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Research Article

Gender Wage Gap

Gender Wage Disparities in Agricultural Labour Markets: Evidence from Uttar Pradesh, India

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Gender wage disparities remain a persistent feature of agricultural labour markets in developing economies. In India, agriculture provides employment to a large share of the rural workforce, particularly women. This study examines gender wage differences among agricultural wage labourers aged 15–59 years in Uttar Pradesh using recent rounds of the Periodic Labour Force Survey (PLFS) and Agricultural Wages in India (AWI). Labour force participation rates (LFPR) and average daily wages were analysed to assess trends and gaps. The LFPR gap between men and women declined from 58.7% in 2019–20 to 42.2% in 2023–24, while the gender wage gap decreased from 7.7% to 5.9% over the same period. Despite improvements, women continue to earn less than men due to occupational segregation and structural inequalities in rural labour markets. The study highlights the need for policies promoting equal wages, skill development, and diversified employment opportunities to reduce gender disparities in agricultural work.

Keywords: gender wage gap, agricultural labour, wage inequality, labour force participation, uttar pradesh, PLFS, rural labour market

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1. Introduction

Agriculture remains one of the most important sources of employment in rural India. A large proportion of rural households depend on agricultural wage labour for their livelihood. Women play a significant role in agricultural production through activities such as sowing, weeding, harvesting, and post-harvest operations. In recent years, female participation in agricultural work has increased due to factors such as economic necessity, male migration, and limited non-farm employment opportunities. According to the Periodic Labour Force Survey (PLFS) Annual Report 2023–24 published by the National Statistical Office(NSO), the Labour Force Participation Rate (LFPR) of females in rural India for all age groups, estimated on the basis of the usual status approach, has shown a steady increase in recent years. The LFPR was 27.2 per cent in 2020–21, which increased to 30.5 per cent in 2021–22, and further rose to 35.5 per cent in 2022–23.

Despite their substantial contribution to agricultural production, women often face unequal treatment in labour markets. According to the Agricultural Wages in India 2023–24, the average daily wage rates for agricultural labourers reveal a persistent gender gap. In 2021–22, the average daily wage for male workers was ₹363.46, whereas female workers earned ₹303.29. In 2022–23, wages increased to ₹394.52 for males and ₹328.52 for females, respectively (Labour Bureau, 2024). Although the wages of female labourers have shown a gradual increase over time, they continue to remain substantially lower than those of male labourers. This pattern clearly indicates the persistence of gender wage inequality in the agricultural labour market (Labour Bureau, 2024). The disparity in earnings between male and female workers reflects the unequal recognition and valuation of women's labour despite their substantial participation in agricultural activities.

The gender wage gap in agriculture is closely linked to broader structural inequalities in rural labour markets. Factors such as occupational segregation, limited access to productive resources, lower bargaining power, and prevailing social norms often confine women to relatively low-paid tasks. Consequently, gender-based disparities in wages continue to persist, highlighting the need for policies aimed at promoting equality and improving the economic position of women agricultural workers.

Uttar Pradesh provides an important context for examining gender wage disparities. As one of the most populous states in India with a large rural population, agriculture remains a major source of employment. Understanding the determinants of wage differences between male and female agricultural labourers in the state is essential for designing effective labour and development policies.

This study aims to examine the extent and determinants of gender wage disparities among agricultural labourers in Uttar Pradesh using recent survey data. By analysing labour market outcomes through the lens of gender inequality, the study contributes to the broader discussion on inclusive rural development and labour market equity.

2. Review of Literature

Gender wage inequality has been widely studied in labour economics, particularly in developing countries where informal employment and agricultural labour dominate rural economies. One of the earliest theoretical explanations of wage differences is provided by the human capital theory developed by Becker (1964). According to this theory, wage differences arise due to variations in education, training, and work experience among workers. Workers who invest more in human capital are expected to earn higher wages due to higher productivity and skill levels.

However, differences in human capital alone cannot fully explain gender wage disparities. Oaxaca (1973) introduced a decomposition approach that separates wage differentials into explained and unexplained components. The explained component reflects differences in observable characteristics such as education, skills, and work experience, while the unexplained component may indicate discrimination or structural inequalities in labour markets.

Empirical research in developing countries has consistently found persistent gender wage gaps, particularly in agriculture and informal sectors. Women are often concentrated in low-paid and labour-intensive activities and frequently have limited bargaining power in wage negotiations.

Social norms, restricted mobility, and institutional barriers further limit women's access to better-paid employment opportunities.

In the Indian context, several studies have documented the existence of gender wage inequality in rural labour markets. Kundu and Das (2019) examined wage differences across Indian states and found that gender wage gaps remain significant in agricultural labour markets despite improvements in female education and employment programmes. Similarly, Merfeld (2021) analysed sectoral wage gaps in rural India and observed that women tend to earn substantially lower wages than men due to occupational segregation and limited mobility between farm and non-farm sectors. Recent research by Singh et al. (2023) also highlights structural inequalities affecting women in agriculture, particularly disparities in land ownership and access to productive resources, which significantly influence wage outcomes.

Studies focusing specifically on agricultural labour conditions indicate that technological change, mechanisation, and institutional factors have altered wage patterns but have not eliminated gender disparities in agricultural wages. Tiwari and Prawal (2024) examined the socio-economic conditions of agricultural labourers and found that gender-based wage differences continue to persist. Research on rural labour allocation further suggests that women often spend considerable time in unpaid household work alongside agricultural labour, which limits their access to higher-paid employment opportunities.

In addition, Rajni (2026) analysed agricultural wage trends in Uttar Pradesh during the post-MGNREGA period and observed that increasing male migration to non-farm employment has contributed to the feminisation of agriculture. However, greater female participation in agricultural work has not necessarily resulted in improved wages or enhanced economic empowerment for women workers.

Overall, the literature suggests that gender wage disparities in agricultural labour markets are influenced by a combination of factors including differences in human capital, occupational segregation, limited access to productive resources, and broader structural inequalities. The Ministry of Statistics and Programme Implementation (2023) also reports persistent differences in wage levels between male and female workers in rural labour markets based on the Periodic Labour Force Survey.

However, relatively few studies have specifically examined gender wage disparities among agricultural labourers in Uttar Pradesh using recent labour market data. Therefore, this study attempts to address this gap by analysing wage differences among agricultural labourers in Uttar Pradesh using recent PLFS data.

2.1 Research Gap

While gender wage inequality in rural labour markets has been widely studied in India, limited research has focused specifically on agricultural labour markets in Uttar Pradesh using recent labour market data. Most studies examine national-level patterns, often overlooking state-level variations. Therefore, an updated state-specific analysis using recent datasets such as the Periodic Labour Force Survey (PLFS) and Agricultural Wages in India (AWI) is needed to better understand gender wage disparities in the agricultural sector of Uttar Pradesh.

3. Objectives of the Study

1. To measure the extent of gender wage disparities among agricultural labourers in Uttar Pradesh.
2. To analyse the role of occupational segregation and structural inequality in determining wage gaps.

4. Research Methodology

This study focuses on Uttar Pradesh, a predominantly agrarian state in India where agriculture is the main source of employment, particularly in rural areas. The state's socio-economic diversity and reliance on agriculture make it an appropriate context for examining gender-specific labour participation and wage patterns.

Secondary data were used from two official sources. Labour force participation rates (LFPR) were obtained from the Periodic Labour Force Survey (PLFS) conducted by the National Statistical Office (NSO), Government of India, covering the period 2019–20 to 2023–24 based on usual status (ps+ss). Data on average daily agricultural wages were sourced from the Labour Bureau's Agricultural Wages in India (AWI) for the same period. These sources provide reliable and comparable information for assessing trends and gender disparities.

The study sample comprises individuals aged 15–59 years engaged in agricultural labour receiving daily wages, representing the core working population in agriculture. Annual male and female data were analyzed to identify trends and calculate gender gaps.

4.1 Data Analysis

The data were first tabulated by year and gender for LFPR and wages. Trends were visualized using line and bar diagrams to clearly illustrate changes over time. Gender disparities were quantified using the following measures. For labour force participation, the gap between men and women was calculated as the absolute difference:

$$\text{LFPR Gap (\%)} = \text{Male LFPR (\%)} - \text{Female LFPR (\%)}$$

For wages, the gender gap was measured relative to male earnings:

These measures were analyzed over the study period to identify trends in gender inequality. The interpretation also considers structural and social factors, such as occupational segregation and traditional gender roles, which can influence women's participation and access to better-paid work.

$$\text{Wage Gap (\%)} = \frac{\text{Male Wage} - \text{Female Wage}}{\text{Male Wage}} \times 100$$

This methodology provides a transparent and replicable framework for examining gender disparities in agricultural labour. By integrating PLFS and AWI data for the working-age, daily-wage population, the study ensures accurate measurement of participation and wage inequalities over time.

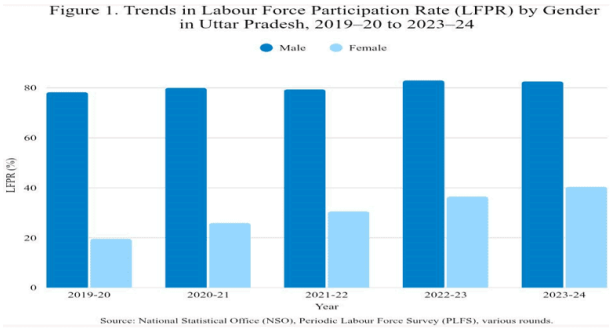
5. Results

Table 1: Trends in Labour Force Participation Rate (LFPR) by Gender in Uttar Pradesh (Usual Status: ps+ss), 2019–20 to 2023–24

Year	Male LFPR (%)	Female LFPR (%)	LFPR Gap (%)
2019-20	78.3	19.6	58.7
2020-21	80.0	25.9	54.1
2021-22	79.4	30.6	48.8
2022-23	83.0	36.5	46.6
2023-24	82.6	40.4	42.2

Source: National Statistical Office, Periodic Labour Force Survey (PLFS)

Note: LFPR gap calculated by the authors based on PLFS data; the calculation method is described in the methodology section.



Note: Figure prepared by the authors based on the data presented in Table 1

5.1 Trends in Labour Force Participation Rate (LFPR)

Table 1 and Figure 1 present the trends in the Labour Force Participation Rate (LFPR) for men and women in Uttar Pradesh from 2019–20 to 2023–24 based on usual status (ps+ss) data from the National Statistical Office's Periodic Labour Force Survey (PLFS).

The results indicate a clear gender disparity in labour force participation. Male LFPR remained consistently high throughout the period, increasing from 78.3 percent in 2019–20 to 82.6 percent in 2023–24. In contrast, female LFPR, although significantly lower than that of males, shows a steady increase over time. Female participation rose from 19.6 percent in 2019–20 to 40.4 percent in 2023–24.

A notable trend is the gradual reduction in the LFPR gap between men and women. The gender gap declined from 58.7 percentage points in 2019–20 to 42.2 percentage points in 2023–24. This suggests that more women have entered the labour force in recent years.

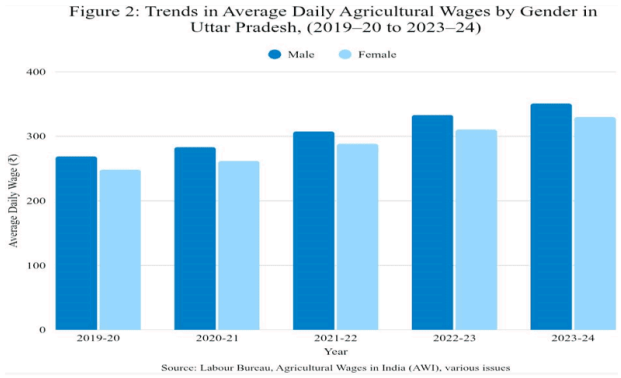
The increase in female labour force participation may be associated with rising economic pressures on rural households and greater involvement of women in wage employment. However, despite this improvement, the gap between male and female participation rates remains substantial, indicating persistent structural and social barriers affecting women's participation in the labour market.

Table 2: Trends in Average Daily Agricultural Wages by Gender in Uttar Pradesh, 2019–20 to 2022–23

Year	Male Wage (₹)	Female Wage (₹)	Wage Gap (%)
2019-20	269.16	248.39	7.72
2020-21	283.28	262	7.51
2021-22	307.41	288.56	6.13
2022-23	333.15	310.57	6.78
2023-24	350.85	330.15	5.90

Source: Labour Bureau, Agricultural Wages in India (AWI)

Note: Wage gap (%) calculated by the authors based on AWI data; the calculation method is described in the methodology section.



Note: Figure prepared by the authors based on the data presented in Table 2.

5.2 Trends in Agricultural Wages and Gender Wage Gap

Table 2 and Figure 2 present the trends in average daily agricultural wages for male and female workers in Uttar Pradesh from 2019–20 to 2023–24 based on data from the Labour Bureau publication Agricultural Wages in India (AWI).

The findings indicate that average daily wages increased for both male and female agricultural workers over the study period. Male wages rose from ₹269.16 in 2019–20 to ₹350.85 in 2023–24, while female wages increased from ₹248.39 to ₹330.15 during the same period.

Despite this improvement, a gender wage gap persists throughout the period. Male workers consistently earn higher wages than female workers. The wage gap fluctuates across years but remains evident, ranging between approximately 5.90 percent and 7.72 percent.

However, the data also indicate a slight decline in the wage gap in recent years, suggesting some improvement in wage parity.

Nevertheless, the persistence of this gap reflects the continued presence of gender-based inequalities in agricultural labour markets.

6. Discussion

The analysis indicates that although women's labour force participation has increased more rapidly than that of men in recent years, wage inequality between male and female workers in the agricultural sector still persists.

Renu (2023) explains that gender-based occupational segregation remains common in agricultural activities. Women are generally concentrated in labour-intensive and relatively low-paid tasks such as weeding, transplanting and post-harvest operations, whereas men are more frequently engaged in comparatively higher-paid farm activities.

Similarly, Banerjee and Bhat (2025) highlight that traditional social norms and gender roles in rural areas often limit women's access to better-paid employment opportunities. These social constraints may also weaken women's bargaining power in wage negotiations, which contributes to the persistence of wage disparities.

Overall, the findings highlight that while women's participation in the labour force has improved in Uttar Pradesh, gender-based wage disparities remain a persistent feature of agricultural labour markets.

7. Conclusion and Policy Recommendations

This study examined gender wage disparities among agricultural labourers in Uttar Pradesh using unit-level data from the Periodic Labour Force Survey. The analysis shows that significant wage differences exist between male and female workers in agricultural labour markets.

While differences in education and experience explain part of the wage gap, a substantial portion remains unexplained. This indicates that structural factors play an important role in shaping wage outcomes. Women are often concentrated in low-paid agricultural activities and have limited access to better employment opportunities.

Policy Recommendations

1. Strengthen enforcement of equal wage laws in agricultural employment.
2. Expand education and skill development programs for rural women.
3. Promote diversification of rural employment beyond agriculture.
4. Increase awareness and enforcement of labour rights among agricultural workers.

Addressing gender wage inequality is essential for promoting inclusive economic growth and improving the socio-economic conditions of rural households.

8. Scope for Future Research

The present study is based on secondary data sources and focuses mainly on trends in labour force participation and wage differences between male and female agricultural workers in Uttar Pradesh. Future research can extend this analysis by using micro-level household data to examine the determinants of gender wage disparities in greater detail. Further studies may also explore the role of factors such as education, land ownership, skill levels, and access to non-farm employment in influencing wage outcomes. In addition, comparative studies across different states or districts could provide deeper insights into regional variations in gender inequality within agricultural labour markets. Such research would help in developing more targeted policies to promote gender equality and improve the economic position of women in rural areas.

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