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# Employment and Wage Resources in the Agricultural Sector of India

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**ABSTRACT**

**There has been a sluggish shift in employment patterns, especially in the agricultural sector, leading to its portion in the overall economy. Income has dropped more quickly than employment has changed. This change necessitates our attention to be directed towards the patterns in wages earned from working in agriculture. Based on our assessment, non-agricultural salaries, MGNREGS, access to irrigation, and increasing farmer income by enhancing literacy in rural areas, while implementing farm machinery, also contribute to the improvement of agricultural wages, lowering the pay rate dramatically. Generating additional job opportunities outside of agriculture and providing assistance.**

**Education initiatives and irrigation projects can enhance agricultural salaries, while encouraging the adoption of farm machinery will lower the expenses of farming for farmers and the countryside's less affluent.**

***Keywords*--** Agriculture Sector, Irrigation, Job Opportunities, Wags Resources, Employment

## I. INTRODUCTION

In India, the majority of workers and their families are employed in agriculture, relying on farm wages for their income. The number of workers engaged in tasks related to wages increased from 45.6% in 2001 to 54.9% in 2011 (GoI 2016). The agricultural advancements of the mid-1960s led to increased growth in farming, making it important to analyze trends in agricultural wages. The pace of structural change in employment, especially in agriculture, has been sluggish, resulting in a quicker decline in agriculture's share of income than in employment transition. This change necessitates us to pay attention to the patterns in agricultural wages, as the majority of agricultural workers in rural India rely on farm labor and agricultural wages for their income—they are impoverished and have limited assets and job prospects.

**Figure 1:** Agriculture Sector Productivity Challenges


**Sources:**https://www.sanskritiias.com/uploaded_files/images/Agriculture.jpg

Extensive studies have been carried out on the topics of increasing wages and labor shortage, as well as on the factors influencing wage growth, particularly following the implementation of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) on 1 April 2008 by various researchers (Chand et al. 2009; Pandey 2012; Jose 2013, 2016; Venkatesh 2013; Nagaraj et al. 2016). The increasing patterns in actual earnings are a crucial measure of the well-being of those reliant on wages, yet aspects like industries (agricultural and non-agricultural), tasks (tilling, planting, and gathering), and gender (men and

women) must also be examined, along with the geographic aspect of wages, due to the country's vastness and economic development discrepancies.

We examine the nationwide data on actual agricultural wages for agricultural workers in India. According to our study, the daily wage for farm workers per person increased twofold from INR 83.50 in 1995-96 to INR 167.50 in 2016-17; while for non-farm workers, the wage rose by 74% (from INR 140.80 in 1995-96 to INR 245.00 in 2016-17). The increase in farm wages was affected by non-farm wages, education, guaranteed employment, and continuous growth in the non-farm industry, particularly following the implementation of MGNREGS .

Additional important elements affecting agricultural wages include irrigation, mechanization, crop yield, and cropping intensity.

The wage gap based on gender and location is substantial in terms of promoting fair development and equality in society. According to Deb et al. (2014), labor plays a crucial role in crop production and livestock products, accounting for 40% of total production costs. Consequently, a rise in production expenses can result in inflationary strain on the economy and higher market prices. Analyzing wage data from 1970-71 to 2010-11, Jose (2016) studies the changes in agricultural wages for male and female workers in key Indian states, and observes an increasing gap between different states. This research expands the timeframe to 2016–17 and investigates the patterns in farming salary variation among different states, farm activities, and genders. It additionally examines the determinants of farming wages in the key states of India.

## II. DATA AND METHODOLOGY

The monetary compensation given to a laborer working in agriculture throughout the year or during certain seasons, can be in the form of cash, goods, or a combination of both, and is known as agricultural or farm wage. It remains fixed and does not account for inflation. This paper focuses primarily on the agricultural wage rate as the main variable of concern. The Labour Bureau of the Ministry of Labour and Employment, Government of India, offers wage rates for both agricultural and non-agricultural activities. Data on the average daily wages are gathered for 11 agricultural and 7 non-agricultural activities (Government of India, 2015).We calculated the mean wage by examining and contrasting the wage rates for seven agricultural tasks - ploughing, sowing, transplanting, weeding, harvesting, threshing, and winnowing. In order to get a more complete picture of pay rates in different stages of the study, we merged the salaries for transplanting and weeding along with sowing, and the wages for threshing and winnowing with harvesting. Regression analysis was employed to assess how relevant independent variables affected wage rates, and data on agricultural and non-farm wages were compiled. (GoI 2015) The dataset we used was the Consumer Price Index for Agricultural Labourer (CPI-AL) (general) obtained from the 'Report on Consumer Price Index for Agricultural Labourers' (1986–87=100) published by Labour Bureau, Government of India. The CPI-AL indices were utilized to convert nominal wages into real wages by adjusting to a base of 100 (2009–10) for this research.

We utilized data sets from the Office of Registrar General and Census on rural literacy rates (general, male, and female) as well as data on agricultural laborers. The information on net cultivated area, irrigated land, and workforce was gathered from 'Agricultural Statistics at a Glance', Ministry of Agriculture and Farmers' Welfare, Government of India. Information on salaries has been gathered for the time frame spanning from 1995-96 to 2016-17. We used panel data to estimate the fixed effects regression model in order to determine the factors that impact agricultural wages. The model designated for examination at the state level is

In the ith state for tth year, W represents the agricultural wage rate (in real terms) per person per day in INR, NFW is the real non-farm wage rate per person per day in INR, RLIT is the rural literacy rate in percentage, LAB/LAND indicates labour intensity as the availability of agricultural labour per hectare of net sown area, TRACT/LAND is the availability of farm tractors per thousand hectares of net sown area used as a measure of mechanization, and MGNREGS is a dummy variable representing the operation of the assured rural employment scheme from April 2008.

The model includes the interaction between agricultural laborers and farm tractors due to their competitive and complementary relationship. In order to stabilize the variance, we conducted a log transformation on the variables utilized in the model. We utilized the Durbin-

## III. RESULTS AND DISCUSSION

### *3.1 Overall Movement in Farm and Non-farm Wages*

We examined the changes in average real wage rates of the agricultural and non-agricultural sectors nationwide. Farm wages saw a moderate increase following the mid-1990s. The momentum started in 2000 and accelerated even more post 2008-09, only to reach a standstill by 2014-15. The rise in the actual farm wage rate aligns with the widespread belief that farm wages rose following the commencement of MGNREGS in April 2008–09 (Pandey 2012; Jose 2013, 2016; Nagaraj et al. 2016). Non-agricultural wages increased in a similar manner as agricultural wages. Before MGNREGS (1995-96 to 2008-09), non-farm wages were approximately 70% greater than farm wages, which decreased to 51% after MGNREGS (2008-09 to 2016-17). The MGNREGS contributed to higher job availability and wages in non-agricultural areas, however, it also led to a shortage of farm labor during certain

seasons. Between 1995-96 and 2016-17, farm wages increased at a rate of 3.1% per year due to a shortage of labor, surpassing the 2.2% annual increase in non-farm wages.

***3.2 Farm Wage Trends***

The nominal wage increased in the states analyzed before and after the MGNREGS, with varying levels of growth (Table 1). During the time before MGNREGS, Madhya Pradesh had a nominal wage increase of approximately 49% while Tamil Nadu experienced a higher increase of 106%. In the post-MGNREGS period, Punjab saw a nominal wage increase of 152% and Karnataka had the highest increase of 298%. We classified the study states based on the existing wage rates to analyze the trends in wage growth (nominal, real, operationwise, and gender-wise). classified as medium-wage states; and states where wages exceeded the average wage plus one standard deviation were considered high-wage states.

Before MGNREGS, nominal wages showed significant growth in Himachal Pradesh, Jammu & Kashmir, and Kerala; a moderate increase in Haryana, Punjab, and Rajasthan; and a slight rise in the other states. The pattern remained consistent after MGNREGS, apart from Rajasthan where the growth rate escalated from low to moderate. In all study states, the overall growth pattern stayed consistent, except in Tamil Nadu, where the rate of increase shifted from low to high.

**Table 1:** Nominal and real wage fluctuations in key Indian states: 1998–99 through 2016–17

| State | Nominal wages during TE | | | Real wages during TE | | | Change in real wages (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1998-99 | 2008–09 | 2016–17 | 1998–99 | 2008–09 | 2016–17 | 1998–99 to 2008–09 | 2008–09 to 2016–17 | 1998–99 to 2016–17 |
| Assam | 44.37 | 73.57 | 221.01 | 80.92 | 91.48 | 143.48 | 13.05 | 56.85 | 77.31 |
| Andhra Pradesh | 35.23 | 72.62 | 219.36 | 67.77 | 90.69 | 131.46 | 33.83 | 44.95 | 93.99 |
| Bihar | 33.12 | 62.07 | 221.74 | 63.14 | 74.94 | 153.10 | 18.68 | 104.30 | 142.47 |
| Gujarat | 42.61 | 69.64 | 198.90 | 83.72 | 87.35 | 123.49 | 4.34 | 41.37 | 47.51 |
| Himachal Pradesh | 68.76 | 141.42 | 362.53 | 120.25 | 167.68 | 233.89 | 39.44 | 39.49 | 94.50 |
| Haryana | 60.86 | 114.30 | 362.66 | 126.52 | 149.24 | 228.37 | 17.95 | 53.02 | 80.49 |
| Jammu & Kashmir | 83.27 | 150.28 | 410.35 | 158.66 | 187.62 | 270.94 | 18.25 | 44.41 | 70.76 |
| Kerala | 92.80 | 165.44 | 556.72 | 156.91 | 199.93 | 312.84 | 27.42 | 56.48 | 99.38 |
| Karnataka | 34.46 | 57.64 | 229.15 | 65.14 | 75.04 | 129.12 | 15.20 | 72.07 | 98.23 |
| Maharashtra | 34.65 | 61.96 | 198.04 | 71.67 | 79.77 | 122.51 | 11.30 | 53.57 | 70.93 |
| Madhya Pradesh | 34.46 | 51.33 | 180.38 | 64.89 | 64.09 | 123.34 | -1.24 | 92.45 | 90.07 |
| Odisha | 33.71 | 55.98 | 168.08 | 62.09 | 68.87 | 122.92 | 10.92 | 78.47 | 97.96 |
| Punjab | 56.32 | 110.90 | 279.16 | 116.96 | 142.57 | 181.68 | 21.90 | 27.43 | 55.34 |
| Rajasthan | 55.62 | 87.35 | 265.71 | 116.34 | 111.17 | 166.61 | -4.44 | 49.86 | 43.21 |
| Tamil Nadu | 46.61 | 79.82 | 314.37 | 87.98 | 100.01 | 181.20 | 13.67 | 81.18 | 105.95 |
| Uttar Pradesh | 38.95 | 68.13 | 200.16 | 75.32 | 83.23 | 134.31 | 10.50 | 61.38 | 78.32 |
| West Bengal | 40.48 | 75.35 | 224.01 | 75.49 | 95.65 | 147.68 | 26.71 | 54.39 | 95.63 |
| India | 48.31 | 85.90 | 264.77 | 91.17 | 106.62 | 165.49 | 16.95 | 55.22 | 81.52 |

**Source:** Authors' estimates

Moderate, and in Himachal Pradesh, where the rate of growth decreased from high to moderate. There is a wide variation in nominal wages among different states. Wages per day were above INR 300 per person in Haryana, Tamil Nadu, Himachal Pradesh, Jammu & Kashmir, and Kerala in 2016–17, while they were around INR 200 per person in Assam, Bihar, Madhya Pradesh, Odisha, Uttar Pradesh, and West Bengal. During 2008–09, the majority of states had low wage rates (below INR 100 per person per day) except for Haryana, Punjab, Himachal Pradesh, Jammu & Kashmir, and Kerala.

Did the upward trajectory of nominal wages translate into a rise in real wages? Was the nominal wage in line with the costs of goods bought by farm workers? In order to address this question, we converted the nominal wage to the real wage using the CPI-AL (general) (Table 1). The data indicates that before the implementation of MGNREGS, real wages in India increased by 17%, while after the implementation, they rose by 55%, with variations in real wages observed in different states during both periods. Before MGNREGS, real wage increases were significant in Haryana, Jammu & Kashmir, and Kerala, moderate in Himachal Pradesh, Punjab, and Rajasthan, and low in most other states except Madhya Pradesh and Rajasthan where real wages actually decreased. After MGNREGS, real wages rose in every state except Himachal Pradesh and Haryana; Himachal Pradesh saw a shift from moderate to high wage increases,

while Haryana experienced a decrease from high to moderate. There was an increase in nominal and real wages to differing extents in the states studied during both the pre- and post-MGNREGS periods, as well as overall. The increase in wages may have been a result of improved job prospects in the MGNREGS, where wages are based on performance where wages are determined based on either the CPI-AL or the set minimum wage rate or the amount that is higher (Jose 2013). Additionally, the agricultural industry offers temporary employment that is only available during certain seasons. Workers are looking for stable income opportunities in industries such as construction, dairy, and transport, outside of agriculture.

**Table 2:** Change in actual salaries by farming activities in key states of India from fiscal year 2008–09 to fiscal year 2016–17.

| State | TE 1998-1999 | | | TE 2008-2009 | | | TE 2016-2017 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Ploughing | Sowing | Harvesting | Ploughing | Sowing | Harvesting | Ploughing | Sowing | Harvesting |
| Assam | 95.9 | 75.7 | 79.9 | 99.4 | 91.0 | 91.0 | 166.0 | 141.4 | 140.9 |
| Andhra Pradesh | 90.9 | 59.9 | 70.1 | 116.7 | 84.3 | 91.9 | 176.6 | 126.6 | 125.1 |
| Bihar | 74.1 | 62.1 | 61.5 | 93.7 | 70.9 | 72.8 | 174.0 | 151.9 | 149.9 |
| Gujarat | 100.3 | 78.0 | 83.9 | 110.7 | 81.9 | 84.6 | 143.1 | 121.3 | 118.6 |
| Himachal Pradesh | 141.5 | 116.1 | 119.2 | 203.0 | 158.1 | 163.5 | 281.9 | 221.3 | 227.7 |
| Haryana | 142.5 | 119.8 | 131.2 | 150.4 | 144.2 | 154.8 | 240.9 | 224.7 | 228.1 |
| Jammu & Kashmir | 163.6 | 134.4 | 172.3 | 163.1 | 175.1 | 196.6 | 259.7 | 254.4 | 289.0 |
| Kerala | 255.4 | 139.9 | 143.5 | 324.1 | 207.2 | 157.4 | 402.6 | 317.6 | 289.8 |
| Karnataka | 79.5 | 61.7 | 65.7 | 96.9 | 72.1 | 73.6 | 171.5 | 125.1 | 125.1 |
| Maharashtra | 93.5 | 69.7 | 68.9 | 106.5 | 76.5 | 79.0 | 158.0 | 119.4 | 120.4 |
| Madhya Pradesh | 77.2 | 61.8 | 65.5 | 78.3 | 61.6 | 63.0 | 132.2 | 117.9 | 127.1 |
| Odisha | 69.1 | 60.3 | 63.1 | 81.4 | 69.5 | 66.7 | 145.7 | 118.9 | 122.2 |
| Punjab | 130.4 | 122.0 | 113.1 | 154.6 | 137.3 | 142.5 | 221.1 | 174.7 | 180.4 |
| Rajasthan | 141.3 | 98.9 | 128.6 | 143.2 | 105.2 | 107.8 | 172.7 | 163.3 | 174.2 |
| Tamil Nadu | 153.7 | 71.1 | 84.1 | 171.8 | 89.9 | 88.7 | 283.2 | 159.0 | 178.4 |
| Uttar Pradesh | 86.6 | 72.4 | 76.5 | 93.1 | 81.6 | 83.0 | 146.4 | 132.1 | 135.6 |
| West Bengal | 107.8 | 71.5 | 68.9 | 137.3 | 88.1 | 88.5 | 202.3 | 137.7 | 138.4 |
| India | 113.0 | 85.3 | 91.1 | 132.5 | 102.7 | 103.1 | 197.0 | 159.9 | 164.0 |

**Source:** Authors' estimates

### *3.3 Wages on Farms for different Agricultural Activities*

The MGNREGS has caused a rise in labor shortage, leading to a reduced number of workers available during crop seasons for crucial farm tasks and resulting in higher real wage rates as well (Table 2) (Gulati et al. 2014). The increasing production cost, use of machinery over human and bullock labor, and rising use of chemicals have significantly altered the cropping pattern and farming practices in India (Prabakar et al. 2011; Nagaraj et al. 2016). Certain tasks on the farm necessitate expertise and involve physical exertion. Examining the changes in wage rates across farming operations in study states is of utmost importance. During the time before MGNREGS was implemented and in general, the wage increase was greatest for planting, then harvesting and plowing. After MGNREGS, the biggest rise was seen in harvesting, with sowing and ploughing following closely behind. Ploughing is physically demanding and pays more; it is typically carried out exclusively by male workers, who usually earn higher salaries compared to their female counterparts in several states (Nagaraj et al. 2016). The adoption of tractors has diminished the necessity for ploughing, resulting in the lowest increase in wages for ploughing during the periods before and after MGNREGS at a nationwide level, with differing levels by state. The payment for ploughing was greater compared to sowing or harvesting in Kerala during the years 1998–99, 2008–09, and 2016–17. The pace at which wages are rising in Himachal Pradesh increased from moderate in 1998-99 to high in 2008-09 and 2016-17. The rise in actual wages for farming was moderate in Haryana, Punjab, Rajasthan, and Tamil Nadu in the periods ending 1998-99 and 2008-09 but was low in Rajasthan and Tamil Nadu in 2016-17. The payment for ploughing was not high in the other states during all time periods. Therefore, the utilization of tractors has increased the pay for plowing.

**Table 3:** Shift in actual wage gap between men and women employees across states, from 1998–99 to 2016–17

| State | 1998-1999 | | 2008-2009 | | 2016-2017 | |
|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female |
| Assam | 83.8 | 78.0 | 97.5 | 85.5 | 156.6 | 130.4 |
| Andhra Pradesh | 79.9 | 55.6 | 106.3 | 75.1 | 154.1 | 108.8 |
| Bihar | 68.7 | 57.5 | 81.4 | 68.5 | 165.1 | 141.1 |
| Gujarat | 89.3 | 78.1 | 94.4 | 80.4 | 129.1 | 117.9 |
| Himachal Pradesh | 131.2 | 109.3 | 175.4 | 160.0 | 244.4 | 223.3 |
| Haryana | 138.3 | 114.7 | 151.5 | 147.0 | 233.0 | 223.8 |
| Jammu & Kashmir | 142.3 | 175.1 | 156.0 | 219.3 | 262.8 | 279.1 |
| Kerala | 194.4 | 119.4 | 253.7 | 146.2 | 366.0 | 259.7 |
| Karnataka | 73.8 | 56.5 | 88.0 | 62.1 | 155.4 | 102.8 |
| Maharashtra | 84.0 | 59.4 | 98.5 | 61.0 | 147.7 | 97.3 |
| Madhya Pradesh | 72.3 | 57.5 | 71.0 | 57.1 | 128.7 | 117.9 |
| Odisha | 67.6 | 56.5 | 78.4 | 59.3 | 136.4 | 109.5 |
| Punjab | 132.9 | 101.0 | 143.8 | 141.4 | 204.5 | 158.9 |
| Rajasthan | 130.9 | 101.8 | 124.6 | 97.7 | 181.4 | 151.9 |
| Tamil Nadu | 112.1 | 63.9 | 128.8 | 71.2 | 233.2 | 129.2 |
| Uttar Pradesh | 83.1 | 67.5 | 89.6 | 76.8 | 144.7 | 124.0 |
| West Bengal | 86.8 | 64.2 | 107.8 | 83.6 | 163.9 | 131.5 |
| India | 101.0 | 81.3 | 117.6 | 95.6 | 182.8 | 148.1 |

**Source:** Authors' estimates

The planting and crop gathering patterns are alike in the research states throughout each time frame. Low wage rates were observed in Andhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Madhya Pradesh, Odisha, Maharashtra, Tamil Nadu, Uttar Pradesh, and West Bengal. The level of wages was average in Punjab and Haryana in the years 1998–99, 2008–09, and 2016–17. High wages were primarily found in Himachal Pradesh, Kerala, and Jammu & Kashmir.

### *3.4 Differences in Gender*

Men earned a higher wage than women in every state except Jammu & Kashmir during all time periods (Table 3). The wage gap across India was approximately 23–24% in the years 1998–99, 2008–09, and 2016–17. During TE 1998–99, the wage gap between men and women varied from approximately 7% in Assam to 75% in Tamil Nadu. Between the years 2008-09 and 2016-17, male and female workers in the states analyzed saw comparable rises in wages.

**Table 4:** Factors influencing farm wages for all workers, both male and female.

| Explanatory Variables | Overall | Male Workers | Female Workers |
|---|---|---|---|
| Non-farm wages (real) per person per day (Rs) | 0.8243 | 0.8322 | 0.8158 |
| MGNREGS (after 2007 = 1, otherwise = 0) | 0.1195 | 0.1104 | 0.1246 |
| Proportion of net irrigated area of net sown area | 0.0032 | 0.0022 | 0.0040 |
| Rural literacy (%) for overall; otherwise respective | 0.0039 | 0.0064 | -0.0374 |
| figures used (male & female) Farm tractor availability (number) of net sown area | -0.0184 | -0.0069 | -0.1583 |
| Labour availability (number) of net sown area - | 0.1146 | -0.1026 | -0.1583 |
| Interaction (labour and tractor) | 0.0487 | 0.0388 | 0.0658 |
| Number of observation | 315 | 315 | 315 |
| F (7, 293) | 356.153 | 355.460 | 262.915 |
| Prob > F | 0.0000 | 0.0000 | 0.0000 |
| R-square | 0.89483 | 0.89465 | 0.86266 |

**Source:** Authors' estimates.

### *3.5 Determinants of Farm Labor Pay*

We utilized a fixed effects regression analysis to discover the determinants of wage rates (Table 4). In terms of the big picture (entire). For farm laborers, the coefficient for non-farm salaries was 0.8243, MGNREGS was 0.1195, irrigation intensity was 0.0032, rural literacy

was 0.0039, labor supply was 0.0184, farm tractor availability was 0.1146, and interaction effect was 0.0487.

The non-farm wage coefficient was notably positive and had a significant impact on wage rates. The correlation suggests that if non-farm wages increase by 1%, agricultural wages will also increase by 0.8243%. Non-agricultural tasks (building, fixing, personal assistance, transportation, etc.) in close by urban areas provide casual laborers with improved job options and increased pay, therefore increasing farm wages.

The MGNREGS has become an important factor, resulting in a 12% increase in wage rates compared to before its implementation. The coefficient of the irrigation facility variable is considerably positive and affects the wage rate. Irrigation enhances the effectiveness of other agricultural inputs, leading to increased crop yield and laborers expecting higher wages, according to Sidhu (1988), Narayanmoorthy and Deshpande (2003), and Datt and Ravallion (2007). Rural literacy has a noteworthy and favorable coefficient; enhancing education levels increases knowledge, leading to the pursuit of higher quality employment options, enhancing negotiation abilities, and ultimately boosting wage rates. The correlation between tractor usage and agricultural wages is negative; tractor usage leads to lower wage rates. Non-agricultural advancements like MGNREGS work have been on the rise, leading to a shortage of labor, particularly in the busiest farming period. Labor shortage is increasing, leading farmers to rely more on tractors for ploughing and other tasks on the farm. This helps ensure that farm work is done on schedule, even as wages see only slight increases.

The availability of farm workers plays a crucial role in setting the wage levels. The labour intensity coefficient (amount of agricultural labor per hectare of net sown area) was determined to be in the negative. This indicates that there is a high amount of labor available for each unit of net sown area, resulting in a low increase in wage rate.

The combined impact of using tractors and agricultural labor is shown to have a noteworthy and beneficial coefficient. The relationship between farm mechanization and agricultural labor improves marginal productivity and leads to higher wage rates. Similar results are observed across male and female workers, albeit with different levels of impact. This indicates the significance of the specified variables in determining wage rates in the models.

The highest agricultural wages are found in Haryana, which we used as our reference point. We examined the state fixed effects regression model for all farm workers and discovered that agricultural wages were less than expected in every state studied, with the exception of Andhra Pradesh, Assam, and Bihar. In Kerala, the expected decrease in wage growth is 0.33 less than in Haryana, while in Uttar Pradesh; it is 0.25 less, in Punjab 0.194 less, and in Gujarat 0.191 less. After adjusting for other factors, the ratio for Karnataka, Madhya Pradesh, Maharashtra, Odisha, and Tamil Nadu was found to be lower than 0.05 units compared to Haryana. Similar findings were observed among male and female employees, with differing levels of impact.

## IV. CONCLUSION

By utilizing wage information from the primary regions in India, this study analyzed the time frame of 1995-96 to 2016-17. It analyzed the patterns in actual agricultural salaries and discovered that the trend of rising wages (nominal, real, by operations, and gender) showed a high degree of similarity in the research. Different stages and time frames with different levels in the rural area have consistently risen earnings at the same level over the course of the three stretches of time (1998-99, 2008-09, and 2016-17). Noun-based salaries rose at equal rates both nationally and in the research indicates, with different levels. Throughout all the time periods, there was a significant rise in actual wages in Haryana and Jammu, moderate in Himachal Pradesh, as well as in Jammu and Kashmir, and Kerala. Punjab, Rajasthan, and other areas have moderate precipitation nations. Payment for planting and gathering crops rose in the same manner.

Salaries were minimal in the majority of the states, including Andhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Tamil Nadu, Uttar Pradesh, and the state of West Bengal. There has been an increase in the wage disparity between men and women throughout the years, as well as the rise in wages percentage. Females had a greater rate than males. The pay was received more elevated among women in Haryana, Himachal Pradesh, Jammu & Kashmir, Kerala, and Punjab continued to stay consistently earning a moderate wage. Man workers encountered a comparable growth trend in their numbers salary. We examined the factors that influence a person's pay.We discovered that 'non-farm wages' impact the increase changes in agricultural labor pay. MGNREGS stood unchanged, a crucial aspect in the increase of agricultural salaries. Irrigation system, rural literacy, and urban literacy were important factors that had a significant impact on wages for farm labor.

Increasing agricultural wages play a role in alleviating poverty in rural areas, countryside regions. There is a necessity to impact the salary increase (Lanjouw and Shariff 2004) through the establishment of opportunities in sectors other than agriculture, allocating a higher proportion of money allocated for job-creating initiatives such as enhancing irrigation facilities along with implementing MGNREGS and literacy levels in rural areas. All of these measures will contribute to a decrease in

poverty. Wages for agricultural work in India are less than wages for non-agricultural work. However, the proportion of expenses related to labor in agricultural products farmers are struggling due to a production rate of approximately 40% to provide compensation for the increasing agricultural labor costs. The young people living in rural areas are hesitant about farming, and this difficulty will increase even further, important in upcoming times.

Farm mechanization can help address the increasing costs of farm labor, a shortage of workers - particularly at the height of the agricultural season. Seasonal - by aiding farmers in finishing agricultural tasks, perform operations quickly, encompass a wide area promptly. Efficiently utilize inputs, such as water, to optimize performance (al., 2014). It would lower the expenses of farming, enhance productivity and boost income for farmers. Personalized individualized custom-made unique specialty tailored-made adaptations, villages have hiring centers that rent out agricultural equipment. Implements have been implemented and have resulted in enhanced mechanization on little farms, there should be an increase in the number of custom hiring centers established in countryside locations, that will assist farmers in getting through the difficult time, addressing the shortage of workers, decreasing the expenses of farming. In the end, agricultural revenue will rise.

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