

GIDR WORKING PAPER SERIES

No. 254 : February 2019

**Rural Workforce in India:
Analysis of Growth and Changing Structure
based on Census Data**

**Venkatanarayana Motkuri
Rudra Narayana Mishra
Lakhiram Hansda**



*Gujarat
Institute of
Development
Research*

Working Paper No. 254

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First Published February 2019

Price Rs. 100.00

Abstract

The present paper examines the trend in growth and structural change of rural workforce in India during the last three decades using Census data. The analysis indicates fast deceleration in rate of growth of rural workforce, mainly of females, particularly during the decade. The rate of growth in workforce is conditioned by the rate of growth of population and work participation rate (WPR). Unchanged WPR resulted in decelerated rate of growth in rural workforce following the decelerated growth in rural population. Even if the growth in employment is conditioned by growth in population, what one expects is structural change and quality of employment. Second, the incremental rural workforce, especially that of males has been reduced to marginal workers category. Although concentration of females in the marginal category of workers is reduced, it has remained very high for a long time. Growing marginal category indicates rise in the under-employment. Higher levels of under-employment points to the longstanding aspect of employment policy, i.e., quality of employment, along with quantitative expansion (generation). Third, the usual unemployment rates (unemployed of those seeking work to labour force) are substantially high and have been increasing over the last two decades. Our modified definition of unemployment that includes the under-employed as well (those of marginal workers) indicates that about one-quarter of the labour force in India is unemployed. Besides, there is a substantial portion of population neither in education nor in labour force, who are referred to as jobless or discouraged workers. Fourth, the change in structure of rural workforce (occupational distribution) is stagnant, while the absolute decline in number of cultivators has seen a corresponding increase in the number of agricultural labourers rather than non-agricultural workers indicating a distorted structural change. Although growth of rural workforce engaged in non-agriculture is higher than that of agriculture, it has not brought any drastic change in its share. Fifth, the rate of growth in rural female workers engaged in agricultural labour and non-agricultural activities, particularly in the main workers category, is high when compared to their male counterparts. But the quality of their employment, particularly in non-agricultural activities, is a cause of concern. It is so in the context of restructuring of labour market as a cost cutting measure in the growing informal economy as vividly discussed in the literature.

Keywords : Workforce, Employment, Female Labour, India, Rural, Census.

JEL Codes : J01, J08, J21 and J82

Acknowledgements

This is an extension of the paper published earlier in 2016 by the first author jointly with Suresh V. Naik in the *The Indian Economic Journal* (Vol. 64, Nos. 1 and 2). This was presented at the ISLE Annual Conference held at IGIDR, Mumbai during 11-13 December 2018. The authors would like to thank anonymous reviewer for providing useful comments on earlier version of the paper.

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Rural Workforce in India: Analysis of Growth and Changing Structure based on Census Data

**Venkatanarayana Motkuri
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1. Introduction

The growth trajectory of Indian economy is at higher level in the post-reform period than that of previous periods. Despite the recent slowdown due to certain factors and policies, Indian economy is considered to be one of those economies growing very fast. But the cause of the concern is growth, structure and quality of employment, especially, that of rural areas of this growing economy. The recent CMIE report shows that individuals from vulnerable groups, namely women, uneducated, wage labourers, agricultural labourers and small traders, are the worst hit by job losses in 2018. They mostly belong to rural India¹. Indeed, recently many scholars have brought out a situation of virtual stagnation in the employment growth² indicating jobless growth in the Indian economy (Ghosh, 2013; Mehrotra *et al.*, 2013). Not only the quantitative dimension, but also the qualitative dimension of employment in the recent past has become a great deal of concern because a large part of workforce is engaged in informal sector that denies any employment or social security for the working poor (NCEUS, 2006 and 2009). The recent evidence indicates worsening situation from one of joblessness (stagnation) to job loss.

The trend is against the structural transformation predicted by the grand theory of development where formal sector prevails in the high growth trajectory (Lewis, 1954; Ghosh, 2013). The level of development of a country may be seen in different dimensions, especially in the context of recent theoretical paradigms. The conventional indicator of development,

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per capita income is one such dimension (material one). However, the per capita income is in fact a manifestation of labour force participation rate, the sectoral composition or occupational distribution of workforce, and labour productivity in different sectors (Bhaduri, 2006). Structural change in income and labour along with a rise in productivity (of factors of production) is considered as critical for economic growth (Kaldor, 1957). Also, occupational mobility and productivity of labour are also crucial for improving the living standard of a household at micro level.

Although many of the developing countries have adopted a development policy containing a strategy to materialise these stylised facts, some of them could succeed in their endeavour and a large number of them yet to succeed. India is one of those countries still striving for it. India's growth strategy since independence has been stressing on employment generation. One of the major objectives of economic reforms implemented in 1990s is accelerating growth and expanding the employment opportunities³. Also it is one of the objectives of the recent growth strategy 'more inclusive growth'⁴. It is made possible through the growth of productive employment while making productive employment opportunities available to the socially disadvantaged groups. It is to not only enable them to reap the benefits of socioeconomic development, but also contribute to the same. Despite such a policy and growth strategy continuously emphasising on employment generation and growth, the rate of growth in respect of employment is decelerating during the post-reform period, particularly during the last decade. The prospects of employment opportunities for labour force in rural areas appears to be so grim. These observations have been raising a concern over the employment situation in India, definitely among the policy makers, academicians and development activists⁵.

In this backdrop, the present paper is an attempt to a re-look into the trend in growth of workforce and change in its structure in India particularly focussing on rural areas, during the last three decades using Census data⁶. The analysis is to bring out changes during last decade (2001-11) and the relative performance over the previous two decades (1980s and 1990s) for which Census data for workers is comparable. The present analysis is confined to Census data only; it does not make any comparison with NSSO based estimates, if not more than passing reference. Moreover, although the analysis of latest Census (2011) data available appears to be little old, it is reflecting continuity of the trend and inferences applicable for the present context.

1.1 Data and Methods

The analysis in this paper is based on the Census data. We have taken note of the fact that the analysis related to employment situation in India has been largely based on survey data of National Sample Survey Office (NSSO). One basic difference between Census and NSSO is while the former is based on full census count, the latter is based on sample survey. Secondly, the difference in time period, wherein the Census is decennial (once in ten years) and the NSSO's employment and unemployment survey is quinquennial (EUS) (once in five years). Thirdly, most importantly, methodological differences in concepts and data collection methods. Besides, NSSO collects large household level information which is much useful for holistic analysis even at household level, whereas Census collects limited information at household level. But for the estimates at micro unit level, for instances at district, sub-district or village level, NSSO sample would not permit such estimation but Census employment figures are handy in this respect. While considering all these differences, experts and policy makers vividly using NSSO data. Despite the limitations an attempt is made to illustrate here a meaningful analysis can be carried out using Census data too. It can present interesting trends and some useful inferences. Therefore one should not ignore the Census data. Moreover, even if scholars and experts consider that NSSO's employment and unemployment survey data is better than Census it doesn't mean that it is a sanitised data set in respect of many data related methodological problems (see Hirway, 2012). Although, the NSSO's sampling strategy cannot be questioned much, there is a lot of scope for non-sampling errors in these surveys.

While using the Census data in the present analysis we made some adjustments for Census years to arrive at national average. It is known that in 1981 Census was not conducted in Assam and in 1991 it was so in case of Jammu and Kashmir (J&K). In this case we have taken the RGI's final population figures for India that includes the interpolated / projected figures of Assam in 1981 and J&K in 1991⁷. Unless we take into these aspects, the growth rate over period that we calculate for India as a whole for the periods 1981-91 and 1991-2001 would be an under estimation because they exclude the figures of the states of Assam and Jammu and Kashmir. The projections are available only for population figures. For the other data, for instances, workforce, we have to adjust the data using these population projections. While applying the ratios of other data to the India Census

data as per the count and that including the projected population for the above states, we have obtained the figures adjusted for the missing data or incomplete count in the above states in all India totals.

2. Growth of Rural Workforce

2.1 *Decelerating Growth of Rural Workforce: Is it bounded by Population Growth?*

From the analysis of Census data, it can be observed that the rate of growth in population and workforce during the last four decades in rural areas has always been lower than that of urban areas. Moreover, the rate of growth in population as well as workforce in rural areas has been fast decelerating during the last decade, while that of urban areas has been accelerating particularly that of workforce (see Table 1). Along with the demographic transition that witnessed in India in the recent past, factors of the increasing out- migration and Census re-classification of villages as Census Towns and/or outgrowth of urban agglomeration are all have been resulting in deceleration in growth of population in rural areas. Correspondingly, high urban growth is due to migration and Census re-classification.

Table 1: Growth of Population and Workforce in India by Location and Gender

Category	Person			Male			Female		
	1981-91	1991-01	2001-11	1981-91	1991-01	2001-11	1981-91	1991-01	2001-11
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>
Rural									
<i>Total Population</i>	1.8	1.7	1.2	1.9	1.6	1.1	1.7	1.7	1.2
<i>Total Workers</i>	2.1	2.1	1.2	1.6	1.6	1.3	3.2	3.2	0.9
<i>Main Workers</i>	2.1	0.2	0.7	1.7	0.1	0.5	3.3	0.6	1.2
<i>Marginal Workers</i>	2.2	11.6	2.4	-3.1	29.0	5.1	3.0	7.5	0.6
Urban									
<i>Total Population</i>	3.1	2.8	2.8	3.1	2.7	2.6	3.2	2.8	3.0
<i>Total Workers</i>	3.2	3.5	3.7	3.0	3.1	3.3	4.3	5.5	5.7
<i>Main Workers</i>	3.2	2.7	3.4	3.1	2.4	3.0	4.4	4.3	5.4
<i>Marginal Workers</i>	1.8	19.1	6.9	-1.2	28.9	6.9	3.3	12.0	6.8

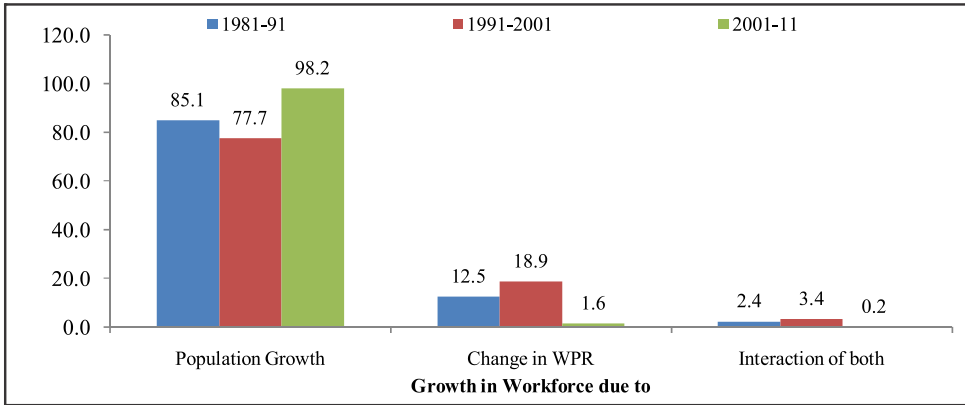
Notes: 1. Compound Annual Growth Rate (CAGR) in percent; 2. Total Workers including main and marginal workers.

Source: Authors' calculation based on Census of India data.

Herein one has to note that the rate of growth in population is an in-built constraint in rate of growth in labour / workforce when the labour / work force participation rate in a population remains constant at its maximum possible rate (Motkuri and Naik, 2016). On the one hand, at a given labour/workforce participation rate (a constant), labour or workforce cannot grow more than the rate at which population grows. On the other, given the rate of growth in population (a constant), the rate of growth in labour / work force depends on the change in the labour / work force participation rate. Thus, change in the labour / work force participation rate influences the growth of labour force. Hence, when and/or where there is a change (improvement) in WPR of all categories of worker (main and marginal) in rural population particularly during 1980s and 1990s, and throughout the last three decades in urban areas, the rate of growth in workforce is higher than the rate of growth in population (see Table 1&2).

As our decomposition analysis (see details of method in Appendix 1) has shown us, although the growth of workforce is largely due to growth in population throughout the period of analysis i.e. last three decades, change in WPR too contributed considerably. But during the last decade most of the growth in rural workforce is due to growth of population alone as there is very marginal change in WPR of population in rural areas (see Figure 1 and Table 2). One of the factors in change in WPR particularly during 1980s and 1990s is due to Census organisation's attempt to broadening definition of worker covering some of the economic activities otherwise sidelined in the previous Census enumerations (see Thomas and Jayesh, 2016; Kannan, 2015; Thorat 2004; GoI, 2001).

Figure 1: Decomposition of Growth in Rural Workforce in India



Notes: 1. Figure presents the percentage of each factor’s contribution in the net addition to rural workforce during the period; 2. WPR – Work participation rate; 3. See Appendix 1 for the method of calculation; 4. Figures represent all categories of rural workforce (incl. main and marginal).

Source: Authors’ calculation based on Census of India data.

Table 2: Work Participation Rates (WPR) by Location and Gender in India

Year	WPR - Total			WPR - Main			WPR – Marginal		
	Person	Male	Female	Person	Male	Female	Person	Male	Female
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>
Rural									
1981	38.9	53.8	23.2	34.8	52.6	16.0	4.1	1.2	7.2
1991	40.0	52.5	26.7	35.7	51.8	18.6	4.3	0.7	8.1
2001	41.7	52.1	30.8	30.9	44.3	16.6	10.9	7.8	14.1
2011	41.8	53.0	30.0	29.5	41.6	16.7	12.3	11.4	13.3
Urban									
1981	30.0	49.1	8.3	29.2	48.5	7.3	0.8	0.5	1.0
1991	30.2	48.9	9.2	29.5	48.6	8.1	0.7	0.4	1.0
2001	32.3	50.6	11.9	29.3	47.2	9.4	3.0	3.4	2.5
2011	35.3	53.8	15.4	30.9	48.7	11.9	4.4	5.1	3.6

Note: 1. Figures are percentages i.e. percent of workers (main and marginal combined and separately) in the population.

Source: Authors’ calculation based on **Census of India** data.

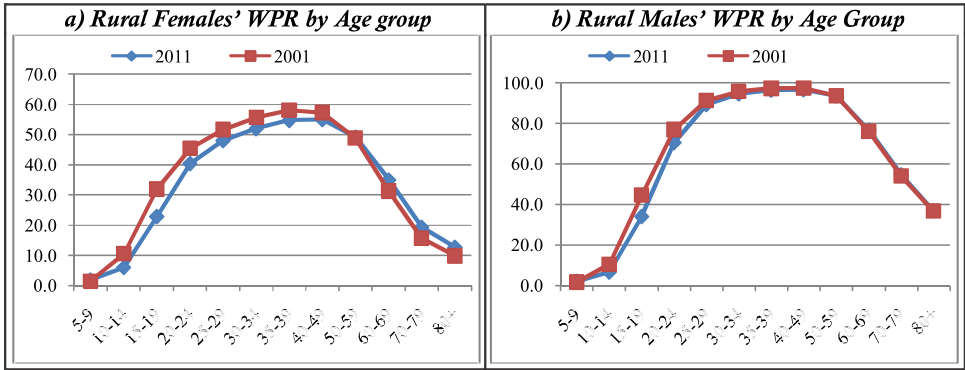
It is worth mentioning here that unlike the National Sample Survey Office’s (NSSO) recent estimates, Census data has shown that *there has not been any decline, if not any considerable increase, in the overall WPR of rural population*

when we account for all categories of Census workers (main and marginal), during the last decade (2001-11) (see Table 2). A marginal rise in overall WPR in rural areas was, in fact, entirely due to the increase in WPR of marginal workers category in rural areas. Between main and marginal workers, the rural WPR with respect to main workers category had, in fact, shown a decline since 1991, whereas there was a corresponding increase in WPR of marginal workers in rural areas during the same period. It resulted in increase in share of marginal workers in the total rural workforce, that too particularly since 1991 (see Table 3).

2.2 Was there any possibility of increase in WPR?

The rate of growth in workforce in rural areas during the last decade (2001-11) is found to be bounded by a decelerated rate of growth in rural population. There is no possibility for further growth as there has not been much change (increase) in WPR at the national level during the period. Our state level correlation analysis covering major states⁸, referring to rural areas, indicates that the relationship between rate of growth in workforce and that of population is highly positive (coefficient: 0.80). Further, the difference in rate of growth (during 2001-11) between workforce and population across the major states is positively related to the change in their work participation rates (WPR) during this period (2001-11). It is clearly exhibiting the deterministic relationship of rate of growth in workforce with the rate of growth in population and the WPR of population, and thus constrained by changes in these two factors. In this context, if one asks a counterfactual scenario, was there a possibility of a change particularly that of increase in the national average of WPR in rural India that in turn increases the rate of growth in workforce over and above that of population? The situation appeared to be rather bleak. Because, it might not have been possible with the increasing participation rates in educational institutions among the younger age group which in turn reducing their work participation rate (WPR). Whereas among the adults particularly with respect to adult men their WPR is already at a saturated level (see Figure 2). Participation of children in the workforce is against the provision of the Indian Constitution and therefore it has to be reduced further and child labour is to be eliminated.

Figure 2: Work Participation Rates (WPR) by Age Group in Rural India



Note:1. Age-group specific work participation rates (WPRs); 2. Figures represent rural areas only.

Source: Authors' calculation based on Census of India, 2001 and 2011 data B1 Tables.

If we take into account inability of some to participate in the labour/work force in the context of prevailing disease burden and disability in India, one cannot expect any further scope for rise in WPR of adults particularly that of men. Of course, adult females' WPR in general and that of in rural areas in particular is low when compared to that of men (almost 40 to 50 percentage points lower) in India and WPRs of adult females in any developed country. Relatively low adult WPR in India when compared to any other developed country, is largely due to this lower WPR of adult females. Herein, perhaps, there is a scope for further improvement in their WPR but a caveat is that female work participation (rates) in India are constrained by cultural factors, their normal household duties along with child care due to cultural imposition and/or lack of perfect substitutes for that work, security reasons and other factors (see Motkuri, 2016; Mehrotra *et al.*, 2013). In fact, when there was an improvement in the WPR of females during 1980s and 1990s, the rate of growth in workforce was higher than the rate of growth in population during that period (see Tables 1&2).

But during the last decade, one could observe a declining WPR of females in rural India, after reaching its maximum in the year 2001. Such a decline in WPR of rural females is taking place not only among younger age groups and but also among the adults. This decline in WPR of young and adult females in rural areas is appeared to be compensated, to some extent, by increase in WPR of older (60+ years of age) rural females

(see Figure 1 and Table 9). Hence the average WPR of rural females has shown a marginal decline (0.8 percentage points) during the last decade, 2001-11 (see Table 2).

The quantitative expansion (i.e. rate of growth) of the workforce appears to be constrained with binding growth of population which is decelerated and workforce participation rate (WPR) which witnessed no change, during the last decade. The rate of growth in the national income (GDP) accelerated during the last two decades. As a result the employment elasticity is decelerated in the high growth trajectory of Indian economy. However, as we see below, considerably a high unemployment rate and under-employment exists in the economy. Therefore, there is an immense scope for improvement in the growth of employment in this high growth phase. Further, critical policy efforts needed to improve the quality of employment which has indeed been considered as the essential aspect of employment generation that deserves attention of the state policy (see Dev, 2016). The quality aspect of employment has several dimensions including that of the employment security, wage rates, working conditions and other social security measures (see NCEUS, 2006 & 2009).

2.3 Substantially high Under-employment and/or Unemployment!

The phenomena of unemployment and under-employment are all pervasive and concurrent with the growth of labour force. However, it needs to be mentioned that the levels of unemployment of labour force which is the foremost important aspect of employment, is considered to be not at alarming levels in India because many a times the poor labour households cannot afford to be a unemployed rather they participate in workforce intermittently whenever there is an opportunity even if it is meagre one. There is no water tight compartment situation of fully employed and unemployed. Most of them are partially employed, both the casual and self-employed categories (Patnaik, 2016). In fact, the estimates based on NSSO survey data shows a very low level of unemployment rate in India (for instance see Dev and Motkuri, 2011). Thus, the severe problem particularly in the rural India context appears to be the phenomenon of under employment rather than unemployment.

Nevertheless, the Census data to a large extent, reflects such a phenomenon with a potential evidence of unemployment and/or under-employment. In respect of under-employment, when we separate the total rural workforce into the main and marginal categories and look into their proportions in the total, one can observe that more than one-fourth of rural workforce in India is of marginal category (see Table 3). In other words, it is the percentage of workforce who worked less than six months in a year. They could not work more than that largely due to lack of opportunities rather than the voluntary resistance to work more than the number of days they have already worked. Table 4 clearly exhibits the fact that the growth of total rural workforce particularly during the last two decades is largely due to growth in workforce of marginal category (see Table 4).

Table 3: Percentage of Marginal Workers in the Total Workforce in India

Year	Rural			Urban			Rural and Urban		
	Person	Male	Female	Person	Male	Female	Person	Male	Female
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>
1981	10.6	2.2	31.0	2.6	1.1	12.5	9.0	2.0	29.2
1991	10.7	1.4	30.4	2.2	0.7	11.3	9.0	1.2	28.4
2001	26.1	15.0	45.9	9.2	6.7	20.7	22.4	13.0	42.9
2011	29.5	21.5	44.4	12.4	9.5	23.0	24.8	17.7	40.4

Note: 1. Figures are percentage representing percentage of marginal workers in the total workers.

Source: Authors' calculation based on Census of India data for various years.

The trend in percentage of marginal workers indicates the increasing tendency of employment insecurity due to inadequate employment opportunities for a long period throughout the year. The trend over time shows that WPR of main workers category has in fact been declining particularly in rural areas whereas that of the marginal workers category has been increasing (Table 2). It also means that *the percentage of marginal workers in the total workers in rural India is fast increasing from a very low base especially among the male workforce*. It increased from around 10 per cent in 1980s to more than one-fourth of total workforce in rural India in 2011 (Table 3). Although there is a marginal decline in percentage of marginal workers in rural female workforce during 2001-11, yet it is as high as 44.4 per cent in 2011.

Table 4: Percentage(%) Contribution of each of the Category (main/ marginal) in Absolute Change in the total Rural Workforce

Period	Main Workers			Marginal Workers		
	Persons	Male	Female	Persons	Male	Female
1981-91	88.6	103.5	71.3	11.4	-3.5	28.7
1991-2001	8.3	4.5	11.9	91.7	95.5	88.1
2001-11	43.0	32.1	71.3	57.0	67.9	28.7

Note: 1. Percentage contribution of main and marginal categories in gender-specific workforce.

Source: Authors' calculations based on Census of India Data.

With respect to unemployment, the Census B Series Tables (i.e. Table B1) provides us information on the number of non-workers 'seeking / available' for work. They may be referred to as 'unemployed' (Kannan, 2015). Besides, since 2001, Census enumeration also records and provides us the number of marginal workers who are still 'seeking / available' for work. When we add the number of those 'seeking / available' for work (i.e. unemployed) in the category of non-workers to the total workforce (both the main and marginal workers) we get the labour force and thereby one can derive the unemployment rate⁹ (i.e. unemployed divided by labour force). We can also include those 'seeking/available for work' in the category of marginal workers while broadening the category of unemployed. Accordingly, the modified / broad unemployment rate (in labour force) may consist of unemployed in the non-workers and those unemployed in the category of marginal workers. In fact the marginal workers are of two categories one of those working three to six months and other one is of those worked for less than three months. It includes those who have worked for at least one or a few day(s) in a year. Most of the marginal workers (i.e. those worked for less than six months, particularly those who have worked for less than three months) might have been under-employed and/or unemployed. Hence, it is reasonable to take those marginal workers who are 'seeking/available' for work as unemployed along with those of unemployed in non-workers.

Table 5: Unemployment Rate (UR) in Rural India by Age Group

Age Group	UR (Usual)			UR (modified)	
	1991	2001	2011	2001	2011
15-19	5.8	21.9	29.9	31.8	46.3
20-24	4.7	14.3	18.5	24.0	34.7
25-29	2.5	7.9	10.3	16.0	24.8
30-59	0.8	2.8	4.6	7.9	15.9
60+	1.0	2.1	3.1	4.3	10.5
15-59	2.2	7.5	10.1	14.3	23.1

Notes: 1. Age-groups specific unemployment rate; 2. Unemployment Rate = Unemployed / Labour force.

Source: Authors' Calculations based on Census Data, Table 1 B Series.

Accordingly, our calculation of unemployment rates for rural India that presented in the Table 5 exhibits that the rate of unemployment in rural India is alarmingly high particularly among the younger age groups. It is higher among the young in teen-ages (15-19 years) and lower among the older adults (30-59 years). According to our modified / broad unemployment rate, little less than one-fourth of adult (15-59 years age) labour force in rural India is unemployed in 2011 while the usual unemployment rate pegs it down to one-tenth of the labour force. The difference in unemployment rate between the usual rate that is based on the unemployed in the non-workers and the modified / broader rate that includes the unemployed among the marginal workers is substantial across age groups. Moreover, between 2001 and 2011, both the rates have shown a substantial increase during the period (see Table 5). The percentage change in unemployment rate during the last decade (2001-11) is substantially higher particularly in the modified rate. The *usual unemployment rate taking into account only the unemployed in non-workers, has also been quadrupled among adult labour force (15-59 years age) during the last two decades (1991-2011)*. It is even higher among the young labour force. In the context of bulging younger age population that is considered as demographic dividend, the concurrent phenomenon of youth unemployment has far reaching implications for the Indian economy and society (Dev and Motkuri, 2011).

2.4 Neither in Labour force nor in Education (NLFE): Jobless or Discouraged Workers?

Further, along with under-employment and unemployment, persons who are neither in labour force nor attending educational institutions, is a cause of concern. As per the discouraged worker hypothesis, due to lack of sufficient and suitable employment opportunities, the potential workers/labourers are discouraged to be even in the labour force (as a worker or unemployed) (Bardhan, 1984). In this perspective, when the number of unemployed and those in the NLFE put together we will get the total number of persons in the category of NEE i.e. neither in employment or education. They may be referred to as the jobless category (see Dev and Motkuri, 2011).

In this respect, when we put together the Census information in B1 Table of B Series and C10 Table of C Series (Population Attending Educational Institution by Age) one can derive the percentage of population neither in labour force nor in education¹⁰ (NLFE). Accordingly, when we have done such exercise for rural India, it is observed that the percentage of NLFE category in the rural adult population is substantial across age groups but most of it is the contribution of females to this category (see Table 6).

Table 6: Percentage of Population by age Group in the NLFE Category, Rural India

Age Group	Persons		Male		Female	
	2001	2011	2001	2011	2001	2011
15-19	12.1	2.7	0	0	28.4	13.2
20-24	18.2	11.3	0	0	39.0	30.7
25-29	21.1	20.0	1.8	1.5	39.8	38.9
30-59	21.0	20.5	2.2	1.8	40.6	39.7
15-59	19.1	16.0	0.8	1.0	38.3	33.8
60+	53.9	50.0	33.5	31.1	73.7	68.2

Note: NLFE – Neither in Labour Force nor in Education;

Source: Authors' Calculations based on Census of India B Series Table B1 and C Series Table C10.

Among males, percentage of NLFE category is very marginal. Particularly among the younger age groups of males it is almost nil. It is because all those (the aspiring youth) who are not in the workforce or education they are reportedly seeking or available for work (i.e. they are in the labour force). Hence, we could observe that the unemployment rate among the youth is very high (see Table 5). However, among females, the percentage of NLFE category is substantial. It must be due to discouragement factors including cultural ethos or norms along with their responsibilities of household duties and child care or lack of proper substitutes for the same.

From the above analysis one could observe that a sharp deceleration in the rate of growth in workforce and decline in WPR of main workers category in rural areas during 1990s and continued thereafter, with a corresponding accelerated rate of growth in and WPR of marginal workers category resulted in a sharp rise in percentage of marginal workers in the total rural workforce. It is observed not only in rural areas but also found to be spread over to urban areas (see Table 1, 2&3). Particularly with respect to male workers, the rate of growth in their overall rural workforce during the last two decades is largely due to growth of their workforce in the category of marginal workers. The usual unemployment rate has also been quadrupled during the last two decades. It is even higher if we take the modified unemployment rate.

Such a phenomenon is observed particularly during the period that coincides with the regime of economic reforms implemented in the country. In the context of implementation of economic reforms along with structural adjustment followed by a withdrawal of state support in many aspects of rural poor and agriculture, it resulted in a situation of rural and agrarian distress that in turn acted as depressing factor in generating employment opportunities in rural areas. Inelastic nature of land resources, inadequate irrigation facilities, tapering off of the yield rate growth that witnessed in the advent of green revolution technology along with mechanisation process have resulted in stagnated or reduced labour use / intensity in agriculture. Fragmentation of landholding due to demographic pressure and land dispossession owing to various development policies has been further worsening the situation of labour use in agriculture.

When the labour absorption in agriculture which has been a predominant source of livelihood for a lion's share of rural labour force, is saturated and rate of growth in the alternative rural non-farm sector is very low and slow to grow, the situation may result in the marginalisation of growing workforce, the workforce is reduced to marginal workers category. Although increasing connectivity with rest of the rural and urban spaces has facilitated the mobility of labour particularly the male labourers, the prospect of work / employment at destination is not so promising, that is also a chance factor. For the existing urban workforce, the inflow of rural migrant workers is increasing the competition. For the rural migrant workers it is a chance factor in getting opportunity at urban labour market. Such factors might have reduced some of them to marginal workers category. It is observed that the pattern of urbanisation and urban growth particularly that witnessed in India's large cities and metros, during the last two decades, is found to be adopting screening and selecting of the rural migrants and turns out to be a kind of exclusionary urbanisation (see Kundu, 2012). It is not able to accommodate and facilitate poor illiterate/uneducated migrant workers from rural areas and unable to provide them enough employment opportunities, as much as it could do for any businessmen and educated migrants (*ibid*). The commuters and seasonal migrant workers to nearby or distant rural and urban spaces try every day their chances in getting work. They may not succeed every day/time they try. Moreover, the struggles of the rural migrant labourers at the destination sites are also a cause of concern (see Pricherit, 2012; Pattenden, 2012).

3. Growth of Rural Workforce by Occupation and Changing Structure

3.1 Declining number of Rural Cultivators and Causal Factors

The rate of growth in rural workforce by fourfold occupational category shows that it is decelerated for cultivators during 1990s and turned negative (indicating a decline in number of cultivators) during 2000s (see Table 7). Such a trend is observed for cultivators in rural areas for both the main and marginal workers category. A total of 9.6 million cultivators in the Indian countryside have moved away from self-cultivation during the period 2001-11. Of the total decline in total number of cultivators in rural areas, 8.5 million are of main workers category and 1.1 million

are of marginal workers category. Such a decline in number of cultivators especially of main workers category began during 1990s. During the decade 1991-2001, a total of 7.2 million cultivators of main workers category in rural areas left self-cultivation but overwhelmingly 9.6 million have taken up self-cultivation as marginal workers during the same period. Therefore there is a net addition of 2.4 million cultivators (main and marginal put together) in this period. One can observe a compensating positive growth in cultivators of marginal workers category over and above the negative growth in cultivators of main workers category (see Table 7).

It is reasonable to say that a part of the decline in number of cultivators in rural areas could be due to re-classification (of residential place) of Census population, from rural to urban when a village is newly identified/classified as a Census Town or outgrowth part of an urban agglomeration, spreading to nearby urban entity (a City or Industrial Town). While the net addition to total population of the country during the period between 2001 and 2011 is around 182.2 million but the net addition to its rural population is half of it, i.e. 91.3 million. It means the rest of it i.e. another 91 million, is the net addition to urban population. Most of the growth in urban population must be due to urban migration and/or emergence of large number of Census Towns/outgrowths during this period. As it is observed from Census the emerging Census Towns accounts for nearly 40 per cent of the growth in urban population during the period 2001-11 (see Bhagat, 2011). It is observed that during the last Census, distinctively from all the previous Censuses, a considerable number of villages are classified as Census Towns and some have become wholly or part (outgrowth) of Urban Agglomerations (see Kundu, 2011; Pradhan, 2013). All the cultivators in these villages which turned out to be Census Towns or outgrowth parts of Urban Agglomerations (Cities), are counted as urban by residential location and hence discounted for in the Census count for rural areas.

Table 7: Rate of Growth in Rural Workforce by fourfold Occupational category – All India

Year	Total				Main				Marginal			
	Cult	AL	HHI	Oth	Cult	AL	HHI	Oth	Cult	AL	HHI	Oth
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>
Persons												
1981-91	1.7	2.6	-1.5	3.1	1.5	2.7	-1.5	3.2	2.8	2.2	-1.5	0.4
1991-01	0.2	2.2	8.3	5.5	-0.7	-1.6	5.5	4.0	5.4	14.2	20.4	22.7
2001-11	-0.8	3.0	-0.2	1.8	-0.9	3.0	-1.4	0.9	-0.5	2.9	2.1	5.5
Males												
1981-91	1.0	2.4	-2.4	3.0	1.0	2.5	-2.3	3.1	-2.8	-3.7	-3.4	-2.7
1991-01	-0.5	2.1	6.2	4.6	-1.2	-1.1	4.6	3.5	20.3	34.6	32.7	32.8
2001-11	-0.4	3.6	-0.2	1.5	-0.8	2.8	-1.9	0.7	2.9	5.4	5.9	6.3
Females												
1981-91	3.7	2.9	0.1	3.6	3.8	2.9	0.6	4.1	3.5	2.8	-1.3	1.6
1991-01	1.8	2.4	10.9	9.2	1.3	-2.4	7.2	6.7	2.6	9.8	18.1	17.0
2001-11	-1.6	2.2	-0.1	3.0	-1.1	3.2	-0.7	2.2	-2.4	1.2	0.5	4.5

Notes: 1. **Cult** – Cultivators; **AL** – Agricultural Labourers; **HHI** – Household Industry; **Oth** – Others (all the non-agricultural workers excluding those in HHI); 2. Compound Annual Growth Rate (CAGR) in percent.

Source: Authors' calculation based on Census of India data.

But such a remarkable decline in number of workers in rural area is not specific to the occupational category of cultivators. There is an equal chance of missing their count in rural areas for the workforce in all categories/types of occupations along with cultivators in this Census re-classification process. In fact, about 1.1 million was the net additions to urban cultivators during the period (2001-11). Such an addition may partly explain the decline in number of cultivators in rural areas in the lines that mentioned above. This (change in location of cultivators to urban) is merely less than 15 per cent of the total decline in number of cultivators in rural areas. Therefore, the missing number of rural cultivators goes beyond that re-classification. Indeed the decline in number of cultivators is certain even if we combine rural and urban cultivators as it was observed in an earlier paper (see Motkuri and Naik, 2016).

Therefore, one may have to seek explanations for the decline in number of cultivators observed during the last two decades. Is it possible with the two established hypotheses as mentioned in the work of Motkuri and Naik, 2016, to explain such a decline in number of cultivators in rural India? Wherein one hypothesis is about the agricultural growth-led

process and the second is residual sector hypothesis indicating distressed shift/diversification of occupation (see Mellor, 1976 and Vaidyanathan, 1986). These two hypotheses are valid when the self-cultivators are moving away from agriculture and taking up non-agricultural activities. Over the period, in fact, although at a snail pace but there is a shift/diversification of rural workforce from agricultural activity to non-agricultural (industry and service sector) ones while working within the countryside. Also, there is a shift / diversification through out-migration and commutation to urban growth centres.

Table 8: Percentage Distribution of Rural Workforce by fourfold Occupational category – All India

Year	Total				Main				Marginal			
	Cult	AL	HHI	Oth	Cult	AL	HHI	Oth	Cult	AL	HHI	Oth
1	2	3	4	5	6	7	8	9	10	11	12	13
Persons												
1981	50.8	31.1	3.1	15.0	51.1	29.9	3.1	15.9	10.1	14.1	11.0	4.8
1991	48.7	32.7	2.2	16.5	48.4	31.6	2.2	17.8	11.3	13.5	11.0	3.6
2001	40.2	33.0	3.9	22.8	44.2	26.4	3.6	25.7	18.7	40.9	31.4	16.5
2011	33.0	39.3	3.4	24.3	37.8	32.9	2.9	26.4	19.3	40.9	39.4	23.5
Males												
1981	55.0	24.3	2.9	17.9	55.2	24.0	2.9	18.0	1.9	3.3	1.9	1.8
1991	51.5	26.1	1.9	20.5	51.6	26.0	1.9	20.5	1.3	1.8	1.7	1.0
2001	42.0	27.5	3.0	27.5	45.2	23.1	3.0	28.7	8.4	28.5	15.9	11.3
2011	35.2	34.4	2.6	27.8	39.6	29.0	2.3	29.1	11.7	33.7	28.9	18.0
Females												
1981	40.8	47.7	3.7	7.8	37.1	50.2	3.8	8.9	37.3	27.5	28.4	21.1
1991	42.7	46.4	2.7	8.2	38.9	48.5	2.9	9.7	36.6	27.3	24.8	17.3
2001	37.1	43.0	5.5	14.4	41.5	35.6	5.5	17.5	39.6	55.2	46.4	34.4
2011	28.9	48.5	5.0	17.7	32.9	43.3	4.5	19.3	36.6	50.4	49.5	39.5

Notes: **1. Cult** – Cultivators; **AL** – Agricultural Labourers; **HHI** – Household Industry; **Oth** – Others (all the non-agricultural workers excluding HHI); **2.** Compound Annual Growth Rate (CAGR) in percent.

Source: Authors' calculation based on Census of India data.

Again, an alternative hypothesis that emerged in the recent past is the extinction of farmers and farming community, in the context of unprecedented episodes of farmers' suicides took place in parts of India in the backdrop of agrarian distress witnessed in parts of countryside during the last two decades (see Nagaraj, 2008; Sainath, 2013; Mishra, 2014). Such a phenomenon coincides with the regimes of implementation of economic reforms in the country.

Further, the rampant dispossession of farming land that is taking place in many part of India is also causing the displacement of number of self-cultivators. In the name of rapid urbanization, real estate business and industrial development (i.e. Special Economic Zones - SEZ¹¹ or other form), the government and private entrepreneurs are acquiring large extents of farm land. It is by throwing millions of farmers out of their land and farming by paying a menial compensation which may not be sufficient for them meeting at least their previous levels of living. Their resettlement and rehabilitation has become a serious concern. To some extent, rapid urbanization and real estate boom expanding construction sector which has been attracting to urban centers and facilitating the rural farmers (marginal and smallholders) and labourers with higher wages. Many of them are leaving their farmland uncultivated, leasing out or loosing considerable extent of cultivated land to real estate ventures. Besides, increasing cost of cultivation and reducing profitability of farming itself is also acting as distress factor that might have compelled some of the self-cultivators (marginal and smallholders) to leave the farming or self-cultivation. All the above mentioned factors might have acted up on as a push factors (Motkuri and Naik, 2016).

At this point one can say that, most of those farmers who are leaving self-cultivation are becoming wage labourers in agriculture. The observation that we can make from the Census data wherein the workforce appears to be reshuffled within the agriculture – moving away from self-cultivation to wage labour in agriculture – indicating that the driving force behind the shift/diversification is in fact in contrast with the one of the above mentioned hypotheses (agricultural growth-led shifting) but in line with the other factors. Therefore, it must be largely due to distress-led and/or the dispossession-led diversification/shifting of occupation taking place in the rural India.

Table 9: Percentage Marginal workers in total workforce engaged in each of fourfold Occupational category in rural India

Year	Person				Male				Female			
	Cult	AL	HHI	Oth	Cult	AL	HHI	Oth	Cult	AL	HHI	Oth
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>
1981	10.1	14.1	11.0	4.8	1.9	3.3	1.9	1.8	37.3	27.5	28.4	21.1
1991	11.3	13.5	11.0	3.6	1.3	1.8	1.7	1.0	36.6	27.3	24.8	17.3
2001	18.7	40.9	31.4	16.5	8.4	28.5	15.9	11.3	39.6	55.2	46.4	34.4
2011	19.3	40.9	39.4	23.5	11.7	33.7	28.9	18.0	36.6	50.4	49.5	39.5

Notes: 1. **Cult** – Cultivators; **AL** – Agricultural Labourers; **HHI** – Household Industry; **Oth** – Others (all the non-agricultural workers excluding those in HHI); 2. Occupational category specific percentage.

Source: Authors' calculation based on Census of India data.

It is evident from a considerably high rate of growth in number of agricultural labourers in rural India particularly during the last decade i.e. 2001-11 (see Table 7). Such a high rate of growth is observed for both the main and marginal workers category of agricultural labourers. About 34.6 million is the net addition to the size of agriculture labourers in rural areas during 2001-11. In fact the net addition to agricultural labourers during the period 2001-11 is over and above the decline in the absolute number of cultivators during the period. A large part of the net addition to the total workforce in rural India is absorbed in agriculture. But a whole of that incremental labour force absorbed in agriculture is entirely absorbed in agriculture as wage labourers. The high rate of growth observed for agricultural labourers is well above their natural growth and hence the swelling / bulging in this occupation (agricultural labourers) is due to diversification / shift of occupation among large number of self-cultivators in rural areas largely due to the push factor mentioned above.

The trends observed above appear to be like a phenomenon of *structural digression*, if we see the kind of change observed above as a movement downward, as a huge number of self-cultivators have become wage labourers. Perhaps one may call loosely such a change as *proletarianisation* of labor force in the countryside. It is so in the sense of becoming *proletariat* by gradually depriving of all the productive assets under certain circumstances, except their labour power. We found, high and growing incidence of marginal workers (those working less than six months in a year) in all the four

categories of occupations, in general. Such incidence is very high among agricultural labourers and those engaged in household industry, in particular (see Table 9). It indicates a more severe problem involving a phenomenon of *pauperisation, immiserisation* or impoverishment.

Over time the number of landholdings in rural India particularly that of marginal and small category is growing. It is largely due to the fragmentation of landholdings with the increasing population pressure or land transfers (through sale or re-distribution of land) on inelastic nature of cultivated land along with an ever growing phenomenon of land dispossession. Such a trend in turn combined with tapering off of the yield gains of green revolution technology and increasing cost of cultivation are resulting in economic unviability of large number of marginal and small holdings in many parts of India including those of irrigated zones. The concomitant agrarian distress largely associated with efforts to exploit ground water in dry zones and cultivation of commercial crops without proper institutional credit facilities and extension services led many farmers leaving the farming (self-cultivation) and joining the ranks of wage labourers. Also, the declining employment opportunities for the increasingly overcrowded labour force in rural areas, given the declining labour absorption in agriculture along with slow growth of rural non-farm sector, resulted in distress-led diversification and migration or commutation of the rural labour to growth centres mainly in informal sector. Increasing connectivity through expanding road infrastructure and transport facilitated the migration and commutation. But in these growth centres, they had to face a stiff competition and various exclusionary processes.

3.2 Growth and Changes in Rural Workforce engaged in Non-Agriculture Sector

A relatively high growth of workforce in non-agriculture resulted in an increase in the share of non-agriculture in the rural workforce during last three decades (see Table 10). However, the remarkable change (improvement) in its share accompanied by a very high rate of growth observed during 1990s in respect of rural workforce engaged in non-agriculture has not been continued thereafter in the last decade. The rate of growth in non-agricultural workforce is drastically decelerated but still relatively higher than that of workforce in agriculture leading to a small improvement in its share during the last decade.

Within non-agriculture, one can notice the decelerating rate of growth accompanied with declining share of workforce engaged in household industry (HHI) which is an important source of livelihood and source of employment for a considerable proportion of population and workforce in the countryside (see Table 7&8). It has in fact witnessed a negative growth during the last decade (2001-11). The rate of growth in rural workforce that engaged non-agricultural activities other than HHI, too has been slowed down during this recent decade (see Table 7&10).

Table 10: Growth and Change in percentage of Workforce that engaged in Non-agriculture Sector in Rural India

Year	All (Main & Marginal)			Main			Marginal		
	Person	Male	Female	Person	Male	Female	Person	Male	Female
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>
Rate of Growth (%) in rural non-agricultural workers: CAGR									
1981-91	2.4	2.4	2.6	2.6	2.5	3.1	-0.2	-2.8	0.6
1991-01	5.8	4.8	9.7	4.2	3.6	6.8	22.1	32.8	17.3
2001-11	1.6	1.3	2.2	0.7	0.4	1.6	4.7	6.3	3.3
Percentage of non-agriculture in rural workforce (category and gender specific workforce)									
1981	18.1	20.8	11.5	19.0	20.8	12.7	9.9	17.4	8.7
1991	18.7	22.4	10.8	20.0	22.5	12.6	7.8	18.0	6.8
2001	26.7	30.5	19.9	29.4	31.7	22.9	19.2	23.9	16.4
2011	27.7	30.4	22.7	29.3	31.4	23.8	23.9	26.8	21.3

Notes: 1. Non-agriculture workers including workers in HHI and Other workers; 2. CAGR – Compound Annual Growth Rate.

Source: Authors' calculation based on Census of India data.

When separated the rural workforce that engaged in non-agricultural activities into main and marginal workers categories. For last two decades, the rate of growth in marginal workers engaged in non-agricultural activities is distinctively higher than that of its main workers. The rural marginal category workers who engaged in non-agricultural activities as percentage of all the rural marginal workers has also been increasing particularly since 1991 (see Table 10). Its share increased to around one-fourth of rural marginal workers. In the rural workforce of main worker category the percentage of those engaged in non-agriculture has remained same at around 29 per cent between 2001 and 2011 after a remarkable improvement in the previous decade (1991-2001) from 20 per cent in 1991. It indicates that a substantial part of growth in the rural workforce that engaged in non-agricultural activities during the last two decades is due to growth in such workforce of marginal category that engaged in these occupations.

The growth in non-agriculture is constrained by occupational diversification/shift along with the growth of overall workforce which itself is determined by the growth in population and its work participation rates. Thus, the decelerated rate of growth in rural workforce engaged in non-agricultural occupation is partly due to decelerated growth in population but largely due to slow change in occupational structure of workforce or laggardness in occupational mobility of rural workforce. Further, the negative rate of growth in workforce in respect of HHI during the last decades indicates a relegated occupational mobility of those engaged in HHI taking up agricultural activities that appears to be on set during the period. An alarming phenomenon is that fast growing rural workforce of marginal workers category in the non-agricultural occupations. On the whole, the analysis of trends based on Census data that observed above indicates a distorted structural change in respect of workforce in rural India.

4. Conundrum of Rural India: Rise in Wages Accompany Marginalisation and Poverty

4.1 Marginalisation of Workforce and Rising Wages / Incomes

Based on our analysis of Census data we have observed that the decelerating growth of rural workforce and explicit incremental marginalisation of rural workforce resulting in under-employment along with rising unemployment rate during the last decade. Further, as observed above, the slow growth in rural non-farm employment is resulted in stifled structural change in respect of rural workforce in this period (see Binswanger-Mkhize, 2013b). Besides the negative growth of workforce in the cultivators category, most of the growth in workforce in both the agricultural (labourers) and non-agricultural (i.e. 'Others') sectors is in the 'marginal workers' category.

On the other hand, some of the recent research studies have been indicating a substantial growth/increase in rural incomes including that of wage incomes of agricultural labourers. One could observe that the period of remarkable growth in rural wage rates has been coinciding with a policy regime implementing the Mahatma Gandhi Rural Employment Guarantee Scheme (MGNREGS) (for instance, see Ranganathan *et al.*, 2016a & 2016b; Motkuri and Sarap, 2016; Binswanger-Mkhize, 2013a; Gulati *et al.*, 2013; Jose, 2012; Azam, 2012; Himanshu *et al.*, 2010; Berg *et al.*, 2010). Another coincidence is a phenomenon of labour shortage precipitated in the rural labour market

during this period of implementing MGNREGA. The period also witnessed a high economic growth. There was a debate on how far the implementation of MGNREGS had its impact on remarkable growth in rural wage rates or it is result of a high growth of Indian economy during the period (see Gulati *et al.*, 2013).

If we look into changes during the last few decades in rural agrarian economy which has been the major source of livelihood for large portion of rural population in India, one may get a possible explanation for the conundrum placed above. With the advancement of technology and irrigation in the advent of Green Revolution Technology or Packages, extensive and intensive cultivation has increased both the quantity and intensity of labour use in agricultural operations. Subsequently the very same advancements in technology also facilitated the mechanisation of agricultural operations resulting in the positive marginal rate of technical substitution (MRTS) in terms of capital dispensing labour in crop production or the agricultural operations. Initially, however, the higher costs of capital in terms of lack of access to credit or high rate of interests and indivisibility of technology (particularly for small holdings), the intensity of labour use was higher due to its availability at cheaper wage rates, in place of capital (labour was substituted for the capital). But with diminishing MRTS, the advantage of the labour use in place of capital has diminished. It is particularly so in the wake of rising wage rates leading to increasing cost of labour in cultivation and divisibility in technology with the growing rent services market and improved access to credit. After a point it reversed the process of substitution (capital is substituted for the labour).

According to Census of India data the total number of agriculture workers (including the cultivators and labourers) has been increasing despite the fact that the total extent of cultivated land (net sown area) has not been changed much. With the technological advancements and intensity of cultivation, yield rates have been improved and able to feed the growing population. Also, the agricultural engineering statistics shows the total power (energy in Kwh) available for agriculture including human and mechanical power per hectare has been increasing (for instance see IASRI, 2015). The power / energy available per hectare of agricultural activities in the country has quadrupled from 0.41 million KWh in 1971-72 to 1.6 million KWh in 2007-08 (see Table 6.7 in IASRI, 2015). But, of the sources of energy available for agriculture, the energy of human labour per hectare is just

doubled during the same period whereas the energy available from mechanical sources are multiplied by higher factor. Particularly energy available per hectare from tractors is multiplied by 20 times during the period (*ibid*). As a result the share of human labour power in total energy / power available per hectare of (net) sown area has declined to 5 per cent in the recent past from 15 per cent four decades ago, despite the fact that the absolute human power (in Kwh energy) available per hectare has increased due to increasing number of agricultural workers.

However, the increasing mechanical power (tractors, irrigation pump sets etc.) available for agriculture is demand driven whereas the increase in human power is largely supply driven due to exogenous nature of population growth and residual sector nature of agriculture for rural workforce¹². All that available human labour power for agriculture may not be actually utilised fully in the agriculture. Also, all those in the category of agricultural workers (cultivators and labourers) may not be expending all their potential labour power in agriculture but alternatively engage in non-agricultural activities or be unemployed. In fact the cost of cultivation (COC) statistics indicates the declining human labour hours used in crop cultivation (for instance see Reddy and Motkuri, 2013). The increasing marginalisation of rural workforce in general and that engaged in agriculture in particular has been observed in the current analysis.

However, the mobility of rural labour, short-term and circular migration to rural and urban destinations for work, and multiplicity of activities in agriculture and non-agriculture sector have their impact on the increasing rural wage rates and incomes of the labourers. Along with MGNREGS wage rate and mobility of labour set a reference wage has raised the reservation price of their labour. Besides, growing awareness or consciousness leading to their bargaining power. The benefits of state welfare measures / schemes have been acting as a buffer zone (fall back supplementing mechanism) for their livelihood and facilitate them not to yield their labour power or not to compromise to work at a cheaper wage rate. Because of increasing wage rates incomes of those who are able to get employment might be better than that of the before.

As the hypothesis of feminisation of agriculture reveals men's withdrawal (either restrain themselves working for a very low wage rate and search for better opportunities) from agriculture pushes the more and more women to

do the same job. It is, on the one hand, acting as push factor that leaves burden of securing household livelihood on female members. On the other hand it may be demand driven substitution wherein employers (landlords/farmers) replacing the costly male labourers with female labourers working for cheaper wages. It is very often prevalent scenario in rural India that male labourers switching between agricultural and non-agricultural occupations and rural and urban casual labour markets. Lack of sufficient employment opportunities in either of these occupations and areas or in the event when the expected wage rate is not realised it often results in under or unemployment leading to marginalisation.

4.2 Durability of Rural Non-farm Alternate Jobs: Fragile and Relapse

There is mobility of rural labour force and shifting or switching of occupations from agriculture to non-agriculture. It is observed that despite the predominance of agriculture in rural economy, about two third of rural income is now generated in non-farm activities (Chand *et al.*, 2018). But the growth of rural non-farm sector has not been resulted in employment gains.

In the emerging labour market, it has become normal for the rural labour force to engage in multiple economic activities (see for instance, Subramanian, 2018). But as the durability of non-farm alternate employment is very fragile and many of them have to fall back in times on farm sector (Thomas and Jayesh, 2016). Such a switching of occupation between farm and non-farm activities and simultaneous engagement in multiple activities has been due to shortage of sufficient employment opportunities in either of the sector or activity.

4.3 Factors restricting Diversification: Skill, Education, Training and Technical knowledge

It is observed that lack of required skills and technical knowledge were the main barrier for diversification or shifting of rural workers to non-farm activities including manufacturing (Chand *et al.*, 2018). A large portion of the rural labour has been remained unskilled labour, illiterate or with poor educational levels and without any technical or vocational training.

4.4 Construction Sector: Emerging Alternate Residual Sector for the Rural Labour force

As the agriculture sector has reached its limits as a residual sector in respect of absorbing the growing rural labour force in India, construction sector has emerging as the alternate residual sector (see Chand *et al.*, 2018). As the studies based on quinquennial Employment and Unemployment Surveys (EUS) of National Sample Survey Office (NSSO) shows the growth of workforce engaged in the sub-sector of Construction was remarkably high during the 2000s (see Papola, 2012, Thomas and Jayesh, 2016; Chand *et al.*, 2018). It has been only sub-sector which registered the highest rate of growth in employment in India. The construction sector in one way is setting the reference wage for rural wage labourers who are engaged in agriculture as well as those in non-agriculture.

4.5 Rise in Rural Wage Rates: Demand-driven?

There is a rise in rural wages but is it due to increasing demand for rural labourers (demand driven) reflecting increasing employment opportunities. There are some studies inferring such a demand driven factor (see for instance, Gulati *et al.*, 2013). But as we have observed the low growth of workforce in rural India is not supporting demand driven factor. Further, the growing phenomenon of marginalisation of workforce is contradicting the demand driven factor.

The alternate explanation is rise in bargaining power and the emerging negotiating space in the labour market. The economy with a reasonably high rate of growth could facilitate and afford paying the rising wage rates (see Gulati *et al.*, 2013). But it is not able to provide sufficient employment opportunities for labouring poor in rural India.

4.6 High Rural Poverty coincides with growing Rural Wage Rates and Incomes

Despite the observed trend in rising rural wage rates and incomes, the incidence of poverty is substantially high in rural areas. According to the Planning Commission estimate (based on Tendulkar Committee Methodology), the incidence of poverty in rural India was 41.8 per cent in 2004-05 and it declined to 33.8 per cent in 2009-10. The Rangarajan Committee estimated it at 30.9 per cent in 2011-12.

As some studies have estimated, across occupational groups in rural areas, poverty is very high among the agricultural labourers. According to an estimate the incidence of poverty among agricultural labourers was 62.8 per cent in 2004-05 and it declined to 50.8 per cent in 2009-10 (Shukla and Mishra, 2014). But it indicates that half of the population in rural India living on wages from agricultural labour as a major source of income are living below the poverty line. It shows that rise in wage rates and incomes are not yet sufficient to pull all those living below poverty line. When rise in wage rate snatches away certain number of days of employment available, the impact of rise in wage rate on eliminating the poverty would not be effective.

4.7 Prevalence of under- or Unemployment with a rise in Wage rates: A Trade-off?

Resolving the above conundrum indicates that there must be to certain extent a trade-off between to work at reasonable wage rate and to remain under-employed or unemployed. As it is observed in the above analysis, the trend of marginalisation and high incidence of poverty among rural labourers particularly those in the agriculture that coincides with the rise in rural (agricultural) wage rates indicates such a trade-off.

4.8 Studies on India facing higher job volatility

MSS Research (undated) does not agree with the idea of rural India losing jobs. Their report argues, Indian economy is generating approximately seven million employment and self-employment opportunities per annum, mostly in the informal sector. It is argued that our large scale surveys like NSSO, Census hardly capture the new trends due to design of surveys. The report argues that the most effective strategy for employment generation accelerate this natural process of employment generation which is linking agriculture with rural informal sector, through promotion of agro-industry, rural extension services and related vocations¹³. Similarly, Karnik (2017) notes that available labour statistics leave out information on independent work, as well as flexible or part-time jobs, which constitute a key part of today's employment scenario. This inflates the unemployment figure in India and misled us about structure of employment for both rural and urban sector, men and women¹⁴.

Saha and Verick (2016) suggests that there is a strong shift towards non-farm employment in rural areas especially among weaker sections in the society between 1999-2000 and 2011-12. They found access to land as the most important towards this diversification, households from weaker section especially from SC households are more likely to opt for non-farm income as their need in agriculture is declining because of mechanisation. According to the authors the Kaldor-Kuznet hypothesis states that as the share of agriculture to GDP declines more people move out to non-farm sector is not happening in Indian context. However they noted youth, both men and women, are more likely to go for non-farm jobs. Agrarian distress also plays its part in pushing job seekers to non-farm employment¹⁵. The authors noted that Vaidyanathan (1986) hypothesis that “the higher the rate of unemployment, the higher is likely to be the share of non-agricultural sector in total rural employment and the lower the non-agricultural wage relative to that in agriculture” is also being observed. The authors point out most of these non-farm jobs are of low productivity-low income jobs. The authors observed that the biggest increase in non-agricultural employment has been in construction sector. In this sector, the share of non-farm employment has increased from 14.4 per cent in 1999-2000 to 30.1 per cent in 2011-12. This resulted in casualization of workforce in a higher pace and decline in self-employment. MGNREGS also helped in diversifying the livelihood in rural areas. Women prefer to work in MGNREGS as work is available near home. Households from scheduled caste and scheduled tribe who are most likely without any land or having very small piece of land and agriculture is not enough to sustain them also participate in MGNREGS where it is available in great numbers¹⁶.

Mukhopadhyay *et al.* (2008) argues the non-farm sector could play a very significant role in diversifying rural labour market but lack of (limited availability of) physical infrastructure in rural areas and financial services (mainly in hinterlands) is restricting the job opportunities¹⁷. Vinoj Abraham 2013 argues that the decline in share of women in the labour force as well as labour force participation rate of women (observed for last quarter of a century) may indicate to ‘defeminisation of labour’. The author argues that the women who enter and remain in labour market are from most vulnerable and marginalised households who depend upon informal paid labour for livelihood. On the other hand for households who could afford women’s withdrawal from paid labour and their confinement to unpaid domestic activities is seen as upward social mobility and perception of increasing social prestige¹⁸.

Garg and Shahi (2018) quoting India Spends report, points out that the female labour force participation (FLFP) rate in India has declined from 36 per cent in 2005-06 to 24 percent in 2015-16, a decline of 12 percentage points. It is argued that female workers are highly disadvantaged in the labour market as most of them are low-skilled, engaged in low-productivity and low-paying work. Gender gap in median earnings of full-time employees in India is higher than countries like South Africa, Brazil and Chile. They highlighted the fact that a woman in India spends 6 hours a day in unpaid work against 50 minutes for a men in rural India. They observed a bleak prospect for interventions like 'Skill Development' programme. It observed that only half of them were placed out of over 160,000 persons skilled in 2016-17 under the Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)¹⁹.

Reddy *et al.* (2014), points out that changes in the rural employment structure has different outcome for occupational shifts among different social groups. The Scheduled Caste (SC) workers depending on rural non-farm employment (RNFE) has increased significantly from 20% in 1993-94 to 36% in 2009-10. In contrast the agriculture dependence of OBCs (67.9%) and "Others" (65.3%) are higher than SCs. For STs the increase in RNFE is at a slower pace from 13% to 20%. The increase in RNFE for SC community is mostly taking place in construction sector. The share of construction in the total employment profile of SCs increased from 5.1% in 1993-94 to 15.8% in 2009-10, and in the case of all other social groups, construction constitutes a much lower share in their respective total employment profile than SCs²⁰.

Dhanraj and Mahamb are (2018) argue that residing in a joint family affects non-farm employment prospect for married women in rural India. Based on IHDS longitudinal survey of over 27000 women between 2005 and 2012, the authors found that living in a joint family lowers married women's non-farm employment by more than 10 percent points. The participation in non-farm employment is also less likely for younger women, for women from families with higher social status, and for women from Northern India. However they argue education is likely to change the status quo as women with higher education levels are not constrained from cultural and traditional norms even in joint family set up. An increased education level is likely to raise women's earning capacity as well as the quality of jobs which may help her negotiate with her family for lowering family pressure against work. They suggested for public policies that encourage higher education,

improving job accessibility along with affordable childcare, are needed for women with less education which will raise non-farm employment for these women even in a joint family set up²¹.

5. Gender Dimension of Rural Workforce

An attempt is made to note important gender implications out of the recent changes in growth and changing structure of workforce in the Indian countryside. Although females account for nearly a half of the total and/or of rural population, only a little more than one-third of the rural workforce of all categories (main and marginal) is female in 2011. By main and marginal workers categories, only a quarter of the rural workforce in main workers category in India are females. But these rural female workers are heavily concentrated in marginal workers category of rural workforce. They form more than half of the rural workforce in this category. The trend in sex ratio reflects changes in females' representation in rural workforce. Adverse sex ratio against the females is prevalent even in population; it is further adverse in workforce. The sex ratio in the rural population worsened, being adverse against females, during 1980s. The improvements during last two decades (1990s and 2000s) could not even restore the situation that of 1981 (see Table 8).

In respect of rural workforce combining both the categories (main & marginal), the sex ratio had improved between 1981 and 2001. The decline in sex ratio among all category rural workers in the recent decade (2001-11) is largely due to decline in highly disproportionate over representation of females among rural marginal workers. Accelerated rate of growth in rural female workers of main category during the period (see Table 1) reflected in continuous improvement in sex ratio among rural main workers during the period (see Table 11). The sex ratio among main workers is still adversely against females. In contrast, it is against males among the rural marginal workers indicating high concentration of females in this category. The rural female marginal workers were five times more than their male counterpart in 1981 and it increased to about 10 times by 1991. A drastic decline thereafter in females over representation among rural marginal workers had almost equalised the number of female marginal workers to their male counterparts²² in 2011 (see Table 11). Although decelerated rate of growth in rural female workers of marginal category partly resulted in declining disproportionate concentration of females in this category, it is largely due

to sharp growth in number of rural male workers added to marginal category. One can observe a very high rate of growth in rural male marginal workers during 1990s that resulted in increase in WPR of marginal workers category among rural males and the consequent rise in share of marginal category in the total male workers in rural areas (see Table 1, 2&3).

Table 11: Sex Ratio of Rural Workforce in India

Year	Population	Main Workers	Marginal Workers	All Workers
1981	951	253	5240	350
1991	939	290	9424	400
2001	946	303	1559	463
2011	949	327	1032	452

Note: 1. Sex Ratio is number of females per 1000 males; 2. *All Workers* including main and marginal category

Source: Census of India.

In respect of the work participation rates (WPR), rural males registered a marginal increase in their overall WPR (main and marginal combined) during 2001-2011, whereas rural females' WPR had declined by 0.8 percentage points during the period after a continuous increase during the previous two decades, 1981-2001 (see Table 2). The gender-specific WPR of main and marginal categories separately shows that the percentage (WPR) of main workers among rural males had continuously declined all through last three decades (1981-2011). But the percentage of marginal workers among males had increased particularly during the last two decades (1991-2011). We have observed in our analysis of age-groups specific WPRs that such a trend i.e. the decline in WPR of main workers and an increase in WPR of marginal workers category that witnessed during the last decade, across all the working-age groups among males²³ in rural India. In case of rural females, the percentage (WPR) of main workers among them has not shown any particular pattern during last three decades – it had increased during 1981-91, declined during 1991-2001, and remained same between 2001 and 2011 (see Table 2). The percentage of (WPR) of marginal workers among rural females had increased between 1981 and 2001, and thereafter during the last decade it has shown a marginal decline. Such a decline in WPR of marginal workers category among rural females during 2001-11 is observed across all the age-groups.

The trend in WPR of main and marginal workers among rural males and females corroborates fact that mentioned earlier i.e. the representation of rural male workers in the category of marginal workers has increased during the last decade while that of rural females is reducing. Correspondingly, relatively higher rate of growth in rural females of main workers category when compared to their male counterparts resulted in increasing representation of females in rural main workers.

The overall trend in terms of changes in gender-specific WPRs in rural areas is apparently in consonance with the observation made in many recent studies that are based on the NSSO quinquennial employment and unemployment survey estimates representing the last decade. However, unlike the NSSO's estimates, the extent of decline in WPR of rural females is relatively lesser according to the Census data. Moreover, a marginal decline in WPR of all workers (incl. Main & marginal) among the rural females is largely due to decline in percentage of marginal workers among them. Further, about a one percent increase in overall WPR of rural males was due to a sharp increase in their WPR of marginal workers category indicating increasing concentration or representation of rural males in this category of workers. These are the observations specific to our analysis based on the Census data²⁴.

Table 12: WPR of Rural Females in India - All Workers (Main& Marginal combined)

Age Group	2001	2011	Change (diff)
5-14	5.9	4.1	-1.9
15-24	38.5	31.3	-7.2
25-49	54.5	52.0	-2.5
50-59	48.8	49.3	0.4
60+	25.0	28.4	3.4
Total	30.8	30.0	-0.8

Note: 1. WPR – Work Participation Rate; 2. Age Group specific WPRs for rural females; 3. Change in terms of difference in WPR between 2011 and 2001.

Source: Authors' Calculations based on Census of India data.

If we look into changes in rural female's WPR by age groups, it has declined during the last decade (2001-11) across all age groups below 50 years of age and thereafter, i.e. age groups from 50 years of age, it has increased (see

Table 12). The decline in age specific WPR of rural females is highest among the youth (15-24 years age). The decline in WPR among children (5-14 years age) is necessary as childhood is meant for learning in schools not for working and Constitutional provisions along with a number of legislations in India are prohibiting child labour. Among the youth, it is due to increasing participation in educational institutions with growing demand for education. But a baffling trend is that a decline in the WPR of rural adult females particularly that in the 25-49 years age group cohort as well as an increase in the WPR among the upper middle age (50-60 years) and older age (60+ years age) cohorts. It indicates that the *younger women's delay entry into labour market and / or their withdrawal has been compensated to a large extent with the older women's delayed retirement (withdrawal) or their re-entry.*

5.1 Gender Dimension in Occupational distribution of Rural Workforce

We could observe from above analysis that of females' under representation in rural workforce when compared to their male counterparts. When we look into the gender dimension of rural workforce in each of four-fold occupational category, observations are similarly revealing. In most of the occupations, females' share is well below the 50 per cent bench mark except the traditional HHI occupation. Again, in the rural workforce that engaged in traditional occupations such as agriculture (including self-cultivation and labour) and HHI, increasing representation (percentage share) of females during period between 1981 and 2001 has been halted or begun declining during the last decade (see Table 10).

The trend in rate of growth in workforce in four-fold categories of occupations by gender accompanied the above changes. The rate of growth in workforce by gender that engaged in these traditional occupations shows that it is higher during 1980s and 1990s among the females over their male counterparts engaged in these occupations. Subsequently, during the last decade, it has gone other way round. In fact among cultivators and HHI, there is a negative rate of growth in both the cases of male and females engaged in these occupations. But the rate of decline is higher for female workforce engaged in these occupations particularly in case of cultivators when compared to that of males (see Table 7).

While about 6.1 million female cultivators (main or marginal) who have been left their occupation (farming/self-cultivation) during the last decade

(2001-11), it was 3.6 million in case of male cultivator. In case of HHI, the net decline in workforce that engaged in this occupation during the period was 0.13 million among male and 0.07 million among female workers. Whereas the net addition to agricultural labourers among males during the last decade was 23.2 million, it was half of that at 11.3 million in case of females. In case of 'others' representing various occupations in the modern industry and service, the net addition to workforce among males engaged in these occupations was 8.5 million during the period while it was 5.6 million among females.

Table 13: Sex Ratio and Percentage of Females in Rural Workforce in each of Fourfold Occupational Category – Rural India

Occupational Category	Sex Ratio				Percentage of Females			
	1981	1991	2001	2011	1981	1991	2001	2011
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>
All (Main and Marginal) Workers								
Cultivators	304	396	494	440	23.3	28.3	33.1	30.6
Agricultural Labourers	806	849	872	758	44.6	45.9	46.6	43.1
Household Industry	522	668	1027	1037	34.3	40.0	50.7	50.9
Others	179	190	293	342	15.2	16.0	22.6	25.5
.								
<i>Agriculture (Cult + AL)</i>	<i>458</i>	<i>548</i>	<i>644</i>	<i>597</i>	<i>31.4</i>	<i>35.4</i>	<i>39.2</i>	<i>37.4</i>
<i>Non-Agriculture (HHI + Others)</i>	<i>226</i>	<i>231</i>	<i>365</i>	<i>401</i>	<i>18.5</i>	<i>18.8</i>	<i>26.7</i>	<i>28.6</i>
Main Workers								
Cultivators	194	254	326	317	16.3	20.3	24.6	24.0
Agricultural Labourers	605	629	547	568	37.7	38.6	35.3	36.2
Household Industry	381	511	654	737	27.6	33.8	39.5	42.4
Others	144	159	216	252	12.6	13.7	17.8	20.1
.								
<i>Agriculture (Cult + AL)</i>	<i>319</i>	<i>380</i>	<i>401</i>	<i>423</i>	<i>24.2</i>	<i>27.5</i>	<i>28.6</i>	<i>29.7</i>
<i>Non-Agriculture (HHI + Others)</i>	<i>177</i>	<i>189</i>	<i>258</i>	<i>288</i>	<i>15.0</i>	<i>15.9</i>	<i>20.5</i>	<i>22.4</i>
Marginal Workers								
Cultivators	6104	11438	2320	1373	85.9	92.0	69.9	57.9
Agricultural Labourers	6673	12870	1691	1131	86.9	92.8	62.8	53.1
Household Industry	7705	9561	2992	1777	88.5	90.5	74.9	64.0
Others	2054	3173	892	748	67.2	76.0	47.2	42.8
.								
<i>Agriculture (Cult + AL)</i>	<i>6355</i>	<i>12038</i>	<i>1887</i>	<i>1195</i>	<i>86.4</i>	<i>92.3</i>	<i>65.4</i>	<i>54.4</i>
<i>Non-Agriculture (HHI + Others)</i>	<i>2864</i>	<i>4037</i>	<i>1174</i>	<i>881</i>	<i>74.1</i>	<i>80.1</i>	<i>54.0</i>	<i>46.8</i>

Note: 1. Sex Ratio is number of females per 1000 males; 2. Cult – Cultivators, AL – Agricultural Labourers, HHI – Household Industry.

Source: Census of India.

In respect of these occupations in the modern industry and services the share of females in these occupations is well below their share in population and in workforce in any of three traditional occupations. In 2011, only little over one-fourth of the rural workforce engaged in this modern industry and services was found to be females. A similar picture emerges workforce engaged in non-agriculture sector as a whole while including HHI into its fold. However, the share of females in rural workforce engaged these occupations, has continuously been increasing during the last three decades, the sharpest improvement was registered during 1990s and the momentum continued in 2000s. It is interesting to note that while *half of the total net addition to rural female workforce during the last decade was absorbed in non-agricultural activities, mostly in modern industry and service ('others')*. It was only 30 per cent of their net addition in case of males was absorbed in these occupations.

By main and marginal category of workers that engaged in non-agricultural occupations including HHI, the share of females is even lower wherein their share is less than one-fourth of the rural main workers engaged in this occupation it has been increasing over times. But, their share in rural marginal workers engaged in the non-agricultural occupations was disproportionately high (more than two-thirds of it) and it has continuously been declined during the last three decades. It was declined to 46.8 per cent by 2011. As mentioned elsewhere above, the latter trend is beyond the decline in number of female workers or decelerated rate growth in their workforce of marginal category, it is rather largely due to increased number of male workers added to this marginal category of workforce engaged in these non-agricultural occupations. It is interesting to note that among the marginal category of rural workforce that engaged in non-agricultural occupations by gender, rate of growth in male workers in these occupations is higher than their female counter parts. In case of main workers category of rural workforce it is vice versa, wherein rate of growth in male workers engaged in these occupations is lower than that of females (see Tables 7&10).

Among both the rural male and female workers, the share of their workforce that engaged non-agricultural activities has increased sharply during 1990s (see Table 10). Thereafter, during the last decade, the share of non-agriculture among rural male workers has not shown any change while that of female's continued to increase even though at a slow rate. Such a trend is explicit in case of main workers category of rural male and female workforce that engaged in the occupations. In the marginal workers category of rural

workforce the share of non-agriculture has witnessed an increase for the male and females.

To sum up, despite the continuing tendency of under-representation of women in the rural workforce, their share is observed to be increasing over time, although at a slower rate. Their representation in workforce that engaged in the traditional and agriculture occupations is declining and a corresponding increase in their share in workforce that engaged non-agricultural occupations. The rate of growth in rural female workers engaged in agricultural labourer and non-agricultural activities particularly that of main workers category are relatively higher when compared to their male counterparts and thereby their representation in main workers had increased. Besides, disproportionate concentration of females in the category of marginal workers was been getting reduced. It is also evident from the census data that the growth of female workforce of marginal category that engaged in non-agriculture is higher than that of their main workers category. As a result, the share of marginal workers category in the total female workforce that engaged in non-agriculture is increasing over time. In 2011, around one-fifth of the total female workforce engaged in non-agriculture was in the category of marginal workers.

The increasing representation of women in the rural workforce in general and the workforce that engaged in rural non-agriculture in particular may have implications in terms of their quality of their employment²⁵ and hence a cause of concern. It particularly is so in the context of restructuring of labour market as a cost cutting measure in the growing informal economy as vividly discussed in the literature.

6. Concluding Remarks

The present paper examines the trend in growth and change in the structure of rural workforce in India during the last three decades using Census data. The rate of growth in workforce which is usually conditioned by the rate of growth of population and WPR, has decelerated in rural areas following the decelerated rate of growth in rural population of the country not much due to change in WPR. Even if the growth in employment is conditioned by growth in population, what one expects is structural change and quality of employment.

The analysis shows that there is fast decelerating rate of growth in rural workforce particularly that of females during the period between 2001 and 2011. A decline in females' WPR is compensated by increase in WPR of males in rural areas resulting in no apparent change in overall work participation rate (WPR) in rural India – at least there is no decline, if not increased. A decline in age group-specific WPRs of younger age groups particularly among rural females is compensated by the increase in WPR of adult and/or older age groups of the same gender.

Second, the phenomenon of under-employment that reflected in marginalisation of workforce along with unemployment rate in the labour force is high and increasing. *A large part of growth observed in rural workforce particularly that of males has been in that of marginal category.* Although considerably a significant proportion of the female workers appeared to have been gradually levelled up while obtaining main workers status, yet nearly half of the female workforce in rural areas has remained in the marginal worker category.

Third, the usual unemployment rates (unemployed of those seeking work to labour force) are substantially high and increasing during the last two decades. Our modified definition of unemployment that includes the under-employed as well (those of marginal workers) indicates that about one-quarter of the labour force in India is unemployed. Besides, there is a substantial portion of population neither in education nor in labour force who are referred to as jobless or discouraged workers.

Fourth, the structure of rural workforce (occupational distribution) shows a trend against the one's expectation indicating stifled structural change in rural workforce. On the one hand, the absolute number of cultivators is declining with a corresponding increase in the number of agricultural labourers. The increase in the size of agricultural labourers is more than the size of cultivators declined indicating those farmers who are leaving farming activity and those who are entering newly into labour force are becoming agricultural labourers. Fifth, relatively high rate of growth in workforce that engaged in non-agriculture when compared to that of agriculture, has been decelerating in the recent past and resulted in a very small change in structure of rural workforce that is shifting towards non-agriculture, indicating a stagnant structural change. This is in contrast with the highest ever growth of non-agricultural GDP of India that is registered during the last decade. Within

the non-agriculture, growth of workforce engaged in household industry (HHI) has witnessed a negative growth. Further, most of the growth in workforce that engaged in non-agricultural activities is in that of marginal category. Increasing share of marginal workers in the total workforce of non-agriculture sectors is indicating a process of marginalization or pauperisation of workforce and hence a cause of concern.

Sixth, we have observed the high rate of growth in rural female workers engaged in agricultural labourer and non-agricultural activities particularly that of main workers category when compared to their male counterparts. It has implications in terms of the quality of their employment and hence a cause of concern. It particularly is so in the context of restructuring of labour market as a cost cutting measure in the growing informal economy as vividly discussed in the literature.

On the whole the trend shows the decelerating growth of rural workforce and explicit incremental marginalisation of rural workforce resulting in under-employment along with rising unemployment rate during the last decade. The slow growth in rural non-farm employment resulted in stifled structural change in respect of rural workforce in this period. Along with the negative growth of workforce in the cultivators category, most of the growth in workforce in both the agricultural (labourers) and non-agricultural sectors is in the 'marginal workers' category. It indicates state policy has to turn its attention towards longstanding aspect of employment policy i.e. quality of employment, along with quantitative expansion (generation).

Appendix

Appendix 1: Decomposition of growth in Workforce

Given the size of the population in country or region and work participation rate in the population, the size of the workforce in the population is obtained with the following formula:

$$W_t = N_t \cdot r_t$$

Change between any two points time in each of the fact: Workforce, Population and WPR can be written as:

$$\Delta W_t = W_t - W_{t-1}$$

$$\Delta N_t = N_t - N_{t-1}$$

$$\Delta r_t = r_t - r_{t-1}$$

W = Workforce;

N = Population;

r = Work Participation Rate (WPR) in a population

t= any current time point

t-1= any previous time point

Change (growth) in Workforce during any two different points of time can be decomposed into three factors as following:

$$\Delta W_t = [r_{t-1} \cdot (N_t - N_{t-1})] + [(r_t - r_{t-1}) \cdot N_{t-1}] + [(r_t - r_{t-1}) \cdot (N_t - N_{t-1})]$$

The first term in the equation gives us the part of the growth (change) in workforce that is due to growth in population, the second term gives the part due to change in WPR and the third (interaction) term gives the part due to interaction of both the factors.

Notes:

- ¹ For the year 2018, it is estimated that 9.1 million jobs were lost in rural India against 1.8 million jobs in urban India. This is translated to for every 1 job lost in urban India, 5 jobs were lost in rural areas. Despite accounting for two-thirds of Indian population, rural India accounted for 84 per cent of the job losses in the given year. The job loss was higher for women during 2018. Out of total 11 million jobs lost, women accounted for 8.8 million jobs vis-à-vis 2.1 million for men. Out of these 8.5 million jobs lost for women, 6.5 million were from rural areas where as rest 2.3 million were from urban areas. The report concludes that job losses were concentrated among the uneducated, as well as wage labourers, agricultural labourers and small traders, mostly from rural background. The pace of decline in availability of jobs in rural India got pace with implementation of demonetisation. Wage labourers, agricultural labourers and small traders from rural India suffered heavily due to lack of cash. See, *Business Today*, January 4, 2019, 'India lost 11 million jobs in 2018, rural areas worst hit: CMIE', available at <https://www.businesstoday.in/current/economy-politics/india-lost-11-million-jobs-in-2018-rural-areas-worst-hit-cmie/story/306804.html>.
- ² Based on NSSO's estimations from Employment and Unemployment Survey (EUS).
- ³ One of the country's vision documents has stressed on employment generation stating that at least two per cent per annum to be compatible with the nine percent growth in the economy while emphasising on promoting labour intensive and high employment elasticity sectors to achieve the quantitative employment growth target (See Government of India, Ministry of Labour and Employment, 2011).
- ⁴ See Planning Commission, 2011.
- ⁵ For instance, see Chaudhari, 2011; Rangarajan *et al.*, 2011; Kannan and Ravindran, 2012; Papola, 2012; Thomas, 2012.
- ⁶ It is an important alternative source of information on workforce in India, based on the Census's full count unlike the estimate of the NSSO's sample survey.
- ⁷ For Assam the projected figures of Expert Committee on Population Projections that was set up by the Planning Commission, for year 1981 was used get all India population figures in the same year. For J&K the projected figures of the Standing Committee of Expert on Population Projection (October, 1989), are used.
- ⁸ Twenty major states excluding New Delhi. They are: Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal.
- ⁹ Unemployment rate = Unemployed (seeking or available for work) / (Workforce + Unemployed) * 100. One can also consider unemployed as a percentage of population.

- ¹⁰ There are two terms in the vogue in the global parlance (for instance ILO's reports): one is the NEET – Not in Employment (i.e. Workforce), Education or Training; the other one is NLFET – Neither in Labour Force nor in Education or Training. The second one takes into account the unemployed in to its fold. The first one excludes the unemployed. However, we have used later (second) term but excluding 'T' because in the Census Data we do not have any information related to those who are in any 'Training'.
- ¹¹ As mentioned in earlier paper (see Motkuri and Naik, 2016), one can find from the recent Report of Comptroller and Audit General of India (CAGI) on 'Performance of SEZs', in India there are about 572 SEZs (as on 31/12/2013) that accorded formal approval. For these SEZs there is about 62,565 hectares of land acquired. Striking revelations of the Report are that less than 200 SEZs are operational till date. Most of the SEZs (among the operational ones) could not generate employment, garner investment and produce export as they promised/proposed. The gap between the proposed and reality in this respect is more than 90 per cent (see GoI, 2014).
- ¹² It is due to slow growth of labour absorption in rural non-farm sector and urban industry/services.
- ¹³ See at https://www.mssresearch.org/?q=Rural_employment_strategies_for_India
- ¹⁴ See at <https://qz.com/india/1006748/the-real-problem-with-indias-jobs-data-is-that-they-hide-more-than-they-reveal/>
- ¹⁵ Vaidyanathan is one of the first to recognise the phenomenon in 1986 itself.
- ¹⁶ Saha and Verick (2016).
- ¹⁷ See at <https://nistads.res.in/all-html/Non-Farm%20Occupation%20in%20Rural%20India.html>
- ¹⁸ (Journal » Vol. 48, Issue No. 31, 03 Aug, 2013 » Missing Labour or Consistent "De-Feminisation"?) Please look at <https://www.epw.in/engage/article/beyond-noise-reading-list-employment-trends-india>
- ¹⁹ See at <https://www.indiaspend.com/3-in-4-indian-women-dont-work-can-skilling-and-guaranteed-jobs-change-that-38932/>
- ²⁰ Reddy et al (2014).
- ²¹ See at <http://www.mse.ac.in/wp-content/uploads/2018/08/Working-Paper-176.pdf>
- ²² The decline in sex ratio among all (main & marginal) rural workers during the last decade is largely due to this fast decline in sex ratio of marginal workers.
- ²³ Based on our analyses by age-groups that is not produced here.

- ²⁴ We leave it here by just noting the above and move ahead with the analysis of Census data, we do not go deep into why the difference between Census and NSSO.
- ²⁵ Does increasing representation of females in this sector mean that rural non-agriculture sector has become gender-sensitive in female labour absorption? It might be true otherwise, but, if one observes the pattern of workforce engaged in non-agriculture sector, a large part of it is in construction sector (Papola, 2014) and otherwise also most of it is in unorganised and informal sectors, particularly that of the labour-intensive industry / businesses (Unni and Rani, 2008). Herein, one has to note that with the increasing participation of women in education and growing number of educated women, their representation in formal sector, especially in the public sector in compliance with reservations or otherwise, might also be increasing. Also, the fast-growing services sectors, particularly finance, banking, pharma, and information and communication technology (ICT) sectors (including ITES, BPO and KPO), are increasingly absorbing the qualified women, although disproportionately when compared to their male counterparts due to persisted inequality in (technical) education (see Rustagi, 2013). However, although these sectors' contributions total GDP is substantial but their share in the total workforce is very small (see Ghose, 2013). Moreover, the employment opportunities available in many formal sectors including the public one, in general, are stagnated or shrinking over period, owing to new economic policy (see Ghose, 2013; Kannan and Ravindran, 2009). Thus, a large part of women workforce, particularly unskilled and semiskilled, that is engaged in non-agricultural sector must be located in informal and unorganised sectors. Given the gender-based wage differentials prevailing (see Das, 2012), particularly in unorganised and informal sectors of developing countries such as India, the availability of female labour at cheaper wage rates might be the inducing factor for the preference of female workers over male workers (Kotwal, *et al.*, 2011) .

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The broad thrust areas of research at the Institute include Natural Resource Management, Agriculture and Climate Change, Industry, Infrastructure, Trade and Finance, Employment, Migration and Urbanisation, Poverty and Human Resource Development and Regional Development, Institutions and Governance.

- In the area of **Natural Resource Management, Agriculture and Climate Change**, in-depth studies have been carried out relating to some of the major development interventions like Participatory Irrigation Management, Watershed Development Programmes, Joint Forest Management and Protected Area Management. The studies have focused mainly on aspects relating to economic viability, equity and institutional mechanisms. In the sphere of management of natural resources, these studies often explore the interrelationships between the community, government and civil society. Many of these studies, based on careful empirical enquiry at the micro level, have contributed to the on-going debates on sustainable environment and institutions. Issues in Common Property Land Resources and land use have also been researched extensively.
- The research in the area of **Industry, Infrastructure, Trade and Finance** focuses on the response of micro, small and medium enterprises to the changing government policies in the wake of liberalisation. The research has contributed to work on industrial clusters, flexible specialization and addresses issues involving intellectual property regimes, especially for pharmaceuticals and biotechnology. Studies dealing with issues in provisioning of and access to basic infrastructure both in the rural and urban areas, the linkages between infrastructure, trade and finance, regional growth and aspects of governance have also been carried out at the Institute.
- Studies under the theme **Employment, Migration and Urbanisation** relate to population, demographic changes, labour, nature of employment, diversification of economic activities and migration. An emerging aspect has been to study international migration to trace social, economic, cultural and political influences through remittances, social spending and norms setting. Urban services and aspects of urban economy and governance have also been an important emerging area of research at the Institute.
- The research in **Poverty and Human Resource Development** focuses on population, labour and poverty issues. The studies relate to quality of life, education, social infrastructure, diversification of economic activities and migration. The informalisation process in the labour and production systems leading to poverty and social security issues form another important theme. The research on health and family welfare has contributed towards developing a framework for target-free approach in family planning. In the informal sector debate the research has focused on the collection of social statistics to influence policies for better labour conditions and social security reforms.
- The enquiry in **Regional Development, Institutions and Governance** centres on application of regional planning models, data collection and analysis for regional planning exercises, impact of area development plans on growth and development of the regional economy. Studies have also focused on studying the role and participation of Non-Governmental Organisations (NGOs) in the development process, the changes in the characteristics of the NGOs and so on.

The major strength of the Institute is a thorough understanding of the micro processes and a consolidated effort to link these to macro issues. The faculty members have made considerable endeavour towards developing policy-sensitive database of the Indian economy, especially relating to the informal activities, including child labour. The Institute has played a useful role in promoting empirical research in the country and the evolution of related conceptual framework and approaches. Over-time, the Institute's research agenda has broadened to cover a fairly wide range of issues pertaining to development policy both at the regional and the national levels. The results of the Institute's research are shared with policy makers, non-governmental organisations and other academicians. The faculty members at the Institute also participate in government panels, committees and working groups to influence certain policy decisions. The Institute promotes public discussion through the publication of its research findings and through seminars, conferences and consultation and undertakes collaborative research along with NGOs, international organisations, government and academic institutions.