

## **An economic analysis of female agricultural labourers in Karnataka in the post reform period**

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**Abstract:** *Female work force participation rate in India has been increasing after reform period. Karnataka is leading in service sector growth which has helped women labourers. Agricultural labourers in Karnataka has more unique pattern compared to national level. The present study focuses on women agriculture labourers in Karnataka where marginal agriculture labourers has been increasing since 1991 compared to male counterpart due to globalization effect. The study evaluated female work participation rate and labour force participation in rural area where in the cohort of 1-24 age group females work participation has declined due to more enrolment ratio and education effect. The association of illiteracy rate and female agriculture labourers' participation rate showed inverse relation and in recent years, female literacy rate slowly increasing in the rural area consequently under 25 age female person's work participation declined. The study concludes that wage rate and education is the major factors that affect the female agriculture labour force participation in rural Karnataka.*

**Keywords:** Work Participation, Female Labour Force, Female Agriculture Labourers, Literacy rate, Distribution of agriculture labourers.

### **Introduction**

India is the largest democratic country in the world and she has second largest population with highest demographic dividend (i.e. working age population) in the world. In India agriculture sector contributes only 18% of income in total GDP while its employment share is highest at 49% in the year 2011-12. Manufacturing and service sectors were contributed 24% and 27% employment respectively in the same period. As per 2011 census, India has total 440.4 million people available for work, 415.7 million are in the workforce and 24.7 million people are unemployed. Out of total workforce, male workforce is 78% and rest 22% is female workforce. Moreover, 52.2% are employed in self-employment, 17.9% in regular wage/salary and 29.9% in casual labour at all India level in 2011-12.

India has already started realizing its demographic dividend and female population which accounts for nearly 50 per cent of the population and it is an asset to be utilized carefully, we must reap this window of opportunity. Declining fertility rate and child dependency ratio are factors which can facilitate female workers to come out. In short, a bubbling rural economy is the need of the hour to create jobs and absorb the bulging economically active female population.

### **Review of Literature**

Sharma (1982) conducted field study in Punjab state which is advanced state in agriculture where role of female agriculture labourers is less and in Himachal Pradesh which is a hilly

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state where male labourers have migrated much and hence role of female agriculture labourers is high. Duvvury (1989) evaluated the trends in female labour force participation in India. India in the recent has witnessed an upsurge in research on various aspects of women's existence, with the early focus on the social facets of their status giving way of analyses of women's location within the sphere of economic production, a shift that was prompted by the alarming decline in female participation. It reviewed literature on women in agriculture, highlighting the lacunae and pointing to possible areas of fruitful future research. The impact of technological change and the process of capitalist agriculture have had unequivocally negative implications for women of agricultural labour and marginal peasant households. They constitute the poorest of the poor and have been a target of various governmental programmes in the drive to alleviate poverty. Jha (1997) examined the socio-economic conditions of agricultural labourers and female workers after new economic policy in 1990s. In their field studies in some villages of Purnea district in Bihar, real wages for agricultural labourers have declined by 15% to 25% during 1991 to 1997. It is argued that new economic reforms took the hindmost attitude fits in well with the so-called reform-strategy of the relentless marketers. Kapadia (1997) studied on poverty in rural Tamil Nadu, specifically women agriculture labourers. It focused on access to employment run the risk of implicitly being an approach that neglected the gender dimension of poverty. In the context of inequitable gender relations within households, poor women may have access to employment, but still be sharply subordinated, so that they have very little control over their earnings.

Tuteja (2000) conducted a study on the effect of contractual labour arrangements on agriculture women workers in rural Haryana. The study highlights the urgent need for assessing and modifying labour policy and rectifying the neglect of analysis of women worker's position after the prevalence of contractual labour arrangement. The study of Vepa (2005) analysed the declining economic stake of women in agriculture despite their increasing contribution benefit. Chavan and Bedamatta (2006) examined the trends in agricultural wages with comparison to male-female agriculture labour force in India from 1964-65 to 1999-2000, using data from Agricultural Wages in India and Rural Labour Enquiry in 1990s. It found that the differences between the average wages of male and female agricultural labourers have widened over the years. In most of the states, the daily wages of male agricultural labourers exceeded the minimum wage levels while that of women was below the minimum. Yadav and Kaushik (2006) conducted a study in Rewari district of Haryana state on the role performance of farm women in wheat crop. The study revealed that the total days of different activities in a season ranged from one day to 20 days, maximum days being spent on weeding followed by harvesting. The total time spent by women was maximum on harvesting (75 hrs), followed by weeding (50 hrs), irrigation (24 hrs) and storing (10.5 hrs). Least time was spent on threshing, winnowing, plant protection, fertilizer application and sowing (less than 10 hr/season). The study concludes that as women mostly do jobs that are tedious, monotonous and requiring manual labour while technical activities are taken over by men, women need to be trained in technical aspects as well to handle farming operations independently.

Sundaram (2007) in their study principally focused on the changes in the size and structure of the workforce especially male and female agriculture labour force and the changes in labour productivity, wages and poverty in India in the first quinquennial of the 21st century, to understand women's work status in India's rural areas and to examine the trends and nature of women's employment. Srivastava and Srivastava (2010) examined the women employment status in rural India. The study analysed data from large-scale national surveys. The paper argues for policy interventions to increase work opportunities and enhance wages for rural women workers. Srija and Vijay (2015) examined how agricultural economy transformed to an industrial economy, a decline in participation of female labour force and its experience has been in India especially among rural females who account for the major share

of the rural population. The study found that the womenfolk in India are being mostly illiterate or with low levels of education face shortage of work in the home turf and have inhibitions in working as manual labour in the non-agricultural sector.

From the literature review, there are number of studies on agriculture and labour force, which are based on agricultural work, wages and economic contributions of working women to household income and pattern of expenditure and savings of agricultural women labour and awareness of social security measures of agricultural women and their role in decision making. In the backdrop of literature, the present study overviews the trends and pattern of women workers in Karnataka. The study attempts to examine the role and position of female agriculture labourers in Karnataka.

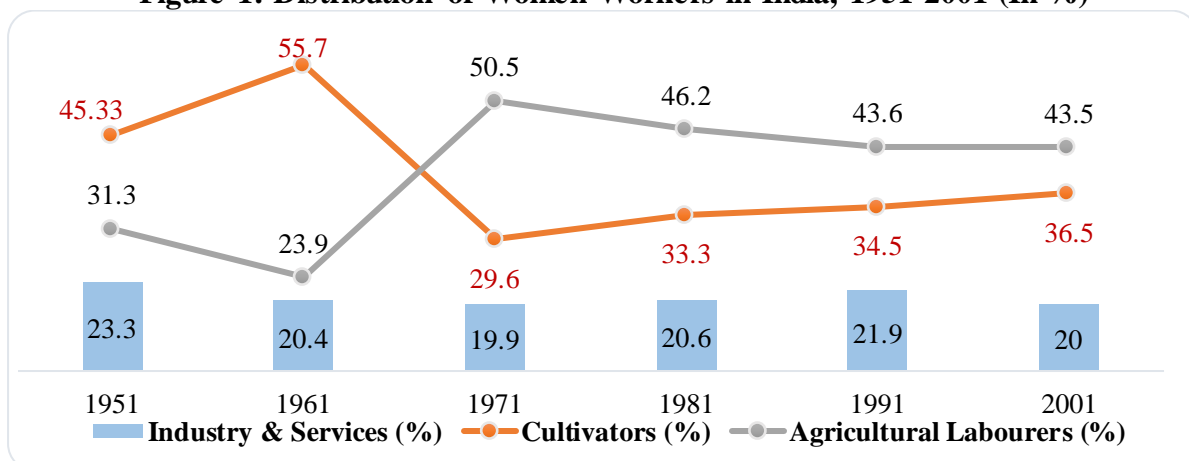
### Research Methodology

The present study is based on secondary data. The study period is post reform period and data on work participation are taken from various rounds of employment and unemployment by NSSO. Census data from 1961 to 2011, published by Registrar General of India, New Delhi used for National, Karnataka state. The labour force, employment in agriculture sector along with women agricultural labour force is taken from 66<sup>th</sup> Round of NSSO (National Sample Survey Organization). Socio-Economic Survey; Karnataka at a Glance; District at a Glance 2013 reports, published by Government of Karnataka are used for secondary data analysis. Agricultural Commission Reports, various Economic Survey reports from Government of India and Government of Karnataka are utilized in the study. The study uses simple average, percentage, growth rates as analytical tool for analysis and comparison.

### Distribution of Workforce in India

Data illustrated in figure 1 shows the distribution of women workers in India since independence. In 1951, highest employment for women generated from agriculture sector where cultivators were accounted 45.33% and followed by agriculture labourers 31.3%, industry and service sectors jointly accounted 23.3% share in total employment for women. In 1960s land reform has led to defragmentation of large land holders, hence cultivators' size decreased to 29.6% in 1971 from 55.7% in 1961, on the other hand agriculture labourers' share in total employment for women has increased to 50.5% in 1971 from 23.9% in 1961. Industry and service sectors have been stagnant share in total employment for women that is around 20% since independence. Since 1971, female agriculture labourers share has been decreasing and female cultivators share has been increasing in the distribution of women workers in India.

**Figure 1: Distribution of Women Workers in India, 1951-2001 (In %)**



Source: Registrar General of India, New Delhi, 2001

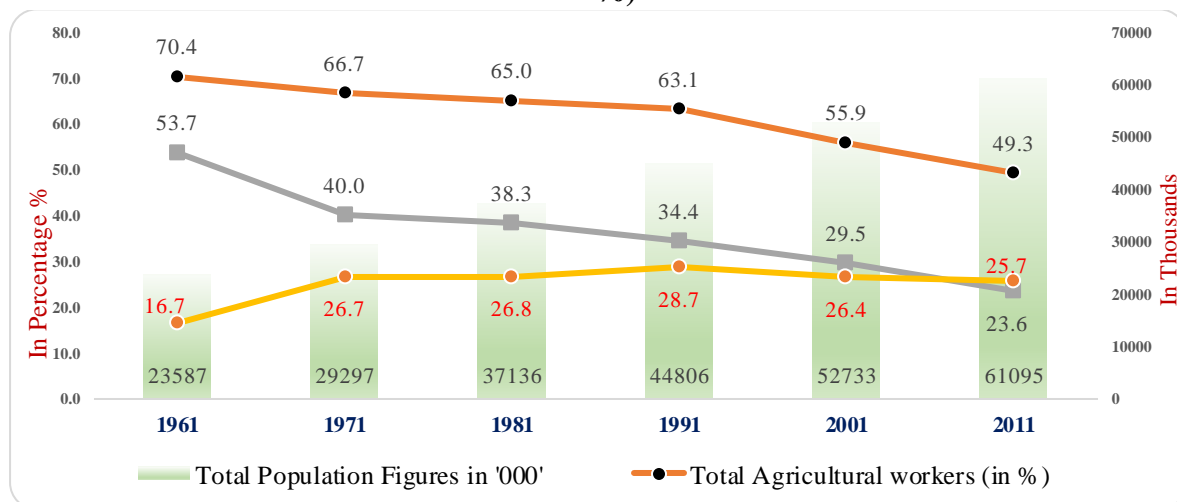
As per 2011 census, Karnataka state has 6,10,95,297 population and size wise population Karnataka state stood at ninth rank among all the states in India and it accounts 5.05% share of total population in India. Total 3,74,69,335 persons reside in rural area that is 61.33% and remaining 2,36,25,962 persons reside in urban areas that is 38.67%. Urbanization in the state has been increasing especially Bengaluru is the centre of migration and the urbanisation recorded 4.68% growth rate in 2011 over 2001. Sex ratio in Karnataka state is higher than national average. Both rural and urban areas recorded improvement in sex ratio in 2011. In rural area sex ratio increased to 979 in 2011 from 977 in 2001, similarly at urban area increased to 963 from 942 in the same period but compared to rural area, sex ratio in urban area is low. Overall literacy rate in the state has increased to 75.36% in 2011 from 66.64% in 2001. Literacy rate of male is higher than female in aggregate and urban literacy rate is higher than rural area. Female literacy has increased considerably during last decade and reached 68.08% in 2011 from 56.87% in the year 2001.

### Distribution of Agriculture Workers in Karnataka

In Karnataka total workers are 2,78,72,597 persons in 2011, constituting 45.6% of the total population. Among them, 59% of males are workers comprising 1,82,70,116 persons and female workers are 31.87% out of total female population that is total 96,02,481 female workers. Chitradurga district occupies the top position among top work participating district in the state with 51.6%, followed by Chikkaballapura, Hassan, Tumkur and Kodagu districts with work participation rate of more than 50%. The lowest Work Participation Rate of 41.25 per cent is recorded in Bidar District. The highest proportion of male workers is registered in Mandya district at 63.5% and the lowest proportion of male workers is recorded in Bijapur district at 52.2%. In respect of female workers, the highest proportion is recorded in Chitradurga district at 41.9% and the lowest proportion is registered in Bangalore district at 24.6%.

The agriculture labourers' share in total workers has increased to 14.92% in 2011 over 2001 in Karnataka state. The proportion of male agricultural labourers has increased slightly by 0.77% while female agricultural labourers have registered decline of 3.12% in 2011 over 2001 period.

**Figure 2: Distribution of Agricultural Workforce in Karnataka, During 1961- 2011 (In %)**



Sources: Author's presentation by using data from Census of India 1961 to 2011

Figure 2 shows the decadal distribution of agricultural workforce in Karnataka, during 1961- 2011. Agriculture labourers' share in total agriculture workers has been increasing

while cultivators' and total agriculture workers' share has been decreasing during last six decades in Karnataka state. In 1961, the share of total agriculture workers out of total workers was 70.4%, cultivators' and agriculture labourers' share was 53.7% and 16.7% respectively. After economic reforms, agriculture workers' and cultivators' share started to decline and reached 49.3% and 23.6% respectively while agriculture labourers' share increased to 25.7% in Karnataka state. The data illustrated in figure 2 reveals that there has been considerable increase in the number of population and number of agricultural labourers in Karnataka. The total population in Karnataka has increased from 2,35,87,000 in 1961 to 6,10,95,000 in 2011. Further the percentage of agricultural labourers has also increased from 16.65 percent in 1961 to 25.67 percent in 2011. On the other hand, the percentage of agricultural workforce declined from 70.36 in 1961 to 49.28 in 2011. In the same period the percentage of cultivators also declined from 53.70 in 1961 to 23.61 in 2011.

The labour force participation in Karnataka state has been increasing while the trend of agriculture workers' and cultivators' share (in %) has negative slope which can be seen in the figure 2. The agriculture labourers' share has positive trend in Karnataka since 1961. Total population in the state has increased to 6,10,95,000 in 2011 from 2,35,87,000 in 1961.

From this it may be concluded that the population is growing rapidly. The percentage of workers depending on land is declining. But the percentage of agricultural labourers is not declining during the same period. It shows increasing dependency of agricultural labourers in agriculture. It means, non-agricultural employment opportunities are not created to absorb the surplus labour force from agriculture.

### Female Work Participation Rate in Rural area

Work participation rate of rural female labourers in Karnataka has been decreasing during reform period while enrolment ratio and education of female in rural area have been increasing and migration to urban area for education and employment have led to decrease in rural workforce participation.

**Table 1: Work Participation Rate of Females (Rural)**

Age Group	1993-94	1999-00	2004-05	2009-10
5-9	38	13	0	0
10-14	251	153	121	65
15-19	503	421	424	293
20-24	620	481	485	342
25-29	641	635	692	507
30-34	762	714	785	595
35-39	746	710	826	685
40-44	737	665	836	707
45-49	758	618	756	658
50-54	687	563	655	570
55-59	506	499	595	465
>60	249	261	266	269

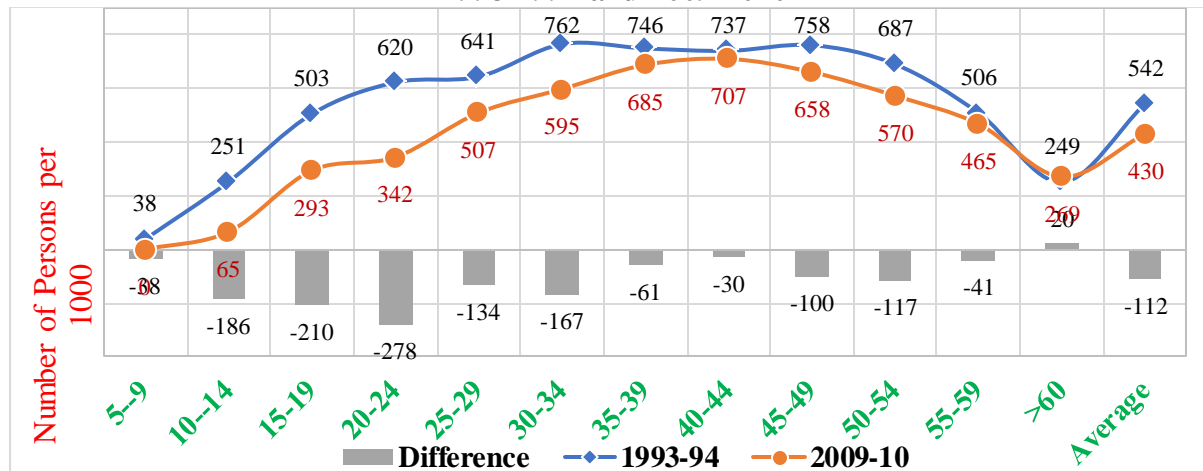
**Source:** Government of Karnataka, 2013

**Note:** Work Participation Rate is in number per 1000 persons.

The data provided in table 1 shows the age cohort wise work participation rate of female labourers during various NSSO-EUS rounds since 1993. It shows that school going female girls have stopped as working in the cohort of 5-9 age groups in 2004-05 and 2009-10 compared to 38 persons in 1993-94. All the cohort age groups of female person's work participation have been decreasing in rural Karnatak. Even though right to education up to 14 years (2009 Act) of age is implemented in the state, work participation of female labourers

has not been decreased. In 2009-2010, 65 female girls per 1000 female persons have reported as work participation under cohort of 10-14 age groups. Highest female work participation in the cohort 30-34 age group was recorded 762 in 1993-1994 which has gradually declined in that age group over the period, for instance 714 in 1999-2000. Average female work participation of all age groups up to 60 years in 1993-1994 was 249 which have been increasing over the period. Moreover, in 2004-2005, all age group cohorts except 10-14 years and 5-9 years age group female worker's participation rate increased while previous and latest survey rounds showed declining trend.

**Figure 3: Trends and Pattern of Female Work Participation Rate in Karnataka, During 1993-1994 and 2009-2010**



**Source:** Authors presentation based on data from District at a Glance, Government of Karnataka, 2013

In the last two decades, female work participation rate showed declining trend except 2004-05 due to education effect and rising wage rates. Data illustrated in figure 3 shows the trends of female work participation rate and difference in participation numbers between 1993-1994 and 2009-2010 in Karnataka state. It clearly shows that total work participation of female has declined in 2009-2010 compared to 1993-1994 and there be huge decline in female persons in the cohort of 20-24 age groups that is 278 persons, followed by 15-19 age groups at 210, 10-14 age groups at 186. It may be implied as higher education for female and higher wage rates collectively helped to decrease the work participation rate of female below 24 ages. In other words, least decline in female work participation age cohort are 55-59 age group at 41, followed by 40-44 age group at 30, and 35-39 age group at 61. However, in the cohort of >60 age group, female work participation rate has increased slightly to 20 persons that is from 249 in 1993-1994 to 269 in 2009-2010. The average female work participation of all cohort age groups also declined to 112 persons in 2009-2010 from 430 and 542 persons in 2009-2010 and 1993-1994 respectively.

### Agricultural labourers' Wage rate

Agriculture sector is still accounting half of employment share in the state. Karnataka state has ample opportunities in service sector to create both employment and income but agriculture labourers' wage rate is not improving much compared to other wage rates. However, MGNAREGA helped to increase market wage rate which directly and indirectly helped to increase agriculture wage rates in the recent past.

**Table 2: Average Daily Wages Paid to Agricultural Labourers in Karnataka, 2012-2014**

Skilled Labour(In Rupees)				Dry land(In Rupees)							
Year	Carpenter	Blacksmith	Mochies	Class A		Class B		Class C		Class D	
				Male	Female	Male	Female	Male	Female	Male	Female
2012	266	238	206	234	142	183	138	133	112	246	150
2013	317	273	232	275	173	215	162	155	121	259	185
2014	349	303	266	283	197	246	192	177	147	280	217

Source: Directorate of Economics and Statistics, Government of Karnataka

**Note:**

- A. Ploughing, digging, harrowing, sowing, intercutting, watering and uprooting.
- B. Manuring, transplanting, weeding, harvesting, threshing, winnowing and picking (cotton)
- C. Activities like cattle, sheep and goat grazing.
- D. Harvesting in areca and coconut, peeling of coconuts and areca nuts, trimming and spraying in areca and coconut gardens and any other operations relating to areca nut and coconut gardens

Table 2 provides the average daily wages (In Rupees) paid to agricultural labourers in Karnataka during 2012 to 2014. The data shows that skilled labourers get more wage rate than semi-skilled and unskilled labourers in the state. In 2012, carpenters were earning highest wage rate of Rs.266 per day followed by Blacksmiths Rs.238 and Mochies Rs.206. The agriculture labourers who are working in dry land are classified as A, B, C and D classes based on nature of work and each class labourers get different wages according to their work. Male agriculture labourers have been paid more wages than female agriculture labourers. Class A male agriculture labourers were earned average Rs 234 while female agriculture labourers earned average Rs 142 per day in the year 2012 and both male-female wage rates increased to Rs 283 and Rs 197 respectively in 2014 that is on an average Rs 50 increment in the daily wage rate for both. However, class B, C and D labourers wage rate also increased over the period while male agriculture labourers wage increased higher than female. It shows that agriculture labourers have been paid biased wage rate based on gender.

The agriculture labourers are high in numbers in the districts wherever irrigation is high and high rural female illiteracy rate in Karnataka state. Urbanization and industries attracted more skilled labourers while unskilled and non-migrating agriculture labourers remained in daily works in farm land. However, commercial and horticulture crops have remunerative wages for unskilled agriculture labourers in rural Karnataka while gender gap is high in case of wages even though female workers were managing both domestic works and labour works.

The data given in the table 3 shows the district wise agriculture labourers in Karnataka in 2011. Highest agriculture labourers were recorded in Belagavi district at 6,49,517 persons, followed by Kalburgi 4,15,267; Bellary 4,06,09; Raichur 3,83,526; Tumkur 3,52,286; Vijayapura 3,51,600; Haveri 3,11,263 and Mysuru 3,11,002 while lowest agriculture labourers were recorded in Kodagu district at 15,153, Dakshina Kannada at 29,274 and Udapi district at 63,390. Total agriculture labourers in Karnataka state were 71,55,963 persons in the year 2011. Almost all districts have more female agriculture labourers than male except high literate districts.

**Agricultural labourers Across Districts****Table 3 District Wise Agriculture Labourers in Karnataka - 2011**

	<b>Total Agricultural Labourers</b>	<b>Total Male Agricultural Labourers</b>	<b>Total Female Agricultural Labourers</b>
Belagavi	649517	285981	363536
Bagalkot	303243	128333	174910
Vijayapura	351600	153584	198016
Bidar	280091	140518	139573
Raichur	383526	156852	226674
Koppal	273016	110161	162855
Gadag	200310	87914	112396
Dharwad	207642	95598	112044
Uttara Kannada	116336	61302	55034
Haveri	311263	160135	151128
Bellary	406092	175992	230100
Chitradurga	294337	125031	169306
Davanagere	295873	147543	148330
Shimoga	246464	126718	119746
Udupi	63390	31032	32358
Chikmagalur	126600	59233	67367
Tumkur	352286	142073	210213
Bangalore	97914	62549	35365
Mandya	216159	101222	114937
Hassan	165910	62993	102917
Dakshina Kannada	29274	21384	7890
Kodagu	15153	7636	7517
Mysuru	311002	166378	144624
Chamarajanagar	214303	122735	91568
Kalburgi	415267	184016	231251
Yadgir	234655	87048	147607
Kolar	201233	96325	104908
Chikkaballapura	206939	95588	111351
Bangalore Rural	84108	40018	44090
Ramanagara	102460	47387	55073
KARNATAKA	7155963	3283279	3872684

**Sources:** Census Report 2011

Table 3 illustrates the male-female agriculture labourers in Karnataka state across districts in 2011. Belagavi district has highest female agriculture labourers in the state, having 3, 63,536 persons with accounting 9.38% share in total female agriculture labourers during 2011. Second highest female agriculture labourers existed in Kalburgi district at 2, 31,251, followed by Bellary with 2, 30,100; Raichur with 2, 26,674 and Tumkur with 2, 10,213 in the state. Lowest female agriculture labourers recorded in Kodagu district at 7,517; followed by Dakshina Kannada with 7,890; Udupi with 32,538; Bengaluru with 35,365 and Bengaluru Rural with 44,090. It clearly shows that wherever irrigation facility is available there exist more female agriculture labourers and capital city and educationally forward districts have less female agriculture labourers.

**Table 4: District Wise Total Male-Female Agricultural Labourers as Percentage of Total Workers in Karnataka - 2011 (In %)**

Districts	TAL as % of Total Workers - Male	TAL as % of Total Workers - Female	Gender Gap
Belagavi	20.8	49.6	28.7
Bagalkot	25.1	57.1	32.0
Vijayapura	26.5	57.0	30.5
Bidar	30.6	57.3	26.7
Raichur	29.6	60.8	31.2
Koppal	28.4	61.0	32.6
Gadag	28.3	60.7	32.3
Dharwad	17.6	46.5	28.9
Uttara Kannada	14.2	30.9	16.7
Haveri	32.6	63.1	30.5
Bellary	25.0	55.6	30.6
Chitradurga	24.4	49.3	25.0
Davanagere	25.2	51.2	26.0
Shimoga	23.7	48.7	24.9
Udupi	9.3	18.2	8.9
Chikmagalur	16.6	32.4	15.9
Tumkur	17.0	40.6	23.7
Bangalore	2.0	3.1	1.1
Mandya	17.6	38.8	21.2
Hassan	11.2	30.0	18.8
Dakshina Kannada	3.4	2.1	-1.4
Kodagu	4.4	7.0	2.6
Mysuru	18.0	36.9	18.8
Chamarajanagar	37.8	58.2	20.3
Kalburgi	27.1	56.8	29.8
Yadgir	27.4	64.0	36.6
Kolar	21.2	39.8	18.5
Chikkaballapura	24.9	43.6	18.7
Bangalore Rural	12.7	30.5	17.9
Ramanagara	13.8	29.4	15.7

**Sources:** Authors presentation based on data from Census Report 2011

**Note:** TAL implies Total Agriculture Labourers

The data illustrated in table 4 provides the picture about percentage of male-female agriculture labourers to respective male-female total workers and gender gap in agriculture labourers across the districts in Karnataka state during 2011. It shows that total female agriculture labourers as percentage of total female workers are higher than total male agriculture labourers as percentage of total male workers in all the districts in Karnataka. Belagavi district has highest female agriculture labourers in the state as shown in the table 4 while female agriculture labourers as percentage of total female workers are high in Yadgiri district at 64%, followed by Haveri 63.1%, Raichur 60.8%, Gadag 60.7% and Koppala district at 61%. Moreover, male agriculture labourers as percentage of total male workers are high in

Chamarajnar at 37.8% and it is 32.6% in Haveri, 30.6% in Bidar, 29.6% in Raichur and 28.3% in Koppala districts.

Yadgiri district recorded highest gender gap of 36.6% and six districts have more than 30% gender gap; that are Koppala with 32.3%, Gadag with 32.3%, Bagalkot with 32%, Raichur with 31.2%, Bellary with 30.6% and Haveri with 30.6%, while Dharwad district has 28.9% gender gap. On the other hand, Dakshina Kannada has lowest gender gap of agriculture labourers in the state with record of negative i.e. -1.4% which depicts more male agriculture labourers share in total male workers than female agriculture labourers share in total female workers. Similarly, gender gap between agriculture labourers in the state is lowest in districts Begaluru Urban with 1.1%, Kodagu with 2.6%, and Udupi with 8.9%.

**Table 5: Main and Marginal Women Agriculture Labourers in Karnataka in 2011**

Districts	% of Main Women Agricultural labours	% of Marginal Women Agricultural labourers
Belagavi	63.1	36.9
Bagalkot	67.8	32.2
Vijayapura	69.2	30.8
Bidar	65.5	34.5
Raichur	65.5	34.5
Koppal	61.9	38.1
Gadag	72.8	27.2
Dharwad	75.7	24.3
Uttara Kannada	59.7	40.3
Haveri	64.9	35.1
Bellary	75.7	24.3
Chitradurga	58.7	41.3
Davanagere	67.2	32.8
Shivamogga	63.5	36.5
Udupi	62.2	37.8
Chikmagalur	65.3	34.7
Tumkur	53.9	46.1
Bengaluru Urban	72.9	27.1
Mandya	60.0	40.0
Hassan	55.4	44.6
Dakshina Kannada	75.5	24.5
Kodagu	79.4	20.6
Mysuru	57.8	42.2
Chamarajanagar	66.2	33.8
Kalburgi	63.0	37.0
Yadgir	65.1	34.9
Kolar	64.7	35.3
Chikkaballapura	69.3	30.7
Bengaluru Rural	63.6	36.4
Ramanagara	69.1	30.9
KARNATAKA	64.8	35.2

Source: Census 2011

The data provided in table 5 shows the women agriculture labourers as a percentage of main and marginal workers across the districts in Karnataka for 2011. Female main agriculture labourers are high in Kodagu district in the state, accounting 79.4%, followed by Dharwad and Bellary 75.7% each, Dakshina Kannada 75.5%, Bengaluru Urban 72.9%, Gadag 72.8%. The districts having low female main agriculture labourers are Tumkur with 53.9%, Hassan with 55.4%, Mysuru with 57.8 and Chitradurga with 58.7% and state average is 64.8% according to 2011 census. However, Tumkur district has lowest female main agriculture labourers but it had highest female marginal agriculture labourers in the state with average 46.1%, followed by hassan, Mysuru, Chitradurga, Uttara Kannada and Mandya which have more than 40% female marginal agriculture labourers in the state. On the other hand, Kodagu has lowest female marginal agriculture labourers accounting 20.6%, Dharwad 24.3%, Bellary 24.3% and Dakshina Kannada 24.5% while state average of female marginal agriculture labourers is 35.2% according to 2011 census. It clearly shows that irrigated area and large dry cultivable land have more female main agriculture labourers and wherever agriculture land is less and more literacy with urbanization influence, there is more female main agriculture labourers existed.

Tumkur, hassan, Mysuru, Chitradurga, Uttara Kannada, Mandya, Koppala, Udupi, Kalburgi, Belagavi, Shivamogga, Bengaluru Rural and Kolar districts have more than state average (35.2%) of female marginal agriculture labourers while Kodagu, Dharwad, Bellary, Dakshina Kannada, Bengaluru Urban, Gadag, Chikkaballapura, Vijayapura, Ramanagara, Bagalkot, Davanagere, Chamarajanagar, Raichur, Bidar, Chikmagalur and Yadgir districts have more than state average (65%) female main agriculture labourers.

### Impact of Education on Female Agriculture Labourers

The study also investigates the major reasons behind existence and increase of female agriculture labourers in the study area. In order to support our hypothesis, the present study examined the association between female illiteracy rate and female agriculture labourers (in %) across districts in Karnataka state.

**Figure 4: Association between Illiterates and Female Agriculture Labourers in Karnataka (Illiterates and FAL as percentage of total female population) in 2011**

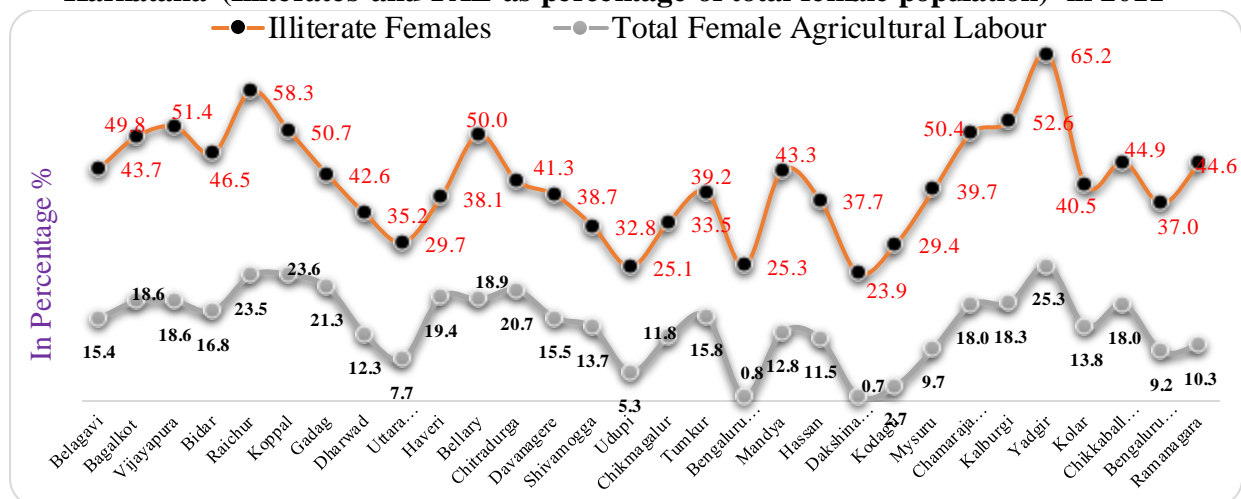


Figure 4 illustrates the association between illiterates and female agriculture labourers as percentage of total female population in Karnataka during 2011. It supports our presumption as literacy can influence female agriculture labour force participation and both trend lines show association between illiteracy rate and female agriculture labourers.

Wherever illiteracy is high there is high female agriculture labourers existed. For example, Yadgiri district has highest female illiteracy rate of 65.2% and highest female agriculture labourers as percentage of total female population in the district at 25.3%, followed by Raichur district 58.3% and 23.5%; Koppala district 50.7% and 23.6%; Gadag district 42.6% and 21.3%; Kalburgi 52.6% and 18.3%; Bellary 50% and 18.9% etc. However, lowest illiteracy recorded district such as Dakshina Kannada has lowest female agriculture labourers as percentage of total female population at 0.7%, followed by Udapi 5.3%, Bengaluru Urban 0.8%, Uttara Kannada 7.7% and so on. Dharwad district has recorded 35.2% illiterates and 12.3% female agriculture labourers as percentage of total female population. Therefore, these results are enough to say that literacy rate has inverse relation with female agriculture labourer's participation rate.

### **Policy Implications and Conclusion**

The present study examines the trends and pattern of employment, workforce, agriculture labourers, agriculture wage rate, and distribution of agriculture workers in Karnataka during reform period based on NSSO rounds surveys. At all India level agriculture labourers have been increasing in absolute but in percentage share of agriculture labourers and cultivators in total distribution of workers have been decreasing since reform period. Service sector is more lucrative for skilled labourers after reform while industry is constantly providing employment avenues. However, agriculture sector still contributes more than 50% of employment in India while marginal agriculture labourers share in total workers have been increasing since 1991 compared to main agriculture labourers. In addition, marginal female agriculture labourers have increased four times compared to male counterpart at double.

The agriculture labourers are high in numbers in Belagavi district which accounted one third share in Karnataka. Yadgiri district has highest gender gap agriculture workers and Dharwad district has second highest female agriculture labourers as a percentage of total agriculture labourers. In the cohort of 1-24 age groups female agriculture labourers work participation has declined in the state in recent compared to 1990s and average work participation of female labourers in Karnataka has increased over the period but female agriculture labourers have declined. The study found that there is positive correlation between female illiteracy rate and female agriculture labourers' participation rate in the state that is education effect has positive impact on women empowerment in the state. For example, educationally less advanced districts like Yadgiri district and Raichur districts have high female agriculture labour force participation rate (in percentage) compared to educationally advanced districts such as Dakshina Kannada, Udupi, Uttara Kannada etc. where female agriculture labourers' participation rate is least. It is clear that education effect much more contributes to the female agriculture labour force participation in Karnataka.

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