

TREND AND STRUCTURE OF WORKFORCE IN HARYANA: A REGIONAL AND SECTORAL ANALYSIS

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ABSTRACT

This paper analyses trend and structure of workforce in Haryana from 1991 to 2011 by applying Crude Work Participation Rate (CWPR), Educational level of workers, Growth rate and share of workforce in non- agriculture sector. Our results show that there has been increase in the Crude work participation rate of both males and females in Haryana. The percentage of illiterate workers has declined and has increased for literate workers. Our results also show that there has been decline in growth of rural workforce and the share of workers in Non-Agricultural sector has increased.

Keywords: Trend, Structure, Haryana, Census and Workforce

INTRODUCTION

The population of India increased roughly by 0.4 billion during 1991 to 2011. Haryana, one of the most prosperous state of India is no exception to it. In India as well as in Haryana the period form 1991 is considered as a period of high growth rate, but various surveys show that unemployment is also at the highest during this post reforms period. The high growth in GDP in 2000s turned out virtually a 'jobless growth', showing no concomitant growth in employment. In future, to have growth with stability and push up employment opportunities we need to be aware of the status of workforce in Haryana. Furthermore, it is necessary to understand the trend and structure of workforce as it will indicate the directions for employment in future. It will also help the policies to bridge the gap between the current reality and the future vision. In this paper we have analyzed the trends and structure of workforce in Haryana and districts therein during the period 1991 to 2011 based on crude work participation rates by sex and residence, followed by the growth rates in workforce, their educational characteristics and share of non-agriculture workers in the total workforce.

METHODOLOGY

The methodology used in this paper deals with two issues. (i) Source of data and (ii) Analytical tools and techniques

Source of data

The data used in this paper has been obtained from various census reports.

Census of India

Population Census in India conducted at every 10 years, disseminates demographic, economic,

and social data pertaining, at a specific time, of all persons in country or a well-defined part of a country i.e., States and districts. We have used data of three censuses for Haryana i.e. 1991, 2001 and 2011.

Analytical Tools and Techniques

To analyze the trend and structure of workforce we have used following techniques.

Crude Work Participation Rate (CWPR)

Crude work participation rate is defined as the ratio of total workers to the total population multiplied by 100. The crude work participation rates are calculated for the total, workers by sex and rural and urban residence.

Symbolically,

$$CWPR = \frac{TW}{TP} * 100$$

Where

CWPR=Crude Work Participation Rate

TW=Total workers

TP=Total population

Educational level of Workers by residence and sex

To calculate educational level of workers we have clubbed the educational levels into four categories: illiterate, primary, secondary, and high school and above. We calculated the share of

workers by educational level by sex and rural-urban categories.

$$\text{Share of Illiterate Workers} = \frac{\text{Number of illiterate Workers}}{\text{Total workers}} * 100$$

Likewise, we have calculated the share of educational level such as primary, secondary, and high school and above for workers in rural and urban sector.

Growth rate

We have calculated Growth rate of female workers by using exponential growth rate method.

Exponential growth rate = $1/t * (\ln P_t - \ln P_0)$

where, P_t = Population at time t, here in 2001 and 2011

P_0 = Population at time 0; here 1991 and 2001

t = Time period between 0 and t; here t=10

Percentage of Workers in Non-Agricultural Sector

Percentage of workers in non-agricultural sector is calculated as follows:

$$\text{Percentage of Workers in Non-Agricultural Sector} = \frac{\text{Total Non-Agricultural Workers}}{\text{Total Workers}} * 100$$

RESULTS AND DISCUSSION

Crude Work participation Rate for Total Workers

It is observed from the Table-1 that the crude work participation rate has increased for total workers in several districts of Haryana during the period from 1991 to 2011. The female workforce participation rate has increased over the past few decades from 1991 to 2011 whereas, the work participation rate for males has witnessed modest decline during the period. It may be noted that the workforce participation rate of females is lower than that of males during the period from 1991-2011. The female workforce participation has been lowest for the districts of Palwal, Mewat, and Panchkula. Strikingly, these are districts that fall under the category of having the lowest workforce participation of males.

It is further observed that Hisar and Bhiwani have highest female workforce participation. Furthermore, Rohtak district which has the highest female workforce participation in 1991, witnessed sharp decline in the female workforce in 2011. Faridabad district has the highest male workforce participation during 2001-11.

Table -1: Crude Work Participation Rates of Total Workers by Sex, 1991-2011

District	1991			2001			2011		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Ambala	6.33	7.03	2.70	3.83	4.80	1.72	4.16	4.82	2.18
Bhiwani	7.25	6.42	11.57	7.26	6.52	8.85	6.85	6.32	8.47
Faridabad	8.78	9.07	7.26	9.38	10.07	7.90	8.32	8.61	7.42
Fatehabad	N.A	N.A	N.A	4.35	4.10	4.89	4.22	4.01	4.86
Gurgaon	7.20	6.65	10.04	7.64	7.40	8.17	7.33	7.12	7.98
Hisar	11.89	11.65	13.17	7.95	7.55	8.80	7.78	7.36	9.05
Jhajjar	N.A	N.A	N.A	4.60	4.24	5.36	4.10	3.87	4.79
Jind	6.12	5.98	6.83	6.16	5.73	7.10	5.86	5.54	6.86
Kaithal	5.00	5.22	3.88	4.48	4.58	4.27	4.32	4.42	4.05
Karnal	5.07	5.52	2.72	5.38	5.93	4.21	5.60	5.96	4.51
Kurukshetra	3.61	4.01	1.54	3.61	3.92	2.93	3.82	4.05	3.12
Mahendergarh	4.14	3.73	6.29	4.26	3.60	5.68	3.69	3.30	4.90
Mewat	N.A	N.A	N.A	N.A	N.A	N.A	1.33	1.52	0.74
Palwal	N.A	N.A	N.A	N.A	N.A	N.A	1.42	1.64	0.74
Panchkula	N.A	N.A	N.A	2.12	2.44	1.44	2.35	2.49	1.91
Panipat	4.94	5.20	3.58	4.65	4.78	4.36	4.72	4.83	4.40
Rewari	3.39	3.23	4.26	3.93	3.47	4.94	3.77	3.45	4.74
Rohtak	11.13	10.68	13.51	4.41	4.35	4.55	4.28	4.21	4.49
Sirsa	6.10	5.91	7.10	5.70	5.56	6.01	5.70	5.60	5.99
Sonipat	4.53	4.59	4.26	6.26	6.04	6.72	5.98	5.80	6.52
Yamunanagar	4.49	5.10	1.28	4.03	4.93	2.08	4.40	5.09	2.29

Source: Author's calculation based on Census data.

It may be seen from Table-2 that Gurgaon and Faridabad are two districts having the highest urban male as well as female crude participation rates in 2011, with urban female workforce participation rates higher than that of males. Though, Hisar and Rohtak have highest total female's workforce participation but in case of urban workforce, the decline in female workforce participation rate has been witnessed. Kurukshetra and Gurgaon districts have witnessed increase in urban female workforce participation rate during 1991 -2011. Overall, it may be observed that the disparity between urban female and male workforce participation is not wide in urban sector among various districts of Haryana.

Table 2: Crude Work participation Rates of Total Workers by Residence (Urban), 1991-2011

District	1991			2001			2011		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Ambala	9.78	9.52	10.09	6.00	6.17	5.05	6.06	6.10	5.85
Bhiwani	4.86	4.83	4.89	4.28	4.15	4.96	3.35	3.42	2.99
Faridabad	17.68	18.23	17.05	19.79	20.41	16.45	16.20	16.10	16.68
Fatehabad	N.A	N.A	N.A	2.37	2.39	2.26	1.95	2.01	1.64
Gurgaon	5.74	5.69	5.80	6.29	6.12	7.20	13.28	12.89	15.16
Hisar	9.62	9.63	9.61	6.66	6.47	7.68	6.34	6.30	6.52
Jhajjar	N.A	N.A	N.A	3.34	3.21	4.05	2.49	2.52	2.31
Jind	4.09	4.10	4.07	3.75	3.66	4.20	3.21	3.28	2.88
Kaithal	2.98	2.96	3.00	2.82	2.90	2.35	2.48	2.58	2.04
Karnal	6.00	5.95	6.07	5.51	5.55	5.30	5.25	5.20	5.50
Kurukshetra	3.79	3.80	3.79	3.31	3.27	3.50	4.33	3.70	7.39
Mahendergarh	2.10	2.05	2.16	1.84	1.75	2.34	1.39	1.41	1.31
Mewat	N.A	N.A	N.A	N.A	N.A	N.A	1.07	1.14	0.74
Palwal	N.A	N.A	N.A	N.A	N.A	N.A	2.33	2.38	2.09
Panchkula	N.A	N.A	N.A	3.63	3.52	4.21	3.98	3.73	5.19
Panipat	5.58	5.58	5.59	7.38	7.05	9.17	6.51	6.45	6.79
Rewari	2.36	2.36	2.36	2.12	2.16	1.90	2.50	2.61	1.98
Rohtak	9.50	9.45	9.56	5.00	4.94	5.29	4.57	4.59	4.48
Sirsa	4.71	4.70	4.72	4.89	4.88	4.95	3.63	3.69	3.34
Sonipat	4.39	4.38	4.40	5.02	4.95	5.44	5.04	4.93	5.57
Yamunanagar	6.82	6.79	6.85	6.00	6.43	3.69	5.30	5.57	4.01

Source: Author's calculation based on Census data.

Table -3 shows workforce participation of total rural workers in districts of Haryana. The figure shows that the rural female workforce participation has been highest for the districts of Hisar and Bhiwani. Rohtak, which has the second highest female workforce participation in 1991 of 11.21 per cent has witnessed sharp decline i.e. 3.17 per cent in 2011. Even in case of Faridabad district, the female workforce participation has shown decline from 6.03 per cent 1991 to 1.18 in 2011.

Furthermore, during 1991-2011, male as well as female workforce participation rates have declined in the districts of Panchkula, Kaithal, Panipat and Gurgaon. In case of rural male workforce participation rates, Sonipat has witnessed rise from 4.373 per cent in 1991 to 8.57

per cent in 2011. Overall, it may be seen that there is a disparity among female and male workforce participation in rural areas of Haryana.

Table 3: Crude Work Participation Rates of Total Workers by Residence (Rural), 1991-2011

District	1991			2001			2011		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Ambala	5.65	5.78	5.50	3.18	4.26	1.30	0.51	3.96	1.41
Bhiwani	7.78	7.56	8.02	8.15	7.46	9.34	3.65	7.94	11.03
Faridabad	6.12	6.20	6.03	6.26	5.93	6.82	2.67	2.00	1.18
Fatehabad	N.A	N.A	N.A	4.94	4.78	5.23	2.04	4.88	6.05
Gurgaon	7.52	7.35	7.71	8.05	7.90	8.29	3.24	2.79	2.27
Hisar	11.65	11.73	11.56	8.34	7.98	8.95	3.50	7.66	10.59
Jhajjar	N.A	N.A	N.A	4.97	4.65	5.53	2.16	4.29	4.04
Jind	6.47	6.53	6.40	6.89	6.55	7.46	2.92	6.60	8.75
Kaithal	5.62	5.69	5.55	4.98	5.25	4.51	1.77	5.23	4.42
Karnal	5.06	5.19	4.92	4.19	5.39	2.13	0.83	6.49	4.81
Kurukshetra	3.85	3.88	3.81	3.70	4.18	2.86	1.12	4.41	3.30
Mahendergarh	4.97	4.71	5.25	4.98	4.34	6.10	2.39	4.51	6.17
Mewat	N.A	N.A	N.A	0.00	0.00	0.00	0.00	4.50	3.83
Palwal	N.A	N.A	N.A	0.00	0.00	0.00	0.00	4.21	3.58
Panchkula	N.A	N.A	N.A	1.67	2.01	1.08	0.42	1.71	1.30
Panipat	4.83	4.93	4.73	3.83	3.87	3.75	1.47	3.91	3.07
Rewari	4.30	4.10	4.53	4.48	3.99	5.32	2.08	3.93	5.71
Rohtak	11.42	11.60	11.21	4.24	4.11	4.46	1.74	3.68	3.17
Sirsa	5.82	5.67	5.99	5.95	5.83	6.15	2.41	6.39	7.22
Sonipat	4.59	4.73	4.44	6.63	6.48	6.88	2.69	8.57	7.74
Yamunanagar	4.28	4.33	4.22	3.43	4.33	1.88	0.74	4.75	1.66

Source: Author's calculation based on census data.

Percentage Distribution of Workers by Education Level

Table 4 presents percentage distribution of total workers by education level in districts of Haryana. Table reveals that percentage of total illiterate (IL) male workers has declined from 38.6 percent to 10.5 percent and that of female illiterate workers has declined from 62.0 percent to 28.0 percent., Similarly, the percentage of Below matric has declined for both males and females. However, there has been considerable increase in the percentage of literate, and Matric and above educated male and female workers. The similar trend for illiterate, literate, below matric and Matric and above educated workers is observed in all the districts of Haryana.

At district level, it may be seen that the districts namely, Rohtak, Jhajjar, Mahendergarh, Rewari, Gurgaon, Faridabad, Sonipat, Panchkula and Ambala have relatively lower percentage of illiterate male workers. Further, among the districts, Panchkula, Ambala, Gurgaon and Faridabad have lower percentage of illiterate female workers. It is further noticed that though, there has been increase in the percentage of female workers with education level 'matric and above' but this has not been robust.

Table 4: Percentage Distribution of Total Workers by Education Level

State/District	1991								2011							
	Male				Female				Male				Female			
	IL	L	BM	AM	IL	L	BM	AM	IL	L	BM	AM	IL	L	BM	AM
Haryana	38.6	12	34	15.4	62	9.0	22.5	6.5	10.5	45.4	18.6	25.5	28	36.7	15.4	19.9
Ambala	37.3	12.8	27.2	22.6	52.9	11.0	22.4	13.8	8.0	47.2	18.0	26.8	15.0	43.9	13.0	28.1
Bhiwani	42.7	15.2	26.2	15.9	72.9	10.3	12.6	4.2	9.6	45.7	18.9	25.9	30.0	35.6	17.1	17.3
Faridabad	40.4	13.2	24.6	21.8	67.4	9.3	13.6	9.8	6.8	47.3	13.5	32.3	15.6	43.1	10.1	31.1
Fatehabad	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	17.5	41.8	22.3	18.4	39.6	30.9	18.2	11.4
Gurgaon	46.9	12.4	23.5	17.3	74.3	7.5	11.8	6.4	5.4	47.8	12.9	33.9	13.8	43.7	9.9	32.6
Hisar	50.2	13.7	22.1	14.1	74.5	8.9	11.5	5.1	12.2	44.5	19.0	24.4	34.5	33.5	16.8	15.1
Jhajjar	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	6.1	47.7	16.3	29.8	19.6	41.1	15.9	23.4
Jind	50.5	13.3	22.4	13.7	76.5	8.3	11.2	4.0	13.3	44.1	20.1	22.5	34.8	33.4	17.1	14.8
Kaithal	55.6	12.9	20.4	11.2	77.5	8.1	10.8	3.7	16.4	42.3	20.8	20.5	40	30.4	16.4	13.2
Karnal	45.6	13.6	24.6	16.2	65.0	10.6	16.5	7.9	12.3	44.4	20.3	22.9	31.6	34.9	16.0	17.5
Kurukshetra	43.1	14.2	26	16.7	61.6	10.9	19.9	7.6	11.6	44.9	20.0	23.5	30.7	35.4	16.8	17.1
Mahendergar	38.1	14.3	30.4	17.2	71.7	10.8	14.2	3.3	5.6	47.6	19.3	27.6	24.9	38.0	18.4	18.6
Mewat	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	23.5	39.3	25.7	11.6	63.1	19.4	12.2	5.3
Palwal	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	12.0	44.7	20.6	22.7	40.9	30.2	14.7	14.3
Panchkula	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	7.8	46.6	14.9	30.6	16.8	42.2	11.1	29.9
Panipat	46.1	13.8	24	16.1	67.6	10.2	14.9	7.4	10.7	45.6	19.2	24.4	31.5	35.2	15.6	17.7
Rewari	33.4	15.1	30.7	20.8	62.9	12.1	18.9	6.2	4.6	48.4	17.1	29.9	22.8	39.2	18.8	19.2
Rohtak	37.4	13.6	27.5	21.5	62.7	11.1	17.1	9.1	7.5	46.8	16.8	28.9	19.3	41.0	13.9	25.8
Sirsa	53.3	14.4	21.1	11.3	73	9.4	12.6	4.9	17.0	42.1	22.3	18.6	37.6	31.9	17.8	12.6
Sonipat	37.1	13.3	25.9	23.7	61.5	10.6	17.1	10.8	7.8	46.6	16.9	28.8	22.7	39.2	15.7	22.3
Yamunanagar	42.4	13.5	27.2	16.8	58.7	11.4	20.9	8.9	10.7	45.4	21.0	22.9	20.8	40.4	14.9	23.9

Source: Author's calculations based on Census data.

Note: 'IL' denotes Illiterate, 'L' denotes literate, 'BM' denotes Below Matric, 'AM' denotes Matric and Above

Table 5 depicts the percentage distribution of urban workers by education in districts of Haryana. It may be noted from the table above that percentage of total urban male and female 'illiterate' workers has fallen from 1991 to 2011. The percentage of workers with education level 'below matric' has fallen for both males and females, however, there has been increase in the percentage of workers with education level 'matric and above' more for females and males.

At the district level, it may be noted that Ambala is the only district where the disparity between percentage of male and female illiterate workers is very less compared to other districts in 2011 over 1991. It may further be observed that the percentage of literate female total workers has increased noticeably during 1991-2011 for almost all the districts. However, percentage of urban female workers with education level 'below matric' has declined while for workers with education level matric and above has increased for all the districts.

The percentage of total workers with education level 'matric and above' has marginally improved for almost all the districts, however the percentage of workers with education level 'below matric' has reduced over the period 1991-2011.

Table 5: Percentage Distribution of Total Workers by Education (Urban), 1991-2011

State/District	1991								2011							
	Male				Female				Male				Female			
	IL	L	BM	AM	IL	L	BM	AM	IL	L	BM	AM	IL	L	BM	AM
Haryana	32.0	12.8	25.5	29.7	47.1	11.1	21.7	20.1	7.0	47.2	14.2	31.6	14.6	43.5	9.2	32.7
Ambala	26.9	11.5	24.3	37.3	35.9	10.5	24.7	28.9	4.8	48.8	13.2	33.2	9.4	46.7	12.1	31.8
Bhiwani	34.9	14.0	26.4	24.6	55.1	11.3	20.3	13.2	8.0	46.5	15.7	29.8	17.3	42.0	9.5	31.2
Faridabad	31.8	12.6	24.4	31.2	49.9	11.2	19.8	19.1	6.2	47.6	12.1	34.1	12.4	44.7	9.0	33.8
Fatehabad	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	11.3	44.9	17.0	26.8	20.2	40.6	9.4	29.8
Gurgaon	29.2	11.6	24.8	34.4	45.1	9.7	21.7	23.4	5.4	47.9	10.7	36.1	11.2	45.0	6.7	37.0
Hisar	34.3	13.4	26.0	26.4	50.4	11.6	20.7	17.3	7.4	46.9	15.0	30.7	18.8	41.3	11.0	28.8
Jhajjar	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	5.8	48.0	13.0	33.1	13.4	44.4	9.1	33.1
Jind	34.7	12.9	25.5	27.0	53.5	10.3	21.1	15.0	13.2	44.1	19.9	22.7	35.1	33.2	16.8	14.9
Kaithal	39.5	11.9	24.4	24.2	55.2	10.1	19.4	15.4	10.5	45.2	17.1	27.2	22.9	39.0	10.5	27.6
Karnal	32.8	13.6	25.4	28.2	44.3	10.6	23.0	22.1	8.1	46.6	15.7	29.6	16.2	42.7	9.7	31.4
Kurukshetra	30.1	13.3	25.2	31.3	42.7	11.6	23.6	22.2	7.8	46.7	14.0	31.5	16.5	42.4	8.1	33.0
Mahendergarh	29.9	14.4	29.8	25.9	53.3	12.3	22.1	12.2	5.3	47.7	17.9	29.1	20.0	40.5	10.9	28.7
Mewat	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	13.3	45.1	20.7	21.0	30.1	37.0	12.2	20.8
Palwal	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	8.9	46.1	16.2	28.9	18.1	41.6	11.4	29.0
Panchkula	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	5.7	47.7	10.3	36.3	10.3	45.5	6.3	38.0
Panipat	35.7	12.6	25.2	26.4	47.8	11.1	21.9	19.2	9.0	46.4	18.0	26.6	26.7	37.7	13.8	21.8
Rewari	27.3	14.8	28.7	29.2	47.3	11.9	23.4	17.5	5.0	48.1	14.7	32.3	18.6	41.2	10.5	29.8
Rohtak	29.6	12.6	25.8	32.1	45.6	10.9	21.6	21.9	6.2	47.4	13.8	32.6	10.4	45.5	7.4	36.7
Sirsa	37.6	13.4	24.6	24.3	51.8	11.4	20.8	16.0	10.3	45.5	17.0	27.2	20.7	40.4	10.1	28.9
Sonipat	30.5	13.1	25.4	31.1	46.6	11.5	20.2	21.7	6.2	47.4	13.9	32.5	12.5	44.4	9.4	33.7
Yamunanagar	31.6	12.7	27.8	27.9	42.4	12.0	24.9	20.7	8.2	46.5	18.1	27.1	15.3	43.0	11.6	30.0

Source: Author's calculations based on Census data.

Note: 'IL' denotes Illiterate, 'L' denotes literate, 'BM' denotes Below Matric, 'AM' denotes Matric and Above

Table 6 shows the percentage distribution of total rural workers in districts of Haryana. It is noted from the table that the percentage of 'illiterate' male and female workers has declined from 1991 to 2011. While there has been decline in workers with education level 'below matric' and increase in the workers with educational level 'matric and above'. The change has not been robust during the period 1991-2011.

At the district level, in 1991, the percentage of male workers with education level 'below matric' and 'matric and above' were higher than the percentage of female workers with education level 'matric and above'. In 2011, the percentage of male workers with education level 'below matric' has reduced while the percentage of workers with education level 'matric and above' has increased.

On the contrary, in case of female workers, the percentage of workers with education level 'below matric' and 'matric and above' has increased. Overall, on rural front, the disparity between the education level of the percentage of male and female workers is less.

Table 6: Percentage Distribution of Total Workers by Education (Rural), 1991-2011

State/District	1991								2011							
	Male				Female				Male				Female			
	IL	L	BM	AM	IL	L	BM	AM	IL	L	BM	AM	IL	L	BM	AM
Haryana	47.8	13.9	24.8	13.5	74.5	9.5	12.9	3.1	15.6	42.9	20.5	21.0	34.9	33.2	18.6	13.3
Ambala	42.9	13.5	28.8	14.8	62.4	11.3	21.1	5.2	11.2	45.6	21.4	21.8	23.4	39.6	18.1	18.9
Bhiwani	44.4	15.5	26.1	14.1	75.4	10.8	11.3	2.6	14.1	43.4	19.3	23.2	34.3	33.5	18.4	13.9
Faridabad	48.7	13.7	24.7	12.8	82.4	7.9	8.1	1.6	12.2	44.8	19.6	23.4	35.2	33.5	16.9	14.4
Fatehabad	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	22.7	39.2	22.8	15.3	41.1	30.2	19.5	9.2
Gurgaon	51.4	12.6	23.1	13.0	80.1	7.6	9.9	2.5	7.7	46.5	18.6	27.2	22.9	39.1	20.9	17.2
Hisar	54.4	13.8	21.1	10.8	80.4	8.5	9.2	1.9	19.4	40.9	20.3	19.4	39.6	31.0	18.6	10.7
Jhajjar	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	8.3	46.6	17.1	28.0	23.3	39.1	18.1	19.6
Jind	61.5	15.4	25.0	12.6	80.8	8.2	9.2	1.8	19.1	41.2	20.8	18.9	40.8	30.3	18.2	10.7
Kaithal	58.3	13.0	19.7	8.9	80.8	8.0	9.4	1.7	20.7	40.1	21.0	18.1	41.6	29.7	18.1	10.6
Karnal	50.4	13.6	24.3	11.7	72.7	10.7	14.1	2.5	16.5	42.3	21.7	19.5	38.4	31.3	18.8	11.5
Kurukshetra	47.2	14.5	26.3	12.0	67.2	10.9	18.9	3.1	15.9	42.8	22.0	19.2	36.7	32.4	19.7	11.2
Mahendergarh	39.3	14.3	30.5	15.9	72.8	11.6	13.3	2.2	8.8	46.0	19.1	26.1	27.8	36.6	19.4	16.2
Mewat	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	29.4	36.2	24.4	10.0	57.4	22.1	14.8	5.8
Palwal	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	16.1	42.7	20.8	20.5	46.5	27.5	16.9	9.1
Panchkula	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	13.2	43.9	20.1	22.7	28.8	36.2	20.0	15.0
Panipat	49.9	14.2	23.6	12.3	74.6	10.0	12.4	3.0	14.7	43.7	19.6	22.1	35.3	33.2	18.8	12.7
Rewari	34.7	15.1	31.0	19.2	67.3	11.7	17.1	3.9	8.2	46.7	18.1	27.0	26.8	37.3	20.0	15.9
Rohtak	39.5	13.9	27.9	18.7	67.4	11.2	15.9	5.5	10.8	45.1	18.5	25.6	25.4	37.9	18.3	18.4
Sirsa	57.5	14.6	20.1	7.7	77.7	9.4	10.7	2.2	22.3	39.5	23.4	14.8	40.6	30.5	19.9	9.0
Sonapat	39.1	13.4	26.0	21.5	65.7	10.6	16.2	7.5	11.1	44.9	17.8	26.2	26.8	37.2	18.3	17.7
Yamunanagar	48.0	14.0	26.9	11.2	67.1	11.0	18.9	3.0	13.9	44.0	23.0	19.1	28.9	36.6	19.9	14.6

Source: Author's calculations based on Census data.

Note: 'IL' denotes Illiterate, 'L' denotes literate, 'BM' denotes Below Matric, 'AM' denotes Matric and Above

Growth Rates of Total Workforce in Haryana

It may be seen from the Table 7 that the total workers have increased by residence and sex increased during 1991-2011. The growth rate of total male workers have increased from 2.8 per cent in 1991 to 7.1 per cent in 2011. However, there has been decline in growth rate of total female workers. The growth rate of rural workforce for both sexes was negative during 1991-2011, From 2001-2011 growth rate for female rural workforce is negative, whereas growth rate is positive for rural and urban male workforce.

At district level, during 1991-2011, all the districts witnessed negative growth, both for female workforce. The districts of Ambala, Yamunanagar, Karnal and Rohtak have witnessed significant decline in the growth rates of female workforce, while significant decline in growth rate of male workforce has been witnessed for the Rohtak district. During 2001-2011, districts of Faridabad and Gurgaon, have witnessed significant fall in the female and male workforce.

While the highest growth in rural male workforce has been witnessed by Sonipat while highest growth in female rural workforce has been witnessed by Karnal.

Table 7: Growth Rate of Total Workers in Haryana and Districts ,1911-2011

State/District	1991-2001									2001-2011								
	Total			Rural			Urban			Total			Rural			Urban		
	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F
Haryana	4.9	2.8	11.7	-6.9	-5.0	-9.6	4.6	6.3	2.2	6.1	7.1	3.6	-0.7	0.8	-3.8	11.4	10.0	16.9
Ambala	-0.1	-1.0	7.2	-12.7	-8.0	-24.0	-6.7	-1.8	-18.3	7.0	7.1	6.0	-0.4	0.1	-3.0	5.4	5.5	4.1
Bhiwani	4.9	3.0	9.0	-6.4	-5.1	-8.0	9.7	10.6	8.6	5.5	6.8	3.2	0.1	1.4	-2.1	18.6	16.4	24.9
Faridabad	5.6	3.9	12.5	-6.7	-5.4	-8.3	-5.8	-5.0	-7.0	4.9	5.5	3.0	-13.2	-10.1	-21.3	-12.7	-13.3	-9.5
Fatehabad	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	5.8	6.9	3.6	-0.2	1.0	-2.3	19.2	17.1	26.7
Gurgaon	5.5	3.9	9.6	-6.2	-4.2	-8.8	7.9	9.6	5.7	5.7	6.7	3.4	-11.8	-9.6	-16.8	2.7	2.1	5.3
Hisar	0.9	-1.5	7.7	-10.3	-8.8	-12.1	3.1	4.4	1.4	5.9	6.8	3.9	-0.5	0.4	-2.1	13.8	11.7	20.1
Jhajjar	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	5.0	6.2	2.5	-2.3	0.0	-6.9	13.7	12.9	16.9
Jind	5.0	2.4	12.1	-6.3	-4.9	-8.0	9.8	10.9	8.2	5.6	6.8	3.3	-0.2	0.9	-2.2	17.9	15.9	24.2
Kaithal	3.8	1.5	12.7	-8.1	-5.8	-11.6	9.7	12.0	6.2	5.8	6.7	3.1	-0.6	0.8	-4.0	17.2	15.8	23.2
Karnal	5.5	3.5	16.1	-8.8	-4.6	-17.9	1.0	5.3	-8.3	6.5	7.1	4.3	3.0	2.6	4.4	12.3	11.5	15.9
Kurukshetra	4.9	2.6	18.2	-7.3	-4.2	-12.4	4.3	7.2	-0.6	6.7	7.4	4.2	0.4	1.3	-2.4	13.6	13.0	16.3
Mahendergarh	5.2	2.5	10.7	-6.9	-5.8	-8.1	13.2	13.7	12.6	4.7	6.2	2.1	-0.7	1.2	-3.7	21.3	19.4	26.6
Mewat	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A
Palwal	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A
Panchkula	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	7.1	7.3	6.5	-1.1	-0.8	-2.0	3.2	2.7	5.1
Panipat	4.3	2.0	13.7	-9.2	-7.4	-11.9	0.8	2.6	-1.8	6.3	7.2	3.7	-1.0	0.9	-5.8	4.5	4.1	5.9
Rewari	6.4	3.5	13.2	-6.5	-5.2	-7.9	11.0	11.5	10.3	5.7	7.0	3.2	-0.8	0.6	-3.1	18.7	16.0	27.9
Rohtak	-4.4	-6.2	0.8	-16.8	-15.4	-18.8	-3.5	-2.1	-5.5	5.8	6.8	3.5	-2.4	-0.3	-7.2	8.0	7.0	11.8
Sirsa	4.2	2.2	10.0	-6.7	-4.7	-9.3	6.9	8.4	4.8	6.1	7.2	3.6	0.4	1.7	-2.2	14.4	12.7	20.7
Sonipat	8.1	5.6	16.3	-3.2	-1.8	-5.2	8.7	10.2	6.6	5.7	6.7	3.3	1.6	3.6	-2.6	16.5	15.5	20.4
Yamunanagar	3.8	2.5	16.6	-9.1	-5.0	-17.6	-2.3	1.8	-10.8	7.0	7.4	4.6	0.7	1.7	-5.1	7.1	6.9	8.9

Source: Author’s calculation based on census data

Workforce in Non-Agricultural Sector in Haryana

Table 8 presents the percentage of total non-agricultural workers to total workers for districts of Haryana during 1991-2011. It may be noted from above that the share of workforce in non-agricultural sector has increased considerably over the decades for Haryana and districts. When the share is computed for male and female workers at district level, it is found that the share in non-agricultural activities has increased and the difference between sexes remained marginal.

In Kaithal, Jind, Sirsa, Bhiwani and Mahendergarh, districts the percentage share of female non-agricultural workers has increased during 1991-2011. However, the districts of Gurgaon and Faridabad have witnessed robust increase in the percentage of female non-agricultural workers.

On the other hand, districts namely, Ambala and Yamunanagar have remained the districts with high percentage of female non-agricultural workers. Almost in all the districts, the percentage of male non-agricultural workers have increased. But the increase has been highest for the districts of Gurgaon and Faridabad in 2011.

Table 8: Percentage of Total Non-agricultural Workers to Total Workers, 1991-2011

State/District	1991			2001			2011		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Haryana	39.2	43.6	17.1	57.3	54.7	34.8	59.5	60.8	56.3
Ambala	62.0	60.7	79.7	77.0	69.4	74.5	71.5	70.1	80.0
Bhiwani	28.0	35.4	6.6	43.8	41.5	26.3	47.1	47.0	47.2
Faridabad	142.6	63.8	27.0	75.7	74.3	41.8	90.3	90.7	88.6
Fatehabad	N.A	N.A	N.A	39.2	38.1	22.6	45.4	44.8	46.5
Gurgaon	40.3	48.2	13.0	71.7	66.4	47.9	85.1	86.1	81.4
Hisar	29.2	33.1	11.5	51.4	48.5	27.3	49.1	51.1	45.5
Jhajjar	N.A	N.A	N.A	52.2	50.8	27.0	57.7	58.7	55.0
Jind	27.8	31.2	8.5	39.4	39.5	20.2	46.4	46.5	46.4
Kaithal	25.5	27.5	11.4	42.1	41.1	28.7	49.0	47.8	52.8
Karnal	41.9	42.5	36.2	56.1	51.9	40.0	56.7	56.1	58.8
Kurukshetra	38.8	38.9	38.0	60.7	50.6	57.2	56.5	55.5	59.9
Mahendergarh	33.6	42.2	7.0	40.1	44.6	21.3	55.6	58.3	51.1
Mewat	N.A	N.A	N.A	N.A	N.A	N.A	52.9	54.1	49.7
Palwal	N.A	N.A	N.A	N.A	N.A	N.A	57.7	59.0	54.3
Panchkula	N.A	N.A	N.A	88.0	80.0	65.0	81.9	82.5	79.8
Panipat	44.0	46.1	28.1	71.9	67.7	50.8	69.6	70.2	67.3
Rewari	40.1	47.0	12.7	47.7	52.2	24.6	64.5	67.2	58.8
Rohtak	38.9	44.6	15.7	60.1	57.0	31.4	64.1	65.1	60.4
Sirsa	26.8	30.6	10.4	47.0	40.2	35.5	45.0	43.3	48.9
Sonipat	50.5	52.7	33.4	56.9	54.2	32.7	58.8	59.7	56.6
Yamunanagar	50.5	49.3	82.3	73.6	63.2	81.5	66.7	65.3	76.5

Source: Author's calculation based on census data

Table 9 shows the percentage of total urban non-agricultural workers in districts of Haryana. It may be noted from the above that in Haryana, the non-agricultural workers in urban areas have increased from 1991 to 2011. However, at the district level, it is found that Faridabad and Gurgaon are the only districts having highest percentage of non-agricultural male and female workers.

Table 9: Percentage of Non-Agricultural Workers (Urban) to Total Workers, 1991-2011

State/district	1991			2001			2011		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Haryana	20.1	22.1	10.0	25.7	27.2	9.9	27.5	31.2	17.5
Ambala	33.5	32.0	53.6	38.9	36.0	31.7	43.1	41.8	50.7
Bhiwani	11.3	14.2	2.9	14.7	16.5	4.7	11.6	15.4	5.0
Faridabad	109.7	48.7	23.4	54.2	56.4	21.3	77.8	78.3	75.6
Fatehabad	N.A	N.A	N.A	13.6	15.2	4.2	12.2	15.6	5.5
Gurgaon	16.0	18.5	7.4	21.3	22.6	8.6	66.7	68.0	61.7
Hisar	15.6	17.5	6.7	22.6	23.1	8.8	20.9	26.3	10.7
Jhajjar	N.A	N.A	N.A	18.8	20.0	6.8	17.8	20.5	10.5
Jind	11.9	13.2	4.3	14.9	16.5	5.1	13.4	17.5	6.0
Kaithal	10.2	10.9	5.3	14.3	16.1	4.9	14.8	17.0	8.5
Karnal	23.9	23.8	24.7	25.2	25.1	12.7	24.5	25.9	19.5
Kurukshetra	19.8	19.6	23.5	23.0	22.4	12.4	23.3	25.0	17.4
Mahendergarh	8.8	10.9	2.4	9.9	12.7	3.1	8.8	11.9	3.6
Mewat	N.A	N.A	N.A	N.A	N.A	N.A	8.1	9.8	3.5
Palwal	N.A	N.A	N.A	N.A	N.A	N.A	17.0	19.5	10.2
Panchkula	N.A	N.A	N.A	44.7	40.7	32.6	51.6	52.1	49.8
Panipat	24.9	25.8	17.8	41.2	41.4	23.0	40.9	43.3	32.7
Rewari	14.0	16.5	4.3	13.4	17.0	3.5	18.5	23.8	7.6
Rohtak	16.1	18.2	7.4	30.8	31.3	11.8	33.9	36.3	25.4
Sirsa	15.6	18.1	5.2	21.5	22.9	7.3	17.0	20.7	8.8
Sonipat	19.7	20.1	16.6	20.8	22.0	7.7	22.9	25.9	15.3
Yamunanagar	31.3	30.5	53.2	36.9	35.9	19.3	36.3	35.9	39.1

Source: Author's calculation based on census data

Table 10 depicts the percentage of total rural non-agricultural workers in districts of Haryana. Haryana has predominantly agricultural economy and hence, a low percentage of workforce to be engaged in agriculture is undoubtable. But in may be seen that the percentage of non-agricultural workers in rural areas have consistently increased from 1991-2011. Further, in case of female non-agricultural workers, the said trend has been robust.

At district level, it may be seen that for almost all the districts, the percentage of non-agricultural workers have increased, however the increase has been much robust/ noticeable in case of female non-agricultural workers.

Table 10: Percentage of Non-agricultural Workers (rural) to Total Workers, 1991-2011

State/district	1991			2001			2011		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Haryana	19.1	21.5	7.0	31.7	27.6	25.0	32.0	29.5	38.8
Panchkula	N.A	N.A	N.A	43.3	39.2	32.4	30.3	30.4	30.0
Ambala	28.4	28.6	26.1	38.1	33.3	42.8	28.4	28.3	29.3
Yamunanagar	19.2	18.8	29.1	36.8	27.3	62.3	30.4	29.4	37.4
Kurukshetra	19.0	19.3	14.5	37.7	28.2	44.8	33.2	30.6	42.5
Kaithal	15.3	16.6	6.1	27.8	25.1	23.8	34.2	30.7	44.4
Karnal	18.1	18.7	11.5	30.8	26.8	27.4	32.2	30.1	39.3
Panipat	19.1	20.3	10.3	30.7	26.4	27.7	28.7	27.0	34.6
Sonipat	30.8	32.6	16.8	36.1	32.1	25.0	35.9	33.8	41.2
Jind	15.9	18.0	4.2	24.5	23.0	15.1	33.0	29.0	40.4
Fatehabad	N.A	N.A	N.A	25.6	22.9	18.4	33.2	29.3	41.1
Sirsa	11.1	12.5	5.2	25.5	17.4	28.2	28.0	22.6	40.1
Hisar	13.7	15.6	4.8	28.8	25.4	18.5	28.2	24.7	34.8
Bhiwani	16.7	21.2	3.7	29.1	25.0	21.6	35.5	31.6	42.2
Rohtak	22.9	26.4	8.3	29.3	25.7	19.6	30.2	28.8	35.1
Jhajjar	N.A	N.A	N.A	33.4	30.8	20.2	39.9	38.1	44.6
Mahendergarh	24.7	31.2	4.6	30.2	32.0	18.3	46.9	46.5	47.5
Rewari	26.1	30.6	8.4	34.3	35.3	21.1	45.9	43.4	51.2
Gurgaon	24.3	29.7	5.6	50.4	43.8	39.3	18.4	18.1	19.7
Mewat	N.A	N.A	N.A	N.A	N.A	N.A	44.8	44.3	46.1
Faridabad	32.9	15.1	3.6	21.5	17.9	20.5	12.5	12.3	13.0
Palwal	N.A	N.A	N.A	N.A	N.A	N.A	40.7	39.5	44.1

Source: Author's calculation based on census data

CONCLUSION

Our analysis shows that crude work participation rate has increased for total workers in Haryana during the period from 1991 to 2011. However, there has been disparity among male and female work participation rate and disparity is higher in rural sector as compared to urban sector. As far as education level of workers is concerned a decline is there in the illiterate and below matric male and female workers and a growth is seen in the percentage of literate and workers with above matric educational level.

The growth rate of total male workers has increased during 1991-2011. However, there has been decline in growth rate of total female workers. The growth rate of rural workforce for both males and females is negative during 1991-2011. This confirms our result of increase in the share of workforce in non-agricultural sector has over the decades for Haryana and districts. At the district level, the share of workers in non-agricultural activities has increased and the disparity between males and females is marginal.

REFERENCES

- 1) In 1991 India's population was 846,421,039 and in 2011 it reached 1,210,193,422 whereas in Haryana it increased from 16,463,648 in 1991 to 25,351,462 in 2011.
- 2) Office of the Registrar General & Census Commissioner, Ministry of Home Affairs, Government of India.