

GENDER DIFFERENCES IN AGRICULTURAL WAGE: CONVERGENCE OR DIVERGENCE?

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ABSTRACT

This paper examines the question of convergence of male and female agricultural wage rate in Kerala. Convergence has been examined through β -convergence approach at two levels. One, convergence has been estimated independently for male and female agricultural wage rates and, two, a combined regression is estimated to examine the convergence between male and female wage rates. The two major findings that emerge from this study are first, that there have been differences between male and females wage rates with male wage rates consistently higher than that of female wage rate. Second, there is statistically significant divergence between the wage rates of males and females indicating the widening gap between male and female wage rates.

Keywords : AgriculturalWage, Gender, Convergence Analysis, Kerala, Wage Inequality, Female Wage Rate, Male Wage Rate.

Gender Differences in Agricultural Wage: Convergence or Divergence?

Kerala economy was characterized by a higher share of wage labour than other states due to the predominance of cash crop cultivation in agriculture and labour intensive agro processing activities in industry and trade and transportation and related occupations in the service sectors (Kannan 1998). The increased level of organized strength of workers in the rural and informal sectors has led to much higher wage rates for rural workers in Kerala than the national average and to

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that of neighbouring states. Rural labour market of the state stands apart in many ways such as higher rate of unemployment; better working conditions; effective protective cover; and so on. "rural sector of the state is increasingly characterized by impersonal and institutionalized relations, largely on account of trade unions and the state" (Ramesh 2005).

The rural labour market in Kerala is characterized by a number of paradoxes. Kerala has the highest rate of unemployment in India. At the same time it enjoys one of the highest wage rates for rural labourers including agricultural labourers (Vaidyanathan 1994). When it is claimed that rural unemployment is rising in Kerala, there are reports to the effect that there is a shortage of rural labour especially in the agricultural sector in the sense that employers are willing and are actually seeking to hire additional workers at the going wage rate but find no more available at that rate. An attempt at analysing wage rate for men and women is important as women get relatively low wage rates compared to men. The work and labour force participation of women have attracted a great deal of interest in the development debate as it influences and is influenced by a wide range of socio-economic and demographic characteristics (Susan 2012).

Kerala is well known for gender equality. But even after the introduction of MNREGP scheme, women get lower wage rate than male wage rate. Women have no bargaining power because they do not have membership in trade union as opposed to men. Wage discrimination is found between male and female agricultural workers and female wage rate in the agricultural sector is conditioned by the MNREGP wage (Kairunnisa 2014). Women labour force constitutes an important segment of the labour force in Kerala and their participation in the labour force is gradually increasing in the labour market. Wage work in Kerala, as elsewhere, in a number of fields is sharply differentiated along sexual lines. There are only a few occupations, which are the exclusive preserve of either men or women. Even, when men and women work in the same industry, one can find a clear distinction between men's and women's work. One of the most widely publicized indicators about Kerala women's status is the sex-ratio which was 1,032 and 1,040 according to the census of 1981 and 1991 and 1058 and 1084 in 2001 and 2011 respectively. Moreover, Kerala was the only state in India where women had a favourable sex-ratio not only in these four censuses, but in every census since 1901. Sex-ratio is considered a very positive indicator regarding women's social position. Achievement of Kerala women in the field of higher education is also impressive. As per the 2011 census, Kerala state occupies the highest literacy rate i.e. 93.9% and the female literacy rate was 92%.



Historically, Kerala economy is agro - based and a major proportion of women in the labour force work in agriculture and traditional industries like cashew, coir and handloom. Men were able to opt out from agriculture and seek new employment avenues elsewhere when they encountered low prospects in agriculture. Women have remained, however, in the agricultural sector, accepting the traditional practice of paying wages to women at half the rate for men. Increasing casualization of work, falling incomes, and increasing insecurity of employment are the real threats endangering the interest of women in the agriculture sector.

Rural wage is an important component of rural income. It is the major determinant of livelihood security of rural households. The agricultural wages have been used as a proxy variable for studying the level of poverty and living standards in the rural areas. Kerala's rural labour market is different from other states. Paradoxically, in Kerala wage rate is very high along with huge unemployment. In such a context, it is important to analyse the trends in real wage rate for men and women. Does wage inequality between male and female workers exist in the agricultural labour market? If so, are the possibilities of wage disparities being removed at least in the long run? The broad objective of this paper is to examine the possibilities of longterm convergence of agricultural wage rate in Kerala for male and female.

The significance of the present study on the empirical front is that it uses the latest available official data on agricultural wages. The convergence analysis approach is a novel tool in the area of labour studies.

Data and Methodology

The principal source of data used in this study is the Agriculture Wage in India (AWI) annually published by the Directorate of Economics and Statistics, Ministry of Agriculture, Government of India and Agricultural Wage in India annually published by the Labour Bureau, Government of India. The state wise data corresponds to the period from 2006-07 to 2013-14. Labour Bureau provides state wise data on sex-wise distribution of workers and percentage of cultivators, agricultural labourers, workers in household industry and workers from other states and agricultural wage components namely ploughing, sowing, weeding, harvesting and other agricultural operations.

Empirical Methodology

On the empirical front, issues in modelling and testing convergence are far from settled. As Islam (2003) observes, either conditional or unconditional, the informal and formal cross section approaches, the panel approach, or the time series approach, (in part) all have studied β convergence. These approaches have



generally dealt with convergence across economies (although the proposition of convergence in neo classical growth theory is within an economy) in terms of per capita income level. There are two important methods for measuring convergence.

They are

- 1) β convergence
- 2) σ convergence

In the present study, we follow the β convergence approach. We investigate the β -convergence in the wage rate of male and female agricultural workers across districts in Kerala.

The model

To empirically evaluate the convergence, the following steps are adhered to. First, we separately find out the convergence of male and female over time. For this, we take the log of male and female real wage rates. The trends in the logarithmic value of male wage rate are calculated using the two trend equations as below

$$y_1 = \alpha + \beta t \text{ ----- (1)}$$

$$y_2 = \alpha + \beta t \text{ ----- (2)}$$

Where

y_1 & y_2 = log of real wage rate of male & female respectively

t = time

α = constant

β = regression coefficient

The antilog of β is defined as b . The convergence or divergence depends on the value of b . This would provide us with information on the trends in the individual series on male and female real wage over time. Convergence or divergence between male and female wage rate is estimated by running a regression on the difference of fitted regression lines of male and female as in equation (3).

$$(y_1 - y_2) = \alpha + \beta t \text{ ----- (3)}$$

Where

$y_1 - y_2$ = difference in the log of real wage of male and female

After finding the β value, we find its b value and interpret its result as below.



Under b convergence, the time path of $b^t (b \neq 0)$ will be

Divergent if $|b| > 1$

Convergent if $|b| < 1$

The hypothesis set for testing is

Null hypothesis $H_0: b = 1$; implying constant series

Alternative hypotheses (i) $H_1: b > 1$; implying divergence

(ii) $H_2: b < 1$; implying convergence

Where $b < 1$ implies convergence in the wage rate in the long run. Male and female wage rate is divergent in the long run, if $b > 1$. If $b = 1$, it implies constant series. The level of significance for the acceptance of null hypothesis is taken to be 5%.

Convergence of Wage Rate in Kerala

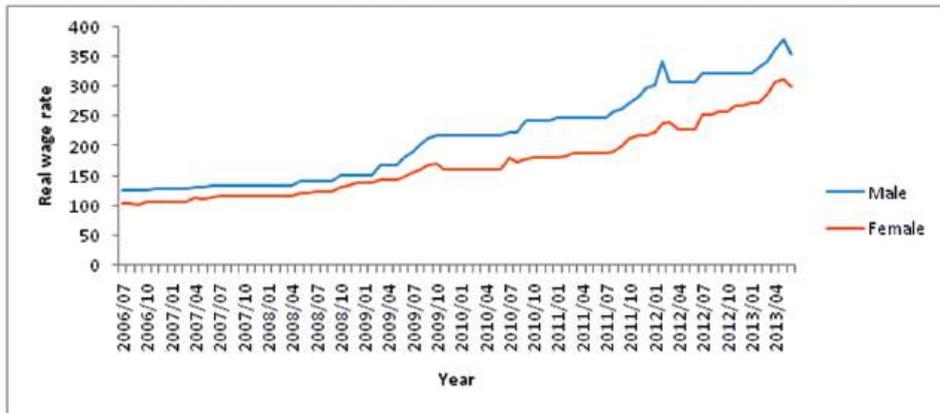
When it comes to the question of wage rate, women get lower wage than men in Kerala. Wage work in Kerala, as elsewhere, in a number of fields is sharply differentiated along sexual lines. There are only a few occupations, which are exclusive preserve of either men or women. In the context of agricultural wage rate and agricultural wage equality, a pertinent question arises as to whether the female wage rate tends to converge towards male wage rate. The implications of the wage equality of Kerala can be observed in the phenomenon of "convergence" across the state. If the growth of female wage rate is higher than the male wage rate, there is reason to believe that female wage would be growing faster on an average than the male wage rate.

Trends in the Wage Rate of Males and Females in Kerala.

Agricultural wage data collected from labour bureau from the year of 2006 July to 2013 June has been plotted in the figure 1 which shows the trends in male wage rate and female wage rate of agriculture workers. The figure reveals that wage rate of men in the agricultural sector is consistently above that of female. Surprisingly, the deviation between male and female wage rates widens over time.



Figure 1: Trends in the wage rate of Male and Female in Kerala.



Source: Estimated from Labour Bureau, Ministry of Labour and Employment, Govt. of India.

The regression models (equation 1 & 2) on wage rates of male and female of Kerala have been estimated as under

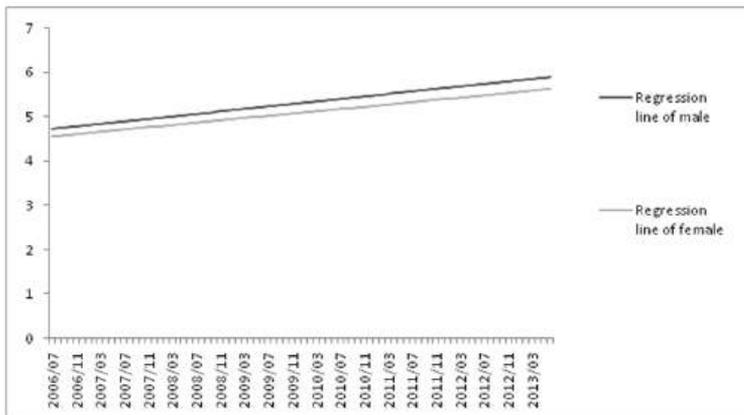
$$y_1 = 5.29 + 0.014t \text{ ----- (3)}$$

$$y_2 = 5.08 + 0.013t \text{ ----- (4)}$$

We have two regression lines that are plotted in a single graph. This can be seen from the following figure.

Figure 2: Regression lines for Wage Rates of Male and Female in Kerala

Estimated from equation 3 and equation 4





The thick line shows the regression line of male real wage rate. The other line shows the regression line of female wage rate. These individual regression lines suggest that both male and female wage rates in the agricultural sector are increasing over time with male wage rates consistently above that of female wage rate. This result, however, is inadequate to address the crucial question of convergence of male and female wage rate in the long run. This is accomplished through a simultaneous analysis of the convergence.

Simultaneous Testing of convergence

The independent regression results for male and female agricultural wage rates are inadequate to explain the simultaneous convergence or divergence of the male and female wage rates. It provides only a unidirectional relation of male and female over time. The simultaneous analysis of convergence is arrived at through estimating a regression of difference in male and female wage rates as explained below.

$$Y = (y_1 - y_2) = \alpha + \beta t \text{ ----- (3)}$$

After finding the β value, we find its b value and interpret its result as:

Divergent, if $|b| > 1$

Convergent if $|b| < 1$

The estimated regression is presented below.

$$y = 0.213 + 0.001t \text{ ----- (3a)}$$

Table: 1 Estimate of b convergence from the Regression of Difference

Kerala	α	t - value	p - value	β	t - value	p - value	b - value	R ²	DW
	0.213	-200	{0.00*}	0.001	100	{0.00*}	1.001	1	0.025

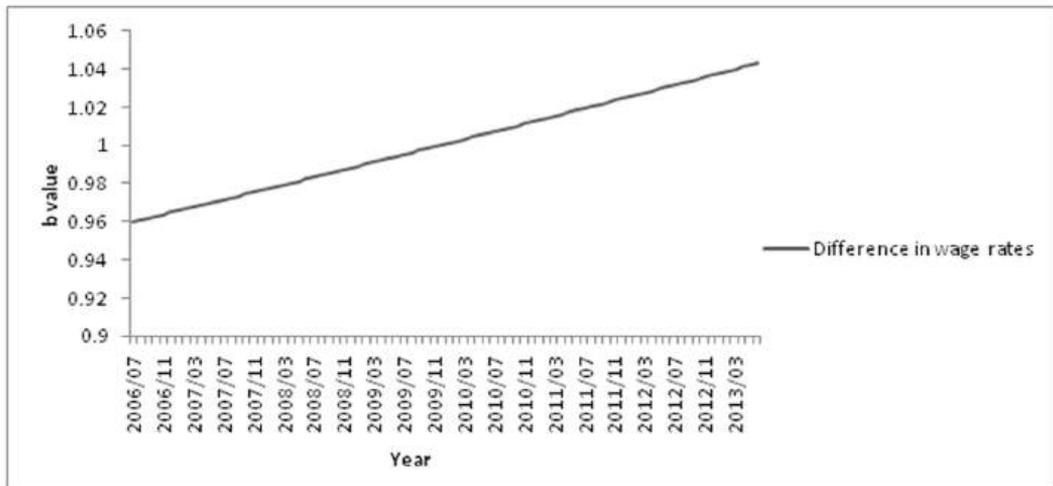
Source: Estimated from the Labour Bureau, Ministry of Labour and Employment, Govt. of India.

Parameters of the estimated regression for testing simultaneous convergence are presented in equation 3a. Similarly, β and b values are calculated and reported in Table 1. As in independent regressions for male and female, the combined regression of differences too exhibits robust results. β is estimated to be 0.001 and in turn b is found to be 1.001, with statistically significant t ratios. Going by the rules of convergence/divergence based on b value (1.001 which is greater than 1) suggests that there is statistically significant divergence in the wage rate between



male and female over time. The dimension and path of divergence is visible through the plotted b curve as shown below.

Figure 3: β convergence of Male and Female Wage Rates



Source: Estimated from the Labour Bureau, Ministry of Labour and Employment, Govt. of India

Divergence in the combined regression suggests that the gap is in fact broadening. This goes in contradiction of gender equity, equal wage for equal job, and the living conditions and economic status of women agricultural workers in Kerala.

Conclusion

In the agricultural sector of Kerala, male workers earn higher wage than the female workers. Analyses of b convergence test statistically significant divergence in the wage rate independently for males and females over time. A combined regression of the difference between male and female wage rates has specifically brought out the divergence over time in the wage rates. This raises many concerns. One, agricultural wage rates has been low for females as compared with males. Divergence in the combined regression suggests that the gap is in fact widening. This goes against concerns of gender equity, equal wage for equal job, and the living conditions and economic status of women agricultural workers in Kerala.



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