

A research paper on
Trends and Patterns of Female Labour Force Participation in Uttar
Pradesh (India) from 1991 to 2011

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Abstract

Uttar Pradesh has gained considerable development since the First Five Year Plan however it keeps on being among the most financially and socially backward state. Despite the fact the state has enormous potential and diversity which should be tapped. The state is fundamentally an agrarian economy and female labour force participation rates are extremely low when contrasted with male counterparts. Larger parts of female laborers (69.3%) in rural regions are occupied with agribusiness (census of India 2011). Despite the fact that the rural female labour force participation rate (RFLPR) in Uttar Pradesh is low, it shows wide variations (Kumar, 2013). Studies uncover that both financial and social impacts decide the degree of female work in Uttar Pradesh. The major objective of present study is to find female labor force differentials in Uttar Pradesh by comparing male and female work force participation rates. The study explored main and marginal work categories along with agricultural, cultivators and other workers from 1991 to 2011. An attempt is made to compare the urban and rural male-female labour force participation rates of last three decades. The results of the study are generated through single factor ANNOVA. The findings of the study claimed that there is a significant disparity between male and female labour force participation rates in Uttar Pradesh. Females are far behind male labour force participation rates. Some of the determinants are found which restricts females from entering the labour force such as social, cultural and religious factors.

Uttar Pradesh has gained considerable development since the First Five Year Plan however it keeps on being among the most financially and socially backward state. Despite the fact the state has enormous potential and diversity which should be tapped. The state has adequate natural resources with biggest skilled and unskilled human resources, biggest grain produce, various spots for the travel industry improvement, adequate possibilities of dairy advancement and development of agro based industries. The state is fundamentally an agrarian economy and female labour force participation rates are extremely low when contrasted with male counterparts. Larger parts of female laborers (69.3%) in rural regions are occupied with agribusiness (census of India 2011). A common decrease in the extent of agrarian laborers in the total workforce is fairly viewed as a sine qua non of financial advancement (A.K.Singh, 1994). Various studies have concentrated on the issue that the level and structure of employment have experienced broad changes in Uttar Pradesh (Kumar, 2007), however changes crosswise over districts requires our consideration. Despite the fact that the rural female labour force participation rate (RFLPR) in Uttar Pradesh is low, it shows wide variations (Kumar, 2013). Studies uncover that both financial and social impacts decide the degree of female work in Uttar Pradesh. A few investigations have proposed and distinguished a portion of the potential determinants of female work participation in India (Gulati, 1975, Dholakia, 1978), yet what could be the potential determinants and trends of female labour force participation on account of UP needs consideration. The present research continues with the goal of contemplating patterns of female labour force participation and break down sectoral shifts of female work into various occupational classifications at the district level for the State of Uttar Pradesh and for inter-district investigation, the present study anticipate the Census information which is given by the Registrar General of India for the year 1991, 2001 and 2011, which are equivalent after some time.

1. Assessing the patterns of labour force participation rate in Uttar Pradesh

The most populous state of India is Uttar Pradesh which has been registered a growth in political, social and economic development over the decades. However, despite this development, the state was still in the bottom states of India. More than half of the total workers in Uttar Pradesh are dependent on agriculture and allied activities while the agriculture sector subsidize only 25 % share in state GDP (ILO, 2019). According to the available statistics, the agriculture labour shifts in 2000's but this shift is largely devoted to low paid and casual jobs. The state has been in serious crises due to lack of quality in jobs and induced migration which is a major issue in economy of Uttar Pradesh. There is call for improving and uplifting employment opportunities in Uttar Pradesh to solve economic issues

such as declining labour force participation rate and increasing induced migration. The age structure of working population in Uttar Pradesh is quite disturbing. The child labour in Uttar Pradesh is more as compared to prime workers between age group of 30-59. The female literacy rate in Uttar Pradesh is 59% as on 2019 and there is 20% gender gap in terms of literacy (ILO, 2019). According to the population census 2011, the literacy rate is improving over the time period and Uttar Pradesh may take long period to bridge the gender gap in labour and literacy rate.

Table 1. Labour Force Participation Rate in Uttar Pradesh

Year	LFPR- Total			LFPR- Main			LFPR- Marginal		
	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
1991	27.1	46.4	4.8	97.9	99.6	78.4	2.1	0.4	21.6
2001	32.5	46.8	16.5	72.9	83.8	38.5	27.1	16.2	61.5
2011	32.9	47.7	16.7	67.8	75.1	45.2	32.2	24.9	54.8

Source: Census of India 1991, 2001 & 2011

Note : LFPR= Total Workers/ Total

Population X 100

LFPR (M/F) = M/F Main or Marginal Workers/Total Workers

as M/F *100

Table 1 Depicts the main and marginal labour force participation rate in Uttar Pradesh from census 1991 to 2011. The table shows high difference in male and female labour force during the decades. The Total female labour force participation during 1991 was 4.8 percent which is 41.6 per cent lower than male counterpart. However in 2001 the female labour force participation rate increased up to a large extent at 16.5 percent. The figures of 2001 shows 11 per cent increase in FLFPR in 2001 whereas male labour force participation rate was increased slightly from 46.4 per cent to 46.8 per cent. In 2011 the total female labour force participation rate of Uttar Pradesh shows increment of 0.2 per cent only while male labour force participation rate shows an increment of 0.9 percent in 2011.

Moving towards main and marginal labour force participation rates, it is clear that females are employed more as main workers as compared to marginal workers. However, marginal female workers are more as compared to male counter parts in 1991, 2001 and 2011. Overall it is claimed that as per the figures of census of India that female labour force participation rate is much lower than male labour force participation rate in Uttar Pradesh. The female labour force participation rate changed according to economic development in Uttar Pradesh. During 2000's, the status of females recorded absolute and relative increase due to rise in educational levels and decline in fertility rates.

Table 2 Size of Population and Total Workers in Uttar Pradesh

Year	Population (In Millions)			Total Workers (In Millions)			% of Main Workers			% of Marginal Workers		
	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
1991	27.61	14.84	12.77	7.49	6.88	0.61	7.33	6.85	0.48	0.16	0.03	0.13
2001	166.2	87.57	78.63	53.98	40.98	13.01	39.34	34.34	4.99	14.65	6.64	8
2011	199.81	104.48	95.33	65.81	49.85	15.97	44.64	37.42	7.22	21.18	12.43	8.75

Source: Census of India 1991, 2001 & 2011

Table 2 shows size of population and total workers in Uttar Pradesh during 1991, 2001 and 2011. The table spectacled a massive diversity between growth of male –female population and gender stratification of workers of Uttar Pradesh. From 1991 to 2001, the total population of Uttar Pradesh was upsurges by 138.59 million. The female population was increased by 65.86 million whereas male population was incremented by 72.73 million. From 2001 to 2011, male population was grown by 16.91 million whereas females recorded 16.7 million escalation which was comparatively less than male counterpart.

Having a glance at growth of total workers from population, the table shows that the percentage of total workers in Uttar Pradesh increased massively from 1991 to 2011. The male workers recorded an increase of 34.1 per cent during 1991 to 2001 whereas female workers increased at 12.4 per cent. From 2001 to 2011, male workers expanded by 8.87 per cent whereas female workers elevated by 2.96 per cent. Percentage of main and marginal workers also appeared to be increased over the time period of the study. Total main workers are increased more as compared to marginal workers. Huge difference between growth of male and female population and well as workers is diagnosed in this table. The period of 1991 and 2001 is a period of massive transition of growth of population and workers due to economic development.

2. Gender stratification in labour force participation rate in Uttar Pradesh

The general attribute of Indian labour market is declining trend of female labour force participation rate. It is reported that Uttar Pradesh has highest number of female rural and urban workers. The self-employed females are high in Uttar Pradesh (67.5%) as compared to other states of India (Sanghi, et.al 2015). apart from this; the urban and rural employment gap is high in Uttar Pradesh. Over 2, 00,000 females are employed in small and medium scale industries in UP. The government of India has implemented various policy measures to improve female labour force participation and over all status of women such as Bet-Bachao-Beti-Padhao, make in India, startup India but there is a great need to empower training and skills for females (Sanghi, et.al 2015). There is a need to improve safety and security of females with joint efforts of Centre and state government.

Table 3. Male Labour Force Participation by Occupation in Uttar Pradesh

Year	Total				Main				Marginal			
	CL	AL	HHI	OTH	CL	AL	HHI	OTH	CL	AL	HHI	OTH
1991	716954 (20.93%)	556597 (16.25%)	324856 (9.48%)	1827211 (53.54%)	561305 (78.29 %)	477834 (85.85%)	318071 (97.91%)	1813775 (99.26%)	155649 (21.71%)	78763 (14.15%)	6785 (2.09%)	13436 (0.74%)
2001	17479887 (42.65%)	8245599 (20.12%)	1946545 (4.75%)	13309527 (32.48%)	16326802 (93.4%)	4816377 (58.41%)	1611880 (82.21%)	11583201 (87.03%)	1153085 (6.6%)	3429222 (41.59%)	334665 (17.19%)	1726326 (12.97%)
2011	15511533 (33.33%)	13803442 (29.66%)	2354136 (5.06%)	14867175 (31.95%)	13727429 (88.5%)	7777577 (56.35%)	1669471 (70.92%)	14245822 (95.82%)	1784104 (11.5%)	6025865 (43.65%)	684665 (29.08%)	621353 (4.18%)

Source: Census of India 1991, 2001 & 2011

Note: (a) Rural and urban combined; (b) Cultiv.—cultivators; (c) A L—agricultural labourers; (d) HHI household industry; (e) Others—it includes industry sector other than HHI and those involved in the services sector.

Table 3 displays the figures of male labour force participation rate by occupation in Uttar Pradesh from 1991 to 2011. The table explained various categories of labour such as cultivators, agriculture labour, house hold industry and other industry. The table is developed by compiling main and marginal categories to generate total male labour force participation rate in Uttar Pradesh over the timer period of study. We find that main workers are more as compared to marginal workers in Uttar Pradesh. The male work force of Uttar Pradesh is more inclined towards other works as defined in Census of India (Industry sector other than house hold) in 1991 and 2011. In 2001 male labour was high in cultivators and agriculture laborers but trend changed again to other works in 2011. In the category of marginal composition, male labour force participation in other works was recorded more as compared

to other categories in 1991. In 2011 male cultivators reported a significant increase as compared to other categories of employment in Uttar Pradesh.

The overall trend of composition of male labour force participation rates recorded increase in number of cultivators from 20.93 % in 1991 to 42.65 per cent in 2001 which was still highest among other employment activities in 2011. The category of other workers in male counterpart is decelerating over the time period of study from 53.54 % in 1991 to 31.95 % in 2011. The total male labour force participation is high in cultivators.

Table 4. Female Labour Force Participation by Occupation in Uttar Pradesh

Year	Total				Main				Marginal			
	CL	AL	HHI	Others	CL	AL	HHI	Others	CL	AL	HHI	Others
1991	1822375 (52.29%)	1147038 (32.91%)	198220 (5.69%)	317343 (9.11%)	29599 (1.62%)	49423 (4.31%)	65901 (33.25%)	230544 (72.65%)	1792776 (98.38%)	1097615 (95.69%)	132319 (66.75%)	86799 (27.35%)
2001	4687675 (36.05%)	5155312 (39.65%)	1084619 (8.34%)	2074660 (15.96%)	2153063 (49.93%)	1140170 (22.12%)	480076 (44.26%)	1226080 (59.10%)	2534612 (54.07%)	4015142 (77.88%)	604543 (55.74%)	848580 (40.90%)
2011	3546355 (24.93%)	6135781 (43.14%)	1544454 (10.86)	2996109 (21.07%)	1848986 (52.14%)	1972338 (32.14%)	739965 (47.91%)	2653904 (88.58%)	1697369 (47.86%)	4163443 (67.86%)	804489 (52.09%)	342205 (11.42%)

Source: Census of India 1991, 2001 & 2011

Note: (a) Rural and urban combined; (b) Cultiv.—cultivators; (c) A L—agricultural labourers; (d) HHI household industry; (e) Others—it includes industry sector other than HHI and those involved in the services sector.

Table 4 represents the composition of female labour force participation rate in Uttar Pradesh over the decades 1991, 2001 and 2011. The above table made it clear that in 1991 females were more composed in cultivators and agricultural activities as compared to house hold industry and other worker category. In 2001, the female cultivators declined by 16.24 per cent whereas agricultural laborers increased by 6.74 percent, HHI workers increased by 2.65 per cent and other female workers incremented by 48.31 per cent. There was a drastic decline in female cultivators and a steep increase in other worker category as per Census of India. According to the figures of 2011, the share of female labour force participation in agricultural labour was high as compared to other employment categories. The female agricultural labourers were increased from 32.91 in 1991 % to 39.65 % in 2001 and 43.14 per cent in 2011. The female HHI workers were increased by 2.52 % and other female workers recorded to be incremented by 5.38% in 2011.

The main and marginal female workers in 1991 recorded high differences among various employment categories such as in 1991 females in other category of main workers were significantly increased from 72.65 % in 1991 and 88.58 % in 2011. Likewise, females in other category of marginal workers increased from 27.35 per cent in 1991 to 40.90 % in 2001 but it decreased to 11.42 % in 2011. The female main cultivator laborers show us a drastic increase from 1.62 % in 1991 to 52.14 % in 2011 where as marginal female cultivators decreased from 98.38 % in 1991 to 47.86 % in 2011.

The overall composition of female labourers into various employment categories shows that, female laborers were reported to be increased from 1991 to 2011 in all employment categories except cultivators. The composition of female labourers in agriculture is high as compared to other employment categories. The female cultivators in Uttar Pradesh recorded a serious decline from 1991 to 2011.

Table 5. Total (Male & Female) Labour Force Participation by Occupation in Uttar Pradesh

Year	Total				Main				Marginal			
	CL	AL	HHI	Others	CL	AL	HHI	Others	CL	AL	HHI	Others
1991	2539329 (36.75%)	1703635 (24.65%)	523076 (7.57%)	2144554 (31.03%)	590904 (23.27%)	527257 (30.95%)	383972 (73.41%)	2044319 (95.33%)	1948425 (76.73%)	1176378 (69.05%)	139104 (26.59%)	100235 (4.67%)
2001	22167562 (41.06%)	13400911 (24.82%)	3031164 (5.61%)	15384187 (28.50%)	18479865 (83.36%)	5956547 (44.45%)	2091956 (69.01%)	12809281 (83.26%)	3687697 (16.64%)	7444364 (55.55%)	939208 (30.99%)	2574906 (16.74%)
2011	19057888 (31.37%)	19939223 (32.82%)	3898590 (6.42%)	17863284 (29.40%)	15576415 (81.73%)	9749915 (48.90%)	2409436 (61.80%)	16899726 (94.61%)	3481473 (18.27%)	10189308 (51.10%)	1489154 (38.20%)	963558 (5.39%)

Source: Census of India 1991, 2001 & 2011

Note: (a) Rural and urban combined; (b) Cultiv.—cultivators; (c) A L—agricultural labourers; (d) HHI household industry; (e) Others—it includes industry sector other than HHI and those involved in the services sector.

Table 5 of the present study explains total male and female labour force composition into main and marginal activities. According to the table, the main cultivators increased from 23.27 % in 1991 to 83.36 % in 2001 whereas decreased by 1.63 % (81.73%) in 2011. The main agricultural labourers show steep increase from 30.95 % in 1991 to 48.90 % in 2011. The main HHI workers decreased from 73.41 % to 61.80 % in 2011. Other worker in main category shows a slight decrease from 95.33 % in 1991 to 94.615 in 2011.

While looking at marginal workers in Uttar Pradesh, the table shows that, there was a steep deceleration in marginal cultivators from 76.73 % in 1991 to 18.27 % in 2011. Marginal agricultural labourers also decreased from 69.05% in 1991 to 51.10 % in 2011. The figures of marginal HHI workers recoded a intermediate upsurge from 26.59 % in 1991 to 38.20 % in 2011. The other workers in marginal category were recorded as 4.67 % in 1991 which is further increased by 12.7% in 2001 and gain declined by reaching at 5.39 % in 2011. The overall composition of male and female workers in Uttar Pradesh is more engaged in main agricultural labourers as compared to other employment categories.

3. *Assessing the patterns of rural and urban labour force participation in Uttar Pradesh from 1991 to 2011*

The patterns of male and female labour force participation in Uttar Pradesh are reported to be changed over the decades of the study. It is interesting to know that females are more employed in rural areas as compared to urban areas. Whereas as males are more engaged in urban areas as compared to rural areas. Urban labour force participation in Uttarpradesh was increased after 90's. In tandem to the national average rate of female labour force participation rate, the trend is declining in Uttar Pradesh. The central regions of Uttar Pradesh have high labour force participation rate as compared to southern regions.

The general causes of declining female labour force participation rate in Uttar Pradesh are lack of job opportunities and cultural restrictions. Females in Uttar Pradesh are not allowed to search fair employment opportunities in urban areas. So, females are bound to work in rural areas at minimum wages.

Table 6. Labour Force Participation Rate by Sex in Rural and Urban Areas in Uttar Pradesh

Year	Male	Female	% Females LFPR to Total LFPR	CAGR of Female LFPR
Rural				
1991	87.15	12.85	12.85	26.76
2001	73.35	26.65	26.65	
2011	73.83	26.17	26.17	

Urban				
1991	93.47	6.53	12.85	37.81
2001	88.21	11.79	26.65	
2011	82.91	17.09	26.17	
All (Rural + Urban)				
1991	88.27	11.73	11.73	27.41
2001	75.91	24.09	24.09	
2011	75.74	24.26	24.26	

Source: Census of India 1991, 2001 & 2011

Table 6 explains labour force participation rate by sex in rural and urban areas of Uttar Pradesh during 1991, 2001 and 2011. Compound annual rate of growth in female labour force participation is also analyzed through percentage of female labour force participation from total labour force participation in Uttar Pradesh. According to the data of Census of India, male labour force participation in rural areas of Uttar Pradesh was decreased by 13.32 per cent from 1991 to 2011 whereas female labour force participation in rural areas of Uttar Pradesh was recorded an increment of 13.92 per cent from 1991 to 2011. Percentage of female labour force participation to total labour force participation in rural areas of Uttar Pradesh in 1991 was 12.85% which was further increased by 14.4% in 2001 (26.65%). In 2011 female labour force participation in Uttar Pradesh was reported a slight decline by 0.48%. Overall, male labour force participation rates in rural areas of Uttar Pradesh were much higher than female labour force participation rates over the time period of the study.

Contemplating male-female urban labour force participation rate of male and female in Uttar Pradesh, the table condensed an extravagant disproportion. Urban male labour force participation rate was reported to be more than half of the urban female labour force participation rate in Uttar Pradesh over the decades of the study. Urban male labour force participation during 1991 was 93.47 per cent whereas urban female labour force participation was 6.53 per cent. MLFPR in urban areas of Uttar Pradesh recorded a decline of 5.26 per cent in 2001 while FLFPR escalated by the same percentage (5.26%). Furthermore in 2011, MLFPR in urban areas shrank and FLFPR were increased by 6.11 per cent. The compound

annual growth rate of urban female labour force participation was 37.81 % from 1991 to 2011 while CAGR of rural female labour force participation was 26.76 %.

It is concluded that the female labour force participation increased in 2000's due to industrial revolution and transition from agriculture to industry but in 2011 FLPR started decline due to rise in literacy rates, availability of poor job opportunities, gender wage gap and poor women employability. The stylized fact of this study claimed that both rural and urban male labour force participation rates are declining but still female labour force participation is abundantly depressed relative to men.

4. *Inter-district analysis of labour force participation rate in Uttar Pradesh*

So far we have committed our thoughtfulness regarding inter district varieties in female labour force participation rates based on Census information. These figures do toss light of the female work interest rates at the full scale level however neglect to give a top to bottom comprehension on the territorial issue for the State. The readings on local financial matters do make reference to about variety in female labour force participation rates region by region and area to locale. It hushes up suitable interest into such issues and attempt to understand the circumstance for the regions of Uttar Pradesh and feature the territorial point of view. It is seen that in some districts of Uttar Pradesh the female labour force participation rate is high and in some districts it is quite low. Studies have repeated that interest in education has positive effect on FLFPR, as it raises the pay desires; opportunity cost of dormancy and furthermore debilitates the prohibitive intensity of conventional culture in constraining the female investment in financial movement (Bhattacharya and Sakthivel 2005). Also, education is required to be all the more straightforwardly connected with occupation if there should arise an occurrence of females in light of the fact that of word related isolation however the degrees of training may not be directly corresponded with power to partake in labor force (Bhattacharya and Sakthivel 2005).

Table 7. Gender Stratification Work Force Participation Rate in Uttar Pradesh

Districts	1991			2001			2011		
	% of Male Workers at district level out of total male Workers	% of Female Workers at district level out of total Female Workers	% Gap Between Male And Female	% of Male Workers at district level out of total male Workers	% of Female Workers at district level out of total Female Workers	% Gap Between Male And Female	% of Male Workers at district level out of total male Workers	% of Female Workers at district level out of total Female Workers	% Gap Between Male And Female
Uttarkashi	0.17	1.06	0.04	NA	NA	NA	NA	NA	NA

Chamoli	0.28	1.87	0.03	NA	NA	NA	NA	NA	NA
TehriGarhwal	0.33	2.24	0.04	NA	NA	NA	NA	NA	NA
Dehradun	0.77	1.04	0.73	NA	NA	NA	NA	NA	NA
Garhwal	0.37	1.71	0.16	NA	NA	NA	NA	NA	NA
Pithoragarh	0.36	2.11	0.09	NA	NA	NA	NA	NA	NA
Almora	0.46	3.48	0.00	NA	NA	NA	NA	NA	NA
Nainital	1.13	1.77	1.03	NA	NA	NA	NA	NA	NA
Bijnor	1.79	0.50	1.99	1.90	0.91	2.36	1.77	1.04	0.73
Moradabad	3.05	0.93	3.38	3.34	2.37	3.80	3.18	2.28	0.90
Rampur	1.16	0.34	1.29	1.19	0.48	1.53	1.17	0.80	0.37
Saharanpur	1.76	0.54	1.95	1.81	0.66	2.35	1.75	0.79	0.96
Hardwar	0.85	0.31	0.93	NA	NA	NA	NA	NA	NA
Muzaffarnagar	2.14	1.47	2.24	2.29	1.89	2.48	2.08	1.32	0.76
Meerut	2.51	1.29	2.70	2.58	1.78	2.96	3.24	2.45	0.79
Ghaziabad	1.92	0.71	2.11	1.99	1.01	2.45	2.37	1.81	0.56
Bulandshahr	1.98	0.74	2.17	1.95	2.97	1.47	1.73	1.72	0.00
Aligarh	2.35	0.94	2.56	2.62	1.90	2.96	3.28	2.68	0.59
Mathura	1.39	0.58	1.52	1.33	1.79	1.12	1.22	1.29	-0.07
Agra	1.99	0.58	2.20	2.13	0.93	2.70	2.15	1.69	0.46
Firozabad	1.11	0.22	1.25	1.22	0.50	1.56	1.20	0.87	0.32
Etah	1.70	0.36	1.91	1.73	0.78	2.18	0.85	0.66	0.18
Mainpuri	0.97	0.14	1.09	0.97	0.36	1.26	0.90	0.59	0.30
Budaun	2.00	0.36	2.25	2.01	0.82	2.58	1.81	1.05	0.76
Bareilly	2.18	0.37	2.46	2.32	1.20	2.85	2.22	1.56	0.66
Pilibhit	0.99	0.22	1.11	1.03	0.33	1.36	1.03	0.52	0.51
Shahjehanpur	1.65	0.25	1.87	1.67	0.42	2.25	1.51	0.68	0.82
Kheri	1.99	0.54	2.22	2.16	1.03	2.70	2.04	1.29	0.74
Sitapur	2.35	0.79	2.59	2.43	1.10	3.05	2.25	1.57	0.68
Hardoi	2.23	0.76	2.46	2.33	1.20	2.85	2.10	1.42	0.68
Unnao	1.69	1.26	1.76	1.76	1.66	1.81	1.64	1.71	-0.08
Lucknow	1.96	1.56	2.02	2.24	1.38	2.64	2.36	1.98	0.38
Rae Bareli	1.67	2.55	1.53	1.74	2.46	1.41	1.67	2.11	-0.44
Farrukhabad	1.86	0.65	2.04	1.90	1.15	2.26	1.78	1.20	0.58

Etawah	1.55	0.31	1.74	1.57	0.92	1.88	1.50	1.06	0.43
Kanpur Dehat	1.59	0.87	1.70	1.01	0.82	1.10	0.95	0.84	0.11
Kanpur Nagar	1.67	0.65	1.83	2.62	1.44	3.18	2.50	1.71	0.79
Jalaun	0.90	0.71	0.92	0.96	1.05	0.91	0.91	0.94	-0.03
Jhansi	1.01	1.26	0.98	1.13	1.45	0.98	1.09	1.56	-0.48
Lalitpur	0.58	0.70	0.56	0.65	1.24	0.37	0.63	1.11	-0.48
Hamirpur	1.11	1.68	1.03	0.69	1.02	0.53	0.59	0.85	-0.25
Banda	1.42	3.11	1.17	1.47	3.49	0.53	6.00	2.93	3.07
Fatehpur	1.40	2.09	1.29	1.46	2.14	1.14	1.37	2.19	-0.82
Pratapgarh	1.38	2.83	1.16	1.44	2.56	0.92	1.36	2.27	-0.91
Allahabad	3.35	6.82	2.82	3.61	5.53	2.71	3.52	5.78	-2.26
Bahraich	2.32	1.33	2.47	2.50	2.47	2.51	2.29	2.29	-0.01
Gonda	2.83	3.04	2.80	2.96	3.52	2.70	2.67	3.39	-0.71
Barabanki	1.97	2.07	1.96	1.81	1.94	1.75	1.68	2.01	-0.34
Faizabad	2.09	2.60	2.01	2.47	3.87	1.82	2.20	2.96	-0.76
Sultanpur	1.76	2.28	1.68	1.79	2.38	1.52	1.67	2.33	-0.66
Siddharth Nagar	1.27	1.91	1.18	1.23	2.14	0.80	1.12	1.85	-0.73
Maharajganj	1.24	2.44	1.06	1.33	2.43	0.81	1.27	2.10	-0.83
Basti	1.92	2.24	1.88	2.04	3.07	1.56	1.07	1.41	-0.33
Gorakhpur	1.93	2.56	1.84	2.03	2.43	1.84	1.96	2.10	-0.14
Deoria	2.82	3.94	2.65	3.01	4.21	2.45	1.97	2.46	-0.50
Mau	0.89	1.63	0.77	0.97	1.60	0.67	0.91	1.39	-0.47
Azamgarh	1.89	2.77	1.75	1.97	3.11	1.44	1.81	2.69	-0.88
Jaunpur	1.88	2.69	1.76	1.94	3.33	1.28	1.80	3.15	-1.35
Ballia	1.38	2.07	1.27	1.45	1.61	1.37	1.39	1.86	-0.47
Ghazipur	1.48	2.33	1.35	1.58	2.41	1.20	3.10	4.43	-1.33
Varanasi	3.23	4.54	3.04	2.75	3.05	2.62	2.66	3.06	-0.40
Mirzapur	1.17	2.15	1.02	1.98	2.35	1.80	1.84	2.48	-0.64
Sonbhadra	0.84	2.17	0.63	0.90	1.34	0.69	0.89	1.67	-0.78
	100.000	100.000	100.000	100.00	100.00	100.00	100.00	100.00	0.00

Source: Census of India 1991, 2001 & 2011

Table 8 Presents inter district male and female labour force participation rate in Uttar Pradesh over the time period of the study. According to the figures of Census 1991, Pilibhit

(0.22%) and Firozabad recorded lowest female labour force participation rate (0.22 %) whereas Varanasi recorded high female labour participation rate (4.54%) as compared to other districts of Uttar Pradesh. By looking into the figures of male labour force participation rate in 1991, Uttarkashi was reported to be lowest in male labour force participation rate (0.17%) whereas Varanasi reported highest male labour force participation rate (3.23%) as compared to other districts of Uttar Pradesh. Varanasi recorded high male and female labour force participation rates during 1991.

According to the Census of 2001, Pilibhit continues to be the lowest in the female labour force participation rate with 0.33 % followed by Manipuri 0.36% and Sahhjeahanpur 0.42%. Female labour force participation in Aallahabad was highest at 5.53% followed by Deoria 4.21% and Faizabad 3.87%. The male labour force participation was quite high in these districts as compared to female counterparts. Male labour force participation rate in Lalitpur was reported be lowest at 0.65% followed by Hamirpur 0.69 % and Sonbhadara 0.90 %. The districts with high male labour force participation in 2001 were reported to be Allahabad (3.61%), Moradabad (3.34%) and Deoria (3.01%).

The Census of 2011 presents that Pilibhit recorded lowest female labour force participation rate (0.52%) followed by Manipuri (0.59%) and Shahjehanpur (0.68%). Female workers increased from 1991 to 2011 but still these districts recorded lowest female labour force participation rate as compared to other districts of Uttar Pradesh. The districts with highest FLFPR were Allahabad (5.78%), Ghazipur (4.43%) and Jaunpur (3.15%). Male labour force participation rate was continued to be lowest in Hamirpur (0.59%), Lalitpur (0.63%) and Budaun (0.81%). The districts with highest male labour force participation were Allahabad (3.52%), Aligarh (3.28%) and Meerut (3.24%). It is worth noting that there is high disparity between male and female labour force participation rate in various districts of Uttar Pradesh which shows differential working conditions according to regions. The female labour force participation in Western regions of Uttar Pradesh was reported to be high due to agricultural prosperity.

Table 8. Inter-district Change in Male & Female Labour Force Participation over the Years in Uttar Pradesh

Districts	Change In Male & Female Labour Force Participation During 1991 To 2001	Change In Male & Female Labour Force Participation During 2001 To 2011
Uttarkashi	0.04	-----
Chamoli	0.03	-----
TehriGarhwal	0.04	-----
Dehradun	0.73	-----
Garhwal	0.16	-----
Pithoragarh	0.09	-----
Almora	0.00	-----
Nainital	1.03	-----
Bijnor	-0.37	2.73
Moradabad	-0.42	4.22
Rampur	-0.24	1.76
Saharanpur	-0.40	2.75
Hardwar	0.93	-0.93
Muzaffarnagar	-0.24	2.72
Meerut	-0.26	3.22
Ghaziabad	-0.35	2.80
Bulandshahr	0.70	0.77
Aligarh	-0.40	3.36
Mathura	0.40	0.72

Agra	-0.50	3.20
Firozabad	-0.31	1.87
Etah	-0.27	2.45
Mainpuri	-0.16	1.42
Budaun	-0.32	2.90
Bareilly	-0.40	3.25
Pilibhit	-0.26	1.62
Shahjehanpur	-0.39	2.64
Kheri	-0.48	3.18
Sitapur	-0.46	3.51
Hardoi	-0.39	3.25
Unnao	-0.05	1.86
Lucknow	-0.62	3.26
Rae Bareli	0.12	1.29
Farrukhabad	-0.22	2.47
Etawah	-0.14	2.02
Kanpur Dehat	0.60	0.49
Kanpur Nagar	-1.35	4.53
Jalaun	0.01	0.90
Jhansi	-0.01	0.99
Lalitpur	0.19	0.17
Hamirpur	0.50	0.03
Banda	0.64	-0.11

Fatehpur	0.15	0.99
Pratapgarh	0.24	0.68
Allahabad	0.11	2.60
Bahraich	-0.04	2.55
Gonda	0.10	2.60
Barabanki	0.21	1.54
Faizabad	0.19	1.63
Sultanpur	0.17	1.35
Siddharth Nagar	0.37	0.43
Maharajganj	0.25	0.56
Basti	0.32	1.24
Gorakhpur	0.00	1.84
Deoria	0.20	2.24
Mau	0.10	0.57
Azamgarh	0.32	1.12
Jaunpur	0.48	0.81
Ballia	-0.10	1.47
Ghazipur	0.15	1.04
Varanasi	0.42	2.20
Mirzapur	-0.78	2.58
Sonbhadra	-0.06	0.76

Source: Census of India 1991, 2001 & 2011

Note: some of the districts from Uttar Pradesh were combined to develop Uttrakhand in 2001.

Table 8 presents the change in gap between male and female labour force participation among districts of Uttar Pradesh over the decades of the study.

Conclusion and discussion of results

The present study applied single factor ANNOVA to generate the results of the study. The results are based on the following hypothesis:

- There is no such difference between male and female labour force participation rates in Uttar Pradesh
- Female and male labour force participation rates are significantly differentiated form each other.

Single factor
ANNOVA

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Males	3	140.9	46.966666 7	0.4433333 3
Females	3	38	12.666666 7	46.423333 3

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	1764.735	1	1764.735	75.308748 2	0.0009704 2	7.7086474 2
Within Groups	93.733333	3	23.433333			
Total	1858.4683	3				

The number of observations is equal in each group. The summary of statistics identified sum, average and variance. There are sum of squares with in groups and between groups as stated in conceptualization of one way ANNOVA. By adding sum of squares between the groups and within the groups we get total sum of squares.

Degrees of freedom between the group is $k-1$ ($2-1$) =1

Degrees of freedom within the groups $k(n-1)$, $2(2-1)$, $2(2)$ =4.

Mean squares are obtained by dividing degrees of freedom to sum of squares. F – Statistic produced by dividing mean squares.

P-value is less than 0.05, hence null hypothesis is rejected.

Above analysis concluded that there is a vast disparity between male and female labour force participation rates of Uttar Pradesh. The total labour force participation rate in Uttar Pradesh is highest in India as compared to other states but still there is a wide gender gap in terms of literacy and labor force participation. The urban and rural Uttar Pradesh are much differentiated and this difference is continued from decades. While the status of females is improving due to various facilities and schemes of government to promote education.

References

A Labor Market That Works: Connecting Talent With Opportunity In The Digital Age.(2019).

<https://www.mckinsey.com/~media/McKinsey/Featured%20Insights/Employment%20and%20Growth>.

Akarro, RRJ and Losindilo. (2010). Some factors that hinder women participation in social, political and economic activities in Tanzania. Arts and social sciences journal, vol. 2010: ASSJ-4.

Bhalla, S.S. and R. Kaur. (2011). Labour Force Participation of Women in India: Some facts, some queries. *Asian Research Centre Working Paper No. 40*, 1-16.

Bhattacharya, B.B. and S. Sakthivel (2005), Economic Reforms and Jobless Growth in India in the 1990s, in A.K. Sinha (ed), India Towards Economic Superpower: A Journey of Economic Reforms, New Delhi: Deep and Deep Publications.

Bhawan, S., & Marg, S. (2019). *Annual Report 2019-20 Government of India Ministry of Statistics and Programme Implementation*.
http://www.mospi.gov.in/sites/default/files/publication_reports/Annual_Report_2019-2020_English.pdf.

Botmeh,S.(2013). Barriers to female labour market participation and entrepreneurship in the occupied Palestinian territory. Centre For Development Studies Birzeit University.

Chakraborty, I & Chakraborty, A (2010), Female Work participation and Gender Differential in Earning in West Bengal, India, *Journal of Quantitative Economics*, Vol.8, No. (2), July 2010.

Chapman, K.A. (2015). Economic Development and Female Labour Force Participation in the Middle East and North Africa: A Test of the U-Shape Hypothesis. *Gettysburg Economic Review*, 8(3): 1-22.

Dasgupta, P. (2005), Female Labour Supply in Rural India – An Econometric Analysis, Working Paper Series, No. E / 265 / 2005, Institute of Economic Growth, New Delhi.

Dholakia, R.H. and Jitendra Dholakia (1978), “Inter-State Variations in Female Labour Force Participation Rates”, *The Indian Journal of Labour Economics*, January.

Durand, J.D. (1975). The Labor Force in Economic Development- Princeton, *Princeton University Press. Economic Development*, ed. T Paul Schultz. *University of Chicago Press*.

England, Paula, and G. Farkas. (1986). *Households, Employment and Gender: A Social, Economic, and Demographic View*, Aldine.

Goldin, C. (1990). *Understanding the Gender Gap*. *Oxford University Press*.

Goldin, C. (1994). The U-shaped Female Labor Force Function in Economic Development and Economic History. In *Investment in Women's Human Capital and*

Gulati, Leela, (1975); “Female Work Participation-A Study of Inter State Differences”, *Economic and Political Weekly*, Vol X, No. 1&2, January 11.

K V Subramanian and Surbhi Jain. (2020, March 7). *Women's participation in labour market reflects a declining trend*. *Hindustan Times*; *Hindustan Times*.
<https://www.hindustantimes.com/india-news/women-s-participation-in-labour-market-reflects-a-declining-trend/story-5Lj9PytVpiVu6rvu9JHIZP.html>

Kaur, P and G. Kaur. (2012). Factors affecting female labour force participation in Punjab: An inter district analysis. *Journal of Research in Peace, Gender and Development*, 2(4):81-88.

National Sample Survey Office (NSSO) | Ministry of Statistics and Program Implementation | Government Of India. (2020). Mospi.Nic.In. <http://mospi.nic.in/NSSOa>

Nomita, P.K. (2013), Female work Participation in Uttar Pradesh: Trends and Determinants, *Socio-economic Voices*, January –February

Sanghi, S., Srija, A., & Vijay, S. S. (2015). Decline in Rural Female Labour Force Participation in India: A Relook into the Causes. *Vikalpa: The Journal for Decision Makers*, 40(3), 255–268. <https://doi.org/10.1177/0256090915598264>

The State Of Employment In Uttar Pradesh Unleashing The Potential For Inclusive Growth. (2019). https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-new_delhi/documents/publication/wcms_614693.pdf

The World Bank Annual Report Ending Poverty, Investing in Opportunity. (2019). *World Bank Annual Report*. <https://doi.org/10.1596/978-1-4648-1470-9>