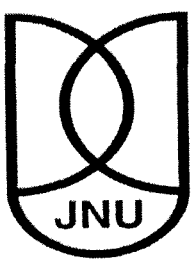
A Study of Rural Wages in India since the 1990s with Special Reference to the NREGA

Dissertation Submitted to the Jawaharlal Nehru University in partial fulfillment of the requirements for the award of the degree of

MASTER OF PHILOSOPHY

NITU JAISWAL



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DECLARATION

This is to certify that the dissertation entitled ***"A Study of Rural Wages in India Since the 1990s with reference to the NREGA"*** submitted by me is in partial fulfillment of the requirement for the award of the degree of Master of Philosophy in Jawaharlal Nehru University. This dissertation has not been submitted for the award of any other degree in this University or any other University and is my own work.

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CERTIFICATE

We recommend that this dissertation be placed before the examiners for the evaluation.

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To My Parents

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Needless to say, I am solely responsible for all the errors and shortcomings in this work.

Nitu Jaiswal

Date:

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Abbreviations

AL	Agricultural Labourers
AP	Andhra Pradesh
AW	Agricultural Wages
AWI	Agricultural Wages in India
CAG	Comptroller and Auditor General
CAGR	Compounded Annual Growth Rate
CDS	Current Daily Status
CPI-AL	Consumer Price Index-Agricultural Labourers
CSO	Central Statistical Organisation
CSRE	Crash Scheme for Rural Employment
CV	Coefficient of Variance
EGS	Employment Guarantee Scheme
EUS	Employment Unemployment Survey
GoI	Government of India
GR	Growth Rate
HH	Household
HP	Himachal Pradesh
MP	Madhya Pradesh
MWA	Minimum Wage Act
NCAER	National Council of Applied Economic Research
NCEUS	National Commission for Enterprises in the Unorganized Sector
NFW	National Food for Work
NREGA	National Rural Employment Guarantee Act
NREP	National Rural Employment Programme
NSSO	National Sample Survey Organisation
PIREP	Pilot Intensive Rural Employment Programme
RLEGP	Rural Landless Employment Guarantee Programme
TN	Tamil Nadu
UP	Uttar Pradesh
WB	West Bengal

Chapter 1

Introduction

Objectives, Methodology and Review of Literature

1.1 *Introduction*

The Indian rural workforce has been rising at a rate of about 1.9 percent per annum; rural labour constitutes a large and growing segment of the rural population. Among them, Agricultural labourers form the majority of share, whose proportion and magnitude as workers is rising. Agricultural labourers (AL)[1] constitute an important segment of that rural population (Sharma, 2001). One-fourth of the rural households (HHs) constitute the AL (Sarmah, 2002). The growing population and casualisation of work (Bhalla, 1997); lead the rural population swelling to the ranks of agricultural labour (AL).

With negligible or no productive assets of their own, the rural labourers belong to the category of the poorest of the poor (Parthasarathy, 1996). They are regarded as the most disadvantage group of the rural population. Agriculture regarded as the primary source of employment in India (NCEUS, 2009). Majority of the rural workers depend upon wage employment as their prime source of income. 73% of the total rural employment is generated in the agriculture sector. Not only this, 57% of the total employment in India is generated in the agriculture sector alone[2].

Agriculture as an exclusive source of livelihood for the rural population has been a serious matter of concern for India. Hence, efforts have been made to promote rural development. Acharya and Papanek (1980), Acharya (1989), Srivastava and Singh

[1] Census of India ,1991 defines AL as—" A person who work on another person's land for wages in money , kind or a share crop is regarded a s an AL. such a person has no risk in cultivation but merely works in another person's land for wages". Obviously tenants and marginal farmers fall outside of this definition which exclusively includes landless labourers only.

[2] NSSO Employment and Unemployment Survey Report, 2004-05.

(2006) have identified *Agricultural Wages*[3] (AW) as an important indicator of the levels of living of rural labour and also an important correlate factor which effects rural poverty. Indirectly, wages in agriculture sector is considered an important indicator of economic well-being. (Acharya and Papanek, 1988; Srivastava and Singh, 2004). Several Studies have shown that some improvement in the levels of living of rural labour will take place in the wake of increment of the real wages given the number of working days. Therefore, by looking at the trends in the wage earnings of AL, one can identify how much do they benefit from the growth achieved by the economy? However, earlier studies concluded that the real wages declined over the time. The present study specifically will examine the recent trend and pattern in the AW and their variation among the major states of India from the period 1990 to 2009-10.

The period from 1990s onwards witnessed a major structural and economical change in the Indian economy. In the era of globalization, Indian policy-makers were opening up the Indian markets to compete globally. The structural change in the entire economy gives rise to an intense debate in literature. The ambit of the debate broadened the study dimensions of the rural well-being such as the condition of the farmers, changes in the employment, rural wages etc by various scholars (Sundaram, 2001; Sundaram and Tendulkar, 2003; Radhakrishna and Ravi, 2003). The nineties was termed as a period of 'job-less growth' as high GDP growth rates failed to generate adequate employment opportunities. In fact, during the mid to late nineties (1993-94 to 1999-2000) when annual GDP growth rates increased and stood at over 7 per cent per annum, employment growth rate declined and was only a slightly over 1 per cent per annum. While the share of the agricultural sector in total employment is reducing, albeit at a low pace, over half of the entire labour force is still engaged in agriculture. In 2004-05, the number of poor workers in rural India was estimated to be over 74 million (NCUES, 2009). Hence, the study of the rural labour becomes essential to analyse the well-being of this growing segment of poor workers.

[3] Agricultural Wage is defined as the earning or salary received in the form of cash or kind or partly in cash and partly in kind for the work done during a reference period either for a week or on the daily basis.

Various studies have shown that the real wages to decelerate after the onset of the liberalization. (Srivastava, 2005; Himanshu, 2005).Though there are few studies which denied the downward trend (Sharma, 2001; Sundaram, 2001) majority of them affirmed the down trend. This deceleration in the agricultural wages worsens the poor farmers. Population growth and deceleration in the industrial growth put pressure on the rural land and labour market. India rural market does not exhibit the competitive labour market of economies. The nature of labour hiring process (institutional forms of labour hire, mode of payment of wages and gender division of labour) varies widely across the country and regions (Ramachandra, 1990). However, agricultural rural markets in India, exhibit a range of various hiring arrangements from sharecropping to seasonal spot wage labourer and variety of credit-labour-land contracts in between (Basu, 2002). There exists high level of interlinkage between different markets, i.e., land, labour and credit market which leads to a situation where the decision in labour market is interdependent on the actions in other markets (Bardhan and Rudra, 1978). These features have several implications for setting the wages of AL. There are several institutional factors which make the wage determination process heterogeneous over the different regions. This implies that the conventional labour market postulations would be less significant in the case of AL market. Wage is determined by other factors like caste and class structure prevailing in the area rather than by the market forces. So while studying agricultural wages, one has to agree upon the fact that there is heterogeneity in labour market which makes the wage determination process highly complex. A number of scholars in the past, however, emphasised on the role of the growth of non-agricultural employment in improving rural poverty with backward and forward linkages.

Indeed, Indian rural labour market is characterized by the excess supply of the labour at very low rate of wages. This creates distress and disguised unemployment in the agricultural sector. Given the limited scope for employment generation in agriculture, non-agriculture sector may play an important role. Sen and Ghosh (1993) identified state's role in creating non-agricultural employment to be an important determinant to curb the rural poverty. Thus, it will be fruitful to study the directional changes and their impact on the well-being of the AL through AW income after liberalization.

In the era of liberalization along with the increasing global markets integration, it has become even more imperative to protect the interests of the poor, landless and marginal farmers through the measures that help and promote stabilization, employment, increased profitability and reduced risks. In this direction to generate employment, income-poverty reduction and to promote inclusive growth the government made a flagship programme, ***National Rural Employment Guaranteed Programme (NRE***GA) that have direct effect on the livelihood of the poor and promotes inclusive growth through employment creation in rural areas. NREGA is implemented by the Ministry of Rural Development to create direct employment opportunities for wage workers through public works, especially during the lean seasons. Assuming NREGA targets this group (lean seasoned workers) of unemployed workers, the possibility of an alternative source of income and wage employment programme pushed the demand of the labour given the supply of labour and this creates an upward pressure on wage which was stuck at a very low level that would hardly help them to meet their basic needs. The Act aims at enhancing livelihood security of households in rural areas of the country by providing at least one hundred days of guaranteed wage employment in a financial year to every household whose adult members volunteer to do unskilled manual work. The programme provides income transfer to poor households during critical times and therefore enables consumption smoothing specially during slack agricultural seasons or years. In countries with high unemployment rates, transfer benefits from workfare programme can prevent poverty from worsening, especially during lean seasons. The act is being implemented to improve of condition of the poor. NREGA provides the option of an alternative source of employment and this helps in the reduction of the size of labour force in agriculture.

The Act came into force on February 2, 2006 and was implemented in a phased manner. In Phase I, it was introduced in 200 of the most backward districts of the country. It was implemented in an additional 130 districts in Phase II, 2007-2008. As per the initial target, NREGA was to be extended to all the districts of the country within the span of five years. However, in order to bring the whole nation under its safety net and

keeping in view of its rising demand, the Scheme was extended to the remaining 274 rural districts of India from April 1, 2008 in Phase III.

In the presence of labour market imperfections, an employment guarantee can improve both efficiency and equity. It will be noteworthy to look at the trend of the wages stipulated under NREGA in relation to the AW. An in-depth analysis of AW after the implementation of NREGA will be covered in this study. Further, the study will examine the variation in the wages fixed under NREGA across the states in India. The disparity between NGEGA wages and AW across states can be observed through the ***Minimum Wage Rate*** (MWR). Besides, the existence of ***Regional and Gender disparity*** is also confirmed from various studies. In general, female wages are found to be very low as compared to their male counterpart. However, wages in the NREGA have been set at the same level, both for the male and the female would encourage female to raise their bargaining power. The study will analyse whether the emphasis of equal wages under NREGA helps in reducing gender disparity between male and female AW.

It is in this context that our study aims to examine the trends of the economic conditions of the rural labour particularly the AL with special reference to the NREGA period. We begin with the brief survey of the literature dealing with the different aspects of economic conditions of ALs. This is followed by a discussion of the objectives, methodology and data sources of the study.

1.2 *Survey of Literature*

The problems of AL in India have attracted the attention of scholars for a long time. Researchers have been looking into various aspects of the economic conditions of the rural labour particularly AL, e.g., trends in the real wages, employment days, consumption pattern, poverty level etc. we have classified these studies under three sub headings for the purpose of discussion, viz. studies dealing with trends in the agriculture wages, studies dealing with the trend in the NREGA wage and employment and studies dealing with gender disparity and that of regional disparity.

1.2.1 *Agricultural Wages in India Since Independence*

AW is identified as a critical indicator of economic well being of rural labour and hence their trends and patterns are always concerned of the researcher. The general study of the well-being of AL depends upon the overall momentum of AW given the person-days of employment. There are several studies in the past that examined the trends in wages right from 1891.

K.K.Ghose (1969) was the first scholar identifying agricultural wages as an important indicator to be studied. The trends in wages in India have been studied with the help of published data on wages and prices published by the Farm Management Survey. More systematic effort to collect data of agricultural wages started with the enactment of the Minimum Wage Act of 1948, when it was decided by the Ministry of labour and Employment in consultation with the Planning Commission to construct Consumer Price Index (CPI) for Agricultural Labourers.

In fact, the attempt of investigating the trend and factors affecting the determinants of AWs started by P.K.Bardhan (1970). In his study, he studied the impact of Green Revolution on real wages, the interest on such is still alive as more factors affecting AW has been investigated by scholars thereafter.

Krishnaji (1971) and A.V. Jose (1974) used Agricultural Wages in India (AWI) data to make inter-state comparisons and concluded that Agricultural wages (AW) were poorly adjusted to and lacked behind the rise in the cost of living. Moreover, there were considerable regional disparities, which were further accentuated in the liberalization era.

Jose (1978) argued that real earnings by themselves did not reveal the whole picture and were dependent on wage rates and on the quantum of employment per year available per worker along with the prices of wage goods consumed. In 1988, Jose undertook another study with a view to capture trends in the AW and assessed the magnitude of regional and gender disparities in real AW. His study revealed that the size

and proportion of rural population was dependent on wage employment which was continuously increasing in all states of the country. According to him, real wage rates showed a rising trend from 1974-75 to the mid eighties. The increase was higher in case of female workers, thereby narrowing down gender disparities. Another important conclusion of the study was that there is a strong linkage between the wage rate and the absolute level of product per worker.

Acharya (1989) using the AWI data for the period 1970-85 concluded that the real wages are higher in Haryana, Punjab, Himachal Pradesh (HP) Western Uttar Pradesh (UP), while it is lower in Karnataka, Maharashtra and coastal Tamil Nadu (TN). He analysed the causes for the observed variation. He found that the probable reasons are poor monsoon, inflationary spiral created by oil affecting the AW in all the states.

During eighties, scholars were mainly concerned with the trend in the AWs on and after Green Revolution. The source for AW data to be undertaken was also an important debatable issue. However, after nineties, the study was mainly based on analyzing the affects of liberalization on AWs trend rate. The impact of liberalization on the overall pattern and trend on AWs has been dominated till the recent periods. Various studies come out with different conclusion while analyzing trend and impact of economic reform on AWs.

Parthasarthy (1996) had the impression of worsening real wages for the period preceding 1985. He showed that deceleration of the real wage gets much more momentum during the reform period. He suggested that wage rate could be raised only by increasing productivity and diversification of non-agricultural occupations. He also found that discrimination between male and female wages persisted in almost all states of India.

Dash (1996) analysed the data on minimum wages of AL and made an attempt to see the extent of Minimum Wages Act, 1948 implementation. He studied at all India level and concluded that real wage declined in 1992-93 but subsequently increased over the period for the country as a whole. The comparative study between the minimum wages

fixed under the State legislative with the prevailing market wage rate showed that the majority of states suffered from lowered market wage rate which was even lowered than the Minimum wage fixed under the Minimum Wage Act.

Bhalla (1997) and Sen (1994) revealed that the tendency of wage to rise in the eighties gets reversed during the nineties. An important observation made by Bhalla (1997) was that real wages were inversely related with poverty and directly related to availability of non-farm employment.

Jeemol Unni (1997) too arrived at the conclusion that the tendency of the real wage to increase, observed during the seventies to mid-eighties could not be sustained during the nineties. She also found that the real wage in agriculture remain stagnant, in the non-agriculture sector. It has shown a tendency to decline during the nineties, thereby narrowing down the wage gap between the two sectors

Haque (1998) analyzed a study of regional trends, patterns and determinants of wages of ALs. Based on the analysis of available state wise, region wise and districts wise data, he showed that the real wages during the reform periods fell in many states. He noted that the growing casualization of agriculture force leads to further lowering of the wages.

However, these trends of decelerations in the wage rates of the ALs were refuted by many scholars. Various studies come out with completely opposite conclusion.

Sundaram (2001) compared a gender-wise estimates of average daily wage earnings of adult (15-54) casual wage laboueres in rural India for 1983, 1993 and 1999-00. The study refuted the hypothesis of a slowdown in the rate of growth of average daily earnings during the 1990s' except for rural females engaged in manual work in other agriculture as well as non-agriculture work as a whole.

Sarmah (2002) did not support the trend of deceleration in real AW. H.R. Sharma (2001) for instance, using Rural Labour Enquiry (RLE) data, he concluded that the AW did not witness a decline during the nineties contrary to the findings of studies based on the AWI data.

Sharma (2005) studied the wages and employment of AL in rural India. The author used RLE as his data source for analyzing the trend growth in AW as Agricultural Wages in India (AWI) has various limitation and loopholes in its methodology. He found that daily wage earnings of adult male and female agricultural labour increased continuously in all states. However, he also observed wages to decline by varying degrees between 1977-78 and 1983. The study further bring out the declining real wage earnings differentials and supported the hypothesis that per worker agricultural product affects the real wage earning favourably.

Himanshu (2003) reviewed various data sources available for the study of AW in India from the methodological point of view. He expressed serious apprehension about the differences in the trend and magnitude of wages that different data sources give. He concluded that differences in the trend arise owing due to the different method and process in data collected from different sources. Hence, one has to understand the important limitations and essence before using the data and concluding any remark.

Srivastava and Singh (2005) explored the rate of growth of real wages corresponding to pre and post economic reform period. They used the state level data over the entire time from two main sources, viz., AWI and RLE. Both the sources indicate that the growth rate of real agricultural wages declined in the post reform period. The authors too have a pooled analysis of the AWI across 14 major states for 20 years and found that growth in the wages is influenced by agricultural growth and diversification of rural workforce. The paper showed that the diversification of the workforce away from agriculture and thus non-farm agricultural activities had the responsiveness of wages that have grown in the post-reform period.

Himanshu (2005) studied the different sources, trends and comparability of wages in Rural India. In this paper, he studied the different sources for the AW and also showed the trend in the AW through different sources and tried to make a comparable analysis among them. He deals with the reliability and limitation of each source thoroughly. However, he confirmed the decelerating growth rate in AW over the years, particularly after liberalization.

Chavan and Bedamatta (2006) examined the trend in AW in India from 1964-65 to 1999-00 using the data from AWI and RLE. Their study undertook the account of the limitation of AWI data and showed that there was a slowdown of the growth rate of real earnings of AL across all states between 1983 and 1987-88. Again, they showed that there was a rising trend in real wages across districts in the 1990s. Besides, they observed the widening gap between male and female wage rate over the years. The paper also analysed the difference between minimum wage and actual wage received by the male and female AL separately. It was observed that male wages rate exceeded from the minimum wage rate whereas the female wages were below the minimum in most of the states.

Srivastava and Singh (2006) examined the rural wages during the 1990s in India. Their study focused on the conflicting results regarding the trend in AW. In this paper they re-estimated the rural wage rates from the NSS Rounds 1983, 1993-94 and 1999-00 for 15 major states in India. They showed that there was no decline in the growth rates of wages at the all-India level. The paper analysed that agricultural productivity, rural diversification, investment per hectare in agriculture were the factors for the AW being too low in 1999-2000.

Thus, the debate on the trends in the real wages remains inconclusive. The trend in AW is very much dependent upon the source one used for the analysis purpose (Himanshu, 2003). AWI data showed a mixed trend with fall and then rise in AW over the last two decades. While NSSO data did not reveal such decline in the real wages.

Hence, our study undertakes both these sources and studies the trend in the most recent period starting from the liberalization era.

1.2.2 *NREGA and Rural Labour Market in India*

AW depends on several variables like labour productivity, availability of non-farm work, diversification in agricultural workforce as well as cropping pattern. Scholars (Srivastava, 2005; Sasank, 2002; Parthasarthy, 1996) identified non-agricultural employment as an important factor determining AW. Availability of non-agriculture employment and Government policies regard as the major driver in pulling out excess AL from the agriculture by providing non-agriculture manual work, thus reduces the number of disguised labour by shifting from the less productive activities to more productive activities. Employment Guarantee Programmes are the best example of Government intervention in rural labour market. National Rural employment Guarantee Act (NREGA) is one such programme. It is affecting the rural labour market in terms of employment, wage earning, spending etc. By providing guaranteed employment, it raises the bargaining power of the most deprived class in the rural labour market.

Parthasarthy (1996) emphasized on non-agricultural employment to have an effective impact on the growth of the rural economy. Additional employment generated in the non-agricultural sector reduces the excess pressure on the agriculture for employment, thus generating equitable effects on both the sectors. Bhalla (1997) realized that a part of the significant decline in the rural poverty was related to the opening up of opportunities for non-farm works. She found that real wage rates in agriculture was inversely related to poverty and directly related to the availability of non-farm employment. It is established in her paper that rise in the non-agricultural employment reduced the incidence of rural poverty. Unni (1997) too emphasized on the diversification of non-farm work as an indicator while determining the intensity of the employment availability of employment in agriculture.

Haque (1998) also identified non-farm work as an important determinant of AW. He showed that higher proportion of non-farm workers in a region would increase the wage rates of the ALs. This is because the higher wage rates in the non-agriculture works would induce the migration of ALs, thereby causing shortage of labour in agriculture and thus increase in the wage rates in agriculture. Sharma (2001), Sarmah (2002) and Srivastava (2005) too considered non-farm workers as an indicator to determine AW in rural India.

The empirical studies on wage determination in Indian agriculture have generally addressed the issue by identifying the variables that approximately or closely relate to the prevailing demand and supply conditions in the rural labour market. The key variables conditioning the rural labour market, and thus the wage rate, have usually been identified as those related to the relative sizes of the agriculture and non-agricultural labour force. The proportion of agricultural labour in the total labour force is taken as an important supply side variable and that is likely to exert an upward pressure on agricultural wages. Several studies have confirmed that occupational diversification has a strong independent influence on AWs. NREGA, being such a non-agricultural work is identified to have a widespread impact on the AW rates.

Saha (2007) saw NREGA as an inauguration of new chapter in rural governance. According to him, it has the potential to not only transform livelihood of the rural poor, but also herald a new revolution in rural governance. Patel (2006) looked at NREGA in the prospect of Employment Guarantee Scheme (EGS) in Maharashtra and argued that if NREGA be a party programme, it can have the same potential of creating radical changes as EGS had in Maharashtra in the seventies and eighties.

Basu, Chau and Kanbur (2006) found that in the presence of rural labour market imperfection, NREGA improve both efficiency and equity. They pointed out that the best part of NREGA is the unemployment benefit offered and it too introduced contestability into the labour market. Such that its overall affect spread more widely to the other segments of the rural economy.

Mehrotra (2008) examined the performance of NREGA and provided a case study on the progressive implementation of NREGA in certain areas. He confirmed the better performance of NREGA in terms of employment providing as well as announced that the NREGA work put pressure on the upward momentum of other non-NREGA works particularly the agriculture activities. The insurance of getting the statutory Minimum wages contribute in raising agricultural productivity. He examined the state-wise performance of NREGA. Joshi (2007) observed that NREGA was better implemented in the states that have history of successful implementation of public work programmes like Rajasthan and Maharashtra.

Karan and Salvaraj (2008) looked at the structure and trend of wages in the labour market in the last two decades, 1990s to 2000s'. It discussed the trend of real earnings, along with comparative study of the pre and post liberalization scenario. This paper showed a fall in both regular and casual wages with increasing regional differential in the post liberalization period. The paper also confirmed that the poor implementation of Minimum Wages Act and argued that low level of wages and the increasing wage differential across different segments of the labour market had resulted for the widespread of poverty.

Sharma (2009) analysed NREGA data for 2007-08 and 2008-09 and pointed out significant changes that occurred in the rural economy as a whole. He observed that supply of employment exceeded demand in a majority of districts in many states, whereas in many other states the supply lacked its demand. Also, the range of excess demand was wider in 2008-09. Thus, there was a relative deterioration in the performance of NGERA. Moreover, by setting wage rate 'above market' and 'above productivity' in certain areas distort labour market by creating incentives to move away from Non-NREGA work to NREGA work.

Koohi-Kamali (2010) examined the critical factors of designing a successful public work programme, paying particular attention of setting up the programme wage well below the market rate in order to overcome market distortion. Accordingly,

programme wage should set below the market rate, to attrack the poor only. According to Nayyar (2002) public work programme is generally acting as an unemployment assurance and helps in poverty eradication. It supports that creation of productive employment in the growth process for poverty alleviation. Datta and Ravallion (1994) evaluated public programme at the state level in the two villages of Maharashtra indicating that the projects reduce poverty significantly.

Hirway (2009) regarded NREGA as a Big-push for the Indian rural economy. She explained the emergence of NREGA as the most successful source to raise the rate of growth of sustainability of employment. In the paper, it is argued that public works are not only seen as opportunity to eradicate poverty but to empower the poor and promote the pro-poor growth of the Indian economy.

NCAER Report (2009) evaluates the performance of NREGA. It put together the implementation, achievements and problems covering all type of data (both official and field survey and made an all India as well as state level analysis on employment, distribution of the programme and cost of generating employment. Further, it suggests efficiency and importance for the better implementation of the programme.

1.2.3 *Gender and Regional Disparities in Rural Wages*

Most of the studies that were undertaken in the 1970s largely focused on the movements of wage rates of male workers only, the reason being that the female wage data were not available. But the later studies have tried to look into the female wage rates also. Jose (1988) found that the female wage rates were relatively lower as compared to the male workers. He also observed that the gender differences in wages remained same overtime. On the other hand, Unni (1988), found that the female wages rose at a faster than that of the male. But considerable gender gaps still persist. Various studies confirmed the presence of this gender disparity in wages, however, some recent studies assured a narrowing down of the wage disparity.

Acharya (1989) analysed the interstate disparities in male and female wages. He has found that the coefficient of variation for female wages across the states were higher than that of male. Krishna Raj and Shah (2004) provided evidence on differences in earning between male and female workers and concluded that though the gender disparities in earnings were declining, the trend in the overall wage rate got reversed in the 1990s and there was an increasing difference between the two.

Ghatak (2005) showed the existence of both regional and gender disparity in agricultural wages by using Coefficient of Variation as well as Bourguignon L-statistic. The study confirms that West Bengal (WB) and Gujarat had performed better in providing equal wages both to male and female. However, Kerala, in the recent years showed rising disparity. He also observed that the gender gap persist in casual wages from the periods 1980s.

Khera and Nandini (2009) studied the perception of NREGA and its impact on women workers by conducting a primary survey. As NREGA has 33% reservation for female workers, the impact of women inclusion into the economy has been studied here. The two years of NREGA implementation and difference in the status of rural women succinctly revealed from the survey. Pankaj (2010) has also done a case study of four states in India and its effect of NREGA on women workers. Though he admits that the merits of NREGA are not exclusively for women, but he also confirmed that such facilities benefitted the female workers in a greater extend. In many states the participation rate of female workers in NREGA recorded well above the prescribe rate of 33%.

Chandrasekhar and Ghosh (2011) showed evidences from NSSO 64$^{th\ Round}$ Report that NREGA have positive effects on women workers in rural labour markets. It has pushed up real wages thus reducing gender gaps and open unemployment rates of women to decline. The paper also made it clear that NREGA has made a difference in terms of increasing the wage rates both for male and female casual work. Real wages in the rural

areas increased for both male and female workers, but at a faster rate for the female workers.

Nayak and Khera (2010) based on their survey report of 1060 NREGA workers in six states of North India highlighted the impact of the NREGA on the lives of women workers. In the paper, they reported to have significant benefits of NREGA on women lives. The availability of local work at the statutory minimum wage increases the participation of women. Critical gains made by the women workers—in accessing work, income, food and healthcare for themselves through NREGA. Hence, the authors suggested to derail all the problems associated with the programme for its proper implementation.

Banerjee and Saha (2010), in their survey of four states, found that working under NREGA raises the purchasing power of the poorer households. They found that both male and female wages went up after the implementation of NREGA. But the percentage increase in female wages was higher than that of the male wages. However, the paper also confirmed the persistent of gender disparity in the agricultural wages.

Though these studies analyse female wage rates, the literature does not provide a clear picture about the trend of female wages as well as the pattern of differences in earnings.

Various Studies revealed that the initiation of economic liberalization during the nineties brought significant changes in the agrarian economy of the country and the rural wage market. Indian economy witnessed a major shift in the policy regime of the employment programme with the adaption of the New Employment Guaranteed Programme by 2005. It commitments to greater liberalization and opening up of the economy had an adverse effect on the economic conditions of the rural labour particularly on the ALs. Thus, any Right-based guarantee Employment programme plays an important role in creating employment opportunity for this ALs. Several studies supported empirical studies to these apprehensions showing that although rural poverty

levels continued to decline in the nineties, real wage in rural areas decelerated as compared to the early periods. An upward movement in the real wage in the recent period has been observed; some studies confirmed the presence of inter-regional and gender disparities in real wages which was worsened during the nineties, is declined after the introduction of NREGA.

Thus, the debate on the impact of economic reforms on the condition of the rural labour is still inconclusive. Moreover, the initiation of NREGA during the recent period has played a critical role in uplifting the wage rate and thus improving the economic condition of ALs. The present study seeks to analyse the trend in the agricultural wages after the nineties, broadly corresponding to the recent periods, dividing the entire period of analysis as pre and post NREGA periods. Inter-state variation and gender disparity prevailing in the labour market have also been studied.

1.3 *Research Questions*

This study tries to analyse the hypothesis of trend in agricultural wages after the liberalization and more precisely after the onset of Guaranteed Employment programme announce by the Government---National Rural Employment Guarantee Act. Earlier studies gave conflicting results as some findings concluded that agriculture wages declined after the nineties however others found an accelerating. After the implementation of NREGA, ALs get some alternatives to work for. This works as beneficiary, in terms of alternative job as well as better payoff. Further, an attempt is made to analyse the hypothesis of reducing gender disparity, as claimed in the recent studies. Various literatures also confirm the presence of Inter-state variations across the state, hence a specific inter-state study is conducted here. Depending upon our objectives, we make our research hypothesis,

Hence, this research analysis focuses on the following research questions:

1. What is the trend and pattern of AWs at the regional as well as at the state level?

2. How successful NREGA has been in alleviating poverty and generating employment in rural areas?

3. Is there any implementation discrepancy and/or coverage variation of NREGA across the states?

4. In what ways it ensures greater non-farm employment diversification?

5. What is the impact of NREGA on rural economy, more particularly on agricultural wage rates?

6. Does the assured guaranteed employment programme creates any upward pressure on agricultural wages?

7. Is there any specific affect on the female real wages, as the programme assures equal payment both for the male and female? How far the programme is effective in reducing gender disparity in wage earnings prevailing in the rural areas?

1.4 *Objective of the study*

The main objective of this study is to examine the changes in the economic well being of the AL after the economic reform and more recently after the pursuing of guaranteed employment programme by the public policy of NREGA. More specifically the proposed study seeks to study the following objectives:

1. To analyze the trends in real wages of agriculture at the state as well as the region level,

2. To examine the implementation of NREGA across states,

3. To analyse the implementation of Minimum Wage Act (MWA) and NREGA wage set up under the MWA,

4. To examine the impact of NREGA wages on AWs,

5. To analyze the trend, extend and nature of NREGA implementation on gender disparities across the states as well as the inter-state variations.

1.5 *Research Hypothesis*

To address the following objectives, we undertake the following null hypotheses to analyse and determine the core issues of the study. Based on the perception the null hypothesis are framed as follows:

1. There is no association between agricultural wages and NREGA.
2. The coverage and employment generated by NREGA has no positive impact on the AWs.
3. There is no improvement in regional variation of the wages after NREGA.
4. Gender discrimination does not get affect owing to the equal payment norm under NREGA

1.6 *Scope and Methodology*

Apart from analyzing trends in wages/earnings at state level, we have also examined the trend at regional level. For the state level analysis, we collected Nominal wage data from AWI from nineties onward. In order to convert the nominal wages into Real wages, we use CPI-AL index collected from Indian Labour Journal as deflator through the following:

Real Wage = Nominal wages / Deflator (CPI-AL index).

For analyzing the growth trend, we calculated Semi-log linear Model of the following form:

$$\text{Log } Y = a + b\,t + u,$$

where Y = Real wages (for Male), t= time period (here from 1990s' to 2009) and u = Error term.

We used log of the income (wages) to standardize the fluctuation in wages across the states and the linear time to get the growth trend in the wages.
To minimize the seasonal fluctuation and time variation, we use a quadratic function of the form:

$$\text{Log } Y = b_0 + b_1 t + b_2 t^2$$

The positive sign of b_2 indicates an accelerating trend, while a negative sign indicates decelerating trend. Also three-year Moving Average Curves for different states are drawn to get a clear picture. Quadratic function and 3-year Moving Average generally minimizes the presence of any seasonal and cyclical fluctuation.

Regional growth is captured by calculating Compound Annual Growth Rate (CAGR). It dampens the effect of volatility of periodic returns. It is calculated in the following way:

$$\text{CAGR} = (\text{Ending Value}/\text{ Beginning Value})^{(1/\text{number of years})} - 1$$

CAGR is calculated by taking the nth root of the total percentage growth rate where n is the number of years in the period being considered.

The trend in wages shows a structural break after NREGA. For studying the impact of NREGA on the agricultural wages, we adopt a model of structural break, where entire study period is divided into two sub-periods; pre (2000-2005) and post (2005-06 to 2009-10) NREGA periods. A Dummy –variable model is used for the study of structural change. Chow test, too is recommended for the same purpose, however, we use Dummy variable because of its superiority over Chow-test. The chow test does not explicity tell

us which coefficient, intercept or slope is different, either (time or NREGA effect) are different in the two periods. That is, one can obtain a significant Chow test because the slpoe only is different or the intercept or both are different. In the other words, we cannot tell, via the Chow test, which one of the four possibilities exists. In this respect, the dummy variable approach has a distinct advantage. To incorporate a qualitative factor such as NREGA a dummy variable model is used to get a better result where it can be said that whether the difference occurred due to the slope or intercept change or for the both change.

Analyzing trend in the wage rates, inter-state variation across states have been examined. To understand the state-wise performance of the wage, we ranked the states according to their growth pattern over the period. Ranking shows an indication whether the wage levels in a particular state have grown considerably vis-a-via other states or not. However, this indicator provides an absolute value only, for extend and magnitude of the temporal variation, we calculated the Coefficient of Variance (CV) across states. CV is a relative measure for comparing the dispersion between two different sets of measurement. Here, however, we have only two different time periods, so the CV calculated is for two different periods only.

CV = (Standard Deviation / Mean) *100.

Wage discrimination between male and female workers indicates an open gender disparity. To observe the disparity, we calculated the CAGR for female and male separately. Further, to compare the wage rates between male and female, we take the ratio of female to male wage. The Ratio clearly indicates the differences prevailing among the two wage rates. However, Gini-Coefficient measures the inequality by means of a ratio analysis. It is possible to measure inequality independent of absolute value. It measures whether inequality between the male and female wages increases or decreases. Gini- coefficient (G) is worked out by using the following formula:

$$G = 1/100 * 100\ [\sum X_i Y_{i+1}] - [\sum X_i + Y_i]$$

where X= male wage rates and Y= female wage rates.

1.7 *Data Sources*

There are five major data sources require for the analysis of this work. Two different major sources have been used for calculation of trend and pattern of agriculture wages. Besides, various official website data have been used for the study.

a) Agricultural wages in India (AWI) published annually by Directorate of Economics and Statistics, Ministry of Food and Agriculture, Government Of India;

b) Indian Labour Journal for various years;

c) Employment and Unemployment Survey (EUS) of National Sample Survey Organisation (NSSO), Government of India.

d) Census Reports for 1991 and 2001, Central Statistical Organisation, Government of India.

e) www.nrega.nic.in.

We may briefly examine the limitations of these data sources. AWI is the only published source available for researchers that provide a comprehensive time series data set on AW for major states in India. Though the data has been collected since 1950, no effort has been made to introduce conceptual clarity in the definition of either AL or the definition of wages (Himanshu, 2003). Besides, the definitional problem, data collection procedure too is very unscientific and lack in statistical back-up. However, Rao (1972) concluded that AWI data can safely be used as a proxy for time series and cross sectional analysis. Similar confidence was confirmed by Jose (1976, 1988) and later on Acharya (11989), who reports similar upward bias in AWI but the author concluded that the biasness is consistent over the period and across the states. They may be used for studying temporal and spatial characteristics of wages. Rao concludes that despite some systematic errors the AWI data may still be found to be useful in research investigations, since the upward bias in data is uniform over time and across the states. Though there has been a hesitation on the part of some researchers regarding the use of AWI data, it

has been used to analyze trends in wages by prominent economists such as Jose (1988), Acharya (1989), Sasank (2002) and many others. Hence, to study an overall trend of AWs, we use AWI as one of our sources. Annual average daily wages data of male (ploughman or field labour) for the year 1990 to 2010 has been taken from AWI. Despite the limitations, we have used AWI as a prime source of our analysis because it provides the most updated data on wages. Other sources such as Rural Labour Enquiry, NSS provide data only for particular years and locations.

The NSS Employment and Unemployment Surveys give information regarding wages and earnings, employment and unemployment among different social groups, wage for non-agricultural activities. This source is regarded as more scientific and statistically more authentic. The data collection is done by professionals, having statistic background. The NSSO data is more reliable and recently used by almost every economist (Himanshu, Srivastava, Sundaram and many others) to analysis the trend of AWs. It provides wages for the casual labourers both according to sex and occupation. Non-agricultural wages data are also available. Due to its authenticity, we also use this source for our study on AWs. We have collected the unit level data on agricultural as well as non-agricultural wages for the casual labourers both for the male and female from this source from the 50^{th} to 64^{th} Rounds.

To get the real wages, Labour Bureau's published Consumer Price Index for Agricultural Labour (CPI-AL) indices in the Indian Labour Journals is generally used as deflator by the researchers. State Statistical Bureaus also collected data on rural wages and consumer price index, but are suitable for inter-state comparison. Hence for a state-level real wages, Indian Labour Journal, CPI-AL indices are sufficient. Thus, we use CPI-AL indices from Indian Labour Journal to calculate real wages.

NREGA's official website by the Ministry of Rural Development provides all the data regarding the programme. Hence, every detail required for the NREGA study has been taken from their official website.

Census Report published by the Central Statistic Organization has been used to get the number of the ALs residing across states.

1.8 *Chapter Scheme*

The present study has been divided into five chapters. The first chapter gives the introduction of the study. It includes the literature survey along with the objectives of the study. The different data sources used and the methods applied while dealing with the research hypotheses is also incorporated in the first chapter. In the second chapter, the trend and pattern of agriculture as well as non-agricultural wages has been study. The trend and pattern of agricultural wages both at the regional and state level using NSS and AWI as two different sources of data has been analyzed. In the third chapter we attempt to deal with the impact of the public work programme---NREGA on the trend of the agricultural wages. The chapter begins with the evolution of NREGA and the impact of it on the rural labour market. It also emphasized on the magnitude and extent of NREGA impacting on agriculture and other rural economy. Inter-state variation and gender disparity has been analyzed in the fourth chapter. In the final chapter, we shall summaries and conclude the entire study.

Chapter 2

Trends in Agricultural and Non-Agricultural Wages

2.1 *Introduction*

In this chapter we have analysed trends in the Agriculture Wages (AW) from 1990-91 to 2009-10. The main issues analysed here are related to trends in growth rates of AWs. This study presents an analysis of trends and pattern of AW at two different levels of aggregation for the same periods. At the aggregate level, state specific AW have been analysed while at the disaggregate level, the unit of analysis is at National Sample Survey (NSS) regions. The 'NSS region' is essentially an intermediate unit between state and the districts, defined primarily on the basis of the different NSS regions classified on the basis of agro-climatic conditions. This study considers fifty seven regions of sixteen major states, because Consumer Price Index for Agricultural Labourers (CPI-AL) is not available for the small states[4].

The state-level analysis is based on an annual series of weighted real AWs constructed from the data published by the Ministry of Agriculture's annual, *Agricultural Wages in India* (AWI) Reports. Here, the trend and pattern of AW is examined from AWI by considering into account the problem associated with the existing database on AWI. The specific issues addressed here are: constructing weighted state level real wage series, estimating and analyzing trends in the constructed wage from the AWI published by the Ministry of Agriculture. For the disaggregate level, we use unit level wage data from Employment and Unemployment Survey (EUS) of NSS[5] have been taken for various rounds from 50th to 64th. We then also examined the trend in the non-agriculture

[4] Indian Labour Journal provides CPI-AL index only for the major states in India, hence the study is confined to the sixteen major states of India.

[5] The unit level data for the rounds 50th, 55th and 61st have taken from Richa Singh and 64th round data is extracted. Himanshu, CSRD, provides the extracted data for the wages of 64th Round.

wages to relate the variation in the trend of AW with the trend in the non-agriculture wages in the rural area.

This chapter is divided into four sub-sections. Section 2.1 describes the different methods used in the literature for analyzing the trend and details of the method used here for getting the trend and pattern of the AW for the said years. Section 2.2 gives the vivid picture of the trend of AW at the state level from the AWI over the years. Section 2.3 analyses the wages at the NSS region level where the 16 major states of India are divided into fifty-seven regions according to their agro-climatic condition and wage trend is analysed for the given regions by using Compound Annual growth Rate (CAGR). Section 2.4 gives the trend in non-agricultural wages at different regions of India.

2.2 *Methodology*

Different studies have used different methodologies and source for analyzing the AW since there are five different sources[6] which provide AW data though different in their collection procedure and orientation. Since sixty various economists have used various methodologies for getting the trend. Table 2.1 gives the details on the methods used by different economists over the period for analyzing the AW in India.

Here, the trend of the AW is determined by the method and sources followed by Srivastava and Singh (2006) to get the region-wise (NSS regions) trend in the AW for the time period 1993-94 to 2007-08, all these periods of analysis are quinquiennal years of NSS, EUS Reports except 2007-08, though the sample size is large enough to make a comparative study[7]. Also the state-wise trend is analyzed by the method followed by Jose (1988) from AWI source.

[6] For the details study of the different sources, read Himanshu, 2005, Indian Journal of Labour Economics.
[7] A sample size of 64th round comprises 1, 25,578 HHs, covering a total of 5, 72, 254 persons: 79,091 HHs in rural areas and 46,487 HHs in urban areas.

Table 2.1: Studies of AWI-Details on methods of Analysis

Study	Study Area	Data source	Operation on which wage was calculated	Calculation of yearly average wage rate	Calculation of Region/state average wage rate	Use of Deflator
Nath &Joshi (1966)	Bombay, Madras Punjab, WB, UP (1955-57)	FMS* Reports	Simple avg. wage rate	na	na	Cereal prices in the nearest mkt.
Krishnaji (1971)	India-state-wise	AWI	Field labour	Wage for peak season	Weighted avg. of district level	CPI-AL
Jose (1974, 1988)	India-state-wise	AWI	Do	Simple avg. of monthly wages	do	Do
Acharya (1989)	State-wise; NSS-region wise	AWI and unpublished data from state Bureaus	Do	do	Weighted avg. of district level wage, weight is the mean population of male and female in each district	Do
Parthasarathy (1996)	India-district and centre-wise	AWI	Do	Simple monthly avg.	-	Do
Sarmah(2002)	State-wise; NSS-region wise	AWI and Eco. Survey	Field labour	do	As Acharya do	Do

Table 2.1: Studies of AWI-Details on methods of Analysis (Contd...)

Study	Study Area	Data source	Operation on which wage was calculated	Calculation of yearly average wage rate	Calculation of Region/state average wage rate	Use of Deflator
Pallavi, Rajshri (2006)	State-district wise	AWI	Field labour; ploughing for male and weeding for female	Simple the annual avg. of the monthly wage rate	District avg. wage having consistent centre.	CPI-AL and cereal prices in the mkt.
Himanshu (2005)	India-State-wise	NSS Employment and Unemployment Survey	Casual daily labour manual work in agricultural operation	Avg. daily wage rate and triennium avg.	na	CPI-AL
Srivastava and Singh (2006)	India-State-wise	NSS employment and unemployment survey	Casual daily labour manual work in agricultural operation	Avg. daily wage rate	State avg. wage rate by trimming at 1pc	do

Note: Avg. = Average; na = Information not cited in the paper; pc= per cent; CPI-AL = Consumer price index for the Agricultural laborers.

FMS* = Farm Management Survey Reports.

Source: Adapted from Pallavi upto Sarmah (2002) and 2006 onwards are updated.

2.3 *Trends in agriculture wages at the state-level from AWI*

The AWI gives a consolidated wage figure for 'field labour' for the states of Andhra Pradesh (AP), Karnataka and Maharashtra. For other states, wage rates for ploughing operation of agricultural labour (Male) is taken from the year 1990 to 2010 as AWI reports are available upto 2005. For the later years state level reports data are taken from the Ministry of Agriculture. For the state level analysis, we have computed the weighted averages with proportion of male AL in the given state to obtain a single wage rate measured in rupees per day (for the Male only). The AWI gives monthly averages of daily wage rates. The AWI published wage rates prevailing in agricultural year that is the peak season in each year covering the month of July to August. The annual wage is then given weight which is the proportion of the male agricultural labourers available in the given states, taken from the Census.

For the state level nominal wage rates are calculated as weighted averages of the relevant state level nominal wage rates, with the weights reflecting the size of Agricultural labours (AL). Precisely, the state weights are calculated in the following manner. Let the weighted wage rate is denoted by:

$W_i = (P_i + Q_i)/2$ where,

P_i= Number of AL in i^{th} state in 1991,
Q_i = Number of AL in that state in 2001.
Then the state weight is

$$\mu_i = W_i / \sum W_i \quad (i = 1 \text{ to } k) \quad \text{where } k \text{ is the number of states.}$$

Since Acharya (1989) and Sarmah (2002) used the Census data to calculate the weight figures, for maintaining continuity and comparability, the same source are used in constructing weighted wage rates for the subsequent periods. [Census (1991) and (2001) are used here for getting AL force]. Real AWs are obtained by deflating the nominal

wages by Consumer Price Index for agricultural labour (CPI-AL) collected from various issues of Indian Labour Journal.

Growth rate of real wages is estimated by fitting a simple Semi-log linear model:

$$\textbf{Log } Y = b_0 + b_1 t + u$$

Where, log Y = Natural log of real wage, b_0 = Constant, b_1 = growth rate, t = time and u=error term.

The state-level male wages from AWI shows an overall (1990 to 2010) rising trend in almost all the major states in India during the last two decades. Over the periods Bihar, Karnataka, Kerala and Rajasthan have shown a very high growth rate ranging from 11- 9.2 % during 2005 to 2010 while AP, MP, Haryana, TN, UP and HP show growth as high as 8.1 to 6.6 %. A moderate rate of growth can be seen in Gujarat, Punjab and WB. The entire periods of analysis is divided into following two different sub-periods - from **1990 to 2005** (regarded as ***pre-NREGA period***) and from **2006 to 2010** (regarded as ***post-NREGA period***).

Majority of the states show a much higher growth rate in their wage rate during the post- NREGA periods. However, states like HP, Punjab, UP, Maharashtra, TN and Gujarat show lower growth in their wages during the post NREGA periods. AP, Bihar, Rajasthan, MP have the highest growth in their wage rate. States like Assam, Karnataka and WB too have a sharp rise in the wage rate due to the onset of the NREGA. A noticeable point can be seen that where the growth rate of wage at any state is low during the post-NREGA, the value for measuring the goodness of fit (R-square value) is also very low; raising the susceptibility of the data given by the State (either data are not available or centres taken into account have some comparative problem). States like Gujarat, HP, UP and Maharashtra have R-square so low that the growth rate obtained from them can hardly be relied upon, as the explanatory variable could hardly explain the dependent variable. Table 2.2 shows the distribution of the different states according to

their growth rates in wages. The growth rate along with the R-Square value is given in the table for the two sub-periods as well as the trend in general over the two decades.

Table 2.2 State-wise Log linear Growth Rate for the Male wage from AWI:

STATES	1990-2010	1990-2005	2006-2010
AP	7.6(.74)	6.8(.78)	8.9(.96)
ASSAM	3.8(.42)	0.5(.02)	1.8(.53)
BIHAR	11.1(.87)	6.6(.77)	5.8(.92)
GUJARAT	5.3(.92)	11.5(.91)	.02(.00)
HARYANA	6.1(.64)	3.8(.53)	6.6(.94)
HP	6.1(.67)	9.3(.86)	1.3(.36)
KARNATAKA	10.3(.85)	6.2(.74)	2.7(.71)
KERALA	11.1(.65)	11.8(.96)	3.8(.80)
MP	8.4(.70)	6.1(.74)	3.4(.79)
MAHARASHTRA	3.7(.43)	3.9(.54)	1.1(.41)
ORISSA	2.6(.07)	5.9(.72)	1.7(.51)
PUNJAB	4.3(.51)	0.8(.05)	1.8 (.50)
RAJASTHAN	9.2(.90)	4.3(.59)	5.5(.91)
TN	6.6(.93)	8.2(.85)	3.9(.83)
UP	6.9(.68)	6.1(.74)	1.6(.47)
WB	4.2(.52)	3.9(.42)	5.2(.92)

Source: Computed from Appendix Table 2.1

NREGA has achieved moderate success in all over India, more specifically in two largest states—Rajasthan and AP. NREGA has brought hope for the country's most negligible section i.e. AL . It has significantly raised the prescribed wage rates given to AL, thus raising their income level. It can be seen as the endorsement on the grounds that it begins to transform the lives of the poorest section of the society. Its affect on the AW can be seen through the figures which shown the trend movement and the upward movement during the post-NREGA periods. NREGA provides an alternative option of

employment and leads to reduction in the size of labour force that primarily depends upon the agricultural sector. Hence, it has some positive impact on AWs. The impact of NREGA on agricultural wages at various states can be seen from the Table 2.3.

Table 2.3: Distribution of States According to Their Growth rates:

Growth rate	1990-2010	1990-2005	2006-2010
Very High Growth (11-9.8%)	Rajasthan (9.6%), Kerala (11.8%), Bihar (11.2%) Karnataka (10.3%)	Gujarat (11.5%), HP (9.3%), Kerala (9.8%), TN (8.9%)	AP (8.9%), Bihar (5.8%), Rajasthan (5.5%), Haryana (6.6%), TN (3.9%)
High Growth rate (8.4-6.4%)	AP (7.6%), UP (6.8%) TN (6.9%), MP (8.4%), HP (6.6%),	AP (6.8%), Bihar (6.6%), UP (6.1%), Karnataka (6.2%), MP (6.1%)	Karnataka (2.7%), Kerala (3.5%), MP (3.4%), WB (5.2%)
Moderate growth (6-3.7%)	WB (4.2%), Punjab (4.3%), Maharashtra (3.7%), Haryana (6.4%),	Orissa (5.9%), WB (3%), Rajasthan (4.3%),	HP (1.4%), Assam (1.8%), Orissa (1.7%), Punjab (1.7%),UP (1.6%)
Low Growth rate	Orissa (2.6%)	Assam(0.5%), Haryana(3.8%), Maharashtra (3.9%)	Gujarat(.02%), Maharashtra (1.1%)

Source: Computed from Table 2.2

To deal with seasonal fluctuations of wages, a Quadratic function has been used. To examine acceleration or deceleration in growth rates during the period under consideration a quadratic function of the following form is used:

$$\text{Log } Y = b_0 + b_1 t + b_2 t^2$$

Table 2.4 Quadratic Regression on Real Male Agricultural Wages (1990 to 2010):

States	b_0	b_1	b_2	R^2	F
AP	1.63 (81.85)	-0.011 (-2..46)	.001(5.57)	0.91	92.61
Assam	1.75(98.76)	-0.017 (-5.74)	.001(1.97)	0.88	63.77
Bihar	1.56(60.94)	0.005 (0.96)	.001(1.95)	0.89	74.2
Gujarat	1.56(78.38)	.025(5.52)	.000(-1.60)	0.92	100
Haryana	1.91(42.57)	-0.005(-.47)	.001(2.13)	0.74	24.64
HP	1.73 (32.63)	0.031(2.68)	.001 (-1.7)	0.70	19.84
Karnataka	1.41 (29.71)	0.017 (1.76)	.000(.67)	0.85	52.51
Kerala	1.81(99.79)	.039(9.49)	.000(-2.88)	0.97	100
MP	1.57(72.11)	.004(.831)	.000(1.27)	0.81	38.69
Maharashtra	1.27(5.37)	.115(2.28)	-0.006 (-2.65)	0.35	4.59
Orissa	1.52(66.95)	.003(0.60)	.000(1.62)	0.84	46.31
Punjab	1.92(63.86)	-.008(-1.14)	.000(1.49)	0.25	1.98
Rajasthan	1.66(34.72)	.018(1.84)	.000(-0.84)	0.53	9.14
TN	1.56(51.02)	.022(3.35)	.000(-2.49)	0.91	86.29
UP	1.58(38.9)	.017(1.85)	.000(-0.41)	0.77	26.73
WB	1.29(7.12)	.045(2.57)	-0.001 (-4.2)	0.52	9.62

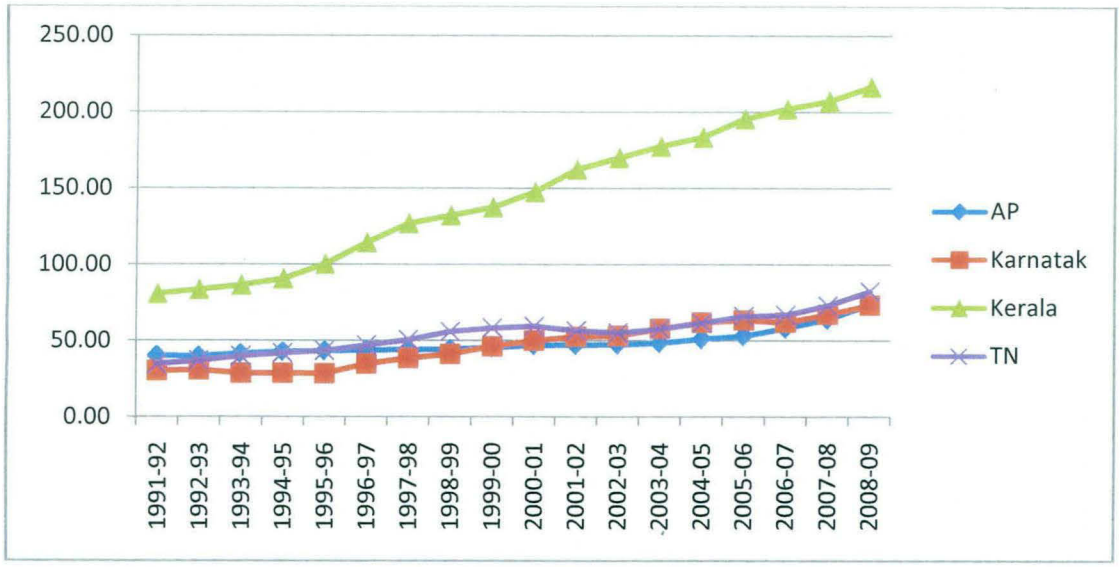
Source: Computed from A-Table 2.1. t-values are in parentheses.

The positive sign of b_2 indicates an accelerating trend in growth rate, while a negative sign indicates a deceleration trend. b_2 is negative only for WB and Maharashtra. Though the negative could not explained as the F-value explaining the variables are very

low. In other states, b_2 is positive and has significant value of R^2 showing the trend in the AW is not seasonal and hence the movement in the wage curves are not simple influence of the overall time trend but has some parametric shift effect. The parameter that makes the shift may be because of the availability of various non-agricultural works, urban migration, huge availability of construction jobs, garment mills too require cheap man-labour as well as government sponsored Employment programmes like the Right-based NREGA. Table 2.4 shows that a majority of states except Maharashtra and WB have positive b_2 coefficient indicating significant affect of the parametric effect on the AWs. Thus, through AWI data source of AW, one can claim that AWs has a positive and significant affect of a parametric shift. Seasonal fluctuation in the wage rate is eliminated with this quadratic function. Moreover, cyclical fluctuation of any kind is normalized through the Moving Average of three years. The trend of the Three year Moving Average of the Male wages through the period of 1990s' can be observed through different Figures. It has been clearly shown that the AWs movement has not only cyclical trend but has a parametric shift from 2005-06. This upward movement in almost all states from 2005-06 can be justified from the background of the NREGA as Guaranteed Employment is scheme started by the government during the given period.

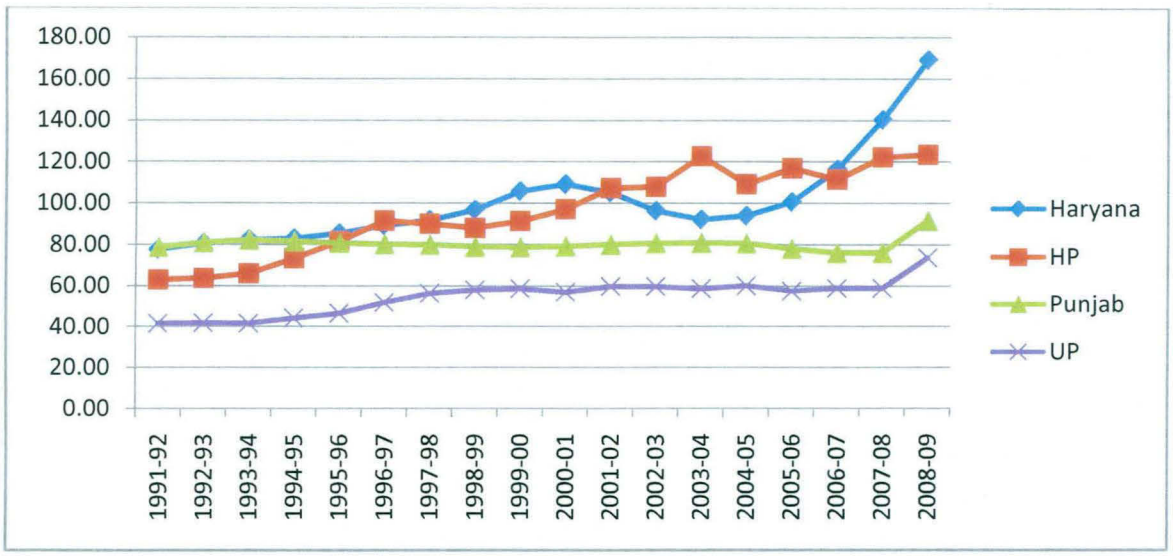
Three-year Moving average curves for the states according to different regions have been plotted in the following figures. Hence, there are four different figures for four different locations (North, south, east and West). Each figure represents a group of states according to its location specification. Figure 2.2 shows the Southern region states, where all the states show an upward trend in their wage rate. Kerala forms as an outlier enjoying the highest trend in the wage rate. An in-depth study of the curve shows that the upward trends got more prominent after 2005-06. AP has the stiffest rise after 2005-06, whereas Karnataka shows a marginal trend. TN though has flat movement over the period shows an upward trend after 2005-06.

Figure 2.2: Three-year Moving Average Curve for Southern States:



Source: Computed from the Table A.2.1

Figure 2.3: Three-year Moving Average Curve for Northern States:



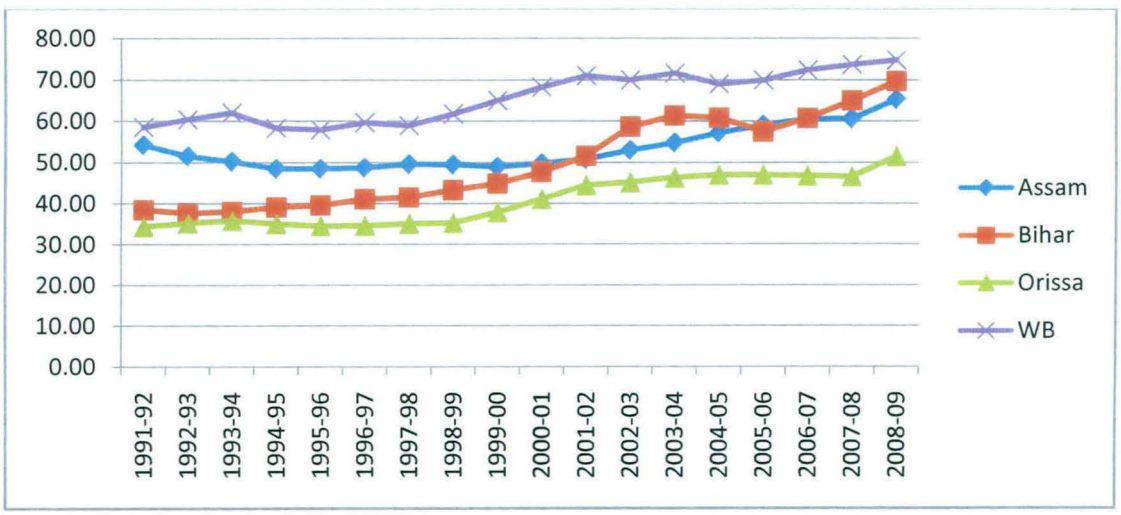
Source: Computed from the Table A.2.1

Figure 2.3 represents the Northern region states, where Haryana shows a volatile trend with a sharp rise in the trend after 2004-05. Besides Haryana, HP has shown a volatile trend. However, no such steep rise in the wage can be seen. But in the post 2006-07 periods, the upward trend in the wage rate observed. Punjab and UP have shown a

sticky trend throughout the periods. It has shown an upward trend after 2007-08. Though Punjab has witnessed a negative growth in same year and it show an improvement in 2007-08.

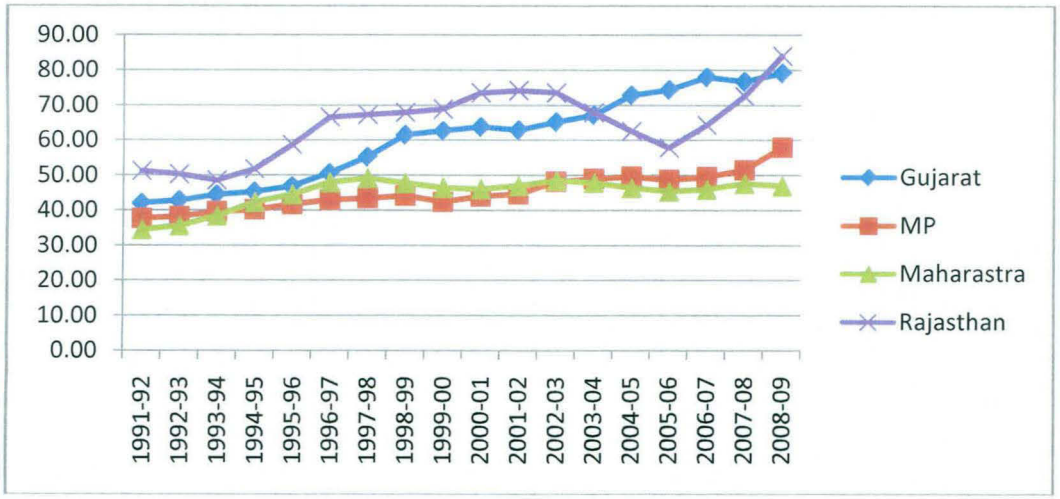
Figure 2.4 depicts the Eastern region states have been showing much volatile trend. An upward trend of the wage rate for each state having cyclical trend can be seen. Bihar has shown a rising trend in wages and then a sudden fall in 2004-05. However, it has risen after 2005-06. In Orissa, almost a stagnant growth trend is observed after 2001-02. Just after 2007-08, an upward movement for Orissa can be seen. Assam and WB have shown a stagnant to rising trend during the last decade. Each state in north India witnessed a lower wage rate. However, over the time each state catch up with the highest wage prevailing state i.e., WB. The figure indicates that the rate of growth in other states is much higher than in WB.

Figure 2.4: Three-year Moving Average Curve for Eastern States:



Source: Computed from the Table A.2.1

Figure 2.5: Three-year Moving Average Curve for Western States:



Source: Computed from the Table A.2.1

Figure 2.5 shows the wage rate in the Western region state which comprises MP, Maharashtra, Gujarat and Rajasthan. Maharashtra and MP have the lowest wage rate in India. With stagnant growth rate over the decades, an upward trend is noticed in MP after 2006-07. Rajasthan has the most fluctuating trend over the two decades, having a sharp fall since 2001; it suddenly picked up rapid growth from 2005-06 onwards. A stiff rise in the growth rate is indicated by the steep rise in the wage curve of Rajasthan. Gujarat has an overall rising trend.

At state-level analysis, we find that majority of states registered a rising trend over the last two decades. Some states like Rajasthan, AP, Bihar, Karnataka and many others registered a very high growth rate of around 9.8% to 11%. Only Maharashtra and Gujarat show a lower growth rate. Dividing the entire periods into two sub-periods—pre and post NREGA, we come out to the conclusion that majority of states saw a sharp rise in wage during post NREGA periods. However, pre-NREGA period wage rate had shown an upward trend. Rajasthan, AP, Bihar, MP, Haryana and HP have a larger affect of NREGA on their AWs during the period. Other states like Karnataka, Orissa, TN have a moderate growth after NREGA. This variation in growth rate can be thoroughly analyzed through regional level study. Hence, in the next section, we analyse an in-depth study of the trend in AWs at regional level.

2.4 *Trends in Agricultural Wages at Region-level based upon Unit level NSSO data*

In this section, we have discussed the trends in real rural earnings based on the Employment and Unemployment Survey (EUS) of NSSO. EUS provide data on average daily wage earnings of casual manual workers by dividing the earning recorded for a week for each activity by corresponding number of 100 days of employment in that activity. Earnings are reported for males and females at the NSS region and state level for the period 1993 to 2007-08. The EUS give average daily wage for casual manual labour, for different types of agricultural and non- agricultural activities, such as ploughing, sowing, weeding, harvesting, cultivation, forestry, plantation, animal husbandry and fisheries.

For the purpose of our analysis we have used the average daily wage of male and female for all the classes for agricultural labour households (ALHH) in agricultural operations. We have used the total earnings including both in cash and kind payments. The money earnings are converted into real earnings by deflating with CPIAL. Since our study concentrates on the trend in last two decades, we have calculated Compound Annual Growth rate (CAGR) between the rounds, where 1993-94 to 2000 and 2000 to 2005 regarded as pre NREGA periods and 2004-05 to 2007-08 broadly correspond to post NREGA periods.

(a) *Region-Wise Trends in Casual Manual Wages in Agriculture*

Table 2.5 presents the CAGR for casual manual wages in agriculture for 57 NSS geographical regions in 16 major states. High wages in agriculture concentrate in few regions like southern and north eastern region of Rajasthan, coastal northern and inland of TN, along with inland northern and southern regions of AP, chhattisgarh, southern central and southern western region of MP. Among the low wage regions are the regions in the states of dry areas and eastern region of Gujarat, western plains and Hills of Assam, inland western of Maharashtra, central region of WB. Overall the patterns of wage rates across regions have changed substantially. However, some regions such as

southern, north and south eastern of Rajasthan, coastal and inland northern of AP, inland northern and southern of Maharashtra also emerged as high wage regions during the period. High wages in these regions can be associated with both natural and institutional factors like irrigation, technology benefit, credit facilities and Government policy of Employment Programmes.

Wages varied across the regions within the states. Three regions of TN registered a higher growth rate of above 15% while coastal region of TN has only 4% growth rate (GR). As the southern region of Orissa has experienced negative growth rate while its northern region has as high as 7% growth rate. Regions of UP have mixed trend of high growth rate in eastern and central regions whereas the rest of regions of southern and Himalaya have not more than 1% growth rate. In WB only eastern plains has registered growth rate of 10% while all other regions have registered growth rate around 2 to 5%. Only the regions of Rajasthan, AP and TN have all their regions having growth rate above 10%.

Table 2.5 gives the compound annual growth rate (CAGR) of real casual manual labour in agricultural occupation for the period from 1993-94 to 2007-08. Considering 2004-05 as break-point representing the beginning of the NREGA, we divide the periods as pre and post NREGA as 1993/2005 and 2005/08 respectively. Comparing the pre and post NREGA period, at all India level the growth rate in the post-NREGA period is higher as compared to the pre-NREGA period. Across the NSS regions, 51 regions out of the 57 regions show a higher growth rate in the post NREGA period. At the all India level, growth rate registered at 4.93% during 2005/08 as compare to 2.10% during 1993/2005. The differentiation between pre and post NREGA period growth rate can be succinctly justified by the difference in the growth rate of the two periods. While pre-NREGA period (2000/05) registered a mere of 1.6% growth rate, the post NREGA period registered a growth of around 5%. Among the 51 regions registering high growth in post-NREGA period, inland southern region of AP, inland eastern region of Karnataka, south western of MP, north eastern of Rajasthan and coastal northern region of TN have

Table 2.5 Region wise CAGR (%) of Real Casual Manual Labour in Agricultural Occupation in Rural areas

STATES	NSS region	Male				Female			
		1994-2000	2000-05	1994-2005	2005-08	1994-2000	2000-05	1994-2005	2005-08
	Coastal	3.99	0.89	2.35	10.09	4.42	-0.26	2.31	1.87
	Inland northern	4.18	1.61	2.76	10.26	3.05	0.6	2.14	7.62
	South western	-1.12	6.6	2.13	5.48	0.95	5.35	2.08	6.82
	Inland southern	3.78	-5.34	-0.43	17.74	2.13	-6.57	-1.15	13.85
AP		**2.71**	**0.94**	**1.70**	**10.89**	**2.64**	**-0.22**	**1.35**	**7.54**
	Plain's eastern	1.35	NA	NA	NA	0.14	NA	NA	NA
	Plains western	0.17	3.96	1.72	2.09	0.19	6.63	1.72	-3.65
	Hills	NA	NA	1.22	1.05	NA	NA	1.07	0.49
Assam		**0.76**	**3.96**	**1.72**	**2.09**	**0.17**	**6.63**	**1.72**	**-3.65**
	Southern	2.12	3.33	2.45	0.24	3.56	3.52	2.55	0.65
	Northern	5.7	3.51	4.29	0.22	6.52	3.31	4.38	0.12
	Central	3.76	2.31	2.85	0.88	4.78	0.14	2.87	1.57
Bihar		**3.86**	**3.05**	**3.20**	**0.45**	**4.95**	**2.32**	**3.27**	**0.78**
	Eastern	0.98	3.02	1.73	-2.07	1.14	1.01	1.52	7.34
	Plains northern	3.43	0.03	1.71	4.66	0.09	2.84	1.53	-3.72
	Plains southern	1.82	2.4	1.91	8.97	1.78	0.91	1.65	9.99
	Dry Areas	3.01	1.03	1.94	-1.30	1.24	2.15	1.81	-1.01
	Saurashtra	4.6	-1.6	1.60	0.20	2.89	-0.32	1.46	0.06
Gujarat		**2.77**	**0.98**	**1.78**	**2.09**	**1.43**	**1.32**	**1.59**	**2.53**
	Eastern	5.47	3.87	4.34	0.11	3.23	2.37	3.84	-2.30
	Western	-0.76	-0.26	-0.50	7.80	2.16	-2.2	0.02	-5.44
Haryana		**2.36**	**1.81**	**1.92**	**3.95**	**2.70**	**0.09**	**1.93**	**-3.87**
HP		**8.2**	**0.59**	**5.04**	**9.06**	**6.1**	**-0.93**	**4.89**	**1.01**
	Inland eastern	3.67	-4.12	1.47	16.29	3.3	-6.4	1.86	8.95
	Inland southern	4.01	-1.21	3.00	8.52	5.23	-0.7	2.83	6.32
	Inland northern	5.77	0.37	1.93	11.38	5.52	-0.1	1.88	5.62
Karnataka		**4.48**	**-1.65**	**2.13**	**12.06**	**4.68**	**-2.40**	**2.19**	**6.96**
	Northern	6.46	1.99	4.03	4.10	5.38	0.18	3.63	-6.94
	Southern	6.78	0.74	3.64	9.29	4.85	0.25	3.20	-2.95
Kerala		**6.62**	**1.37**	**3.84**	**6.69**	**5.12**	**0.22**	**3.42**	**-4.94**
	Chhattisgarh	1.93	3.31	2.34	6.79	2.65	2.77	2.28	4.93
	Vindhya	0.22	0.04	0.14	4.73	1.43	0.36	0.29	5.99
	Central	-0.96	3.2	0.82	3.96	2.04	0.09	0.94	-0.95
	Malwa Plateau	0.25	-0.71	-0.17	-1.08	1.07	-1.43	-0.13	-6.83
	South central	2.1	3.23	2.39	6.80	1.22	2.74	2.05	3.92
	South western	-0.53	5.2	1.85	13.16	1.68	3.8	2.30	12.62
	Northern	0.69	4.31	2.11	0.24	0.68	5.05	2.22	0.31
MP		**0.53**	**2.65**	**1.35**	**4.94**	**1.54**	**1.91**	**1.42**	**2.86**

Table 2.5 Region wise CAGR (%) of Real Casual Manual Labour in Agricultural Occupation in Rural areas (Contd..)

		Male				Female			
STATES	NSS region	1994-2000	2000-05	1994-2005	2005-08	1994-2000	2000-05	1994-2005	2005-08
	Coastal	1.05	1.21	1.01	3.34	3.18	-2.22	0.79	0.10
	Inland western	1.72	1.45	1.48	2.66	1.66	1.65	1.60	-4.34
	Inland northern	2.54	-0.34	1.11	3.52	2.01	-0.87	0.97	-3.50
	Inland central	3.17	1.51	2.20	-0.10	5.18	-0.52	2.47	-5.09
	Inland eastern	4.41	-1.23	1.65	3.57	5.61	-2.6	1.80	-2.13
	Eastern	2.52	1.96	2.07	1.57	3.39	2.81	2.41	-4.26
Maharashtra		**2.57**	**0.76**	**1.59**	**2.43**	**3.51**	**-0.29**	**1.67**	**-3.20**
	Coastal	2.69	5.97	3.82	-1.52	4.06	5.8	3.95	-8.05
	Southern	1.71	9.69	4.81	-3.26	2.27	3.87	4.19	-5.12
	Northern	0.79	2.42	1.38	7.91	3.11	1.85	1.60	0.85
Orissa		**1.73**	**6.03**	**3.34**	**1.04**	**3.15**	**3.84**	**3.25**	**-4.11**
	Northern	0.98	1.1	0.95	0.00	0.01	4.26	1.01	-15.35
	Southern	-1.11	-0.34	-0.69	4.13	-1.05	-4.14	-0.94	0.75
Punjab		**-0.07**	**0.38**	**0.13**	**2.07**	**-0.52**	**0.06**	**0.03**	**-7.30**
	Western	3.86	2.02	2.76	5.09	4.93	0.7	2.88	6.24
	North eastern	4.56	2.08	3.13	9.27	6.24	2.5	3.31	3.84
	Southern	3	-0.33	1.36	7.82	4.95	-3.02	1.63	8.97
	South eastern	0.42	4.78	2.18	8.71	-3.16	6.73	1.88	7.14
Rajasthan		**2.96**	**2.14**	**2.36**	**7.72**	**3.24**	**1.73**	**2.42**	**6.55**
	Coastal northern	4.81	1.3	2.94	11.91	3.79	-0.65	2.74	-4.09
	Coastal	3.57	1.22	2.29	4.44	3.7	-0.39	2.21	-8.46
	Inland	5.14	0.08	2.57	8.31	3.86	-0.59	2.14	-6.51
	Southern	2.74	3.94	3.01	4.04	3.36	2.25	2.56	-6.52
TN		**4.07**	**1.64**	**2.70**	**7.17**	**3.68**	**0.16**	**2.41**	**-6.39**
	Himalaya	1.54	-0.97	0.35	0.96	4.97	-1.86	0.41	1.64
	Western	3.1	-1.08	1.08	1.41	3.32	-0.85	1.07	-10.49
	Central	1.22	2.68	1.71	4.43	3.91	5.36	2.04	2.78
	Southern	2.25	3	2.38	0.51	1.78	2.59	2.11	0.57
	Eastern	7.68	2.51	4.84	0.74	3.93	4.16	4.73	2.05
UP		**3.16**	**1.23**	**2.07**	**1.61**	**3.58**	**1.88**	**2.07**	**-0.69**
	Himalaya	-3.67	5.98	0.55	0.06	-1.27	3.32	0.52	-1.94
	Eastern plains	-1.33	-2.09	-1.87	10.33	-0.93	-1.12	-1.79	5.88
	Central plains	-2.59	-0.12	-1.36	2.54	-4.36	-0.47	-1.46	2.32
	Western plains	-2.74	-1.77	-2.11	5.32	-2.14	0.36	-1.98	2.54
WB		**-2.58**	**0.50**	**-1.20**	**4.56**	**-2.18**	**0.52**	**-1.18**	**2.20**
All India		**2.76**	**1.65**	**2.10**	**4.93**	**2.74**	**1.05**	**2.03**	**-0.23**

Source: Computed from Table A.2.1

registered as the highest growth rate at 11%. However, there are few regions during post-NREGA period which show a negative growth rate.

Among the regions, the lowest growth rate prevails in dry and eastern regions of Gujarat with a growth rate lower than – 2.06%. Coastal and southern regions of Orissa, inland central of Maharashtra and malwa plateau of MP have witnessed decline in their growth rate during the post-NREGA periods. States like AP, Karnataka and Rajasthan have experience positive and high growth rate in almost all regions. Rajasthan registered the highest growth rate with 7.72% in almost all its regions, WB has also witnessed high growth except in the Himalaya region. MP has registered a positive growth rate of 5% in overall regions except in the malwa and central regions which registered a negative growth rate. Gujarat has recorded negative growth rate in two of its regions. Western plains of Assam have shown a downward trend. However, other regions of Assam have shown a growth rate of 1.96%. Malwa plateau of MP and northern plains of Gujarat have negative trend besides a huge growth in the other regions within the states.

Among the regions dry areas of Gujarat, southern and coastal regions of Orissa have registered lower growth rate in the second period. These regions show sharpest deceleration in growth rate of manual AW. Certain regions of Orissa show a sharp fall in growth rate while certain regions of Gujarat suffered from negative growth rate. Even Punjab, Haryana and UP have experienced negative or negligible growth rate. NREGA implementation is not effective in these states. Dry areas of Gujarat, inland southern of Assam, coastal and southern regions of Orissa, malwa region of MP have showed a decline in growth rate in the post NREGA period along with marginal fall in inland central region of Maharashtra.

Gender-wise trends in female wages shows a negative trend as compared to the male wage trend. At the all India level the female wage has registered -0.23% growth rate. 22 regions out of 57 regions, registered a negative female wage growth rate during the post NREGA period. In general, female wage rate has shown a negative growth rate in more than half of the regions before the enactment of NREGA. However, the situation

is improving after the implementation of NREGA as number of regions having negative growth is coming down.

(b) ***State-wise Trends in Casual Manual Wages in Agriculture***

Table 2.6 presents the growth rate of real wage rate of real wage rate in agriculture operations across sixteen major states (real wages at 1999-00 prices are given in the Appendix Table A-2.2). The overall 2.1% growth rate for the entire period of analysis (1993/05) has been recorded. Seven states out of sixteen have recorded above an all India average growth rate. The highest growth rate has been recorded in HP followed by Orissa (3.34%), Bihar, AP, TN, Rajasthan and Kerala. A noteworthy feature is the above average growth rate in the so called BIMARU states. States with low growth rate includes Gujarat, Haryana, Maharashtra and UP. When we analyse the growth rates sub-round wise, we noticed that the period from 1993/2005 had registered a moderate growth rate. During the sub-sequent periods (2005/08) a high growth rate of 4.76% in agricultural manual wages had been registered.

Comparing the sub-periods growth rate, we observe that lower GROWTH RATE in wages occurred in three states during the last three years i.e., 2006 to 2008 (around 2.93%). At all India level, the GROWTH RATE increases from 2.1% in 1994/05 to 4.93% in 2005/08. At the state level, only 3 states out of 16 states register a lower growth during the post NREGA periods. States experiencing accelerated GROWTH RATE are AP, Karnataka, Kerala, and Rajasthan. Among the states experiencing decelerated growth are Bihar and UP while Orissa, Gujarat, Haryana, Punjab and Maharashtra show a marginal improvement.

During 1993-05, states with low initial wages, such as Bihar, MP, TN and Maharashtra experienced above an average GROWTH RATE in real wages. While states like Punjab, Haryana witnessed a moderate GROWTH RATE. A significant growth has been observed in Rajasthan, Orissa, AP, TN and HP.

Table 2.6: State-wise Growth Rate of Real (at 1999-00prices) Rural Wages in Manual Agricultural operations for Casual Labourers (15-59 yrs) by Sex 1993/2008:

	Male				Female			
STATES	**1994/00**	**2000/05**	**1994/2005**	**2005/08**	**1994/00**	**2000/05**	**1994/05**	**2005/08**
AP	2.71	0.94	1.70	10.89	2.64	-0.22	1.35	7.54
Assam	0.76	3.96	1.72	2.09	0.17	6.63	1.72	-3.65
Bihar	3.86	3.05	3.20	0.45	4.95	2.32	3.27	0.78
Gujarat	2.77	0.98	1.78	2.09	1.43	1.32	1.59	2.53
Haryana	2.36	1.81	1.92	3.95	2.70	0.09	1.93	-3.87
HP	8.2	0.59	5.04	9.06	6.1	-0.93	4.89	1.01
Karnataka	4.48	-1.65	2.13	12.06	4.68	-2.40	2.19	6.96
Kerala	6.62	1.37	3.84	6.69	5.12	0.22	3.42	-4.94
MP	0.53	2.65	1.35	4.94	1.54	1.91	1.42	2.86
Maharashtra	2.57	0.76	1.59	2.43	3.51	-0.29	1.67	-3.20
Orissa	1.73	6.03	3.34	1.04	3.15	3.84	3.25	-4.11
Punjab	-0.07	0.38	0.13	2.07	-0.52	0.06	0.03	-7.30
Rajasthan	2.96	2.14	2.36	7.72	3.24	1.73	2.42	6.55
TN	4.07	1.64	2.70	7.17	3.68	0.16	2.41	-6.39
UP	3.16	1.23	2.07	1.61	3.58	1.88	2.07	-0.69
WB	-2.58	0.50	-1.20	4.56	-2.18	0.52	-1.18	2.20
All India	2.76	1.65	2.10	4.93	2.74	1.05	2.03	-0.23

Source: Computed from the A-Table 2.2.

Gender wise analysis indicated that the female manual AW has suffered a negative growth rate at the all India level, falling from 2.03% to -0.23% during the period of analysis. This negative growth rate mainly observed in the south states and states that are advanced in agricultural. In the post-NREGA periods, the female wage rates register lower growth rate in eight out of 16 states. By and large, all these states registered a negative growth rate. Female wage rate decelerated from 2.03% in 1993/05 to -0.23% in 2005/08 indicating the poor effect of NREGA on the growth of female wage rates. The composition of the states which have positive growth rate are Rajasthan, WB, AP, MP, Gujarat, Bihar, Karnataka with the addition of HP in case of female wage rate. The deceleration in female wages is much sharper in the states of Punjab, Kerala, TN and Assam.

It is basically known that female participation in these states as workers are low. Hence when a Government sponsored job like NREGA was introduced, many of the female workers joined the workforce as they regard NREGA as 'government jobs'. This new addition of labour into the labour force increases the labour supply. Hence, overall growth of the AWs, particularly for the female labour is either low or even has negative growth rate. Again, reservation of 33% of women participation in NREGA aggravates the situation. Thus, this addition flow of new female workforce into the rural labour market exerts downward pressure on the agricultural wages leading to negative growth rate.

2.4 *Region-wise trends in Casual Manual wages in Non-Agriculture*

In this section, we have analysed the pattern and trends in non-agricultural wage for casual manual work in non-agricultural operations. Table 2.5 presents the region-wise growth rate of wages in the manual agricultural operations for the period 1993 to 2008. As we have observed in the manual agricultural operations, the high wage rates are continue to concentrate in states of AP, TN, and Karnataka which include regions like southern inland region of AP, coastal region of TN and eastern inland region of Rajasthan along with dry areas of Rajasthan, southern inland region of Assam. The gap between the wages in lower and higher wage state remains as high as 3.5 times. Wages in Kerala recorded 4.5% higher than the wages in states like Orissa and MP. However, the gap is slightly lowered in non-agricultural operations than compared to the wages for casual manual operations in agricultural occupation.

Table 2.7 gives the CAGR of real wage rate in non-agricultural occupations from 1993 to 2008. At the all India level, wage in post- NREGA period has recorded 4.76% growth rate as compared to 2.3% during 1994/2005. The overall trend growth rate lie between 2.2 to 2.7%, it is only in 2005/08 that the growth rate rises to 5%.

Growth rate for wages in manual operations in non-agriculture was comfortably placed at 4.76%, which is higher than the growth of wages in manual agricultural operations. Across the regions, as many as 20 regions have registered an above average

growth rate. Among them are the southern region of Kerala followed by inland region of TN, south western region of AP, coastal region of TN and northern coastal region of Orissa. It is remarkable that lower wage regions such as central region of MP, south eastern region of Rajasthan and northern region of Bihar have recorded a moderate average growth rate. Other regions with low growth rate include western plains of Assam and south eastern region of Rajasthan. Bihar, MP and Orissa have a number of regions featuring below an average growth rate. However, overall, majority of regions has witnessed an above average growth rate. An improvement in growth rate during the post NREGA period is observed in northern and coastal region of Orissa along with northern eastern region of Rajasthan. It is observed that within a single state some regions show a major decline while the other regions show much improvement in growth rate such as in MP, WB and Gujarat. This indicates that the patterns of change are to an extent localized and dependent on the demand and supply conditions within the region. As NREGA being implemented in the phase -mannered as well as the coverage being not so widespread, regional variation at the wage rate is a common phenomenon. Hence, region disparity in wages can be clearly seen.

Different Rounds indicates that most of the upward movements in wages occurred during the last three years (2005/08). At the all India level non-agricultural wage growth rate was robust around 2.78% for the period 1994/00. However, the growth rate declined to as low as 2.22% during the 2000/05. Also as many as 33 regions had show lower growth rate compared to the period 1994/05.On contrary there are 52 regions which recorded much higher growth rate in the year between 2005/08. This includes the eastern plains of Gujarat, all the three regions of TN, central and western plains of WB, northern region of Orissa and others. Region-wise, 48 regions for female labourers and 52 regions for male labourers registered a higher growth rate in the post NREGA. In case of the male, the decline in wage is sharp in vindhya and coastal regions of MP, eastern plains of Assam. In case of the female, the decline was sharp in the south inland of AP, coastal northern of TN, central and northern regions of UP.

Table 2.7 CRAG (%) of Real wages rate in Non-agricultural occupations from NSS (at 1999-00 prices)

		Male				Female			
STATES	NSS region	1994-2000	2000-05	1994-2005	2005-08	1994-2000	2000-05	1994-2005	2005-08
	Coastal	5.31	2.97	3.88	8.51	4.24	2.44	3.13	12.79
	Inland northern	5.75	0.91	3.22	14.33	4.17	2.35	3.06	11.98
	South western	2.51	1.91	2.05	8.62	1.33	6.41	3.30	12.55
	Inland southern	4.72	3.03	3.62	9.23	2.03	11.57	5.72	-5.49
AP		**4.57**	**2.21**	**3.19**	**10.17**	**2.94**	**5.69**	**3.80**	**7.96**
	Plain's eastern			2.56				NA	
	Plains western	-0.77	7.25	2.36	-2.58	-4.65	NA	0.03	NA
	Hills	0.23	5.48	3.03	1.64	NA	0.06	5.07	19.21
Assam		**-0.27**	**6.37**	**2.70**	**-0.47**	**-4.65**	**0.06**	**2.55**	**19.21**
	Southern	-0.07	6.09	2.15	-0.90	0.20	10.61	3.27	-7.09
	Northern	1.49	3.39	1.76	4.94	4.28	2.74	2.00	-5.49
	Central	3.62	-0.08	3.34	4.41	-1.63	6.96	-2.70	6.82
Bihar		**1.68**	**3.13**	**2.42**	**2.82**	**0.95**	**6.77**	**0.86**	**-1.92**
	Eastern	2.18	2.89	-0.28	4.39	3.34	1.42	2.86	-2.55
	Plains Northern	-3.34	3.44	1.76	13.12	0.70	6.12	2.00	12.06
	Plains Southern	3.62	-0.08	-0.63	16.27	-1.63	6.96	1.87	-10.66
	Dry Areas	1.62	-3.39	2.29	3.56	-2.55	7.85	3.12	-1.56
	Saurashtra	1.05	4.27	3.54	3.12	5.11	1.41	5.69	-5.90
Gujarat		**1.03**	**1.43**	**1.34**	**8.09**	**0.99**	**4.75**	**3.11**	**-1.72**
	Eastern	1.73	2.06	1.33	4.30	2.89	5.62	6.50	-4.08
	Western	2.08	0.69	1.50	2.69	14.83	-1.47	-1.11	1.71
Haryana		**1.91**	**1.38**	**1.41**	**3.50**	**8.86**	**2.08**	**2.70**	**-1.19**
HP		**1.99**	**1.03**	**1.45**	**3.09**	**11.85**	**0.30**	**0.80**	**0.26**
	Inland eastern	7.27	1.63	2.37	7.36	-1.14	3.40	NA	7.07
	Inland southern	4.52	0.32	4.92	22.63	-0.87	NA	2.32	NA
	Inland northern	8.92	1.28	1.26	0.13	8.43	-4.12	4.94	13.05
Karnataka		**6.90**	**1.08**	**2.85**	**10.04**	**2.14**	**-0.36**	**3.63**	**10.06**
	Northern	5.33	3.52	4.07	5.00	4.99	-0.66	3.75	16.28
	Southern	5.28	3.47	3.19	7.27	4.60	3.49	3.03	0.50
Kerala		**5.31**	**3.50**	**3.63**	**6.14**	**4.80**	**1.42**	**3.39**	**8.39**
	Chhattisgarh	4.77	2.73	2.43	9.58	6.13	0.54	3.95	3.18
	Vindhya	0.60	5.18	0.32	-1.29	1.43	7.88	-0.05	2.24
	Central	5.21	-5.20	6.52	4.65	6.59	-7.48	9.13	1.28
	Malwa Plateau	8.79	5.18	1.35	5.03	6.88	3.87	3.85	6.53
	South central	0.35	2.83	2.14	-6.71	4.43	3.94	3.59	-10.25
	South western	2.87	1.70	-1.00	0.44	-0.93	10.06	0.74	12.63
MP	Northern	-5.16	4.03	1.82	10.35	NA	NA	7.45	12.49
		2.49	**2.35**	**1.94**	**3.15**	**4.09**	**3.14**	**4.10**	**4.01**

Table 2.7 CRAG (%) of Real wages rate in Non-agricultural occupations from NSS (at 1999-00 prices) (Contd..)

		Male				Female			
STATES	NSS region	1994-2000	2000-05	1994-2005	2005-08	1994-2000	2000-05	1994-2005	2005-08
	Coastal	1.81	3.23	1.95	0.90	4.01	4.05	1.83	0.36
	Inland western	4.22	-0.33	0.63	3.60	7.94	-4.69	0.55	-10.56
	Inland northern	5.31	-4.60	1.15	8.12	8.00	-7.61	-2.56	11.13
	Inland central	-0.46	3.36	1.34	7.46	3.45	-9.77	3.80	-7.85
	Inland eastern	3.47	-0.89	1.01	7.36	2.19	6.56	2.08	2.96
	Eastern	0.81	1.45	1.22	7.87	2.82	1.61	3.16	-4.88
Maharashtra		**2.53**	**0.37**	**1.22**	**5.89**	**4.74**	**-1.64**	**1.48**	**-1.47**
	Coastal	3.56	-1.26	3.80	6.39	7.27	-3.03	5.08	-1.20
	Southern	2.61	6.04	3.78	1.01	1.32	10.87	1.50	-12.41
	Northern	2.85	5.70	2.07	6.05	-0.49	4.24	0.20	16.44
Orissa		**2.26**	**2.26**	**3.31**	**4.39**	**2.33**	**-2.25**	**2.95**	**0.94**
	Northern	3.27	4.04	0.80	3.29	1.27	5.61	-2.20	5.68
	Southern	1.37	0.29	0.41	1.51	8.54	14.07	6.42	28.57
Punjab		**2.65**	**2.85**	**2.36**	**3.77**	**3.37**	**0.23**	**2.32**	**6.34**
	Western	1.30	0.03	0.27	1.42	8.61	-9.43	1.84	28.61
	North eastern	0.09	0.54	2.26	6.35	3.17	0.62	3.26	1.95
	Southern	4.33	0.27	1.91	2.25	2.54	4.80	3.50	1.17
	South eastern	5.77	-2.16	3.24	0.86	3.35	4.40	7.55	3.43
Rajasthan		**2.87**	**-0.33**	**1.92**	**2.72**	**4.42**	**0.10**	**4.04**	**8.79**
	Coastal northern	4.18	-0.40	3.47	2.50	3.74	2.97	3.50	-2.59
	Coastal	8.05	-1.11	3.59	9.55	7.76	-0.70	4.43	4.92
	Southern	7.69	-0.43	5.06	10.93	6.59	2.77	5.46	2.80
	Inland	7.33	3.41	4.19	0.60	6.70	5.11	4.40	1.49
TN		**6.81**	**0.37**	**4.08**	**5.90**	**6.20**	**2.54**	**4.45**	**1.66**
	Himalaya	6.78	2.00	2.72	5.86	3.65	6.22	4.98	0.51
	Western	0.84	5.59	1.15	5.15	2.30	9.35	1.26	-4.68
	Central	1.68	0.74	2.81	-2.26	-1.36	4.77	-0.64	-17.37
	Southern	1.97	4.41	4.39	4.83	-7.65	8.33	4.38	11.39
	Eastern	6.14	3.21	2.81	4.54	14.24	-5.52	-0.64	19.29
UP		**3.48**	**3.19**	**2.77**	**3.62**	**2.24**	**4.63**	**1.87**	**1.83**
	Himalaya	1.81	1.80	2.45	4.52	4.24	0.56	1.40	2.67
	Eastern plains	-4.05	11.37	-0.46	-2.23	-5.18	10.22	-0.67	-2.72
	Central plains	-1.60	0.83	-0.17	13.80	0.56	-2.27	1.78	16.61
	Western plains	-3.33	3.73	-0.86	-2.95	-3.37	8.70	-0.57	-5.24
WB		**-1.79**	**4.43**	**0.24**	**3.29**	**-0.94**	**4.30**	**0.48**	**2.83**
All India		**2.78**	**2.22**	**2.30**	**4.76**	**3.39**	**1.98**	**2.66**	**5.67**

Source: Computed from Table A. 2.2.

Gender wise, it is notable that the growth rate of wages for female manual labourers in non-agriculture wages has registered higher throughout the period. At the all India level the growth rate for the period 2008 is 5.67%. The growth rate for female was higher at 5.67% to that of 4.76% of males. The overall female manual non-agriculture wages have been increasing at a faster pace as compared to their male counterpart. Comparing the pre and post NREGA period, a high growth is witnessed by both males and females casual manual laborers during post-NREGA periods. In case of male the wage rates move from 2.3% to 4.76% during post-NREGA periods, whereas female laborers prominently evident a much higher growth rate, from 2.66% to 5.67%. It is noteworthy that female non-agricultural wages has risen much faster than the female agricultural wages.

(a) ***State-wise trends in Casual Manual Wages in Non-Agriculture Wages***

Table 2.8 presents the state-wise trends in wages for manual work in non-agricultural operations. At all India level, growth rate for manual non-agricultural wages for male was as high as 4.76% during 2005/08 against 2.30% growth rate during 1994/2005. Growth rate of non-agricultural wage for male has been a notch higher than the agricultural wages, except for the period 2000/05 when wages in both agricultural and non-agricultural operation stagnate at 1.65% and 2.2% respectively.

Considering the entire period of analysis (basically from 1993 to 2005), southern states performed better than other parts of the country. More specifically, TN, AP, Kerala recorded higher growth rate, while the states of Maharashtra, MP and Orissa registered above an average growth rate. The poor performing states are WB, Maharashtra and Gujarat.

Comparing wages in the pre and post NREGA periods the trend shows much improvement in the post NREGA period. Growth rate of wage accelerated to 4.76% during post-NREGA periods as compare to 2.3% during the pre- NREGA periods (1994/05). 10 states out of 16 states have shown a high growth rate of 5.5%. NREGA plays an important role in increasing the non-agricultural wages. As an alternative

opportunity, it exerts pressure on the agricultural wages and thus it plays a vital role in enhancing the rural development.

Table 2.8 States-wise CAGR (%) of Non- Agricultural Wages for Casual Manual labourers:

	MALE				FEMALE			
STATES	1994/00	2000/05	1994/05	2005/08	1994/00	2000/05	1994/05	2005/08
AP	4.57	2.21	3.19	10.17	2.94	5.69	3.80	7.96
ASSAM	-0.27	6.37	2.70	-0.47	-4.65	0.06	2.55	19.21
BIHAR	1.68	3.13	2.42	2.82	0.95	6.77	0.86	-1.92
GUJARAT	1.03	1.43	1.34	8.09	0.99	4.75	3.11	-1.72
HP	1.91	1.38	1.41	3.50	8.86	2.08	2.70	-1.19
HARYANA	1.99	1.03	1.45	3.09	11.85	0.30	0.80	0.26
KARNATAKA	6.90	1.08	2.85	10.04	2.14	-0.36	3.63	10.06
KERALA	5.31	3.50	3.63	6.14	4.80	1.42	3.39	8.39
MP	2.49	2.35	1.94	3.15	4.09	3.14	4.10	4.01
MAHARASTRA	2.53	0.37	1.22	5.89	4.74	-1.64	1.48	-1.47
ORISSA	2.26	2.26	3.31	4.39	2.33	-2.25	2.95	0.94
PUNJAB	2.65	2.85	2.36	3.77	3.37	0.23	2.32	9.87
RAJASTHAN	2.87	-0.33	1.92	2.72	4.42	0.10	4.04	8.79
TN	6.81	0.37	4.08	5.90	6.20	2.54	4.45	1.66
UP	3.48	3.19	2.77	3.62	2.24	4.63	1.87	1.83
WB	-1.79	4.43	0.24	3.29	-0.94	4.30	0.48	2.83
All India	2.78	2.22	2.30	4.76	3.39	1.98	2.66	5.67

Source: Computed from Table A.2.2.

Wages for manual work in non-agricultural operations registered a significant lower growth rate during the last six years (1999-05) with the all India growth rate stagnating at 2.2% from 2.8% in 1994-00. While during 1994/00 there was no such slow down in growth rate. The post NREGA period (2005/08) showed an accelerating growth rate in non-agricultural wages. Comparing the growth rate between 1994/00 and 2000/05, as many as 10 states show a lower growth rate in the latter period. The difference is more prominent in the southern region states including TN, AP, Kerala along with HP and Maharashtra. On the contrary, Orissa, Rajasthan and MP performed consistently better

during this period. However, the number of districts having lower growth rate remained same during the pre-NREGA period and post-NREGA (1994/00 to 2000/05).

Gender wise the picture is slightly different from that of in agricultural manual wages. As observed in the regional level analysis the performance of female manual non-agricultural wages is better than that of the agricultural manual wages. Throughout the period female wages in non-agricultural manual operation is continued to be increasing as compared to their male counterparts. Regions in Rajasthan, Orissa, MP and Bihar have shown much improvement in this direction. However, the Southern states have shown biasness towards male wage rates. Assam, Haryana and Punjab have had the difference between male and female wage rate.

2.5 Summary and Conclusion

This chapter thoroughly analysed the trend and pattern prevailing in the AW since 1990s. The study mainly analysed the trend at two different levels of aggregation for the period starting from the nineties. At the aggregate level—it is mainly confined at the state level and at the disaggregate level---it is confined at the NSS regional level. Given the different sources for agriculture wages in India, we undertook two major sources; AWI for the state-level analysis and NSSO unit level data for the regional level analysis. While analyzing the trend for the last two decades, we divided the entire period into two different sub-periods—1993 to 2005 and 2005 to 2010. The period is divided in such a manner to observe the changes (if any) occurring due to the policy intervention by the Government i.e., the effect of NREGA on the rural labour market.

Using Agricultural Wages in India (AWI) as a major source to analyse state level AWs, a downward trend in the post reform period has been observed. However, in the most recently, with the initiative of Central Government demand driven programme -- NREGA, a sharp growth in the AW has been recorded. State-wise analysis showed that the movement in the AW has mixed trend. By dividing the periods into two sub-periods— higher growth trend in the wages can be seen during the post- NREGA periods.

States like Rajasthan, AP, TN and Karnataka have registered as high as 9% growth rate during the post NREGA period, while states like Bihar, MP and Maharashtra have shown a moderate growth rate. Since the Act implemented to provide additional job opportunity; labourers have an alternative option of employment. Such an alternative job option affects the labour supply and demand price i.e., the wage cost or wage earnings of the labourers. Hence, equilibrium wage get affected and it is found that there is an upward pressure to the agriculture wage-rates. Almost all states have the same experience and that lead to 4.76% growth in overall AWs (backed by the NSS data). States like Maharashtra, Kerala, and Orissa have growth rate above 5%. Poorer states –Orissa, Bihar, and MP are too showing a moderate growth rate. It is only Punjab and Assam that have lower growth rate during the post-NREGA period. Hence, through AWI as a source of AWs data, it is seen that there is upward trend in the AWs and such a rise in the movement of the wages can be said to be a contribution of NREGA. Any seasonal fluctuation and cyclical movement in the wages is sorted out through Quadratic function as well as Three-year Moving Average curves. Hence, one can establish NREGA as a reason behind the upward trend in the AW.

Region-wise study is done from NSSO casual labourers unit level data for different rounds at NSSO agro-climatic regions. As the implementation of NREGA mainly covered the most backward districts, different districts coming under different NSSO-regions can be studied. Due to lack of time, a separate study of 200-districts and then 330 districts is not possible. Hence, a regional level analysis through NSS regions is done here. Region-wise, however, the trend is not so robust, yet an upward trend is accelerating in almost all regions. At all India level, the growth rate of 4.76% is noted during the post NREGA periods.

There is some inter-regions variation beside interstate variation. Within the state, some regions have wage rate prevailing as high as 10% while in other region within the same state, growth rate in the wage rates are as low as 2 to 5%. Southern and coastal region of Orissa, central region of Maharashtra, dry areas of Gujarat and southern Punjab suffered from negative growth rate. However, northern and southern inland regions of

AP, north and south inland regions of Karnataka, north and south eastern regions of Rajasthan enjoyed a high growth rate of 13%. States having moderate growth rates are UP, Assam, Bihar, Orissa and Maharashtra.

Gender–wise trend can only be analysed through NSS data as AWI have inadequate female data on wages. NSS region-wise trend in the agricultural wages for female showed a slightly negative growth rate. More specifically, the pattern of AW showed a negative trend for the female wage rates during the post NREGA. This negative trend is mostly observed in the Southern states and agricultural advanced Northern states. It is said that in these states female composition into the workforce was not so large. Hence, when a government sponsored guaranteed employment programme is launched; it encouraged female workers to join the workforce. Thus, this new inflow of female labour into the labour market leads to a decline in equilibrium female agriculture wage rate and AW's growth rate becomes negative, especially during the post- NREGA period. However, regions like eastern Gujarat, southern inland region of AP, eastern inland region of Karnataka, south western region of MP, western, eastern and southern eastern regions of Rajasthan have registered a growth rate of more than 9%. Entire regions of Maharashtra, TN and Kerala have registered a negative growth rate, leading to have a negative growth at the all India level. Even the pre-NREGA growth rate in female wages is too low. From the prevailing wage market for the rural female worker, one can claim that the economic condition of the rural female is very pathetic. Irrespective of whether she is employed or unemployed, the prevailing wage rates are too low to raise their economic standard. Hence, they are often referred to as "Working poor".

It is interesting to note that the non-agricultural wages for female has risen more rapidly than their counterpart male wages. Almost 6% growth rate in their wages has been noted. AP, Assam, Karnataka, Kerala and Rajasthan registered as high as 8% growth rate. However, there are some states like Maharashtra, Bihar and Gujarat which have suffered from negative growth rate. Region-wise analysis showed that northern and central regions of Bihar, eastern, southern, dry areas of Gujarat, central south region of MP, northern and southern region of Orissa and Himalaya and central plains of WB have

suffered a negative growth rate. 9 out of 16 states have suffered negative growth rate during pre-NREGA period which has come down to only four states in the post-NREGA periods. Overall, it is seen that female non-agricultural wage grows at a much higher rate than the male non-agriculture wages, giving a complete contrasting picture of what was prevailing in the agricultural wages.

NREGA, being a non-agricultural activity, this chapter analysed the direct impact of NREGA on the other non-farm wages in the rural economy. Section 2.4 studies the impact of NREGA into the non-agricultural wages both at regional as well as state-level. It is seen that non-agricultural wages grew more sharply. At the all India level, it grows at 4.76%.

In the concluding part, we can observe that there is prevailing a sharp momentum in the AW as well as Non-AW both from AWI data as well as NSSO data. The trend of male wage rate showed much higher trend than the trend in the female wage rates. The post- NREGA effects can be apparently seen on the rural labour market. Thus, it was seen that the introduction of NREGA had a crucial impact on the AWs as well as on the non-AWs. Thus, an indepth study of agriculture and non-agriculture wages after the onset of NREGA becomes very vital. The overall impact of the Act on the rural economy is studied in the very next chapter.

Chapter 3

NREGA and its Effect on Agriculture Wage

3.1 *Introduction*

In the context of economic crisis and rural economic slowdown, the seriousness and urgency of commitments of government towards poverty alleviation become more important. Poverty remains exorbitantly high in many parts of the rural India (Ahluwalia, 1978; Bardhan, 1985). The widespread poverty is a result of inadequate growth in rural employment and income (Mellore, 1988; Mellore and Johnston, 1984). Poverty alleviation, thus critically depends on how fast the government can generate rumerative employment and thus income for the rural poor. Policy intervention such as Employment Guarantee Scheme that generates employment and ensures subsistence income through wage reduces poverty (Nayyar, 2009). The purpose of this chapter is to study such a programme and its impact on poverty alleviation.

Among the policies undertaken, public work projects have been a popular policy instrument for poverty alleviation. Wage employment programmes are an important element of public policy to provide unskilled workers with short-term employment. By creating new employment opportunities, generally, it aims to reduce rural poverty through income gains to the participating workers. In the recent legislation Act of "Right to Work" guaranteed wage employment is assured to these unskilled workers by the legislation. National Rural Employment Guarantee Act (NREGA) is a example of such a Right based guaranteed wage programme. It is a new strategy in the current economic context of economic crisis where rural poverty alleviation is a major task for the government. Thus, in the context of poverty alleviation and policy implementation for the rural development, the study of NREGA becomes so important.

This chapter will give a broad overview of the NREGA, its development and the necessity for such a Right's based Employment guarantee scheme in its very first section. Then, an overview of its implementation and coverage is seen to find the regional dimension of the programme[8]. To get the effective implementation, Employment generated (Person-days) by NREGA will be covered in the next section. In the final section, we will examine the impact of such Right-based Scheme on AW and other non-farm wages and the impact of the latter on the former.

3.2 *Evolution of NREGA*

In India, initial poverty eradication programmes were based on the principle of "income transfers[9]", later on it was changed to the following, "income earning capacity[10]", "development approach", "asset building" approach, and "self-employment[11]" generating approach. Since Seventies, the government was supplementing rural livelihood through employment generating mechanism. Since 1971-72, programmes such as Crash Scheme for Rural employment (CRSE), Pilot Intensive Rural Employment Programme (PIREP) [1972], Small Farmers Development Agency (SFDA), Marginal Farmers and Agricultural Labour Scheme (MFAL) had been started for the poorest of the poor. Thereupon, on first July 1975, the 20 Point programme was initiated under the slogan of *"Garibi Hatao"* which was more political than economic.

Under the umbrella of Twenty Point Programme, several poverty eradication and economic growth schemes were incorporated. On 2nd October 1980, this programme was further streamlined into the National Rural Employment Programme (NREP). Farmers from Maharashtra were also reported for working under the Employment Guarantee Scheme (EGS) and NREP. This was one of the motivations for starting the Rural Landless Employment Guarantee Programme (RLEGP) in 1983. In 1989-90, the NREP and the RLEGP were brought under a single umbrella called the Jawahar Rozgar Yojana

[8] Coverage and implementation is analysis through the official data put out by the Ministry of Rural Development, under which the programme regulates.
[9] Rural Work Programme was such a programme.
[10] Crash Scheme for Rural Employment was an example of such a programme.
[11] Jawahar Gram Samridhi Yojana was an example of such programme.

(JRY). The objective of JRY was to generate meaningful employment opportunities for the unemployed and underemployed in rural areas and thereby create economic, community and social assets. The Jawahar Rozgar Yojana (JRY) merged with Jawahar Gram Samridhi Yojana (JGSY) from 1999-2000 and was made a rural infrastructure programme. The JGSY, Employment Assurance Scheme (EAS) and Food for work programme was merged with the Sampoorna Grameen Rozgar Yojana from 2001-02, because all these programmes had the common objective. In November 2004, the National Food for Work (NFFW) programme was launched in the 150 backward districts to generate additional supplementary wage employment with food security. National Food for Work programme was converted into National Rural Employment Guarantee Scheme from 2nd February 2006.

Government spending in public works programmes that provides wage income directly to unskilled workers in the rural areas is likely to be much more effective in increasing aggregate incomes than other forms of public spending. It is in this context, that the scheme of NREGA becomes so important. In its Right's-based guaranteed employment framework, NREGA recognized to have the potential to transform rural economic and social relations at higher levels.

The National Rural Employment Guarantee Act was notified on 7th September, 2005, to create a right- based framework for wage employment. This Act was passed because rural agrarian labour were vulnerable to the possibility of sinking from transient to chronic poverty in the event of inadequate labour demand or in the face of unpredictable crisis that may be general in nature, like natural disasters or personal like ill-health, all of which adversely impact their employment. This programme typically provides unskilled manual workers with short-term employment on government projects such as irrigation infrastructure, afforestation, soil conservation and road construction. The programmes transfer income to poor households during critical times and therefore enable consumption smoothing specially during slack agricultural seasons or years. In states, like Orissa, Maharashtra, Madhya Pradesh (MP) with high unemployment rates,

transfer benefits from workfare programmes like NREGA can prevent poverty from worsening, especially during lean periods.

The aim of the National Rural Employment Guarantee Act (NREGA) was to enhance the livelihood security of people in rural areas by guaranteeing hundred days of wage-employment in a financial year to a rural household whose members volunteer to do unskilled manual work. The Act initiated in a phase manner to create durable assets and strengthen the livelihood resource base of the rural poor.

In the first phase the Act was implemented in 200 districts across the country. In the second phase the Act was notified in the financial year 2007-08 with an addition of 130 districts, bringing the total number of districts covered under NREGA to 330. The remaining 266 districts were notified on 28th September, 2007 where NREGA was come into force with effect from 1st April, 2008.

3.3 *Implementation and Coverage of the Programme: A Spatial Dimension*

The Act has a massive coverage of entire rural population; more than two-third of the total population of India and more than 50 million Households (HHs) are availing benefit of the scheme.

Earlier the status of implementation and coverage of districts[12] and states was discussed. Then the issue associated with the coverage of HHs including the number of jobs provided and demanded and how these covered numbers of districts associated with the total number of districts in the state was mentioned.

[12] According to the Ministry of Rural Development districts in the first phase were selected on the basis of four factors—population of STs and SCs, Agricultural productivity and Agricultural wages. Hence we divide the coverage of the entire districts of the country into different Zones rather than NSSO regions.

As mentioned earlier, this scheme started initially with being implemented in 200 districts in the country spreading over 27 states. In these districts, Panchayats are the principal agencies through which the programme is implemented. Panchayats are responsible for the identification, execution and supervision of projects as per the recommendation of Gram Sabha (GS) and the Ward Sabhas.

As seen from Table 3.1, in the first phase of 200 districts, 119 falls in seven states, viz, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh (MP), Orissa, Rajasthan and Uttar Pradesh (UP). These states comprise 53.73 per cent (%) of the rural Indian HHs with 67.95 % of BPL (Below Poverty Line) HHs. This distribution pattern of the districts selection evidently reflects the intention of the NREGA to focus on the poverty stricken regions along with the most backward in terms of rural connectivity, nature of rural power etc. It is in this context, that the coverage of North-Eastern region is larger. In the first phase of NREGA implementation, North- Eastern region has the largest share of coverage, about 44 %, which followed by the Western region (27%), Northern region (17%) and Southern region (13%). In the second phase, a large majority of newly inducted districts are from the Eastern region (40%) and follows the similar pattern that of the 1st phase, with Western, Northern and Southern regions accounting for 25%, 21% and14% respectively. Since large numbers of Eastern region were already covered in 2008-09, the third phase is mainly concentrated in the Northern region (34%) whereas Western region, Eastern and Southern region accounting for 25%. 20% and 18% respectively.

Given the high poverty in most of the districts of Bihar and Jharkhand, 22 districts out of 37 districts had been covered during the first phase of the programme. This was also true for the states of West Bengal (WB), MP, Andhra Pradesh (AP), Chhattisgarh and Uttarakhand. Relatively better-off states such as Himachal Pradesh (HP), Haryana, Punjab, Gujarat and Karnataka had accounted for one-fifth and one-third of the districts under the coverage of NREGA. Thus, NREGA started in all most all the states of the country but the degrees of coverage varied with phases.

Table 3.1 States covered under NREGA:

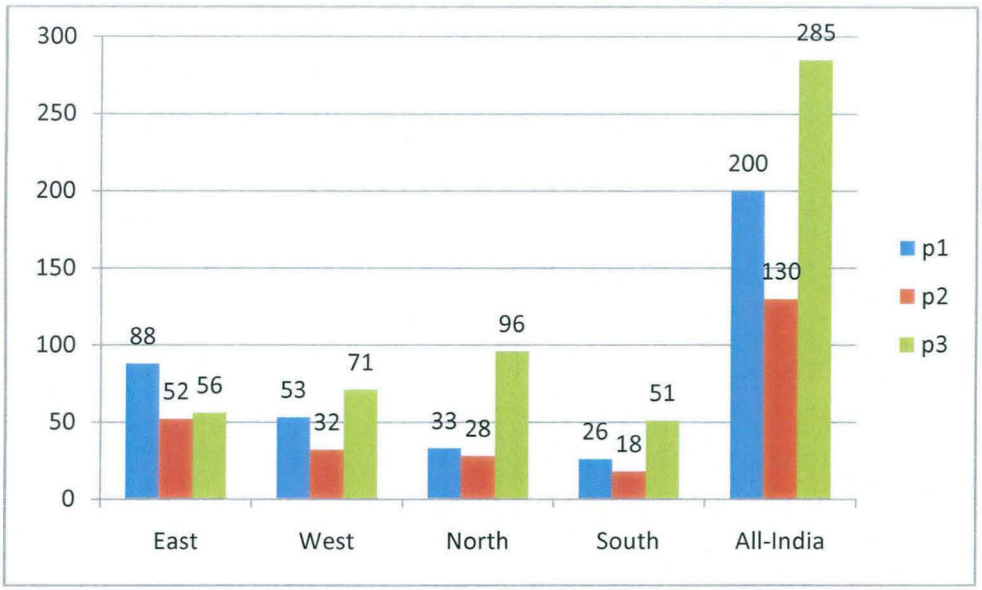
Zones	States	Rural Poverty (%)	Rural Poor(in lakhs)	1st phase	2ndphase	1st+2nd Phase	3rd phase
East	Assam	22.3	54.5	7	6	13	14
	Bihar	42.1	336.7	23	15	38	
	Jharkhand	46.3	103.2	20	2	22	2
	Orissa	46.8	151.8	19	5	24	6
	WB	28.6	173.2	10	7	17	1
	N-Estates	22.3	22.3	9	17	26	33
	Total		841.6	88	52	140	56
West	Chhattisgarh	40.8	71.5	11	4	15	1
	Gujarat	19.1	63.5	6	3	9	17
	MP	36.6	175.7	18	13	31	17
	Maharashtra	29.6	171.1	12	6	18	15
	Rajasthan	18.7	87.4	6	6	12	21
	Total		569.5	53	32	85	71
North	Haryana	13.6	21.5	2	2	4	16
	HP	10.7	6.1	2	2	4	8
	J&K	4.6	3.7	3	2	5	17
	Punjab	9.1	15.1	1	3	4	16
	UP	33.4	73	22	17	39	31
	Uttarkhand	40.8	27.1	3	2	5	8
	Total		546.5	33	28	61	96
South	AP	21.2	64.7	13	6	19	3
	Karnataka	20.8	75	5	6	11	18
	Kerala	13.2	32.4	2	2	4	10
	TN	22.8	76.5	6	4	10	20
	Total		248.7	26	18	44	51
All India		28.2	2209.2	200	130	330	285

Source: NCAER Report, Government of India, 2008.

Figure 3.1 shows the total number of districts covered during different phases of NREGA. In the first phase, Eastern region covered the highest number of districts (88 districts) followed by the Western region. Northern and Southern region comprises the least number of districts where it is initially started. In the second phase, more emphasis

is given on the Northern region, however, Eastern region still remain on the top. During the third phase of the programme central region states are also encouraged to participate.

Figure 3.1 Number of Districts covered during different phases (Zones-wise):



Source: Computed from Table 3.1.

3.4 *Employment Generated under NREGA*

The implementation and coverage effectiveness of the scheme can only be justified if it is able to generate enough employment for the rural unemployed. The growth in the rural employment particularly in agriculture is very slow after the 90s'. Hence, public employment schemes are started to generate sufficient employment for the rural poor, so that they can earn a subsistence income to sustain their lives (particularly during the lean seasons). Few employment generation programmes have generated as much buzz like NREGA. As the scheme makes it mandatory for jobseekers to have a job card, for which they have to apply to the Panchayat. As a Time-bound Guarantee employment programme, the Panchayats are required to provide job to the applicants within 15 days of demand or else with unemployment allowances. Since, it is stated that unemployment allowances should be borne by the state and all other employment

expenditure by the centre, Panchayats are more eagerly providing job to any job-seekers. Hence, the rate of employment generation is larger in NREGA compared to any other programme.

According to the NREGA official data, in 2007-08, 3.39 lakhs households were provided employment and 143.5 lakhs person days of job were generated in 330 districts. Further, in 2008-2009, 253 lakhs households have been provided employment and 85.29 lakhs person days of job have been generated.

In order to examine the performance of the NREGA, suitable indicators are needed to develop which would reflect the demand side and supply side or preference for NREGA among the rural HHs. The demand and supply side preferences are captured through the total NREGA job demanded and total job provided respectively. The preference for the scheme can be represented by the total Job cards demanded by the Rural HHs. Table 3.2 captures the official data for the number of job cards issued and the percentage of job demanded by the HHs as well as the percentage of job provided to the HHs. The first column shows the total number of job cards issued, reflecting the preference of the HHs for NREGA employment. The second column shows the total per cent age of jobs demanded by the HHs out of the total numbers of card providers. The last column shows the percentage of job provided to the total number of the HHs who has demanded employment through the scheme.

It is evident from Table 3.2 that NREGA enrolment as a percentage of rural HHs enrolled varies widely across states. It is also noted that enrolment that provides job cards increased from 378 lakhs during 2006-07 to 1125 lakhs during 2009-10. The data from 2006-07 to 2009-10 shows that there is increase in the coverage of districts that were provided job cards. At the national level, Eastern region contributes 43%, which is in consonance with the fact that about 40% of the newly covered districts are in the Eastern region. The second highest contribution is made by the Southern region with a share of 22% to total job cards issued at the national level over the periods from 2006-07 to 2009.

Table 3.2 Number of HHs covered under NREGA:

Zones	States	No. of HHs issued Job cards (in lakhs)				HHs demanded Employment (%)[13]				HHs provided Job (%)[14]			
		2006-07	2007-08	2008-09	2009-10	2006-07	2007-08	2008-09	2009-10	2006-07	2007-08	2008-09	2009-10
East	Assam	9.2	15.7	21.9	36	87.1	92.5	50	59.23	99.3	96.9	97.5	99.91
	Bihar	35.6	79.5	90.8	124	48	49.4	30.1	35.27	98.8	97	84.6	100
	Jharkhand	23	29.6	32.7	36	60.5	56.8	33.5	46.07	100	100	94.5	99.96
	Orissa	25.9	41.1	49	58	54.3	27.7	14.5	24.41	99.1	96.7	96.1	98.71
	WB	51.5	85.8	88.9	103	62.9	45.7	24.8	33.17	95.3	98	99.2	99.7
	N-E states	2.8	9.3	16.6	13.3	105	96.7	76.2	86	98.4	95.9	92.3	95.6
	Total	148	260.9	299.8	370.3	65.7	49.9	38.18	47.36	98.48	97.42	94.03	98.98
West	Chhattisgarh	18.5	28.8	32.9	35	69.4	79.9	44.1	56.67	98	99.5	98	100
	Gujarat	6.3	8.7	22.8	36	35.8	33.6	19.9	44.72	100	100	95	100
	MP	44.5	68.6	111.8	112	61.5	60.2	33.9	41.75	104.8	100	99.5	99.91
	Maharashtra	27.5	31.3	44.3	56	12.8	15.2	10	9.4	109	100	99.4	99.99
	Rajasthan	15.1	28.7	80.2	88	77.9	75.7	64.5	73.88	100	99.9	99.5	100
	Total	111.9	166	292.1	327	51.6	56.4	38.8	45.28	102.4	99.8	99.1	99.99
North	Haryana	1.1	1.6	2.8	4	47.5	43.9	22.5	34	100	100	99.2	100
	HP	1	3.9	7.3	9	67.6	70	43.2	50.17	94.5	98.4	97.2	99.63
	J&K	1.8	2.5	3.1	6	67.7	54.5	16.5	53.02	100	100.1	100	95.39
	Punjab	0.4	1	3.3	7	85.2	50.8	27.5	38.6	97.6	100	56.1	99.72
	UP	40	73	102.2	116	66.8	56.1	26.3	48.45	96.2	99.8	98.6	96.75
	Uttarakhand	2	3.6	7.4	8	67.4	52.8	14.8	58.46	100	100	127.3	100
	Total	46.3	85.8	126.2	150	66.6	56.3	26.3	47.12	96.5	99.1	98.3	98.6
South	AP	50.7	88.5	109.2	117	42.7	54.3	48.8	52.54	100	100	100	100
	Karnataka	8	15.2	29.6	52	68.9	36.4	14.6	69.46	99.4	99.3	98.3	97.4
	Kerala	2.1	4.8	13.5	25	49.1	54.1	22.6	36.83	94.5	71.5	97.8	99.84
	TN	11.6	22	50.9	65	59.1	56.1	49.5	66.91	100	100	98.8	100
	Total	72.3	130.6	240.7	259	48.4	52.5	39.7	56.44	99.7	98.9	99.3	99.8
All India		378.5	643.2	958.8	1125	56	53	34.7	46.97	99.2	98.8	97.4	99.37

Source: Computed from http:// nrega.nic.in

[13] Number of per HH demanded job divided by the total number of HHs issued job-cards multiply by 100.
[14] Number of HHs provided employment divided by the number of HHs who has demanded jobs multiply by 100.

During the third phase, an increase of 33% in the additional HHs at the aggregate level is recorded. The number of HHs that has been provided job cards by the 2009-10 shows that Eastern and Western regions comprises more than 52% of each of 1125 lakhs of cards issued. It is followed by the Southern region and the Northern region respectively. Among the HHs, that has been provided maximum number of job cards are in Bihar (124 lakhs) follows by MP (121 lakhs), UP (116 lakhs) and AP (109.2 lakhs).

At all India level, a marginal decrease in the proportion of HHs that demanded employment had been recorded, from 56% to 34.7% in 2008-09. However, there is some improvement during 2009-10 but still it is lower than what it was during the initial days. It is noted that the same pattern of oscillation is observed at the region level (except in the South and Western zone). Eastern region witnessed a more drastic fall is seen from 66% to 47%, which has the highest number of the job card holder, followed by the Western and Northern regions. An interesting thing to note is that the regions which are performing better loss their consistency over the period.

Government has achieved almost 98% of success in all regions of the country. Hence, one can infer that the job card holders or most appropriately the employment demanders are getting job to a larger extent. Almost all states are performing better in providing jobs and the rate of getting jobs got almost 100% except Punjab which provides only 56% of jobs out of the total demand.

In the Table 3.3, it can be seen that at all India level the number of HHs provided employment (in millions) over the years has increased sharply from 21.01 million in 2008-09 of employment to 52.58 millions in 2009-10. However, average person-days employment per HH has increased steadily from 43 days to 54 days (25.58 % growth). However the percentage share of women in employment generation remains stagnant except for the year 2008-09.

A state-wise analysis of total employment generated in the country can be seen from Table 3.4, in 2006-07 a total of 90.5 crore total man-days were generated out of which roughly 77% share was contributed by the Western and Eastern regions. In 2007-

08 there was 59% increase in the total man days generated from 90.5 crore man days in 2006-07 to 143.7 crore in 2007-08.

Table 3.3: Employment Generated from 2006-07 to 2009-10

Years	2006-07	2007-08	2008-09	2009-10
No. of HHs provided Emp. (in millions)	21.01	33.90	45.11	52.58
Avg. Person-days HHs[15]	43	42	48	54
% share of Women	41	43	48	48

Note: Emp. = Employment; Avg. =Average

Source: http://nrega.nic.in

A major part of this increase in 2007-08 was contributed by the Western (39%) and Southern regions (34%) due to higher growth in the number of works undertaken compared to the other two regions. The contribution of Eastern and Western regions to the increase in employment generated during 2006-07 to 2007-08, were only 14% and 13 % respectively.

The average number of man days generated per HH has increased by 25% from 35 days per HH in 2006-07 to 43 days in 2007-08. The western region recorded the highest number of days generated per HH (63 days) has the maximum number of employment days generated (44%). It is followed by the Southern region with 33% increase in employment per HH. In the remaining two regions—Eastern and Northern- the employment generated (per HH basis) witness only 8-10% increase in 2007-08.

[15] Number of person-days per HH has been calculated by dividing the total number of person-days of employment generated divided by the total number of HHs that were provided employment multiply by 100.

Incidentally, these two regions are also lower average employment (generated per HH) in comparison to the other two regions (Western and Southern).

Table 3.4 State-wise Employment Generated under NREGA

		2006-07		2007-08		2008-09		2009-1	
Zones	States	Total Mandays	Man-days per HHs*	Total Mandays	Man-days per HHs	Total Mandays	Man-days per HHs	Total Mandays	Man-days per HH
East	Assam	572.9	72.3	487.6	38.9	187.7	41.7	213.7	3 4.3
	Bihar	596.9	16.4	855.1	23.3	382.2	26.1	412.7	2 .5
	Jharkhand	520.5	36.6	747.6	45.7	1576.3	47.5	1702.5	4 5
	Orissa	799.3	57.3	405.2	36.6	1199	36.8	1398.3	3 6
	WB	440.1	13.6	968.8	25.2	302.5	26	347.9	4 .5
	N-Estates	120.8	44.6	338	39.6	22.8	58.9	18.9	6
	Total	3050.5	28.4	3802.2	30.8	3670.5	39.5	4094	44
West	Chhattisgarh	700.2	53.9	1316.2	57.4	2270.4	54.7	2025.8	51
	Gujarat	100.5	44.4	90.1	34.5	85.1	26.6	156.4	36 7
	MP	19718	67.6	2753	63.3	520.7	56.5	417.4	55.7
	Maharashtra	159.3	24.7	184.9	39.4	90.7	46.3	53.5	51.
	Rajasthan	998.9	85	1678.4	75.6	637.3	75.7	652.2	69
	Total	3930.6	43.6	6022.4	62.8	3604.2	51.96	3305.3	52.8
North	Haryana	24.1	47.6	35.8	49.1	16.2	42.4	15.6	37.7
	HP	29.9	47.1	97.5	36	44.5	46	49.7	57.3
	J&K	32.3	34.7	33.4	NA	19.9	39.5	33.6	38.3
	Punjab	15.6	49.2	19.2	38.5	14.9	26.8	27.1	28.4
	UP	822.9	31.8	1363.1	34.3	433.6	52.9	548.3	64.9
	Uttarakhand	40.6	30.2	80.3	42.4	29.8	36	52.2	34.9
	Total	965.4	32.6	1629.2	35.8	558.9	40.6	726.5	43.58
South	AP	678.8	32.6	2010.3	41.8	56.9	48.8	61.5	65.7
	Karnataka	222	38.3	197.8	36	89.6	32.9	353.5	56.7
	Kerala	20.5	20.5	60.8	33.3	69.2	22.2	95.5	35.5
	TN	182.8	28.1	645.2	51.2	334.5	36	437.3	42
	Total	1104.1	32.4	2914.1	42.9	550.2	34.98	947.8	49.98
All India		9050.5	34.6	14368	43.1	4511.5	47.9	5253.9	54

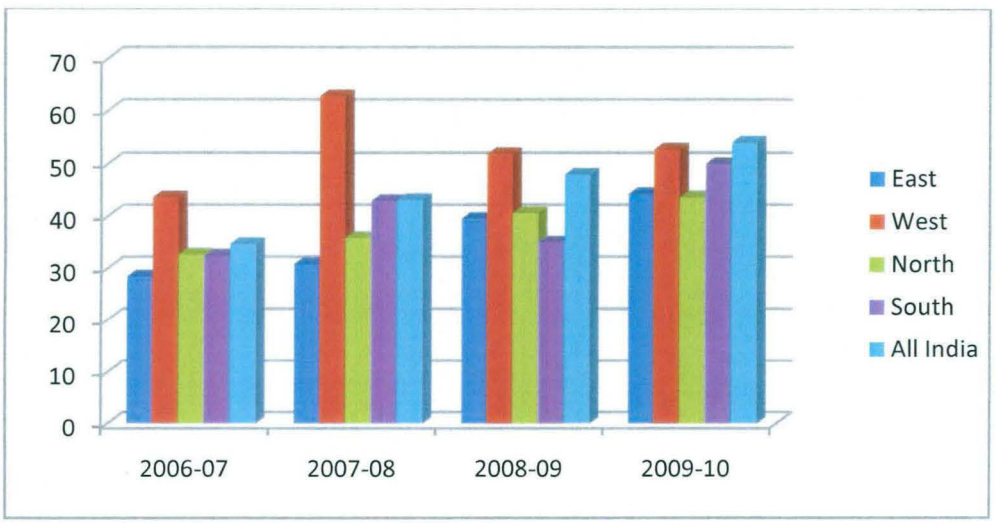
Source: http://nrega.nic.in

Note: Man days per HH* = number of person-days of employment generated divided by the total number of HHs provided employment.

In 2009-10, the average number of man days has increased from 35 days in 2006-07 to 54 days in 2010 approximately 55% growth has been recorded. The Western region again recorded the highest number of days employment generated (53 days) followed by the Southern region (50 days). , On an average, the Eastern and Northern regions have almost 44 days of employment.

Figure 3.2 depicts the percent of average man-days employment generated per HH. Western region has recorded the highest average number of day's employment over the periods. It recorded the highest number of days among all the states in India. Southern and Northern regions almost have the same number of days of employment. It is only the Eastern region which is lagged behind over the period.

Figure 3.2: Average Man-days per HH Employment generated (in %):



Source: Computed from Table 3.4.

The programme guaranteed 100 days of employment to one who demanded jobs in NREGA. However, the percentage of total HHs getting 100 days of employment is not more than 10% and has shown a declining trend in the recent periods. Figure 3.3 shows that there is a marginal increase in the number of HHs that are getting 100 days of employment in the phase II (2007-08) of NREGA implementation as compare to the

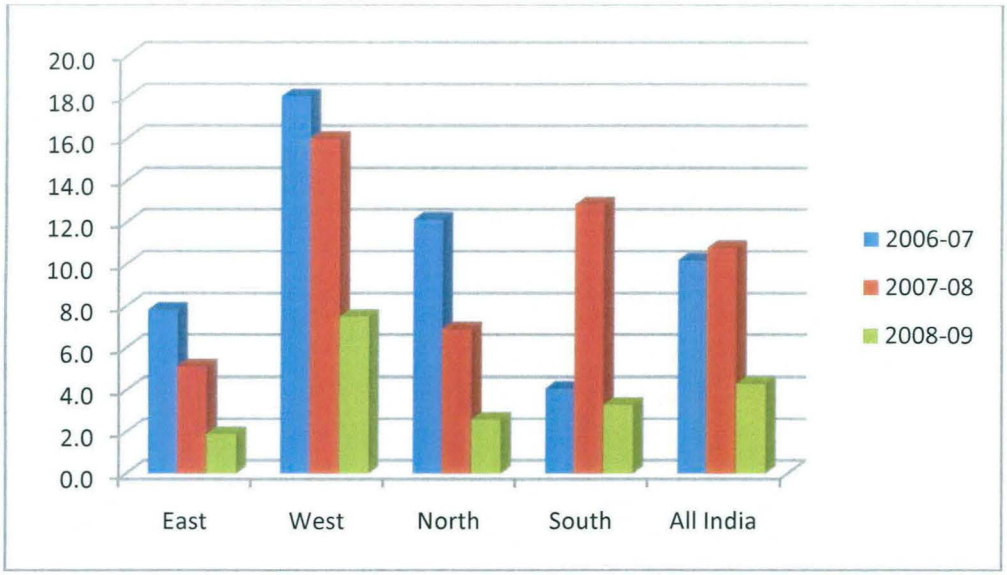
phase I (2006-07) (with 10.2% to 10.8% respectively). However, in the Phase III a sharp fall in the number of HHs getting 100 days of employment can be seen. At the national level, it falls from 10.2% in 2006 to 4.3% in 2009-10. This is due to the wide coverage of the programme. Inclusion of the entire country by 2008-09 reduces the total percentage of the HHs getting 100 days of employment.

In the phase I, states like AP, Kerala, MP, North-east states, TN and UP experienced an increase in the percentage share of total HHs receiving 100 days of employment. However, Assam, Bihar, Gujarat, Karnataka, Punjab and Rajasthan experienced a decline in the percentage share. In the phase III, with the total coverage of the entire country, percentage share of HHs getting 100 days of employment come down as low as 4.2% only. It is 12% for Rajasthan and 5% for AP respectively.

Region wise only Southern region shows a consistent growth in the employment days (though it too have downfall during the third phase). While the Eastern region which performed better in the initial years witnessed a sharp decline over the years. Western region comprising Rajasthan has some oscillatory movements. Obviously, the data reveals that barring a small percentage of HHs, majority of HHs are not getting 100 days of employment as prescribed under the Act. This may be due to lack of demand, lack of funds, delays in the implementation of the programme etc.

Figure 3.3 shows that NREGA is able to generate enough employment per HH in its phase I. However, employment generated has fallen overtime. It can be seen that Western region has the highest number of HHs getting 100 days of employment is followed by the Eastern region. In the year 2008-09, employment generated fall sharply for all the regions, except the Western region. This leads to subsistence fall in the total number of HHs getting 100 days of employment to 4.2% only.

Figure 3.3 Number of HHs getting 100 days of Employment (%):



Source: Computed from Table A.3.2

3.5 *Minimum wages and wages paid under NREGA*

Effectiveness of the Act can be examined through the proper and effective implementation of the Act, which can be evident through the number of employment generation besides enhancing rural public assets. The NREGA has already created half-a-million assets and has provided jobs to around 3% of India's population. About 4.3 crore HHs in the country benefited from the pioneering NREGA in the financial year 2008-09.

The Act aims to enhance the livelihood security of people in rural areas by providing ***WAGE EMPLOYMENT***. Hence, the wage rate that realized under NREGA is more vital for alleviation of rural poverty. The determination of wages under NREGA is based upon certain norms of "basic needs" is fixed by the authority. Hence, the general wage determination theories are not valid here. The authority indexed NREGA wages with the Consumer Price Index for Agricultural Labourers (CPI-AL) that fixed the NREGA wages for all- India level. But this fixed uniform wage, initially from Rs.60 to Rs.100, are lower than the minimum wages for similar work that are currently determined

by the State Government, under the Minimum Wage Act, 1948 (MWA). A minimum wage can act as a floor level of wages which leads to fixing of wages in such a way that the wages do not fall below a particular level. Minimum wages (MW) in agriculture and other skilled work like carpenter, cobbler, mansion etc is a deliberate measure by the Government to interfere in the labour market in order to ensure that the labourers are earning at least a minimum income which is sufficient for maintaining a minimum standard of life. In India, the fixation of minimum wages is based on the Minimum Wage Act (MWA) of 1948, which is based on the fulfilling of minimum basic human needs. However, the Act does not clearly define the concept of MW. There are number of problems associated with comparing the MW levels across the states. Primarily, different states revise the MW at different times. Hence there is no uniformity in reviewing and hence making it difficult for comparing the different MW levels. Moreover, some states give MW with meals and some without meals. So inclusion of such kind wages in some makes it difficult to compare. Despite, these limitations, it is useful to know the position of MW as compared to that of actual wage levels which would give us an idea about how the MW fixed by the government influence the market wage rate. More particularly, on NREGA wages which are fixed under statutory MW.

Wages under NREGA are of two types—piece rates and daily wages. In most of the cases, however, labourers are being paid under the piece rate system. But the wages under MWA are fixed as daily wage rate, corresponding to the minimum level of living. Wage is being paid by various states under NREGA is lower than the statutory minimum wage. Table 3.5 shows the actual wage realized by workers from NREGA since the Act is implemented along with the fixed State government minimum wages.

During 2006-07, it is evident that the range of wages released by workers under the NREGA varied from a minimum of 70% of the minimum wages in Rajasthan to a maximum of 216 % of the minimum wage in Maharashtra. In 2007-08, there is a marginal reduction in wages that are being realized by workers as the range varied from a minimum of 80 % to a maximum of 165 % of the minimum wage rates. However, after

2008-09 onwards the actual realized wages begin to move up which is almost 18% above the minimum wage rates.

At the state- level, there are some variations in minimum wages is observed, though average wages under NREGA in a majority of states are marginally higher compared to the MWs. In 2006-07, states like Assam, UP, Kerala, Rajasthan, Orissa and Uttarakhand witnessed lower average wage realized under NREGA than the fixed rate of MWs. In 2007-08 again, there are eight states—Assam, Chhattisgarh, Rajasthan, Haryana, HP, UP, Punjab and Kerala, where it is turned out to be lower than the MWs.

However, states like Maharashtra average wages realized by the workers are the highest at 2.2 times of the minimum wages in 2006-07. Similarly, in Jharkhand, these are up to 1.6 times higher than the minimum wages in 2007-08. Within states there are significant variations in the wages realized under NREGA.

Addressing the variation in the wage rate across states, Ministry of Labour notified hiring of the NREGA wages upto 17-30 per cent in 2009. After adjusting inflation by using Consumer Price Index for Agricultural Labour (CPI AL) NREGA wage get revised from Rs.60 to Rs.100. Except in the state of Punjab and Haryana, the gap between wage under the NREGA and that under MW lies above Rs. 25. Despite the linkage of the wage rate with the CPIAL, NREGA workers in UP, Assam and Kerala get wage less than the prevailing statutory minimum wages. Rajasthan and Orissa have hiked their statutory minimum wages under the MWA but these states clarified that this was not applicable to NREGA workers. However, these states had been asked for linking NREGA wages with the prevailing statutory wages (*The Hindu*).

The viability of statutory minimum wages has been under scrutiny for many years. Since, MW depends upon the cost of living upon which varies regionally. Any national MW set at the lowest common level leads to downward effect on the prevailing market wage rates (Sankaran, 2011). The reason behind differential wages across states is the varying cost of living in different states. The wages vary according to place, region and

Table 3.5: State-wise Minimum Wages and NREGA Wages:

		2006-07		2007-08		2008-09	
Zones	**States**	**Min. Wage**	**Wage Rate**	**Min. Wage**	**Wage Rate**	**Min. Wage**	**Wage Rate**
East	Assam	69	67	76.4	72	76.4	77.1
	Bihar	66	70.1	66	81.7	66	82.2
	Jharkhand	50.1	79.3	50.1	82.4	50.1	87.2
	Orissa	55	52.8	70	77.1	70	83.2
	WB	65	70	74.3	79.1	74.3	77.9
	N-Estates	80.9	73.1	75.2	78.3	75.2	82.7
	Total	61.4	66.7	67.6	79.2	67.6	81.9
West	Chhattisgarh	52.9	61.6	69	68.4	69	72.2
	Gujarat	50	55.6	50	63.3	50	66.7
	MP	57	59.5	61.4	63.6	61.4	75.3
	Maharashtra	48	103.7	69	84	69	85.8
	Rajasthan	73	50.8	73	58.6	73	86
	Total	59.8	59.4	66.3	63.8	68.5	80.6
North	Haryana	88.3	96.6	135	114.8	135	139.9
	HP	70	68.8	75	70.7	75	101.5
	J&K	66	69.4	66	71.4	66	67.6
	Punjab	90.6	94	100.7	100.2	100.7	97.1
	UP	58	56.2	100	87.7	100	99.4
	Uttarakhand	73	72.5	73	73.3	73	73.9
	Total	60.9	59.3	97.3	86.5	97.4	99.2
South	AP	64	86.1	64	82.8	64	83.2
	Karnataka	56.5	68	71.3	73.7	71.3	76.6
	Kerala	125	120.8	125	118.4	125	113.9
	TN	70	80	70	77.6	70	80.6
	Total	64.6	83.6	67.1	81.4	67.2	83.7
All India		61	66.4	70.3	73.7	70.5	83.2

Source: Indian Labour Statistic and http://nrega.nic.in

nature of work as well as industry where the worker employed. It is also seen that work of a similar nature gets payments at differing rates, depending whether the worker is working under NREGA or as a farmer or the agriculture worker. Table 3.6 shows the different wage payment for similar kind of job in the rural areas for different period since 1993-94.

In the following table we can observe that NREGA wages are higher than that in any other type of rural work both for the male and for the female. It is also interesting to note that female wages under NREGA is equivalent to male wages. This is not true for any other activity. However, public work generally provide a better pay-offs than any other types of agriculture activities.

Table 3.6 Average daily wages for casual Labourers (age 15-59 yrs) during 1993-94 to 2008: All India (Rural) (in Rs)

	Male			Female		
Rounds	**NREGA wage**	**Public work**	**Other work**	**NREGA wage**	**Public work**	**Other work**
64th	78. 84	76.02	66.59	79	70.66	48.41
61st	NA	65.33	55.03	NA	49.19	34.94
55th	NA	49.04	45.48	NA	39.48	29.48
50th	NA	24.65	23.18	NA	15.33	18.52

Source: NSSO Report on Employment and Unemployment Survey, 64th Round.

Our objective here is to look at the minimum wage legislation as a determinant affecting the level of Agricultural Wages (AW). We have seen that the range of MW levels vary widely for some states, for example, UP has minimum wage level ranging between Rs.58 to Rs.100 for the period 2004 to 2007. This makes it difficult to analyse the impact of these minimum levels of wages on market wage rates.

The reason for a weak relationship MW and the actual wage level may be due to the fact that the idea of MW is not will defined. The notion of MW is more often based not on the criteria of minimum subsistence but on the ability to pay. It becomes impossible to explain how MW level ranges from as low as Rs.50 in the case of Gujarat to Rs.100 in the case of UP. However, this affects the market wage. For some states they are too low to be effective and for some other states workers do not even attained the minimum fixed wages. This leads to the conclusion that MW levels do act as a weak

determinant in fixing the market wage. MW levels do not affects the market wage rate in India.

Besides, there are number of other factors that affect the AW. Different schools of thoughts have undertaken different factors to explain the determination of AW in rural areas.

3.6 *Theories on Wage Determination*

The earlier theoretical developments in regard to wage determination date back to the era of Classical economists like Ricardo, Malthus and Mill who developed the notion of "Subsistence theory of wages". It stated that the real wages had to conform to the subsistence level along with zero population growth. Though it fails to explain why there is substantial difference in wages rates across regions. The neo-classical theory of wage analyze that labour is treated as any other good whose price is determined by equality of demand for and supply of that good. It further states that the wage would be equal to the marginal productivity of the labour. However, it failed to explain the existence of the involuntary unemployment even when the wages are growing.

There have been some theoretical developments which can be broadly considered the extensions of the major theories in the modern economy. The 'Labour Turnover Model' states that in order to reduce the turnover cost of labour, employers may prefer to pay above the market clearing wages. Another theory is the 'collective Bargaining Theories' which discuss the role of collective bargaining and strategies of both workers and employees. However, distinct features of Indian Labour market limited the applicability of these theories. An alternative approach of wage determination in rural market looks at different factors that can affect the wage determination.

In Indian context, Public Work Programme is an important factor that affects the rural labour market. It is an attempt to create supplement wage employment for the rural poor and under-employment to supplement their incomes, especially during the lean

season. This alternative employment scope reduces the pressure on the agriculture sector for employment, thus reducing the pressure on the agriculture lands. Public works are generally categorise as non-farm type of activities. Broadly, Indian rural labour market can be divided into two major sectors—farm and non-farm.

Wages under non-agricultural occupation is an important factor affecting farm sector wage rates. It is postulated that the rural labour is characterized by the interlinkage of several markets and the price of labour in one market is not independent of the price in other goods market. Wages in the non-farm sector often represents the opportunity cost of working in the farm sector. So the level of non-farm sector wages and the extent of the influence of the non-farm sector wage level on the farm wages play an important role in determining the level of AW.

Table 3.7 succinctly shows that the non-farm wages are always higher than the farm wages as productivity in former is greater than that in the latter. It is prominent both for the male as well as for the female casual labourers. Non-farm wages are always set to be higher than the AWs; hence the ratio of farm wages to the non-farm wages is less than one over the periods. At all India level, the ratio decline from 0.76 to 0.67 during 1993-94 to 2004-05 indicating a widening gap between the two. However, during 2007-08 the gap seems to narrow down to 0.86. During 2007-08, wage gap for Rajasthan, HP, Haryana, Punjab and Kerala decline from 1 to 0.90. It is noted that wage gap between male farm and non-farm wage is not as wide as female wage. However, non-farm wages showed a narrow gap between the two genders.

It is interesting to note that the wide gap between AWs and non-AWs prevailing in the female wage market at all India level has narrow down to almost one (0.96). In the post NREGA period[16], female farm and non-farm wage ratio reaches almost to 1 in almost every state except some of the Southern states. Rajasthan, WB, Bihar, Assam, MP and Maharashtra witnessed their ratio more than 0.90. However, gap between the two have been widen in earlier periods. This may be due to the fact that NREGA encourages

[16] The period 2005-06 onwards is generally regarded as Post-NREGA periods.

equal wages both for the male and the female, which was in general completely absent in other rural labour market.

Table 3.7: Sate-wise ratio of Agricultural to Non-agricultural Manual Casual Wage Rates; 1993-2007-08

States	Male				Female			
	1993-	1999	2004	2007	1993-	1999	2004	2007
AP	.85	.79	.75	0.70	.92	0.90	0.72	0.74
Assam	0.80	0.83	0.81	0.82	1.08	1.08	0.92	1.08
Bihar	0.70	.80	0.79	0.72	0.78	0.87	0.89	1.11
Gujarat	0.67	0.75	0.71	0.67	0.99	0.93	0.78	1.00
Haryana	0.82	0.85	0.93	0.98	1.29	0.90	1.00	0.81
HP	0.90	0.98	0.98	1.02	0.84	1.28	1.10	0.94
Karnataka	0.74	0.67	0.58	0.72	0.84	0.74	0.80	0.56
Kerala	0.92	1.02	0.95	0.88	1.29	1.20	1.19	0.93
Maharashtra	0.73	0.69	0.76	0.82	0.79	0.64	0.72	0.90
MP	0.77	0.72	0.69	0.69	0.91	0.77	0.69	0.90
Orissa	0.85	0.75	0.82	0.76	0.79	0.84	0.79	0.74
Punjab	1.01	0.92	0.92	0.95	1.85	1.05	1.63	0.76
Rajasthan	0.96	0.91	1.05	0.79	1.07	0.95	1.01	1.05
TN	0.90	0.75	0.77	0.78	0.95	0.88	0.71	0.77
UP	0.79	0.82	0.84	0.70	0.78	0.70	0.80	0.87
WB	0.90	0.91	0.76	0.85	1.13	1.16	0.99	1.03
All India	0.76	0.72	0.67	0.79	0.86	0.77	0.72	0.96

Source: computed for wages from NSS ROUNDS, 1993,1999,2004,2007.

NREGA seems to provide a new opportunity for the rural poor, especially for the female. Guaranteed 100-days of employment throughout the year, raises the bargaining power of the labour. This alternative work prospect reduces pressure on lands as well as reduces excess supply of labour for the farm sector. Labour shortage and increasing bargaining power of the workers, put upward pressure on wages in the rural labour market. NREGA is not only provides an employment alternative, but also pull the wages in agricultural by creating labour shortage. In the next section, we make a detail study of the impact of NREGA on the agriculture sector, both in terms of employment and wages.

3.7 *Impact of NREGA on Agricultural Wages*

Wages under NREGA act as an opportunity cost for labourers working in agriculture sector. Due to the prevalence interlinkage of the labour market, NREGA wage act as an important factor influencing rural labour market, both in terms of the level and growth of agricultural employment as well as wages earning from different occupation in agriculture.

Since our study mainly concern with the wages of the rural economy, we make a minute study of the impact of NREGA on the agricultural wages. Impact of NREGA on the agricultural wages[17] can be justified if its initiation affects the agricultural wage level. To observe such effects, we analyse the change in the annual average growth rate of the agricultural wages[18]. In order to remove any seasonal and cyclical variation, we use Compound Annual Growth Rate (CAGR)[19] to analysis the growth rate in the agriculture as well as non-agriculture wage level. With the implementation of NREGA, there occurred a structural change in the rural economy. In order to examine the impact of such structural change, we use a Dummy Variable model.

Table 3.10 shows that pre-NREGA period[20], five states out of 16 states experienced negative growth in the agricultural wages. It is observed that more than 30 per cent of the total states shown downfall in their wages over the period 2004-05. However, in post- NREGA period only Maharashtra shows negative growth rate. AP, Rajasthan, UP, Punjab and Haryana has more than 60% increment in their agricultural wage rates. Even the most underdeveloped states like Orissa, Bihar and MP registered 30-40% increase in their agricultural wages. All the southern states showed a major improvement in the wage level. It was noted that AP recorded 60% increment in its wage rate. It had also the maximum number of district covered under NREGA. NREGA is

[17] We analyse NREGA effects on AWs only for the major states in India as real wages for the smaller states are not possible to get. CPI-AL index from Labour Journal are not provided for small states.
[18] Simple trend growth rate has been calculated from Agricultural Wages in India (for male only).
[19] CAGR is calculated from National Sample Survey (NSS) data both for the male and female.
[20] Broadly, 2001 to 2006 correspond as Pre-NREGA periods and 2006-10 onwards regard as Post-NREGA period.

mainly concentrated in the Eastern region states and had a large number of districts covered from Bihar, Orissa, WB and UP during the phase I of its implementation. The effects of such large coverage can be easily seen from the growth rate of their wage levels. However, it is interesting to note that growth rate in the wage levels of the Northern states (HP, Haryana and Punjab) is much higher even though least number of districts covered under NREGA. It is due to the fact that the flow of cheap migrated labourers from Bihar, WB and UP has been reduced after NREGA. Western region states-- Rajasthan and MP showed higher improvement because of its wide coverage and large number of person-days of employment generated. Few districts of Gujarat covered under NREGA and few days of employment generated in Maharashtra, thus the effects of NREGA on their agricultural wages has been limited. It can be concluded that the spread of NREGA and the number of days of employment generated under NREGA are two important factors to have a positive impact of such a programme on the overall rural economy.

To get the overall impact of NREGA on the rural economy, we analyse not only the agricultural wages but also non-agricultural wages as NREGA is basically a non-agricultural employment scheme. To measure the overall trend and growth in the AW and non-AWs, we compute Compound Annual Growth Rate (CAGR) from NSSO both for the male and female for the 61st and 64th Rounds. We make a comparative study between the two and analyse the difference in the agricultural wage growth rate by broadly dividing the periods as pre and post NREGA period. Table 3.8 showed that male wage level at all India grows from 1.5% to 4.7%. Both these rounds have only one state witness a negative growth rate. However, the growth rate in the post NREGA period is much higher in most of the states. All the Southern region states are experiencing higher growth rate of 7% followed by the western region states, where Rajasthan and MP recorded 6.5% growth rate.

Table 3.8 Average Annual Growth Rate of Agricultural wages (Male):

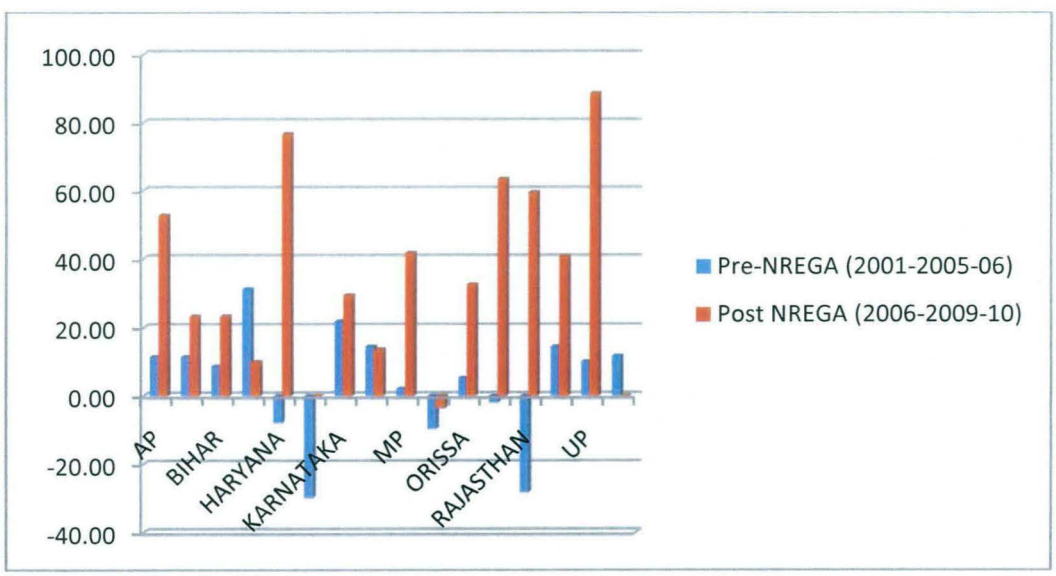
States	2001-06	2006-10
AP	11.49	52.69
ASSAM	11.48	23.31
BIHAR	8.72	23.38
GUJRAT	31.10	10.05
HARYANA	-7.99	76.67
HP	-29.88	2.761**
KARNATAKA	21.82	29.29
KERALA	14.49	13.66
MP	2.11	41.66
MAHARASTRA	-9.76	-3.55
ORISSA	5.26	32.39
PUNJAB	-2.03	63.38
RAJASTHAN	-28.29	59.44
TN	14.42	40.65
UP	10.07	88.64
WB	11.69	2.99*

Source: Computed from Agricultural Wages in India (AWI).

***Data for 2009-10 is missing. Hence, data upto 2008-09 has been used to calculate the average growth rate.*

**Data for 2008-09 and 2009-10 are missing. Hence, data upto 2007-08 has been used.*

Figure 3 4: Annual Growth Rate of Male Agricultural Wages during pre and post NREGA:



Source: Computed from Table 3.10.

However, Maharashtra and Gujarat have registered only 2.6% growth rate. While using AWI data, the same states shows either a negative or lower growth rate. The possible reason behind this may be the poor implementation of NREGA and lower person-days of employment generation in these states. Eastern and Western (except Rajasthan and MP) regions have experienced a marginal growth. Though a large number of districts of these states are covered under NREGA, average man-days employment generated are very low (Orissa started with 57 days in its phase I). Assam has only 7 and then 6 districts under NREGA coverage and again the number of person-days employment is low, leading to negative growth rate. Contradictory result for the states likes Bihar, Orissa, UP and Punjab is evolved from NSSO and AWI data. Higher growths have been registered from AWI but a moderate growth is recorded from NSSO.

However, female agriculture wages have shown fall during post-NREGA periods. Some of the Southern states like Kerala, Karnataka, TN and agricultural advanced states like Punjab, Haryana have registered negative growth rate. Even states Rajasthan, Assam and Maharashtra have also registered negative growth.

Agricultural wages are not pushing up as a large number of female workers are joining the workforce at wage lower than the wages for male. According to 2007-08 NSSO, female employment in agriculture increase marginally from 814 per 1000 HHs in 2004-05 to 816 per 1000 HHs in 2007-08. More specifically, in the present era, principle status of the female worker is rising.

However, the growth rates of non-agricultural wages show an increasing trend both for male and for female. Male wage growth rate is almost twice that of female (8.46% for male and 4.96% for female) during post-NREGA period. Female wages are rising sharply during the post- NREGA period. AP, Bihar, Maharashtra, Orissa and UP have highest growth ranging from 5 to 10% in their non-agriculture wages. Others states only have moderate growth of around 1.5 to 2%.

Table 3.9 CAGR for Agriculture and Non-agriculture wages (Male and Female) during Pre and Post NREGA periods:

	2000/2005				2005/2008			
	Agriculture		Non-Agriculture		Agriculture		Non-Agriculture	
States	Male	Female	Male	Female	Male	Female	Male	Female
AP	0.81	-0.03	7.23	NA	7.46	4.42	10.07	8.16
ASSAM	5.59	7.17	-0.07	6.97	-0.56	-3.81	-2	-5.93
BIHAR	2.83	1.96	-3.42	7.82	0.77	0.78	2.24	7.99
GUJRAT	0.82	1.95	6.86	NA	2.44	2.57	-2.7	-6.39
HARYANA	0.59	-0.93	-0.5	-5.45	9.06	-5.47	0.89	14.17
HP	4.66	2.17	0.31	NA	2.58	-4.66	0.75	7.58
KARNATAKA	0.44	0.86	1.7	10.04	13.11	-4.43	12.07	0.75
KERALA	1.8	0.44	-0.31	-4.67	6.61	-14.92	11.58	5.14
MP	2.44	1.72	2.23	-2.31	6.7	5.33	1.63	-1.29
MAHARASTR	0.26	-0.6	0.9	2.32	2.75	-2.27	7.69	5.62
ORISSA	5.91	4.26	5.48	8.98	0.85	-3.98	4.39	22.16
PUNJAB	0.08	-1.98	-0.07	6.97	2.49	-6.31	1.19	19.49
RAJASTHAN	2.6	4.11	-0.31	2.98	6.58	-6.07	2.32	-12.06
TN	1.21	0.05	0.96	4.39	7.52	-6.27	5.79	3.23
UP	2.11	3.26	1.79	0.53	1.47	-0.35	6.2	6.54
WB	-1.11	0.36	2.48	3.54	5.43	2.79	1.91	4.19
All India	1.49	1.23	1.6	2.17	4.70	-2.7	8.44	4.96

Source: Computed from NSSO Rounds (55th, 61st and 64th Rounds).

3.8 *Structural Break Model*:

For studying the impact of NREGA on the AW, we adopt a model of structural break, where entire study period has been divided into two sub-periods, the first sub-period considered is from 1990-91 to 2004-05, i.e., pre-NREGA period, and the second sub-period considered is from 2005-06 to 2008-09 as post- NREGA period. The study has been made on both the periods separately.

A dummy variable D, such that D =0, if T is for the pre- NREGA periods; otherwise D=1 is considered.

Hence, the model to be estimated is specified as

$$W = \alpha + \beta T + \gamma D + u$$

Where constants α, β, and γ are to be estimated.

W= Real wage,

T= time

D= dummy variable

and u= error term.

Table 3.10: Estimation of trends in Real wages:

States	Intercept	Coefficients of Explanatory variables*		
		β-value	γ-value	R^2
AP	36.94	.93 (2.77)	12.17 (2.73)	.79
Assam	49.69	.14 (.828)	9.52 (2.92)	.63
Bihar	30.53	1.87 (6.22)	0.27(.068)	.84
Gujarat	37.27	2.17 (9.47)	1.90 (.623)	.93
Haryana	68.86	2.72 (2.31)	25.52 (1.62)	.64
HP	48.44	5.10 (5.87)	-25.16 (-2.17)	.73
Karnataka	20.01	2.63 (7.29)	1.70 (.354)	.88
Kerala	57.30	8.42 (18.54)	0.29 (.049)	.97
MP	34.76	1.00 (4.75)	0.952 (.337)	.77
Maharashtra	36.06	.984 (4.29)	-7.02 (-2.27)	.55
Orissa	29.79	1.06 (5.27)	.303 (.112)	.79
Punjab	76.83	.392 (.704)	1.55 (.209)	.09
Rajasthan	52.32	.066 (4.13)	.423 (1.97)	.54
TN	45.68	2.07 (4.03)	-9.95 (-1.59)	.86
UP	36.81	1.82 (3.75)	-2.37 (-.365)	.62
WB	54.28	1.09 (3.37)	-.593 (-0.131)	.55

1. *Figures in parentheses are t-value.*

2. **Significant at 5 per cent level of significance.*

Results and Interpretations:

A dummy variable model for agricultural real wages from the period 1990s to 2009-10 with a break from 2005-06 onwards has been summed up in the Table 3.10. The table shows that the coefficients of regression are positive and significant for almost all the states. AP shows a positive partial regression coefficient of 0.93 which means that, holding all other variables constant, an increase in real wage is accompanied by an increase in the mean of the change in the time period. Turning to the statistical significance of the estimated coefficient significant, we can see that the hypothesis that there occurred no change in the rates of real wages in both the groups found to be untrue at 5 percent level of significance. In other words, it could be stated that the economic status of the AL at present i.e., after post- NREGA period improved. The same is true for Rajasthan. The dummy variable for the pre and post NREGA period in the linear regression equation yield positive and significant γ coefficients that showed that the trends in the real wages of AL change significantly after NREGA. Gujarat, Kerala, Bihar, TN and Orissa have positive intercept but statistically insignificant result showed that in these states the hypothesis that there occurs no real change in the real wages after NREGA found to be true. It implies that the present situation of the AL remain to be same even after the NREGA. However, if one could study in depth, we come across a very interesting aspect that in these states (except Orissa, Kerala and TN), the value of R^2 is very low in these states. Thus the overall equation is inadequate and statistically insignificant to explain the explanatory variable. On the other hand, states like TN, MP, Maharashtra, Bihar and Karnataka have positive as well as significant result for the overall time trend. The result shows a significant rise of AW on these states. However, there are few states where the NREGA fail to affect the AW.

Moreover, implementation of the Act, in the given state often matters for the successful pulling of the wage level prevailing into the market. AP and Rajasthan have most successfully implemented the Scheme and hence it generated positive results by improving its overall rural economy. Rising rural wages and employment improve the income level of the rural population. During the post NREGA period, majority of the

states have significant rise in the overall wage trend as the β-value is positive and significant for majority of the states. However, rate of growth in AWs is not significant for the majority of the states. This is because the CPI-AL index or inflation rises so high that it failed to cope up with the rise in the wage level in the real sense. A marginal or insignificant growth in the real wages is notice in number of states. If one looked at the nominal wages (in absolute term) a significant growth would be noticed, but in real figures, no such growth can be seen. It can be claimed that if there would not be NREGA, overall rural poverty and rural economy suffered a drastic fall, leading to a miserable condition for the poor section of the rural i.e., ALs with this sparking inflation. Thus, NREGA, as a policy intervention has a significant contribution towards poverty alleviation.

3.9 *Summary and Conclusion*:

This chapter examined the implementation of NREGA and the latter impact on the Agriculture Wages. NREGA, being a Government initiative Public Work Programme, acts as an alternative option of employment for the poor, landless and small farmers. With the market imperfection, an employment guarantee improved both efficiency and equity.

NREGA being a Right-based programme plays an important role in the rural macro economy. Its implementation affects the overall rural economy. Employment generation, assets creation and income enhancement are the few noticeable changes made by the NREGA in the rural economy. While analyzing overall, impact of NREGA on rural wages, which is the main source of development and sustainable growth, we come to the point that in majority of states, NREGA is able to pull the agricultural wages. But in an overall study, we find that the growth rate is not as high as it is expected. This is because of prevalence of high inflation.

Table 3.11 clearly showed the growth rate in agricultural as well as non-agricultural wages both for the female and male from NSSO. Male wage rate had

registered higher positive growth after NREGA. However, female agricultural wages registered negative growth, but the non-agricultural wages for female showed much higher growth than the male non-agricultural wages. The growing feminization of agricultural sector keeps their wages at low level, while male are joining the services sectors basically the construction and mining industries exerts pressure on the wages which is pulling the wage higher. However, if we study state-wise performance, we could see wide variation. Rajasthan, Orissa, MP, Haryana, HP, AP, TN showed much higher growth than Kerala, Maharashtra and Assam.

However, if we study AWI data, high growth rate in agricultural wages is recorded for majority of states. It is only in Maharashtra that suffered from negative growth. This rise in AW is positively correlated with rise in person-days employment in NREGA. It is due to this rise in AWs that the number of male employed in agriculture remained same both for 61^{st} and 64^{th} rounds which are earlier declining rapidly. A positive correlation between average man-days employment and growth in agricultural wages is found. This indicates the Act's contribution on tightening the labour market.

The constructive impact of NREGA has been undeniable: a rise in rural daily wage rates reduces migration and has positive effects on society. But it has also contributed to rise in farm input costs, withdrawal of labour from the farm sector and therefore impacting agricultural operations and food prices. Andhra Pradesh is known to have done well on the NREGA front. Precisely the reason why there is an acute shortage of labour, There are 15 to 20 percent drop in agricultural productivity during kharif season, 2008 due to the labour scarcity. Localised labour shortages have severely hampered farmers in other southern states as well. A study by Kerala University in Palakkad district has attributed the acute shortage of farm labour in the district due to NREGA. ALs in TN is reluctant to work even at enhanced wages. Rajasthan which is the star performing state faced acute labour shortage and massive rise in labour cost. It emerged that NREGA is pushing up the wages of rural workers in a manner that is raising cost of cultivation. However, these criticisms are, the purpose of any such scheme would

be to improve the conditions and the bargaining power of rural labourers which is reflecting in higher wages.

Both these sources confirmed a rising trend of the AWs as well as non-AWs. However, inter-state as well as inter-region variation prevails in almost all states and all regions. Hence, a detail study on inter-state variation is done in the next chapter to find the magnitude and extend of this variation. One interesting aspect which has been seen is that female agricultural wage level does not affected much, but again, non-agricultural wages of the female workers registered a rapid growth. It was even seen that the growth was more prominent in female wage market than the male wage market. A detail study of female wage-labour market is essential for getting the true picture. Hence, in the next chapter we make a detail analysis on female wages.

Chapter 4

Inter-state Variation and Gender Disparity

4.1 *Introduction*

While analyzing the trend of the agricultural wages in India, wide and persistent variation in real wages has been recorded. Regional and temporal variation in the growth rates of real wages both across NSS regions and state-level are a matter of concern. Kerala, in general record as high as Rs.200 (for male) wage rate while MP, Maharashtra registered Rs.50-60 as their manual daily wage rates. This pattern of inter-state variation in wages prevails widely. It has been stated by the scholars that NREGA implementation would reduce this disparity as the Act aims to enhance the livelihood of the down-trodden of the most backward region. It implementation in the backward regions of the country would generate positive impact in terms of employment, improved income and asset building.

The chapter mainly analyzes inter-state variation through different methods. Further, the effect of NREGA and its role in reducing inter-state variation has been examined here. The chapter also studies the prevailing disparity and discrimination faced by the female workers in rural labour market, both in socio and economic prospective. In the literature, it has been argued that NREGA played a vital role in reducing gender disparity by guaranteeing one-third jobs for the female workers. This makes it important to look at the role of NREGA in reducing gender disparity. This chapter is divided into two major sections. In section 4.1 the temporal and spatial regional variation has been analysed. In the latter section of 4.2, gender disparity prevailing in the aspect rural labour market has been analysed.

4.2 *Temporal and Spatial Regional variation in Real wages of ALs*:

The wide and persistent variation in real wages across states has been probed by computing Ranking method. To understand the state-wise performance of wages over the years, we have ranked the states according to the levels of real wage earnings of ALs. These ranking shows an indication whether the wage levels in a particular state have grown considerably visa-a-via other states or not.

Table 4.1: All India Ranks of States According to Agricultural Real Wage earning (Men):

Major states	**Ranking**			
Years	**1993-94**	**1999-00**	**2004-05**	**2007-08**
Kerala	2	1	1	1
Punjab	1	3	4	2
Haryana	4	4	3	4
HP	8	2	2	3
TN	7	5	5	5
Assam	6	8	6	10
Rajasthan	5	6	7	7
Karnataka	10	9	11	8
AP	13	10	9	6
WB	3	7	10	11
UP	9	11	8	12
Gujarat	12	12	11	9
Bihar	16	14	13	13
Orissa	15	15	14	14
Maharashtra	11	13	15	16
MP	14	16	16	15

Source: Computed from NSSO, various Rounds.

It is observed from Table 4.1, that high wage states have consistently maintained their ranks (Kerala, Haryana and Punjab). States with lower wage rates remained at the bottom (MP, Maharashtra and Orissa) of the entire ranking of the country. There are few states, which have shown substantial improvement in their rankings over the last period (Gujarat, Karnataka and AP). Other states shows a constant decline in their ranking more specifically after 2004-05(Assam, WB and UP). Some states have performed better in the earlier years but deteriorate during the last years of 2007-08 (Assam, UP and Maharashtra).

One interesting feature to note is that at all India level the southern states have performed comparatively better in terms of improving their ranks. However, the states which have conventionally been at the lower rank (central and eastern region) remain stuck to their position, indicating the concentration of development to a certain part only. After NREGA, positions of these poor states (AP and Rajasthan) are improving which is reflected by the improved ranking over the period. Still there are some states (MP, Maharashtra, Bihar and Orissa) which consistently remained at the bottom of the country ranking. The ranking method shows the prevalence of spatial variation among the states. It is observed that states where majority of its population engaged in agriculture suffered from lower to stagnant growth. Majority of the total population of the country resides in these areas, thus improvement in their ranks become very vital. It is due to this, that NREGA is initiated in the most backward districts of the country.

The very fact that the low wage states remain low and high wage states continue to remain in their position indicates that the inter-state disparities in AW have not come down. Even though NREGA improved their poor condition, their positions remain at the bottom level. However, the exact magnitude of these disparities cannot be easily gauged by the ranking alone as the method measure the absolute position only. Hence, in the next section, measurement of inter-state disparities in AW earnings has been analysed.

4.2.1 *Extent and magnitude of Inter-state Disparity*

Disparity in wages has been examined in terms of coefficient of variation (CV). The extent of inter-state variation[21] and regional variation in wages across 16 major states measured through CV as the dispersion in the wage can be measured by this tool over the period. However, CV gives a relative measure only. Thus, an alternative measure to look at inter-state variation is used to sort out the problem associated with the CV. Nevertheless, it is useful for comparing the degree of variation from one data series to another. Since, the tool depends upon the standard deviation and mean of the data series dimensionless analysis is possible. Hence, to study the variation and dispersion in the wage series over the period, CV has been analysis.

Table 4.2 Coefficient of Variation of State-specific Real Wages:

Year	CV (Male)
1990-91	30.53
1991-92	35.88
1992-93	37.51
1993-94	33.51
1994-95	37.03
1995-96	38.26
1996-97	39.10
1997-98	40.78
1998-99	42.22
1999-00	39.50
2000-01	44.31
2001-02	45.97
2002-03	47.26
2003-04	43.28
2004-05	51.90
2005-06	48.92
2006-07	54.38
2007-08	49.56
2008-09	49.82
2009-10	48.15

Source: Computed from AWI.

[21] Here, the CV (for male) is calculated from AWI as time series data on wages are available from this source only.

Table 4.2 gives an idea how the CV in agricultural wages of male workers behaved over the period 1990 to 2010. The picture is quite clear that the CV has shown a large level of fluctuations. There is no consistent trend in the movement of CV. It is observed that from 1999-00 onwards there is an increasing trend in the CV which indicates growth in the inter-state disparities during the period.

It is interesting to note that the CV kept on increasing after 2000-01. However, after the onset of NREGA from 2006, the disparity seems to lower down from 54% to 48%. NREGA being implemented to the most-backward region of the states helps in reducing regional variation in wage rates. With the increase in its coverage, the spatial variation seems to decrease from 54% to 48% from 2004-05 to 2009-10. This trend broadly indicates the declining inter-state disparity in the real wages.

Table 4.3: Co-efficient of Variation of Real wages (Ploughman) across the major states (%)

Year	with Kerala	Without Kerala
1990-91	30.53	28.82
1991-92	35.88	34.13
1992-93	37.51	35.64
1993-94	33.51	31.17
1994-95	37.03	34.51
1995-96	38.26	34.97
1996-97	39.10	32.99
1997-98	40.78	32.64
1998-99	42.22	30.52
1999-00	39.50	31.48
2000-01	44.31	36.84
2001-02	45.97	30.56
2002-03	47.26	30.50
2003-04	43.28	27.72
2004-05	51.90	37.05
2005-06	48.92	22.93
2006-07	54.38	31.88
2007-08	49.56	27.93
2008-09	49.82	27.69
2009-10	48.15	27.04

Source: Computed from AWI.

One of the major problem with using the CV as a tool for measuring disparity is that it is highly affected by the presence of outliers. The trend in AW over the years shows that there has been the presence of outliers with high wage states having a rapid growth in the level of wages. To analysis, this we have calculated the CV from the ploughman male wage rates available from AWI data for the period 1990s to find whether there is any effect of the outliers and is presented in the following table 4.3.

From the Table 4.3, it can observe that if we removed Kerala[22] from the states, the CV declines between 1995-96 and 1999-00 whereas the data with Kerala show an increase. It can be seen that the CV (all states) shows an increasing trend from the period of 1990s. But identifying Kerala as an outlier in the distribution of AW across states, we find that the CV becomes almost stagnant and have lower variation over the period (except in 2006-07). Hence, presence of any such outlier leads to have inadequate result. This leads to the conclusion that the CV may not be the adequate tool to capture inter-state variation in wage level.

4.2.2 *Maximum- Minimum Ratio*:

Another measure of dispersion, which is usually used for the level of variability in a series, is the maximum-minimum ratio. It is defined as the ratio of the maximum value to the minimum value. If there is an increase in this ratio we can say that the spread has gone up showing increasing disparities and vice-versa. The major limitation of this tool is that it takes into account only the extreme values. But, it give a broad idea about how the inter-state variation behave over time and what has been the comparative position of high and low wage states.

The trend of maximum-minimum ratio is almost the same as we observe in the case of CV. It is visible that the ratio of maximum to minimum of AW real wages is showing an increasing trend upto 1994-95. However, 1995onwards marginal fall in the ratio has been recorded. Thereafter, it keeps fluctuated. One should also notice that this

[22] Kerala having the highest agriculture wage state is chosen as outlier. Moreover, in absolute term, it also has the maximum level of wage.

period was marked by a substantial increase in real wage growth in almost all the states. However, after that it remained stagnant around 4.5%.

The subsequent periods again show an increase in the maximum-minimum ratio. These periods were marked by a decline in the growth of real wage earnings across India. So it is observed that inter-state disparities have gone up in a period where real wage growth has declined. These lead us to the conclusion that a substantial growth in real wage is expected to bring the level of inter-state disparity down whereas a decline in growth of real wage leads to increasing disparities.

All these methods assured the presence of variation across states. Inter-state variation during nineties increase, the same trend is followed in the 2000s'. In the mid of 2000, we find that that CV get lower and fluctuation in the wages get moderate.

Table 4.4: Maximum-minimum ratio of Real AW across States:

Year	Ratio of Max-Min wage.
1990-91	2.26
1991-92	2.43
1992-93	3.03
1993-94	2.39
1994-95	4.07
1995-96	3.43
1996-97	3.26
1997-98	3.20
1998-99	3.42
1999-00	3.03
2000-01	3.40
2001-02	3.73
2002-03	3.83
2003-04	3.74
2004-05	4.25
2005-06	4.53
2006-07	4.92
2007-08	4.51
2008-09	4.43
2009-10	3.90

Source: computed from AWI.

Various scholars attributed this dampen fluctuation to NREGA. The programme generally started at the down-trodden regions, where the agriculture wages are low. As an alternative job prospective, pulls the wage rate. Thus, NREGA helps in reducing inter-regional disparity. However, it has been seen that the rate of fall in variation is very low and the poor states (in terms of low wage) still remain to the bottom of the list.

4.1.3 Distribution of Agricultural Labourers:

Table 4.5 shows that the distribution of workers across India is such that the major share of AL belongs to the states which are identified as low wage states. The states, which are high wage states, employ only a small percentage of workers at all India level. More than half of the AL of the country is residing in the states of Bihar, AP, UP, MP and Maharashtra which are marked by low level of wages. Thus, a majority of AL in India still lives in the states which are marked by very low levels of wages.

Table 4.5: Distribution of agricultural Workers in India across states

Major States	Percentage Share
Bihar	15.27
Andhra Pradesh	12.87
Uttar Pradesh	12.67
Maharashtra	10.52
Madhya Pradesh	9.69
Tamil Nadu	8.07
West Bengal	6.85
Karnataka	5.78
Orissa	4.66
Gujarat	4.65
Rajasthan	2.36
Kerala	1.54
Punjab	1.40
Assam	1.20
Haryana	1.19
Other states	1.28

Source: Census of India, 2001

This leads to the conclusion that though wage growth was occurring in various areas but the benefit for such was going only to the hands of a few. Though there are states which have relatively higher wages in agriculture, but they employ less than five percentage of AL in the country. Bihar, UP, MP, Maharashtra employed more than 50% agricultural labourers of the country. These states too marked as the low wage states, thus indicating prevalence of regional variation.

4.3 *Gender Disparity in Agricultural Wages*:

In this section of the chapter, we look at the gender disparity prevailing in the Indian rural areas. Women as a worker are always treated in a different category. In the social perception regarding 'what work women should do' and 'who should go for employment' play an important role in determining women work participation (Nayyar, 1989). It is observed that majority of women workers in rural areas would be from poor households (Jose, 1989).

It is also observed that women are always treated as supplementary worker and never regard as main worker. Out of the 38% of female workers in rural area, 84% are engaged in agriculture only[23]. It is regarded that agriculture becoming more unproductive and gradual fall in its growth rate, pull the main workers (mainly the male workers) from this sector. Hence, female participation in this sector is growing. However, in the labour market certain work is reserved for male only and hardly any women are hired for that purpose, for example ploughing is always a man dominating job. Moreover, there exist a well-defined wage gap even for the same job between a male and a female (Jose, 1989). Apart from agricultural work, women have to perform household activity too. These non-economic factors do affect the wage and employment decisions of female workers (Nayyar, 1989) by reducing their participation rate and thus their bargaining power. Such social and cultural barriers restrict women's entry into wage-employment market.

[23] NSSO Report, 64th Round.

Public works programme themselves, by virtue of their strategies and modalities of operation can facilitate women's participation. It is general notion that public work programmes are 'gender-neutral'. Public programme role is to transfer and/or stabilizes benefit to all the section of the society equally.

It is in this context, that we examine a fresh look at behavioural response to the new employment programme provided by public work projects and their implementation for assessing transfer benefits. NREGA, being such a public programme, have the potential impact on women's access to wage work and wages of women workers in rural India. By using available national and state level data, we analyses the disparity faced by the women worker in rural India. Women's participation in wage work and the gender gap in wages are amongst the reasons for persistent poverty and inequality in India. Therefore, in Section 4.2.1, we analyses the current situation regarding women and men inequality prevailing in the rural market, especially rural employment market in India and highlights the distress of women workers in rural India. Sections 4.2.2, 4.2.3 and 4.2.4, we provide some insights into how the NREGA can potentially be beneficial for women workers by increasing their participation in wage work, by increasing their actual wages, and thus by enhancing their voice. Here, data from the NSSO's last quinquennial round in 2004-05 as well as Annual 64th round NSS Report and official data from the Ministry of Rural Development's (MORD) website on NREGA has been used.

4.3.1 *Inequality between men and women in Rural Labour market*:

To analyze the gender disparity first, the trend in the earnings of women ALs in India across the states has been analyzed and then we compare it with that of the observed male workers' trend in wages. Thereon, we will examine the ratio between the male to female wage to analyse the wage gap between the two genders. In the first section, we have observed growth rate of the wages both for the male and female workers through the Compound Annual Growth Rate (CAGR) over different periods of NSSO rounds. Table 4.6 gives CAGR for 16 major states in India.

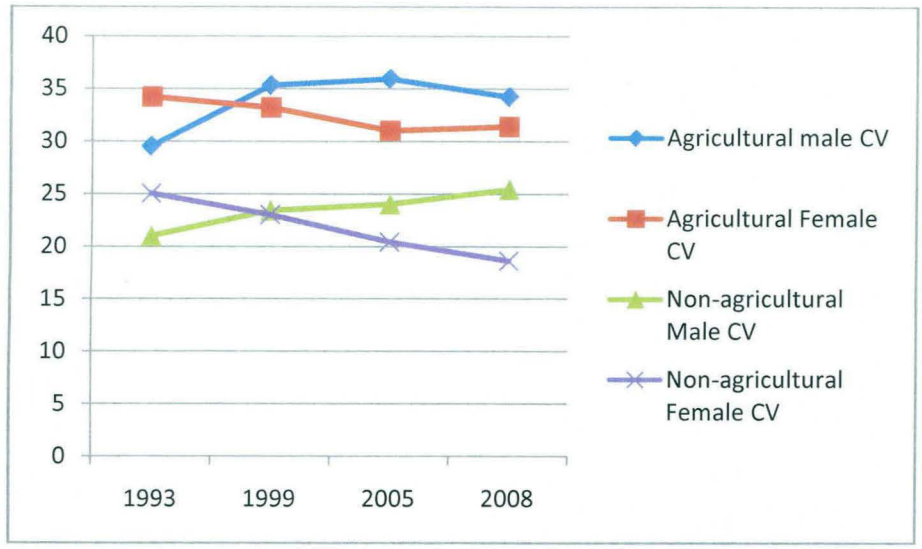
Table 4.6 CAGR for Agricultural Wages for Male and Female Workers:

	Male				*Female*			
STATES	**1994/00**	**2000/05**	**1994/2005**	**2005/08**	**1994/00**	**2000/05**	**1994/05**	**2005/08**
AP	2.71	0.94	1.70	10.89	2.64	-0.22	1.35	7.54
Assam	0.76	3.96	1.72	2.09	0.17	6.63	1.72	-3.65
Bihar	3.86	3.05	3.20	0.45	4.95	2.32	3.27	0.78
Gujarat	2.77	0.98	1.78	2.09	1.43	1.32	1.59	2.53
Haryana	2.36	1.81	1.92	3.95	2.70	0.09	1.93	-3.87
HP	8.2	0.59	5.04	9.06	6.1	-0.93	4.89	1.01
Karnataka	4.48	-1.65	2.13	12.06	4.68	-2.40	2.19	6.96
Kerala	6.62	1.37	3.84	6.69	5.12	0.22	3.42	-4.94
MP	0.53	2.65	1.35	4.94	1.54	1.91	1.42	2.86
Maharashtra	2.57	0.76	1.59	2.43	3.51	-0.29	1.67	-3.20
Orissa	1.73	6.03	3.34	1.04	3.15	3.84	3.25	-4.11
Punjab	-0.07	0.38	0.13	2.07	-0.52	0.06	0.03	-7.30
Rajasthan	2.96	2.14	2.36	7.72	3.24	1.73	2.42	6.55
TN	4.07	1.64	2.70	7.17	3.68	0.16	2.41	-6.39
UP	3.16	1.23	2.07	1.61	3.58	1.88	2.07	-0.69
WB	-2.58	0.50	-1.20	4.56	-2.18	0.52	-1.18	2.20
All India	2.76	1.65	2.10	4.93	2.74	1.05	2.03	-0.23

Source: Computed from NSSO data.

It has been seen that female CAGR in 2005/08 showed negative growth rate, eight states out of sixteen states have recorded negative growth rate. Even, the earlier years of analysis showed that the female wage grow at a lower or stagnant rate. However, male wage grows at a rate of 2.10%. Earlier year's analysis showed that male have higher growth rate compare to the female wage rates. Again, when we study the coefficient of variance for the agriculture wages for these two genders, we come to an interesting fact that the coefficient for female fall more sharply than their male counterpart. Figure 4.1 shows that the Coefficient variance of the female workers is falling faster than their male counter. For the past decade, it shows that fall in the female wage's variation is higher than the male wage. This means that the spread in wage earnings across states was higher in the case of females, however, some discrepancy still persist. Here, non-agriculture wage movement is also examined besides agriculture as non-agriculture sector becoming important source of employment both for the male and female workers and particularly for the female workers.

Figure 4.1 Coefficient of Variance of male and female in agriculture and non-agriculture wages:



Source: Computed from NSSO Report.

4.3.2 *Differences in Male-Female wage*:

Gender difference in wage rates can be best observed from a ratio between the female to male wage, where a comparative study of the magnitude of their wage differences can be studied. The ratio between the female to male wage shows the gap prevailed between the two. Lower ratio indicates the presence of higher disparity in female wages while higher ratio indicates the equity between the two wages. Ratio both in the agriculture and non-agriculture wages for the year 2007-08 has been given in the Table 4.7.

During the period 2007-08, there is a general decline in the female to male wage ratio. That means that the wage earning of female ALs rises much faster than that of the male, which leads to the decline in the gap. There is also stagnancy in the growth of agricultural wages compare to non-agricultural wages. Several studies in this area concluded that gender gap in wages have been declining (Jose, 1989; Unni, 1988; Krishna Raj and Shah, 2004).

Table 4.7 Ratio of Real wages between female and male agriculture and non-agriculture earning (2007-08):

States	Agricultural Wages			Non-agricultural Wages		
	Male	Female	Ratio	Male	Female	Ratio
AP	51.38	34.24	0.67	73.35	46.57	0.63
ASSAM	53.98	47.62	0.88	66.18	43.96	0.66
BIHAR	41.65	40.53	0.97	58.25	36.65	0.63
GUJRAT	43.87	42.84	0.98	65.58	42.8	0.65
HARYANA	70.93	53.9	0.76	72.5	66.37	0.92
HP	93.13	59.29	0.64	90.96	62.97	0.69
KARNATAKA	59.19	31.08	0.53	82.31	55.92	0.68
KERALA	120.8	53.95	0.45	137.63	58.22	0.42
MP	39.48	35.41	0.90	48.29	39.32	0.81
MAHARASTRA	41.88	29.31	0.70	60.94	32.5	0.53
ORISSA	40.21	31.34	0.78	52.78	42.49	0.81
PUNJAB	68.26	50.58	0.74	71.67	66.36	0.93
RAJASTHAN	46.87	45.09	0.96	59.12	42.79	0.72
TN	68.99	35.9	0.52	88.15	46.81	0.53
UP	45.97	41.36	0.90	66.06	47.4	0.72
WB	48.75	44.53	0.91	57.58	43.32	0.75

Source: NSSO 64th Round.

Wage ratio has been increasing both at all India level and in the case of majority of states. The striking feature is that the two states, which are usually known as high disparity between male-female wage –Punjab and Haryana have shown a decline in gender gap in both the agricultural and non-agricultural wages. Another, interesting thing that noticed is the gender gap that was widening in all the southern states, indicating some spatial dimensions of gender differences in earnings across states. In Kerala, there is a sharp increase in the female-male wage gap both for the agriculture as well as for the non-agriculture indicating the widening gap. Female wages in the southern states is half (45 to 50%) than their male counterpart. However, the ratio of the most poorer states like MP, Maharashtra, Orissa, WB, Bihar and even UP are more than 90%. If we make a comparative study between the agriculture and non-agriculture wage ratio, we find that

the non-agriculture wages ratio are falling more rapidly reaching almost one, indicating a lower wage-gap between male and female. It is said that non-agriculture jobs always attracts female workers. Moreover, NREGA ensures equal payment both for the male and female. Female wages in the other sectors is also increasing leading the gap to reduce.

4.3.3 *Wage Difference across different occupations*:

Low payment or less pay is not sufficient to prove the discrimination in the labour market. It is said that there is market segmentation and the job undertaken by both are different in nature and hence the difference occurs. Mainly ploughing and harvesting are done by the male and post harvest operations like weeding, reaping etc are undertaken by women. As the nature of these jobs is less tedious, they are paid lower wage. But it is found that even if male is attached to so called 'low paid jobs', they often get higher wage compared to the female workers. The difference in wage for the same work then gives an indication that women workers paid low for the same work without any consideration of productivity which indicates a clear case of discrimination.

4.3.4 *Women participation in Rural Employment Scheme*:

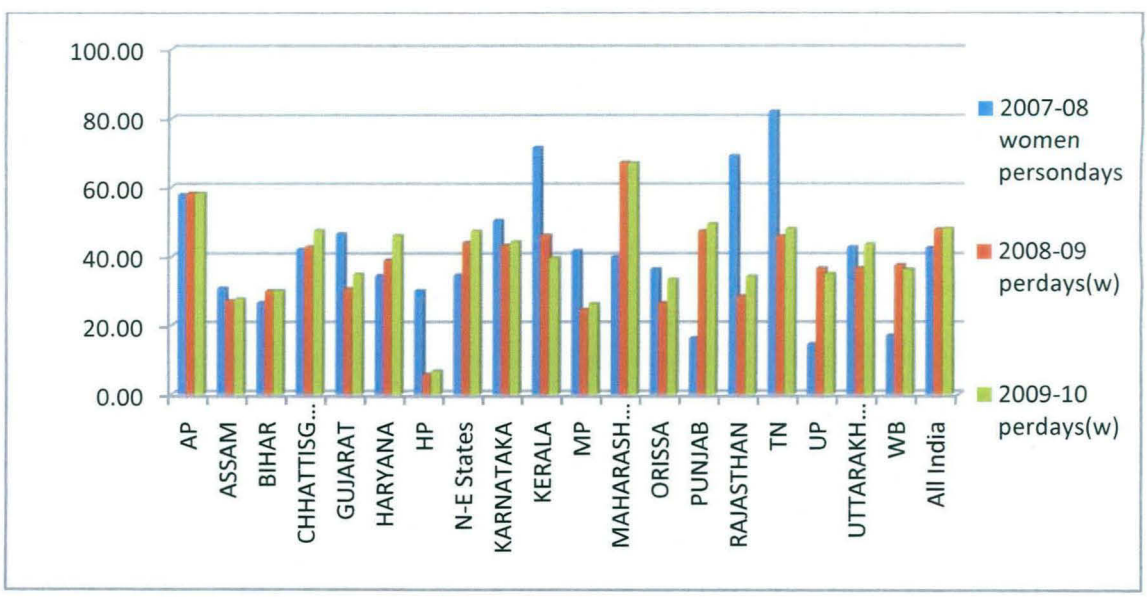
It is argued that the low wages prevailing in the labour market is the results of the low bargaining power of the women worker arising because of many reasons. Some of the factors affecting low wages are the excess supply of labour, regional concentration of labour due to their immobility; women are generally of non permanent kind of worker etc.

After the onset of NREGA and the wage equality assurance, the bargaining power of the women worker rises. As of now they have better option in terms of diversification to make alternative choices. Though women empowerment is not the main objective of the NREGA implementation (Pankaj, 2010), it's provisions like reservation of one-third women employment, equal payment and crèches provided for the children of the women workers benefitted the women. Again, with the provision of employment provided within

the radius of 5km of the village, absence of contractor and supervisors and flexibility in choosing the period and month of employment are not made exclusively for women, but have, nevertheless, been conducive for rural women (Pankaj,2010). It is due to these provisions that percentage share of person-days in public work (all activities) in total person-days for female increase from 0.29% in 2004-05 to 1.44% in 2007-08 (NSS Report). If we take NREGA, in particular, women has a national share of 40.65% of total NREGA person-days in 2006-07, 42.52% in 2007-08 and 47.88% in 2008-09 which is beyond the stipulated 33% share.

State-wise women's participation rate in the programme is positively correlated with women participation in rural areas. Women participation rate in public works programmes, is generally high and is also increasing despite the state variations. It is therefore, important to understand and analyse to what extent of participation in NREGA benefits women workers and reduces labour market inequality prevailing between men and female workers.

Figure 4.2 % of total Person-days Employment of Women under NREGA:



Source: Computed from http//: nrega.nic.in

Figure 4.2 shows the percentage of women getting employment out of the total employment provided under NREGA. The potential of NREGA in empowering women by providing them work opportunities provides them a new identity and economic as well as social empowerment. They directly receive their wages through bank accounts and enjoy the spending rights too (Khera, 2011). NREGA provides them an assurance against food insecurity, offsetting debts, spending on health and education.

To promote women participation rate in the NREGA, some state governments have introduced specific features to the scheme. Andhra Pradesh, Bihar and West Bengal have introduced different (reduced) task rates for women. Some states such as Kerala and Himachal Pradesh pay the minimum wages based on a day's work, not piece rated, which has enabled women to attain stipulated minimum wages more easily than under a piece rated system. States, such as Andhra Pradesh and Orissa are the first to pay wages through bank account to ensure that leakages are minimized. Since September 2008, the government has made it mandatory to switch to bank payments to minimize corruption, although the roll out of this provision is contingent on the speed with which individual bank accounts can be opened. Khera and Nayak (2009) have asked women in a survey conducted by them about their preference and about 53 per cent of them, are preferred to be paid through the bank. However, payment through bank accounts could have a negative impact for women if the woman worker has no control over the family bank account.

4.3.5 *Impact of NREGA on Women's Wages*:

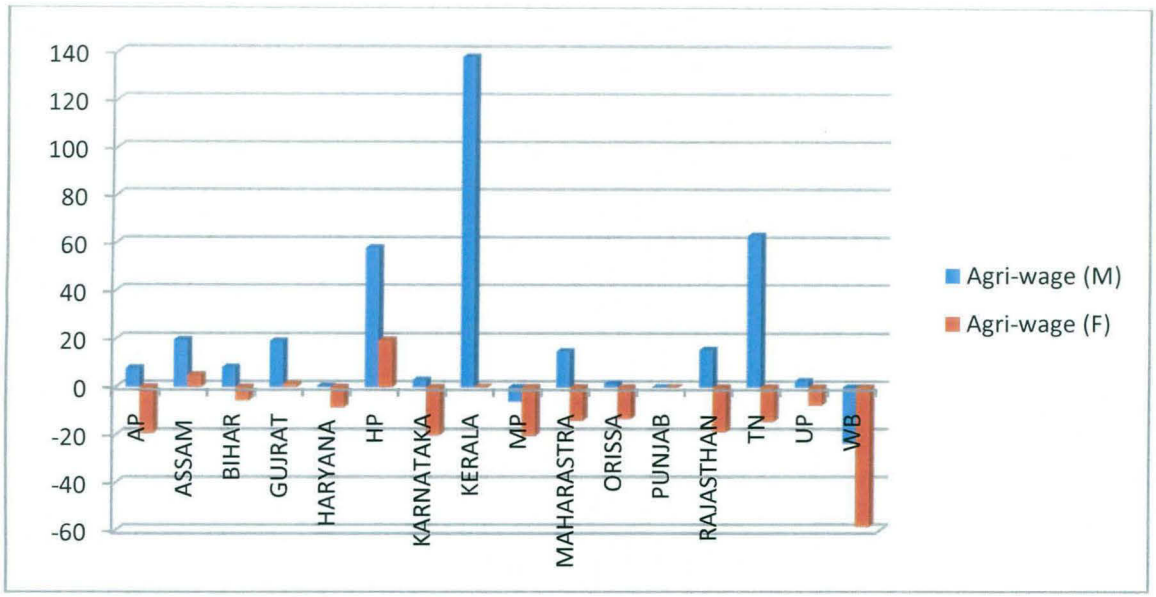
Wage fixing in public works programmes is a critical policy issue. This is because there is normally a divergence between the prevailing market wages, the state legislated minimum wage and the programme wage (Das and Sudarshan, 2011). It is generally believe that targeting and self selection of the poor in public works programme requires that wages are to be set at less than market wages. Else, it is created an 'above market' and 'above productivity' wage rate that distort labour markets by creating incentives to move away from non-NREGA work in rural areas to NREGA work. It has been seen in

the Maharashtra Employment Guarantee Programme (EGS), where EGS workers cannot compete with agriculture workers, it does not impact agriculture wages. This is not true in the case of NREGA; higher wages in NREGA have greater impact on the agricultural wages. Since, NREGA fixed wage rate according to the minimum requirement of decent living, its wages are generally recorded higher. However, in India, 55.71% of agricultural labourers are getting lower than the prescribed legislative minimum wage rate (according to the 1999-2000 data). Among them, around 68.26% of female workers are receiving lower than the minimum wage rate.

Figure 4.3 shows the difference prevailing between the male and female agriculture wages and the legislative minimum fixed wage rate. It is observed that beside WB and MP, all states have registered a higher male agriculture wage than the minimum fixed wage rate. However, reverse scenario is observed for the female workers, only HP, Assam and Gujarat recorded a higher wage than the prescribed fixed minimum level of wages. Majority of states have lower actual market wage rate than the legislative minimum wages for the female workers. This indicates the prevalence of market distortion and poor state of the female workers, who are even deprive of the Minimum wage fixed by the state under minimum requirement basis. The miserable conditions of poor payment, harassment, poor hygiene facilities at the work site compel the female workers either to leave the workforce or to look at the other best option.

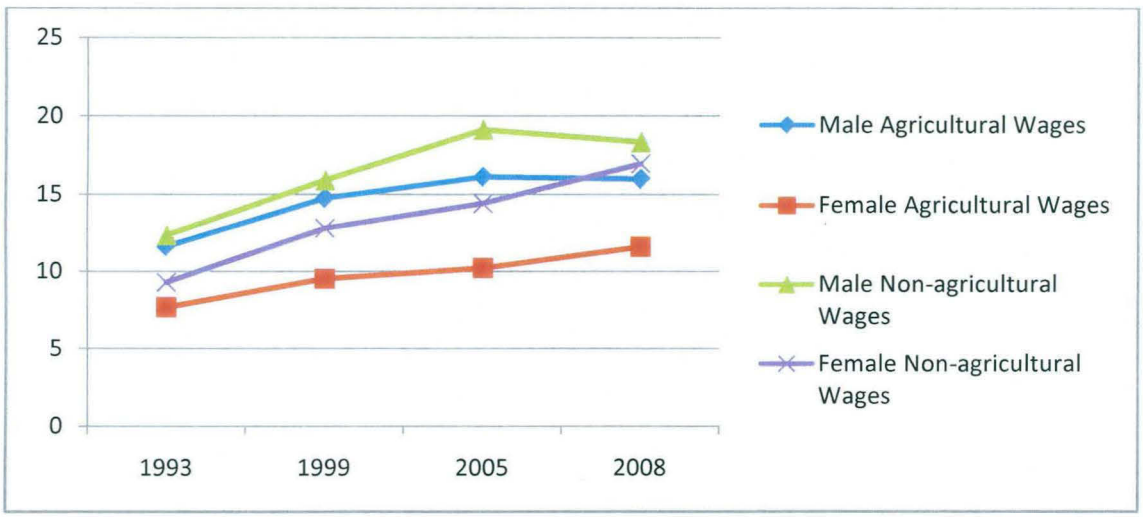
It is due to this prevailing wage difference that NREGA work is preferred to non-NREGA by the female workers. The incentive of higher wage (no matter whether it is equal to male wage rate) motivates female workers to join NREGA work. The advantage of working under NREGA is that the higher wage rate raises the purchasing power of the poor rural population. It is clear from the Figure 4.4 that for both male and female workers in rural areas, NREGA has made a difference in terms of increasing the wage rates for agricultural labourers. Wages increased for female workers, indeed more rapidly than the male workers. This is marked by an upward movement of female wage. It is noteworthy that the improvement is marked during the NREGA periods. It is the

Figure 4.3 Differences between Minimum Wage Rate and Agricultural Wages (Male and Female) in 2004-05: **(in Rs)**



Source: Computed from Pallavi (2005).

Figure 4.4 Agricultural and Non-Agricultural wages for Male and Female from 1993 to 2008 (at 1993-94 prices):

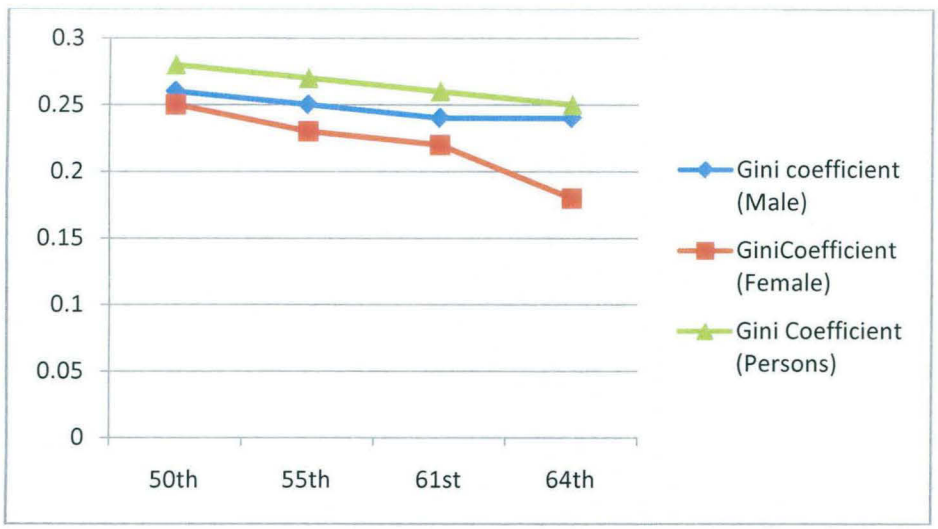


Source: NSSO 64th Round Report.

equal-wage payment for male and female in NREGA which helped the female wage rates to catch up steadily with male wage rate. Even though the percentage increase in female wages is higher than the percentage increase in male wages in certain states. The

disparity still persist, in other word, female wages are still lower than their male counterpart.

Figure 4.5 Measures of Inequality (Gini Coefficient) for casual daily wages:



Source: Computed from ILO Working Paper, Anup and Selvaraj, 2008.

NREGA wages are set at the minimum level which is much higher than the prevailing agriculture market wage rates. Such higher minimum wages does not effect male wages as much because males are already getting higher market wage rate than the minimum wage. Hence, a significant change can only be observed in the female wages. Thus, an upward movement of female wage helps in reducing the disparity between the two gender wages. The prevailing inequality between female and male agriculture wages reduces. Reduction in inequality for the female workers during 2007-08 is more prominent. Figure 4.5 measures the Gini-coefficient to check the inequality prevailing between male-female wages, which shows that the coefficient of female wage rate fall more rapidly during 2007-08 clearly indicating the post- NREGA impact. The movements in male wages remain stagnant over the periods. This Figure shows that the inequality between the male and female wages get reduced and female agriculture wages move upward after the introduction of NREGA. This is due to the rise in bargaining power of the female workers, alternative opportunity of jobs and conversion of the subsidiary status worker to principle status worker.

NREGA, thus, have positive effects on growth of female employment, caused real wage to rise (particularly non-agricultural wags) and gender gap in earning has come down. These direct and indirect positive impacts of NREGA have longer term beneficial effects on social and economic dynamics of female workers in rural India.

4.4 *Conclusion*:

In this chapter we analysed the inter-regional and temporal variation of agricultural wages prevailing in the rural areas. After ranking the states, according to its growth in the level of real wages, we found that mostly Southern region states performed better and were maintained an overall higher rank throughout the years, along with some northern states like Punjab, Haryana, and HP. However, eastern region and central region were secured lower rank and remained at the bottom of the entire country ranking.

The extent and magnitude of this variation measured by Coefficient of Variation showed fluctuation in the variation in wage level throughout the decades. With high fluctuation upto 1995, there was a fall in the variation thereafter. Variations of male agriculture wages remain stagnant whereas female wages showed a fall in its CV. Since the coefficient of variation is affected by the presence of outlier, re-calculation of Coefficient without Kerala is also calculated. Thereupon, we found that the CV remained high even after the onset of NREGA. Maximum and minimum ratio of the highest and lowest wage states confirms the wide-spread of disparity among different states. Similar pattern of disparity as in the Coefficient of variation exist, increasing disparity in wages upto 2004-05. Thereafter, there has been marginal growth in the wage disparity which continues upto 2006-07. However, the rate of disparity marginally lowers down on and after 2006-07. Indeed, one interesting conclusion that has been seen is that most of the lower wage states mainly concentrated in the central and eastern region of the country and high wage states remain concentrated in the southern and western region. Clearly, indicating the presence of regional disparity. NREGA helped in lowering down the disparity, variation among states, still persist.

While analyzing gender inequality and disparity, we come to the conclusion that though there exists a high rate of inequality between male and female wage, it is coming down with the promotion of more gender sensitive approach of NREGA. The Gini-coefficient has shown a downward trend, which is more prominent for female workers than the male.

Dimensions of differences in earnings level between male and female workers in agricultural and non-agricultural sector in India showed that women are not only paid low, their wages are lower than the minimum level fixed by the state. However, after NREGA female are paid better, at least equal to the statutory minimum amount fixed by the state. More equality and less discrimination in rural labour market prevail after NREGA.

In the concluding part, it can be said that women are relatively less benefitted in agriculture sector and there exists considerable difference in the level of wages, access to different opportunity. However, it seems that equal wage set under NREGA do benefit in reducing the prevailing inequality between the wages of the two genders. NREGA reduces gender inequalities and discrimination by promoting women's participation and offering equal payment. Acting as an alternative option in the labour market, NREGA enhance women's participation in the rural areas. Affecting their overall, bargaining power, it reduces the wage gap prevailing between male and female agricultural wages. Before the implementation of the scheme, these are not really anticipated as likely outcomes. But this positive impact may well have longer term beneficial effects on social and economic dynamics in rural India.

Chapter 5

Summary and Conclusion

This chapter gives a summary of the major issues dealt with and discusses the major conclusions that have emerged from the present study. We started with detailing the broad context in which the study is placed. Rural populations which consist of the 60% of the Indian population depend on agriculture for their primary source of income. The structure of rural workforce is changing in such a way that a significant proportion now work as Agricultural Labourers (AL) for whom Agricultural Wages (AW) forms the most important source of livelihood.

From the literature review on AW, we come across mixed result wherein the trend in the real wages remains inconclusive. By large, it has been seen that the trend in AW depends upon the source one is using while analyzing the trend. Agricultural Wages in India (AWI) and National Sample Survey (NSS) have been recognized as the two major sources of AWs in India.

***State wise trend in Agricultural Wages*:**

This study mainly focuses on the trend and pattern of AWs since the 1990s with special reference to the impact of NREGA. As a guaranteed public employment programme, NREGA has the potential to affect the rural labour market. The study, in general, undertook AWI and NSS for analyzing the trend in AW. By studying the trend at two different levels, we come across a general conclusion that the male AW increases rapidly both at the state as well as the regional level. Chapter 2 showed that at the state level, the southern region and the northern region states performed much better than the eastern region states. Rajasthan and AP come across as the star performing states. Annual growth rate of AW for majority of states is positive and is increasing over the period. The impact of NREGA on AWs has been analysed through a dummy variable model with the structural break at 2005-06 where the coefficient of dummy variable is found to be

positive and significant for majority of states. However, there are few states like Maharashtra, Kerala and UP where NREGA failed to make a significant impact on their agricultural wages.

***Region wise trends in Casual Manual wages in Agriculture*:**

At the regional level, compound annual growth rate (CAGR) for casual manual labourers wages in agricultural as well as in non-agricultural wages both for the male and female for 57 NSS geographical regions in 16 major states has been estimated. It showed that at the all India level, rate of increase of male agricultural wages rose from 2.7% to 4.9% between 1993 and 2008. Majority of the regions have more than 6% growth in the post-NREGA period, while other regions have only 1-2% growth rate. This clearly indicates the persistence of regional variation and wide disparity among the states. Inter-states variation fluctuated over the time. Increasing variation from 1990s seems to decrease after 2007. NREGA being implemented in the most backward regions may have helped in lowering down the prevailing regional variation. Coefficient of variance decreased from 54.3% to 49.3% between 2007 and 2009. This means that NREGA has a positive impact on the AW of the poorer states. In poorer wage states, wages have been rising faster than the higher wage states.

However, female agricultural wages suffered from negative growth of -0.23% from 2005 to 2008, where majority of regions registered negative growth. That means that during NREGA initiation, female AWs suffered a negative growth which is largely due to the fact that a large flow of new female workers joined the workforce. Female employment in agriculture increased and more generally their principal status as workers increased from 814 to 816 million between 61st and 64th round. This large flow of non-working female workers joining the workforce exerts downward pressure on the agricultural wages. However, female non-agricultural wages increased more than the male non-agricultural wages. This indicates the positive impact of NREGA's equal payment norm. Higher payment in NREGA attracts women workers; hence by and large women are joining NREGA which exerts upward pressure on the non-NREGA wages.

Gender disparity in Casual Manual wages:

The ratio of female to male casual manual wages in agricultural and non-agriculture operations clearly showed the presence of disparity. Overall the male labourers are paid much higher than the female labourers. There has been a little change in the ratio upto 2006. However, some improvement in the subsequent years has been noticed. Equal payment under NREGA helps in lowering down the disparity between male and female wages. Across the states, the southern states along with the northern states have the highest disparity with the ratio being worst with male workers being paid almost double that of the female. The situation is marginally better in the states of Bihar, WB, and MP. However, more recently the situation in the northern states seems to improve while the female workers in the southern states still suffered from the discrimination in terms of lower wage compare to their male counterpart.

Considering the agricultural and non-agricultural manual wages separately we observed that the gender disparity in AW is higher compared to the non-AW. In agriculture wage the female to male ratio is 0.80 while the ratio is lowest in TN and other southern states like Kerala, Karnataka and AP. It is closer to one in the poorer states of Bihar, WB and MP. However, non-agricultural wages have the ratio of 0.92 in 2007-08, indicating more equity in the non-agricultural wages. Equal payment in NREGA does affect the ratio by pulling up non-NREGA wages. The inequality showed by the Gini-coefficient goes down and thus discrimination between male and female wages gets lowered after the onset of NREGA. In spite of lowering down/of the disparity, a large extent of discrimination still persists in the agriculture sector both in terms of payment and allotment of work-type.

In general, we can conclude that AW during the post NREGA increased both from the NSS and AWI source. The impact is more prominent on male agricultural wages than on the female agricultural wages. However, non-agricultural wages for female increased more than the male non-agricultural wages. Female agricultural wages showed a declining trend, however non-agricultural wages increased at an increasing rate. Despite

the declining trend, disparity between female and male wages got lowered down and prevailing discrimination was lower with the introduction of NREGA equal payment scheme. Regional variation though fluctuating lowered down after 2007. Decadal coefficient of variation showed a rising trend. However from 2007onwards, particularly after the second phase of NREGA coverage, variation started falling down. Still the poorer states with lower wage rate remain at the bottom of the entire country ranking.

The constructive impact of NREGA has been undeniable: a rise in rural daily wage rates, reduced migration, lowering disparity and positive social effects. But it has also contributed to rising farm input costs, withdrawal of labour from the farm sector and therefore impacting agricultural operations and food prices.

Andhra Pradesh has done well on the NREGA front. Precisely the reason why there is an acute shortage of labour. There is 15 to 20 percent drop in productivity during kharif season of 2008 due to the labour scarcity. Farmers may be forced to shift to non-labour intensive horticultural crops such as orchards, while some may leave their land fallow.

Localised labour shortages have severely hampered farmers in other southern states as well. A study by Kerala University in Palakkad district has attributed the acute shortage of farm labour in the district to NREGA.

In Rajasthan, where the state government received full marks for its commitment to the employment guarantee scheme, labour shortage and the hike in daily wage rates is marked. Farmers say the labour market was tight even before the launch of NREGA, but the scheme has exacerbated the shortage. Western UP and Uttaranchal are no different in terms of labour shortage. Eastern UP and Bihar hitherto inexhaustible labour pools for prosperous farmers in the north appear to be drying up. NREGA alone may not be responsible: the demand for labour is being felt across sectors, not just in agriculture. The construction industry is facing a shortage of both skilled and unskilled labour.

The labour crunch is likely to fuel demand for expensive mechanical sowing devices, known as transplanters, among the already capital-intensive farmers of Punjab and Haryana. But their labour-saving advantage has to be weighed against the serious problem of "soil compaction" caused by heavy agricultural machinery. Over-use of tractors, harvesters and other machines in paddy fields has reduced soil fertility, enhanced erosion and reduced water and nutrient use-efficiency. Increased mechanisation is an option, but it has to be weighed against the capital and long-term environmental costs (apart from the problem of soil compaction). If labour is not available, farmers may have to opt for increased use of pesticides and herbicides. This is ecologically undesirable, besides driving up input costs.

Some farmers' groups have suggested that the 100-day employment guarantee be confined strictly to months when there is no harvesting or sowing activity. High labour costs have a double impact: making agriculture unviable and driving up the cost of food.

The impact of NREGA needs to be reassessed and it cannot be weighed just as poverty alleviation programme of providing wage employment for 100 days alone. The long-term consequences for the agricultural sector must also be taken into consideration. Besides the CAG Report on the corruption prevailing in NREGA is also a serious matter to look upon. The cost and expenditure on the programme increases the burden on the government expenditure, creating fiscal deficit.

Scope for further Study:

The study confirmed that NREGA partly improved the conditions and the bargaining power of the rural labour which is reflected in higher wages. As an employment guarantee programme, it focused on the assets creation, tackle unemployment problem, environmental regeneration, migration problem and agricultural growth. However, over the time the Act has been criticized from different levels: for the corruption and leakages given by the CAG Report, non-payment of Minimum Wages, environment degeneration, labour farm scarcity and affecting farm productivity. Labour

scarcity is the most crucial problem faced by the different industries (construction, garment and even agricultural sector). It requires a detail and minute field study to get the extent of the NREGA impact on the rural economy as well as on the overall economy. Due to lack of time, this study could not be able to incorporate any field survey, hence there remains a further scope to extend this study and find the magnitude of NREGA impact on the economy.

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Appendix

Table A 2.1 Region-wise Real Wage (at 1999-00prices) in Casual Manual Work in Agriculture:

		Male				Female			
STATES	NSS region	1993-94	1999-00	2004-05	2007-08	1993-94	1999-00	2004-05	2007-08
AP	Coastal	33.3	42.1	44	58.7	28.9	36.8	38	40.17
	Inland northern	29.5	37.7	40.9	54.83	24.9	30.6	32.1	40.01
	South western	30.5	28.5	39.3	46.12	26.4	24	33.8	41.2
	Inland southern	29.6	37	28.1	45.86	27.1	32.3	23.6	34.83
		31.4	39.8	41.4	51.38	27	33.3	34.3	39.05
Assam	Plain's eastern	37.5	40.6	NA	48.31	37	39.2	NA	41.49
	Plains western	42.7	43.1	52.4	55.76	41.3	41.9	50.7	45.35
	Hills	48.5	NA	56.1	57.88	48.6	NA	55.2	56.02
		40.6	42.1	54.9	57.09	39.5	40.7	53.5	56.7
Bihar	Southern	31.2	35.4	41.7	42	28.9	33.6	39.1	39.87
	Northern	25	34.9	41.4	41.67	24.2	34	40.5	40.65
	Central	28.7	35.9	40.2	41.27	27.9	35.5	39.2	41.07
		27.3	35.4	40.7	48.07	26.3	34.6	39.6	43.9
Gujarat	Eastern	30.2	32	37.1	34.84	28.8	30.7	34.5	42.67
	Plains Northern	30.5	37.4	37.4	42.87	31.6	36	37.9	33.83
	Plains Southern	27.1	30.2	34	44	26.7	29.7	32.5	43.24
	Dry Areas	37	44.2	46.6	44.81	36.2	42.3	44.9	43.55
	Saurashtra	43.4	56.9	52.5	52.81	42.7	54.3	50.8	50.89
		31.8	39.2	40.8	43.87	31.4	37.3	39.7	42.84
Haryana	Eastern	43.6	60	72.6	72.83	43.2	57.9	67.9	63.32
	Western	58.5	55.8	55.1	69.02	52.5	55	52.6	44.48
		47.9	58	65.7	70.93	46.5	56.4	62.2	53.9
HP		39.8	66.6	71.8	93.13	39.6	65.5	70.2	72.34
Karnataka	Inland eastern	36	45.5	42.9	67.46	31.1	41	38.8	50.18
	Inland southern	32.7	45.8	46.6	59.55	29.4	41.3	41.1	49.4
	Inland northern	29.1	30.9	36.6	50.57	25.2	26.1	31.5	37.11
		32.5	40.1	40.9	59.19	28.4	34.6	35.6	39.87
Kerala	Northern	63.8	92.9	102.5	115.6	57.6	81.7	88.4	71.25
	Southern	62.8	93	96.5	126	59.5	87.6	86.8	79.34
		63.2	93.3	99.7	120.80	58.6	84.7	87.6	90.82
MP	Chhattisgarh	23.5	26.3	31	37.75	21.9	24.6	28.7	33.16
	Vindhya	30.6	31	31.1	35.73	28.6	29.3	29.6	35.24
	Central	31	29.2	34.2	38.43	30.2	30	33.8	32.85
	Malwa Plateau	34.2	34.8	33.5	32.43	31.7	32.8	31.2	25.23
	South central	21.7	24.6	28.8	35.08	21	23.3	26.8	30.08
	South western	26.8	25.9	33.4	48.4	23.6	24.3	31	44.28
	Northern	37.5	39.1	48.2	48.55	35.8	37.4	46.6	47.03
		27.9	28.8	32.5	39.48	26	27.3	30.3	35.41

Source: NSSO unit level data from 50th to 64th Rounds

Table A 2.1 Region-wise Real Wage (at 1999-00prices) in Casual Manual Work in Agriculture: (Cont...)

		Male				Female			
STATES	**NSS region**	**1993-94**	**1999-00**	**2004-05**	**2007-08**	**1993-94**	**1999-00**	**2004-05**	**2007-08**
Maharashtra	Coastal	40.4	43	45.6	50.32	36.3	40.8	39.9	40.02
	Inland western	36.4	40.4	43.4	46.95	30	33.1	36.3	31.78
	Inland northern	30.5	35.4	34.8	38.61	26	29.7	29.2	26.24
	Inland central	32.1	38.7	41.7	41.57	22.9	29.9	30.7	26.25
	Inland eastern	27.6	35.8	33.6	37.33	22.2	29.6	27.5	25.78
	Eastern	27.2	31.6	34.8	36.47	22.1	26.4	29.4	25.8
		32.1	38.1	38.6	41.88	26	31.5	31.4	33.24
Orissa	Coastal	31.2	36.6	48.9	46.7	28.9	34.9	46	35.76
	Southern	21.5	23.8	37.8	34.22	20.1	22.4	32.9	28.1
	Northern	26.8	28.1	31.6	39.71	24.3	26.4	29.4	30.16
		27.6	29.4	39.2	45.67	25.2	27.2	35.4	40.09
Punjab	Northern	59.4	63	66.5	66.5	58.6	62.2	66.1	40.1
	Southern	67.4	63	62	70.01	66.9	62.8	59.7	61.06
		64.1	63.3	63.4	68.26	63.6	62.8	61.5	50.58
Rajasthan	Western	46.1	57.8	63.9	74.16	42.7	56.1	60	71.94
	North eastern	38.2	49.9	55.3	72.16	36.2	47.8	53.5	59.90
	Southern	39.3	47	46.2	57.90	34.1	44.6	41.4	53.58
	South eastern	37.3	38.2	48.3	62.04	36.3	33.6	45.4	55.84
		42.3	50.7	57.5	93.80	39.7	47	54.4	86.15
TN	Coastal northern	35.9	47.6	50.8	71.19	27.9	36.9	38.6	34.06
	Coastal	42.5	52.5	55.8	63.57	34.4	43.1	44.7	34.29
	Southern	41.3	55.7	56	71.15	33.8	44.5	43.6	35.63
	Inland	43.6	51.3	62.2	70.04	35.8	42.1	48.5	39.62
		40.8	52.7	55.5	68.99	32.8	41.9	43.6	35.9
UP	Ganga Plains	51.7	56.6	53.9	55.47	49.9	55.3	52.4	55.02
	Western	43	51.7	48.9	51	42.7	51.2	48.5	34.78
	Central	29.6	31.8	36.3	41.34	28.1	30.5	35.8	38.87
	Eastern	29.7	34	39.4	40	28.5	31.8	36.6	37.23
	Southern	23.3	36.3	41.1	42.02	22.1	33.5	38.5	40.92
		34.2	39.6	44	49.98	32.5	36.8	41.8	47.89
WB	Himalaya	45.7	36.5	48.8	48.89	43.3	36.1	46.1	43.47
	Eastern plains	45.9	42.4	36.6	49.15	45.1	41.7	36.3	43.09
	Central plains	55.3	47.2	46.9	50.56	55	46.5	46.1	49.38
	Western plains	51.3	43.4	39.7	46.38	49.7	42.1	39.1	42.16
		50	44	41.6	48.75	48.8	42.9	41	44.53
All India		34.2	39.9	43.2	60.59	30.5	35.5	38.5	48.41

Source: Various rounds of NSSO unit level data.

Table A 2.2 Region-wise Real Wage (at 1999-00prices) in Casual Manual Work in Non-Agriculture:

		Male				Female			
STATES	NSS region	1993-94	1999-00	2004-05	2007-08	1993-94	1999-00	2004-05	2007-08
	Coastal	36.8	50.2	58.1	74.2	23.7	30.4	34.3	49.22
	Inland northern	35.4	49.5	51.8	77.4	24.1	30.8	34.6	48.59
	South western	44.2	51.3	56.4	72.3	23.1	25	34.1	48.62
	Inland southern	34.8	45.9	53.3	69.5	24.2	27.3	47.2	39.84
AP		36.8	50.6	55	73.35	24	29.8	36.8	46.57
	Plain's eastern	50.5	48.2	68.4	63.2	45.1	33.9	NA	29.03
	Plains western	51.3	52	67.9	71.3	32.5	32.5	32.6	55.23
	Hills	47.5	51.5	68	64	31.6	N	57.2	47.61
Assam		50.8	50.6	68	66.2	32.7	33.1	54.8	43.96
	Southern	38.8	42.4	50.1	57.9	28	36	41.2	34.78
	Northern	39.1	48.4	48.2	54.9	29.8	27	37.8	46.07
Bihar	Central	39.1	44.8	58	62	32.1	34.7	23.1	29.09
		39	44.4	51.2	58.25	30.3	36.9	39.6	36.65
	Eastern	50.5	41.2	48.8	70.6	30.5	31.8	42.8	60.22
	Plains Northern	39.1	48.4	48.2	76.5	29.8	27	37.8	26.95
	Plains Southern	43.6	48	40.4	44.9	34.1	29.2	42.6	40.64
	Dry Areas	44.8	47.7	58.8	64.5	30.7	41.4	44.4	37
Gujarat	Saurashtra	51.1	63.9	77.6	71.5	30.9	48.3	60	49.21
		47.1	52.2	57.8	65.6	31.1	36.9	48.5	42.80
	Eastern	57.8	65.4	67.7	73.3	23.9	54.8	50.9	53.56
Haryana	Western	58.4	73.7	69.8	71.7	60.8	50	53.2	79.17
		58.1	68	70.9	72.5	33.8	56.5	53.3	66.37
HP		44.5	67.8	73.5	91	46.5	43.4	51.3	62.97
	Inland eastern	42.8	55.8	56.7	105	33.2	31.5	NA	70.59
Karnataka	Inland southern	39.1	65.3	69.6	69.9	25.6	41.6	33.7	48.69
	Inland northern	44.3	45.7	51.5	72.5	26.4	24.5	47.1	48.17
		43.8	59.8	71.1	82.31	27.4	36.7	35.5	55.82
Kerala	Northern	66.4	90.4	107.2	132	35.1	46	54.6	55.42
	Southern	70.6	91.4	102.9	143	36.7	51.6	52.5	61.02
		69.1	91.4	104.6	138	36.1	51.6	53	58.22
MP	Chhattisgarh	35.6	36.9	47.5	45.7	24.7	26.9	39.3	42
	Vindhya	41.5	56.3	43.1	49.4	36.2	53.1	36	37.4
	Central	19.3	32	41.2	47.7	11	16.4	31.4	37.96
	Malwa Plateau	43.1	44	50.6	41.1	28.6	37.1	45	32.53
	South central	33.5	39.7	43.2	43.8	25.8	24.4	39.4	56.29
	South western	41.5	30.2	36.8	49.5	29.2	N	31.9	45.41
	Northern	46.7	35	58	60.9	18.4	16.7	43.6	41.93
		36	40.1	47	48.29	25.2	31.9	38.9	39.32

Source: Various rounds of NSSO unit level data

Table A 2.2 Region-wise Real Wage (at 1999-00prices) in Casual Manual Work in Non-Agriculture: (Cont...)

		Male				Female			
STATES	NSS region	1993-94	1999-00	2004-05	2007-08	1993-94	1999-00	2004-05	2007-08
Maharashtra	Coastal	48.3	61.9	60.9	67.7	30.8	48.7	38.3	27.4
	Inland western	48.9	66.7	52.7	66.6	29.3	46.5	31.3	42.96
	Inland northern	44.1	42.9	50.6	62.8	40.8	50	29.9	23.4
	Inland central	39.2	48.1	46	56.9	23	26.2	36	39.29
	Inland eastern	42.2	44.3	47.6	59.7	26.4	31.2	33.8	29.09
	Eastern	35.9	36.9	41.5	51.8	19.2	27	27.9	32.87
		43.7	53.9	50.6	60.94	25.8	39.3	33.7	32.50
Orissa	Coastal	34.7	40.5	54.3	56	24.5	26.5	44.4	29.84
	Southern	27.8	32.9	43.4	51.8	27.7	26.9	33.1	52.25
	Northern	34.8	39.8	44.5	50.6	24.3	27.9	24.9	45.39
		32.4	39.3	47.9	52.8	25.4	27.4	36	42.49
Punjab	Northern	63.6	69	70	73.2	32.9	53.8	25.2	53.56
	Southern	62.9	66.9	66.1	70.1	22	48.9	46.4	79.17
		63.5	68.6	68.7	71.7	31.2	51.2	31.2	66.37
Rajasthan	Western	54.8	55.1	56.6	68.1	36.9	44.5	45.9	48.64
	North eastern	45.9	59.2	60	64.2	33.9	39.4	49.8	51.57
	Southern	38	53.2	47.7	48.9	29.7	36.2	44.9	40.49
	South eastern	35.2	48.1	51.6	55.3	18.7	40	44.8	47.89
		43.8	56	54.9	59.12	32.1	40	46.3	47.15
TN	Coastal northern	45.3	72.1	68.2	89.7	29.5	46.2	44.6	51.51
	Coastal	45	70.2	68.7	93.8	24.2	35.5	40.7	44.22
	Southern	44.1	67.4	79.7	81.2	20.6	30.4	39	40.77
	Inland	45.4	67.3	74.3	88	27.5	34.1	46.1	50.72
		45.4	67.3	74.3	88.15	27.5	34.1	46.1	46.81
UP	Himalaya	46.9	49.3	64.7	75.2	41	47	73.5	63.66
	Western	50.5	55.8	57.9	54.1	38.1	35.1	44.3	24.99
	Central	35.5	39.9	49.5	57	39	24.2	36.1	49.89
	Southern	28.6	40.9	47.9	54.7	19.3	42.9	32.3	54.83
	Eastern	35.5	39.9	49.5	59.3	39	24.2	36.1	43.65
		43.2	48.1	52.6	60.06	33.2	42.6	43.8	47.40
WB	Himalaya	46.9	36.6	62.7	58.6	42.8	31.1	50.6	46.58
	Eastern plains	52	47.2	49.2	72.5	32.1	33.2	29.6	46.94
	Central plains	60.3	49.2	59.1	54	34.4	28	42.5	36.16
	Western plains	54.9	48.8	49.5	45.2	37.6	32.9	35.1	43.59
		54.9	48.8	54.4	57.6	37.7	32.2	38.3	43.32
All India		44.8	55.4	60	76.5	28.1	37	42	70.66

Source: Various rounds of NSSO unit level data.

Table A.2.3 Nominal Annual Average Daily Wages for Male (in Rs):

STATES	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
AP	18.42	21.14	24.5	26.06	29.89	32.56	36.4	39.98	42.15	44.79	48.26	49.14	48.95	53.61	56.65	61.7	69.65	88.91	107.53
ASSAM	25.09	27.19	29.72	30.36	32.95	36.37	39.2	42.78	48.3	48.73	47.64	52.31	52.87	57.29	62.37	65.97	50	68.44	77.29
BIHAR	19.23	22.2	23.31	25.49	27.97	29.75	32.4	36.87	39.38	44.3	45.69	48.5	56.01	72.75	62.7	63.06	76.59	95.87	120.02
GUJARAT	19.04	22.64	26.34	28.51	32.68	35.65	40.5	49.25	57.18	68.15	60.71	64.8	70.03	73.09	77.9	98.15	83.4	86.31	105.57
HARYANA	35.15	41.75	50.12	55.62	60.87	64.88	74.8	82.61	92.34	102.9	119.85	107.73	95.38	101.5	106	116.4	113.1	139.72	167.98
HP	29.4	34.03	39.53	42.89	51.7	66.71	71.2	86.07	81.01	80.96	107.78	102.59	117.2	120.7	162	83.33	146.9	139.43	NA
KARNATAKA	15.51	16.84	16.33	22.29	21.81	22.86	29.2	35.45	38.89	42.7	53.67	50.57	52.16	62.01	71.11	67.89	69.43	86.35	113.94
KERALA	34.3	39.61	48.64	53.34	62.45	82.46	102	122.5	134.3	129.2	150.61	172.35	184.1	185.6	214.9	218.4	246	270.34	301.98
MP	17.46	20.13	23.91	24.82	28.86	32.07	35.9	37.83	41.9	45.31	37.83	47.82	48.19	49.99	53.2	55.24	57.38	69.91	NA
MAHARASTRA	20.12	22.86	23.83	28.87	35.74	36.55	40.2	45.38	46.1	43.82	47.45	47.35	49.33	57.35	51.52	51.19	64.76	NA	70.98
ORISSA	14.48	17.37	19.77	21.34	23.28	25.63	27.6	29.15	32.26	35.18	41.3	42.65	42.59	44.67	48.87	50.09	52.32	50.89	64.92
PUNJAB	37.11	43.18	48.12	57.12	61.51	62.07	67.4	71.5	76.41	77.47	80.24	83.8	83.8	88.72	91.94	95.52	97.81	108	126.52
RAJASTHAN	25.18	31.1	30.78	33.21	38.45	46.88	56.7	61.19	59.36	69.23	74.13	77.08	74.71	75.14	67.34	67.43	77.2	113.06	126.3
TN	15.41	17.58	21.76	25.16	29.48	34.67	39.5	45.34	51.29	62.14	58.94	58.52	60.81	64.01	74.2	76.71	68.79	86.56	89.56
UP	21.34	25.15	26.93	29.52	31.83	38.77	41.2	49.06	62.33	53.02	57.04	60.57	64.19	62.95	63.12	79.09	67.05	85	100.24
WB	25.86	28.16	35.6	37.09	37.71	41.68	49.8	53.74	53.74	69.09	70.07	62.35	78.36	73.97	74.13	78.69	107.2	97.16	NA

Source: Agricultural Wages in India, various Issues, Ministry of Agriculture.

Table A.2.4 Indices for the Wage Deflator at 1999-2000 Prices:

STATES	1990 -91	199 -92	1992 -93	1993 -94	1994 -95	1995 -96	1996 -97	1997 -98	1998 -99	1999 -00	2000 -01	2001 -02	2002 -03	2003 -04	2004 -05	2005 -06	2006 -07	2007 -08	2008 -09
AP	43	55	63	62	69	76	84	89	97	100	100	103	108	109	112	116	126	135	152
ASSAM	44	52	56	62	68	76	80	87	96	100	100	99	102	106	107	112	120	129	140
BIHAR	48	58	63	68	71	74	83	84	95	100	94	97	100	104	108	116	128	137	149
GUJRAT	45	56	61	64	72	78	82	87	96	100	101	103	107	109	113	119	130	137	148
HARYANA	49	55	59	69	75	75	85	89	98	100	100	103	105	109	115	121	129	143	160
HP	49	55	59	69	75	75	82	87	96	100	99	101	105	109	111	117	125	128	138
KARNATAKA	46	60	57	63	101	79	84	87	97	100	96	98	103	108	108	108	116	128	145
KERALA	45	50	56	63	71	83	90	94	98	100	103	103	106	110	113	114	120	129	146
MP	47	57	59	64	73	76	83	87	96	100	99	99	102	102	105	112	124	132	147
MAHARASTRA	53	70	73	70	87	82	84	88	96	100	100	101	106	110	115	121	132	142	150
ORISSA	43	53	54	59	67	75	80	83	91	100	96	95	94	99	101	106	116	127	139
PUNJAB	49	55	59	69	75	78	84	89	97	100	101	104	105	109	113	121	133	143	160
RAJASTHAN	51	59	60	71	81	77	84	86	94	100	100	100	105	104	112	122	133	142	158
TN	45	54	59	61	71	81	86	87	96	100	99	103	114	116	115	118	123	133	151
UP	53	62	62	72	79	76	86	87	97	100	98	102	105	108	112	121	133	141	153
WB	46	53	54	60	65	76	82	85	102	100	96	100	101	106	110	113	120	130	142

Source: Indian Labour Statistic, various Issues

Table A.2.5 Real Annual Average Daily Wages for Male (in Rs):

STATES	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
AP	42.84	38.43	38.88	42.03	43.31	42.84	43.35	44.92	43.45	44.79	48.26	47.7	45.32	49.18	50.58	53.18	55.27	65.85	70.74
ASSAM	57.02	52.28	53.07	48.96	48.45	47.85	48.97	49.17	50.31	48.73	47.64	52.83	51.83	54.04	58.28	58.9	41.66	53.05	55.2
BIHAR	40.06	38.27	37	37.48	39.4	40.2	39	43.89	41.45	44.3	48.6	50	56	69.7	58	54.36	59.83	70	80.55
GUJARAT	42.31	40.42	43.18	44.54	45.38	45.7	49.37	56.6	59.56	68.15	60.1	62.9	65.44	67.05	68.93	82.47	64.15	63	71.33
HARYANA	71.73	75.91	84.95	80.61	81.16	86.5	87.95	92.82	94.22	102.9	119.9	105	90.83	93.12	92.18	96.23	87.65	97.7	104
HP	60	61.87	67	62.16	68.93	89	86.78	99	84.38	80.96	109	102	112	110.7	146	71.22	117	108.9	NA
KARNATAKA	33.71	28	28.64	35.38	22	28	34.75	40.74	40	42.7	55.9	52	50.64	57.41	65.84	62.86	59.85	67.46	78.57
KERALA	76	79.22	86.85	84.66	88	99.34	113	130	137	129	146	167.3	173.7	168.7	190	191.6	205	209.6	206.8
MP	37	35.31	40.52	38.78	39.53	42	43	43.48	43.64	45.31	38.21	48.3	47.24	49	50.66	49.32	46.27	52.96	NA
MAHARASTRA	37.96	32.65	32.64	41	41	44.57	47.79	51.56	48	43.82	47.45	46.88	46.53	52.13	44.8	42.3	49	NA	47
ORISSA	33.67	32.77	36.61	36	34	34.17	34.5	35	35.45	35.18	43	44.89	45.3	45	48.38	47.25	45.1	40.07	46.7
PUNJAB	75.73	78.5	81.55	82.78	82	79.95	80	80.33	78.77	77.47	79.44	80.57	79.8	81.39	81.36	78.94	73.54	75.52	79
RAJASTHAN	49.37	52.71	51.3	46.77	47.46	60.88	67.48	71	63	69.23	74.13	77.08	71	72.25	60	55.27	58	79.61	80
TN	34.24	32.55	36.88	41.24	41.52	42.8	45.96	52	53.42	62.14	59.53	56.81	53.34	55.18	64.52	65	55.92	65.08	59.31
UP	40.26	40.56	47.61	41	40.3	51	47.88	56.39	64.25	53	58.2	59.38	61	58.28	56.35	65.36	50.41	60.28	65.51
WB	56.21	53	65.92	61.81	58	54.84	60.67	63.22	52.68	69.09	72.98	62.35	77.58	69.78	67.39	69.63	89.35	74.73	NA

Source: Computed from Table A.2.3 and Table A. 2.4

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Table A.3.1 Minimum wage Rate fixed under the Minimum wage Act, 1948:

YEAR	AP	ASSAM	BIHAR	GUJARA-T	HARYANA	HP	KARNA-TAKA	KERALA	MP	MAHARA-STRA	ORISSA	PUNJAB	RAJASTH-AN	TN	UP	WB
1993-94	15	NA	21	15	42.65	24	26	30	27.87	24.62	25	41.51	22	20	23	32.72
1994-95	15	NA	21	15	50.95	26	26	30	30.76	25.42	25	44.57	32	20	33	37.02
1995-96	15	37.8	27.3	15	51.57	26	26	30	35.3	25.44	25	53.03	32	20	33	40.13
1996-97	30	45	27.3	34	54.52	26	26	30	38.76	25.44	30	55.73	32	20	47	45.2
1997-98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1998-99	30	52.8	38.61	40.4	67.51	26	26	30	45.55	35	NA		44	32	47	51.34
1999-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2000-01	32	45	41	34	73.3	55	46.5	40m & 30w	50.5	35-41	42.5	78 -69	60	54	47	55.25
2001-02	52	60	50	50	83.31	60	56.3	30	50.9	45	50	82.08	60	54	58	60.96
2002-03	52-55.5	45-38.6	37.88	50	74.61	51	51.63	40m & 30w	51.8	NA	42.5	72-82	60	54	58	58-62
2003-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-05	64	NA	66	50	95.75	70	62.42	72	67.77	NA	52.5	94.24	73	NA	58	67.42
2005-06	64	NA	66	50	95.75	70	62.42	72	67.77	NA	52.5	94.24	73	NA	58	67.42
2006-07	NA		66	NA	96.55	70	NA	NA		NA	55	NA	NA	NA	NA	NA
2007-08	64	NA	78	55	135	75	107	72	69	72	70	102.41	73	NA	100	74.33
2008-09	64	76.35	66	50	135	75	71.28	72/125$	61.37	66-72$	70	100/91#	73	70	100	71/74#

Source: Indian Labour Statistic (Various Years)

Note: #= Wages without Meal/ with Meal

$= Wages for less laborious work/ for hard work

Table A.3.2: HHs completed 100 days of Employment (%):

Zones	States	1st phase	2nd Phase	3rd Phase
East	Assam	23.4	17.1	2.5
	Bihar	3.6	0.7	4.1
	Jharkhand	3.7	3	1.4
	Orissa	11.1	3.4	1.4
	WB	0.6	0.8	0.1
	N-Estates	4.6	5.6	1.2
	Total	7.8	5.1	1.9
West	Chhattisgarh	10.4	11.2	4.3
	Gujarat	5.4	3.9	1.6
	MP	18.5	21	2.7
	Maharashtra	1.5	1.8	2.6
	Rajasthan	54.4	42	12.7
	Total	18.0	16.0	7.5
North	Haryana	11.1	10.4	0.2
	HP	26.5	5.1	2.5
	J&K	9.7	1.4	0.8
	Punjab	16.8	5.3	0.2
	UP	6	10.9	2.8
	Uttarakhand	2.8	8.3	0.3
	Total	12.2	6.9	2.6
South	AP	2.7	9	5
	Karnataka	12.8	4.2	1.8
	Kerala	0.5	32.1	0.1
	TN	0.3	6.2	1.4
	Total	4.1	12.9	3.3
All India		10.2	10.8	4.3

Source: Computed from http://nrega.nic.in

Table A.4.1 Share of Person-days of Women Employment under NREGA:

States	2007-08			2008-09			2009-10		
	Women	Total	Share	Women	Total	Share	Women	Total	Share
ANDHRA PRADESH	1160.86	2010.28	57.75	1590.78	2735.45	58.15	4044.3	2349.6	58.10
ASSAM	150.43	487.61	30.85	204.02	751.07	27.16	732.97	203.05	27.70
BIHAR	227.62	855.1	26.62	297.75	991.75	30.02	1136.91	341.49	30.04
CHHATTISGARH	553.42	1316.1	42.05	91.24	213.07	42.82	585.1	278.2	47.55
GUJARAT	41.92	90.06	46.55	21.18	69.11	30.65	59.03	20.55	34.81
HARYANA	12.31	35.76	34.42	80.09	205.28	39.02	284.94	131.32	46.09
HIMACHAL PRADESH	29.36	97.53	30.10	4.54	78.8	5.76	128.71	8.59	6.67
N-E States			34.65			44.11			47.39
KARNATAKA	99.42	197.78	50.27	1275.39	2946.97	43.28	2624.03	1160.55	44.23
KERALA	43.37	60.75	71.39	194.06	419.85	46.22	274.33	108.78	39.65
MADHYA PRADESH	1147.28	2753.02	41.67	9.91	40.27	24.61	77.15	20.28	26.29
MAHARASHTRA	73.93	184.86	39.99	3241.04	4829.55	67.11	4498.09	3008.86	66.89
ORISSA	147.48	405.23	36.39	208.66	786.61	26.53	1551.67	518.61	33.42
PUNJAB	3.12	19.15	16.29	589.69	1243.18	47.43	1041.57	512.53	49.21
RAJASTHAN	1158.01	1678.38	69.00	213.81	749.97	28.51	842.47	288.52	34.25
TAMIL NADU	529.14	645.23	82.01	131.16	285.62	45.92	306.17	146.89	47.98
UTTAR PRADESH	198.03	1363.06	14.53	46.03	125.82	36.58	170.35	59.61	34.99
UTTARAKHAND	34.36	80.34	42.77	74.4	202.7	36.70	284.27	123.74	43.53
WEST BENGAL	164.63	968.8	16.99	162.58	432.58	37.58	554.08	200.85	36.25
ALL INDIA	6109.1	14367.95	42.52	10357.32	21632.86	47.88	28359.57	13640.51	48.10

Source: http://nrega.nic.in