Karnal, Panipat Sonipat, Jhajjar and Rewari districts of Haryana. In case of districts falling in Punjab state, the reasons are moderately industrial development, moderately infrastructural development, and moderate literacy rate and nearest to the highly urbanized and industrialized districts. But reasons for districts which fall in Haryana are firstly Kurukshetra, Ambala, Karnal, Panipat and sonipat are lying along the G.T. road, secondly Rohtak and Jhajjar districts are very close to Delhi and Gurgaon. Thus a high proportion of workers are commuters to Gurgaon and Delhi from these districts. They go for work in industries and tertiary activities. Therefore owing to all these reasons the proportion of agricultural workers is recorded moderate in this category.

  3. **Category of low proportion of agricultural workers (less than 30 per cent):** This category is largely confined to North-Eastern parts of the study region. There are 10 districts in this category namely Pathankot, Amritsar, Jalandhar, Rupnagar, Ludhiana, S.A.S Nagar, Panchkula, Ambala, Gurgaon and Faridabad. The proportion of agricultural workers is low in Pathankt owing to the presence of Pathankot cantonment which provides employment to the local people and moreover unfriendly relief for agriculture purposes. While the districts of Amritsar, Jalandhar, Ludhiana, S.A.S. Nagar, Rupnagar, Gurgaon and Faridabad are highly industrialized as compared to the other parts of the study region. Moreover high literacy rate, and modernized agriculture, small size of land holdings etc. are responsible for low share of agricultural workers in this category. All these factors combinedly provide employment to workers in non-agricultural sector and as a result the proportion of agricultural workers is noted low

From the above discussion, it is clear that, areas which are far away from industrialized and urbanized areas have high proportion of agriculture workers. Whereas with areas with small land holdings and have major urban and industrialized centers like Jalandhar, Ludhiana, Gurgaon, Fridabad, Delhi, tricity of Mohali, Chandigarh, Panchkula the proportion of agricultural workers is low. But areas lying between these two categories of high and low proportion are having moderate share of agricultural workers because these are having moderate magnitude of urbanization and industrialization, but are good in agriculture.
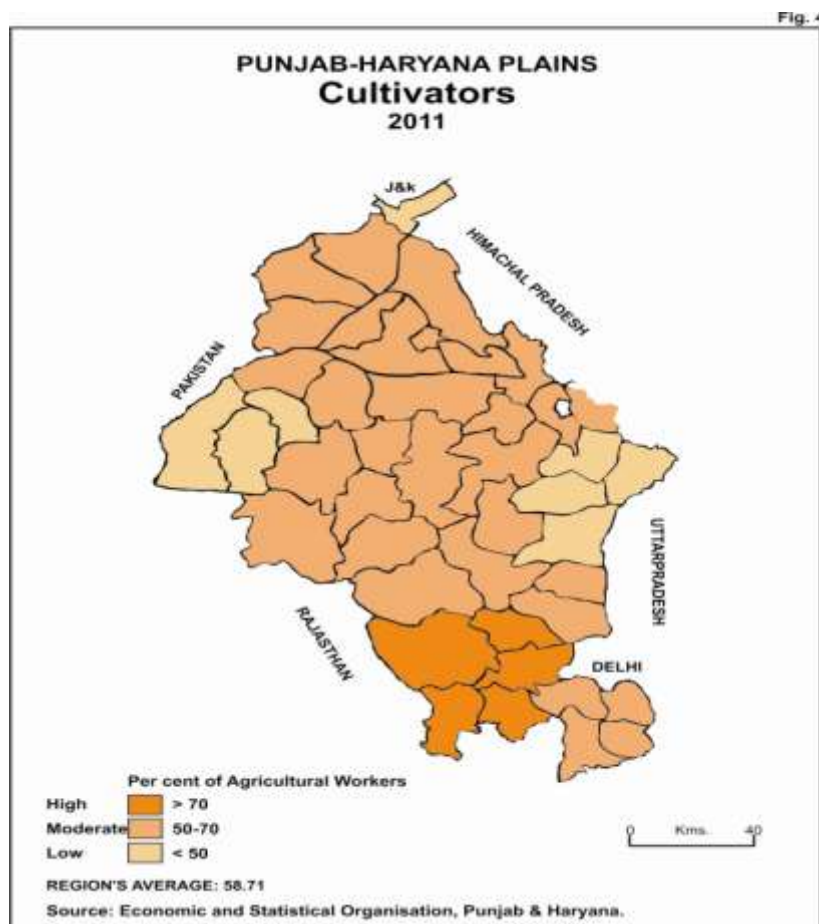
CULTIVATORS
A person who cultivates land either of his own or on rent for cultivation, for money, kind or share of crop is called as cultivators. In Punjab and Haryana plains the proportion of cultivators to the total agricultural workers is 58.71 per cent according to 2011 census. Proportion of cultivators varies 40.67 per cent in Fazilka district and 79.55 per cent in Mahendragarh district.

To know this great variation in the distribution of cultivators figured 3 is mapped which portrays three categories. These categories are discussed below:

1. Category of high per cent share of cultivators (>65 per cent): Five districts comprise this category which are confined to south-western parts of the study region and form a continuous belt. Districts fall in this category are Bhiwani, Rohtak, Jhajjar, Mewat, Mahendragarh and Rewari. In case of Rohtak and Jhajjar majority of the landless labourers preferred to work in factories and in other services in the cities of Gurgaon, Faridabad and Delhi. In other districts owing to low literacy, small size of landholding and less developed agricultural infrastructure farmers hardly use hired labour because of the avalability of family labour. These are main reasons for high proportion of cultivators in this category.

2. Category of moderate per cent share of cultivators (50-70per cent): This category comprises the districts namely Gurdaspur, Amritsar, Tarn Taran, Kapurthala, Hoshiarpur, Rupnagar, S.A.S. Nagar, S.B.S. Nagar, Panchkula, Jalandhar, Firozpur, Moga, Ludhiana, Barnala, Bathinda, Sangrur, Mansa, Fatehgarh Sahib, Patiala, Sirsa, Kaithal, Panipat, Sonipat, Faridabad, Palwal, Hisar and Gurgaon. It is found in one compact belt and two patches. In all these areas, proportion of cultivators varies from 50 to 70 per cent which shows that farmers cultivate there land without hiring large number of agricultural laborers.

Fig. 4

PUNJAB-HARYANA PLAINS
Cultivators
2011

Per cent of Agricultural Workers

High		> 70
Moderate		50-70
Low		< 50

REGION'S AVERAGE: 58.71
Source: Economic and Statistical Organisation, Punjab & Haryana.

Table no. 3

Punjab-Haryana plains: per cent share of cultivators to total workers-2011

Sr.No.	Districts	Per cent of agricultural workers
1	Gurdaspur	59.98
2	Pathankot	49.59
3	Amritsar	50.61
4	Tarn taran	58.78
5	Kapurthala	56.58
6	Jalandhar	56.24
7	Nawashaher	65.31
8	Hoshiarpur	54.69
9	Rupnagar	67.95
10	S.A.S. Nagar	65.22
11	Ludhiana	58.79
12	Firozpur	53.80
13	Fazilka	40.67
14	Faridkot	49.61
15	Muktsar	43.81
16	Moga	52.65
17	Bathinda	52.43
18	Mansa	53.97
19	Sangrur	63.13
20	Barnala	60.86
21	Patiala	55.94
22	Fatehgarh Sahib	67.41
23	Ambala	47.99
24	Panchkula	67.53
25	Yamunanagar	45.64
26	Kurukshetra	44.51
27	Kaithal	59.91
28	Karnal	45.64
29	Panipat	53.62
30	Sonipat	58.31
31	Rohtak	74.02
31	Jhajjar	71.47
33	Faridabad	48.61
34	Gurgaon	67.40
35	Rewari	78.44
36	Mahendragarh	79.55
37	Bhiwani	73.54
38	Jind	69.29
39	Hisar	65.42
40	Fatehabad	57.43
41	Sirsa	52.77
42	Mewat	65.34
43	Palwal	60.12
	Average	58.70

Source: Economic and Statistical Organization of Punjab and Haryana

These labourers also prefer to work in urban centers like Jalandhar, Amritsar, Ludhiana, Patiala, Panipat, Faridabad and Gurgaon etc. secondly in all these areas, agriculture is modernized and farmers prefer seasonal labor which generally comes from UP and Bihar during peak like transplantation of rice and harvesting of rice and wheat crops. Owing to the above mentioned reasons, the proportion of agricultural labor force is noted low which consequently lead to moderate share of cultivators.

3.   Category of low per cent share of cultivators (<50 per cent): It is found in two belts and one patch. First belt contains the districts of Fazilka, Muktsar, Faridkot. Here the size of land holding is large and farmers have to hire agricultural labourer on large scale for doing farm work. Moreover, it is very lagging behind areas in respect of literacy and agricultural infrastructure. The second belt is having four districts namely Ambala, Kurukshetra, Yamunanagar and Karnal. Here most of the farmers hire labour force owing to moderate to large size of lands supplemented by fertile lands. Among them some of the farmers are absentee land lords who don't cultivate their lands themselves and hire more agricultural labour force which resulted into low share of cultivators. In Faridabad, the number of cultivator is also low because here also farmers prefer to work in factories or in urban areas and thus most of the work is done by hire labour force in their lands. In case of Pathankot, the terrain is hilly and some farmers are very big landlords which prefer to hire agricultural labour force for doing their

Thus above discussion reveals that areas with small size of land holdings, nearness to the major urban centers like Delhi, Gurgaon, Panchkula, S.A.S. Nagar, etc. have high share of cultivators. While, areas which are far away from the major urban centers and having large size of land holdings are having low per cent share of cultivators. But areas with urbanization, industrialization and moderate size of land holdings have moderate proportion of cultivators.

AGRICULTURAL LABORERS

Any person who worked on others land for wages whether in cash or kind or share is regarded as an agricultural laborer. Such a person has no risk in cultivation because he worked in another person's land for wages. Moreover, an agricultural laborer had no right of lease or contract of land on which he worked.
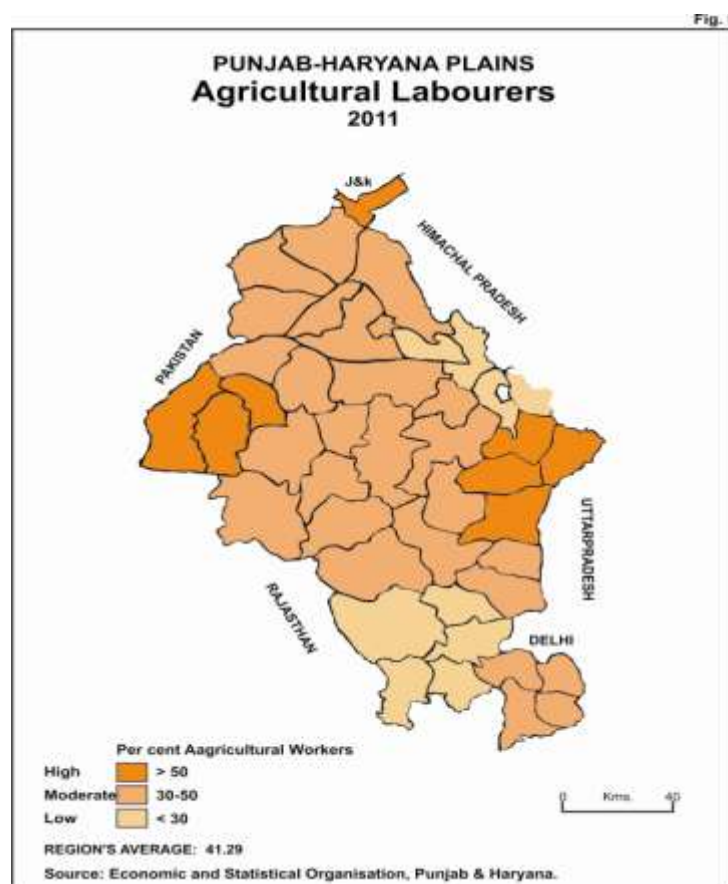
Share of agricultural laborers to the total agricultural workers is 41.29 per cent in Punjab-Haryana plains. But this average of 41.29 per cent is not uniformly distributed throughout the study region. It is lowest of 20.45 per cent in Mahendragarh district and highest 59.33 per cent) in Fazilka district. To know the spatial variations in agricultural laborers fig. 4 is mapped which depicts three categories and these are discussed below:

1. High proportion of agricultural laborers (over 50 per cent):

This category does not found in a compact belt, but it is scattered in two belts and one patch. First belt of this category comprises the districts of Fazilka, Muktsar and Faridkot. Here the per cent share of agricultural laborer is higher owing to the large size of land holdings and as a result

farmers require a large number of work forces to work on their farms. Secondly, it is backward area from the point of literacy, urbanization, industrialization and agricultural infrastructural facilities etc. Thus the landless workers do not have enough opportunities to earn their livelihood from non-agricultural sector. Therefore they have to confine themselves to agricultural sector for earning their livelihood on other land. The second belt of this category comprises the districts of Ambala, Yamunanagr, Kurukshetra and Karnal. In this part of the study region, moderate size of land holdings and intensive cultivation which required more agricultural labourers. Though some of the landless labourers go to Panchkula S.A.S. Nagar and Chandigarh for working in industries yet these tricities are far away from the districts of Yamunanagr, Ambala, Kurukshetra and Karnal. Therefore the share of agricultural labourer is noted high. While in Pathankot tehsil, the land is less fertile land, large size of land holdings; low agricultural modernization, etc. are responsible for high share of agricultural laborers.

Table No. 4

Punjab-Haryana plains: Agricultural laborers in 2011

Sr.No.	Districts	% Share of agricultural workers
1	Gurdaspur	40.02
2	Pathankot	50.41
3	Amritsar	49.39
4	Tarn taran	41.22
5	Kapurthala	43.42
6	Jalandhar	43.76
7	Nawashaher	34.69
8	Hoshiarpur	45.31
9	Rupnagar	32.05
10	S.A.S. Nagar	34.78
11	Ludhiana	41.21
12	Firozpur	46.2
13	Fazilka	59.33
14	Faridkot	50.39
15	Muktsar	56.19
16	Moga	47.35
17	Bathinda	47.35
18	Mansa	46.03
19	Sangrur	36.87
20	Barnala	39.14
21	Patiala	44.06
22	Fatehgarh Sahib	32.59
23	Ambala	52.01
24	Panchkula	32.47
25	Yamunanagar	54.36
26	Kurukshetra	55.49
27	Kaithal	40.09
28	Karnal	54.36
29	Panipat	46.38
30	Sonipat	41.69
31	Rohtak	25.98
32	Jhajjar	28.53
33	Faridabad	48.61
34	Gurgaon	32.6
35	Rewari	21.56
36	Mahendragarh	20.45
37	Bhiwani	26.46
38	Jind	30.71
39	Hisar	34.58
40	Fatehabad	42.57
41	Sirsa	47.23
42	Mewat	34.66
43	Palwal	39.88
	Average	41.29

Source: Economic and Statistical organization of Punjab and Haryana

2. **Moderate proportion of agricultural laborers (35-50 per cent):** It contains 69.77 per cent of the total occurrences and is a predominant category of the study region. It has one large compact belt and one patch. The compact belt comprises 26 districts namely Gurdaspur,

Amritsar, Tarn Taran, Faridkot, Firozpur, Hoshiarpur, S.B.S. Nagar, S.A.S.Nagar, Rupnagar, Fatehgarh Sahib, Kapurthala, Jalandhar, Moga, Ludhiana, Barnala, Bathinda, Sirsa, Mansa, Sangrur, Patiala, Panchkula, Kaithal, Jind, Panipat, Sonipat and Fatehabad, . The per cent age of agricultural laborer is high in the districts of Gurdaspur,Tarn Taran, Amritsar, Hoshiarpur, Kapurthala and Jalandhar because of the existence of industrial centers of Amritsar, Kapurthala and Jalandhar. In Hoshiarpur district, most of the people are in army and paramilitary forces which are mostly landless people. While in Ludhiana district, moderate rate is owing to industrialization because many people engaged in industrial activities and consequently share of agricultural labourer come down to moderate. Whereas, in Firozpur, Bathinda, Moga, Barnala, Mansa, Sangrur, Patiala, Kaithal, Fatehabad and Sirsa, Jind districts, the proportion of cultivators is also of moderate nature which is resulted into moderate proportion of agricultural laborers. While, in case of Panipat, Sonipat, Faridabad and Palwal, these are industrially developed and also very close to Delhi. Thus, majority of the landless laborers do works in factories and other establishments in Delhi which consequently lead to moderate share of agricultural laborers.

3. Low proportion of agricultural laborer (less than 35 per cent):

It covers 5 districts and contains 11.63 per cent of the total occurrences. This category is confined to southern parts of the study region and comprises the districts of Bhiwani, Rohtak, Mahendragarh, Jhajjar and RewarI. Jhajjar and Rohtak are very close to the vicinity of Delhi which attract people for work in non-agriculture sector and led to low per cent share of agriculture labor force. But in rest of the districts, namely Bhiwani, Mahendragarh and Rewari the socio-economic backwardness , far away from the major urban centers, under developed agriculture, small size of land holdings are responsible for low share of agricultural laborers.

In respect of agricultural laborers, it is found that their share is high (over 50 per cent) in districts where the size of land holdings is large and farmers hire agricultural laborers for doing work at their farms. While the proportion of agricultural laborers is low in districts which are lying near the Delhi, where most of the workers preferred to work in industries and urban centers where wages are high as compared to agriculture. And secondly there are districts like Jind, Bhiwani, Rewari and Mahendragarh where owing to socio-economic backwardness and poor condition of agriculture, farmers prefer to use family labor at their farms in place of hiring agricultural laborers. But, majority of the districts have moderate share of agricultural workers.

CONCLUSION

It is concluded that areas of high proportion of workers over 38 per cent are found in western parts of the study region which are agriculturally lagging behind, comparatively having low density of population and far away from urban and industrialized areas. While, the category of low share of less than 34 per cent is lying along the eastern parts which are problematic areas from agricultural point of view. Including the districts of Pathankot, Gurdaspur, Hoshiarpur, SBS

Nagar, Rupnagar, Ambala and Yamunanagar. Except these areas of low category there are some more districts of this category which are lying around Delhi. From these districts some of the people have migrated to Delhi for their livelihood and settled down which resulted into low share of workers. But the moderate category of workers is lying between the categories of low and high workers which is a predominant one and is industrially and agriculturally highly advanced.

In case of agricultural workers it is deduced that areas which are far away from industrialized and urbanized areas have high proportion of agricultural workers (over 50 per cent). Whereas, areas with small land holdings, unfriendly terrain from agricultural point of view lying along the Shiwalik foothills and other areas are having major urban centers like Ludhiana, Panipat, Gurgaon, Amritsar, Faridabad, Mohali, and Panchkula, have registered low proportion of agricultural workers. But areas lying between these two categories of high and low proportion are having moderate share of agricultural workers because these are having moderate magnitude of urbanization and industrialization.

In respect of cultivators it is observed that areas with small size of land holdings, agriculturally lagging behind and near to the major urban centers like Delhi, Gurgaon and Faridabad have high share of cultivators because laborers prefer to work in industry as compared to agriculture. While, areas which are far away from the major urban centers and with large size of land holdings are having low per cent share of cultivators. But areas with urbanization, industrialization or moderate size of land holdings have moderate proportion of cultivators.

In lieu to agricultural laborers, it is found that their share is high (over 50 per cent) in districts where the size of land holdings is large and farmers have to hire more agricultural laborers for doing work at their farms. Their proportion is low in districts namely Rohtak, Jhajjar, Bhiwani, Mahendragarh and Rewari which are lying near the urban centers like Delhi, Gurgaon and Faridabad where most of the workers preferred to work in industries and urban centers where wages are high as compared to agriculture and secondly these districts are lagging behind socially, economic and agriculturally. And as a result farmers use family labor at their farms in place of hiring agricultural laborers. But, majority of the districts particularly in the study region have moderate share of agricultural laborers.

SUGGESTIONS

It is suggested that work force should be compensated by Government like life-insurance, minimum assured wages for their sustainability.

REFERENCES

[1] Census of India: 2011

[2] Economic and Statistical Organization of Punjab.

[3] Economic and Statistical Organization of Haryana.

[4] Husain, Masjid. "Systematic Agricultural Geography, Rawat Publications, Jaipur and New Delhi, p. 127, 1997.

[5] Ilbery, Brian W. "Agricultural Geography: a social and economic analysis, published in the united states by Oxford university press. New York, p.105, 1985

[6] Manigandan, R. and Vetrivel, V,"An Empirical Study of Agricultural Labor in India", Journal of Exclusive Management Science, December 2013, Vol.2, No.12, p.1. 2013

[7] Morgan William Basin and Pugh John Charles, "Agricultural Geography" published by University of London, king's college, p.47, 1971

[8] Mamoria, C.B, "Agricultural Problems of India", Kitab Mahal, Thornhill Road, Allahabad, p.15, 1976

[9] Padhi, Kulamani, "Agricultural Labor in India- A Close Look", Orissa Review.p.1, 2007

[10] Rawal, Vikas, "Agricultural Labor and Unfreedom: Siri workers in a village in Western Haryana", The Marxist, Vol. 20, No.02, p.1, 2004

[11] Singh, Ram Partap, "Spatial Pattern of Occupational Structure in Haryana", Indian Journal of Research, Vol.420.p.1, 2015

[12] Symons, Leslie J "Agricultural Geography" printed in Great Britian by Neill and Co. Ltd, Edinburgh, p. 84, 1968