

International Journal of Statistics and Applied Mathematics



ISSN: 2456-1452
Maths 2017; 2(4): 43-48
© 2017 Stats & Maths
www.mathsjournal.com
Received: 25-05-2017
Accepted: 26-06-2017

Shruti Vats
Assistant Professor
Aryabhata College, University
of Delhi, Delhi, India

Poverty, inflation and wages in Rural India

Shruti Vats

Abstract

Almost one third of the country's population continues to live below the poverty line, and a large proportion of poor people live in rural areas. Poverty remains a chronic condition for almost 30 per cent of India's rural population. The incidence of rural poverty has declined somewhat over the past five years with no clear pattern or trend on why poverty falls. The only direct correlation between the reduction in poverty and official action to remove it seems to be the Mahatma Gandhi National Rural Employment Guarantee Act (NREGA) which promises 100 days of guaranteed work or wages to at least one person per household in rural areas. The main objective of this paper is to find out whether the rise of daily agricultural wages leads to a fall in rural poverty.

Keywords: Poverty, inflation, wages

Introduction

The number of poor people in India, according to the estimates of Tendulkar Methodology, amounts to more than 354.7 million in 2009-10. The country has been successful in reducing the proportion of poor people from about 45.3 per cent in 1993 to about 37.2 per cent in 2004 and to 29.8 at present by 2009-10.

But almost one third of the country's population continues to live below the poverty line, and a large proportion of poor people live in rural areas. Poverty remains a chronic condition for almost 30 per cent of India's rural population. The incidence of rural poverty has declined somewhat over the past five years with no clear pattern or trend on why poverty falls. The only direct correlation between the reduction in poverty and official action to remove it seems to be the Mahatma Gandhi National Rural Employment Guarantee Act (NREGA) which promises 100 days of guaranteed work or wages to at least one person per household in rural areas.

According to a paper by Erlend Berg, Sambit Bhattacharyya, Rajasekhar Durgam and Manjula Ramachandra (2012), on average NREG boosts the real daily agricultural wage rates by 5.3 percent.

My paper looks at the impact of agricultural wages on poverty over the period 2004-05 to 2009-10. During this time period there is a negative poverty rate trend, what gives us a clue that policy of the government towards the poverty problem is the right one. Fluctuation of inflation rate is also considered.

The main objective of this paper is to find out the argumentation of the hypothesis that other things being equal, the rise of daily agricultural wages leads to a fall in rural poverty.

Using the state wise rural poverty lines, average real daily agricultural wages and consumer price index data for agricultural labourers (CPIAL), I found that poverty is inversely related to wages. Going against the theory of economics that inflation accentuates poverty, I found out a very small but inverse relation between poverty and inflation in rural India.

Data

Wage data are from the Agricultural Wages in India (AWI) series which has been published by the Indian Ministry of Agriculture. It provides occupation wise monthly data on agricultural wages for all the states. It remains the most widely used source for analysis of Indian rural and agricultural wages. CPIAL has been taken from website of Indian Bureau of Labour.

Correspondence
Shruti Vats
Assistant Professor
Aryabhata College, University
of Delhi, Delhi, India

State wise yearly data is available there. State wise poverty figures are available on the website of planning commission according to Tendulkar methodology.

AWI covers three main categories of unskilled labour: ‘field labour’, ‘other agricultural labour’ and ‘herding’. ‘Field labour’ is in many cases further disaggregated into ploughing, sowing, weeding and reaping. In contrast, ‘other agricultural labour’ is not disaggregated. Examples of the kind of work included under this category are: watering fields, carrying heavy objects, digging wells, cleaning silt from waterways and embankments. I believe that a large proportion of

agricultural wage labour undertaken in India would fall under the field labour category. So, I have considered only the male field labours for the calculation of agricultural wages. Daily agricultural wages have been calculated by simply calculating the average over the year 2004-05 and 2009-10 separately, state wise.

A variable of real wages have been generated by deflating the average daily agricultural wages by consumer price index for agricultural labours for the same year, published by the Indian Labour Bureau.

Table 1: shows the descriptive statistics of each variable

Vari able	Obs	Mean	Std. Dev.	Min	Max
year	0				
statecode	0				
statename	0				
povline	30	34.22	12.53749	12	60.8
agr wages	30	95.73967	48.98899	47.86	272.19
cpi al	30	439.1667	100.1158	320	588
Real W	30	21.71858	10.04016	13.4781	56.849

Empirical Results

Using the Ordinary Least Square Method (OLS), I regress the dependent variable ‘per centage of rural population below poverty line to two independent variables namely; ‘State-wise Real Average Daily Wage Rates for Agricultural Labour

(Man)’ and ‘Consumer price index for Agricultural labour’. Stata have been used to run the regression.

$$Pov = \alpha + \beta_1 RealW + \beta_2 CPIAL$$

The results are summarized in the table 2 below.

Table 1: Regression Results

Linear regression					
					Number of obs = 30
					F(2, 27) = 26.47
					Prob > F = 0.0000
					R-squared = 0.5532
					Root MSE = 8.6857
	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
Real W	-.7072219	.1174898	-6.02	0.000	-.9482911 -.4661528
cpi al	-.0578079	.0152257	-3.80	0.001	-.0890485 -.0265674
_cons	74.96718	7.635163	9.82	0.000	59.30112 90.63324

The coefficient on the real wages and CPIAL are negative and statistically significant. Whereas, the coefficient of CPIAL is very small (0.0578).

The obtained results under the OLS method of estimation showed that, ceteris paribus, 1% increase in wages could lead to 0.7072% fall in poverty level and a 1% increase in inflation rate could lead to 0.0578% fall in poverty level.

These results clearly confirm our hypothesis that an increase in wages leads to a decrease in poverty. But at the same time an increasing inflation is does not reduce poverty.

Narega was implemented in 2005, and when I used the data for the year just before narega was introduced and five years after it, I can see clearly the results are in favour of NREGA.

As I already wrote in the introduction, a study confirms an increase in daily wages of agricultural field labours and my paper clearly shows the effect of that increase in wages in reducing the rural poverty. Moreover, the inverse relation between poverty and inflation somewhere favours the scheme again.

According to economic theory, if an increase in prices is higher than the relative increase in nominal wage, then the real incomes (real wage) of the population are falling. But since, there is a positive correlation between the real wages and inflation, as shown in the Table 3 below, I can conclude, that the real wages increased sufficiently to offset the effect of rise in prices.

Table 2: Correlation between variables

	povline	Real W	cpi al
povline	1.0000		
Real W	-0.5834	1.0000	
cpi al	-0.4825	0.0369	1.0000

Apart from the regression results, I have plotted these variables to see the trend in their values over two time periods

of 2004-05 and 2009-10 across 15 states.

Table 3: It is evident that over the five years poverty line has decreased and nominal wages have increased substantially.

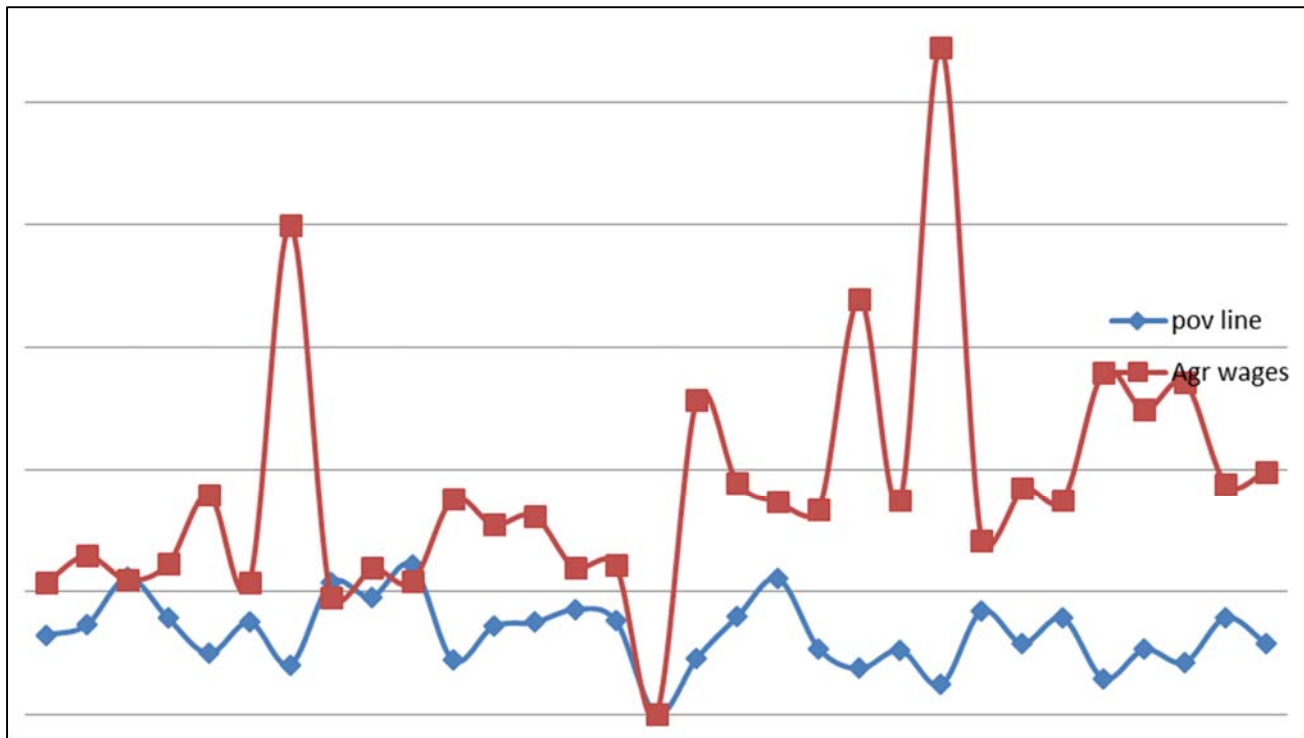


Table 4: The real wages have rather increased only marginally and in some states like Gujrat, Kerala, Madhya Pradesh, Maharashtra, Punjab and Ragasthan there is a declining trend, which is again very small.

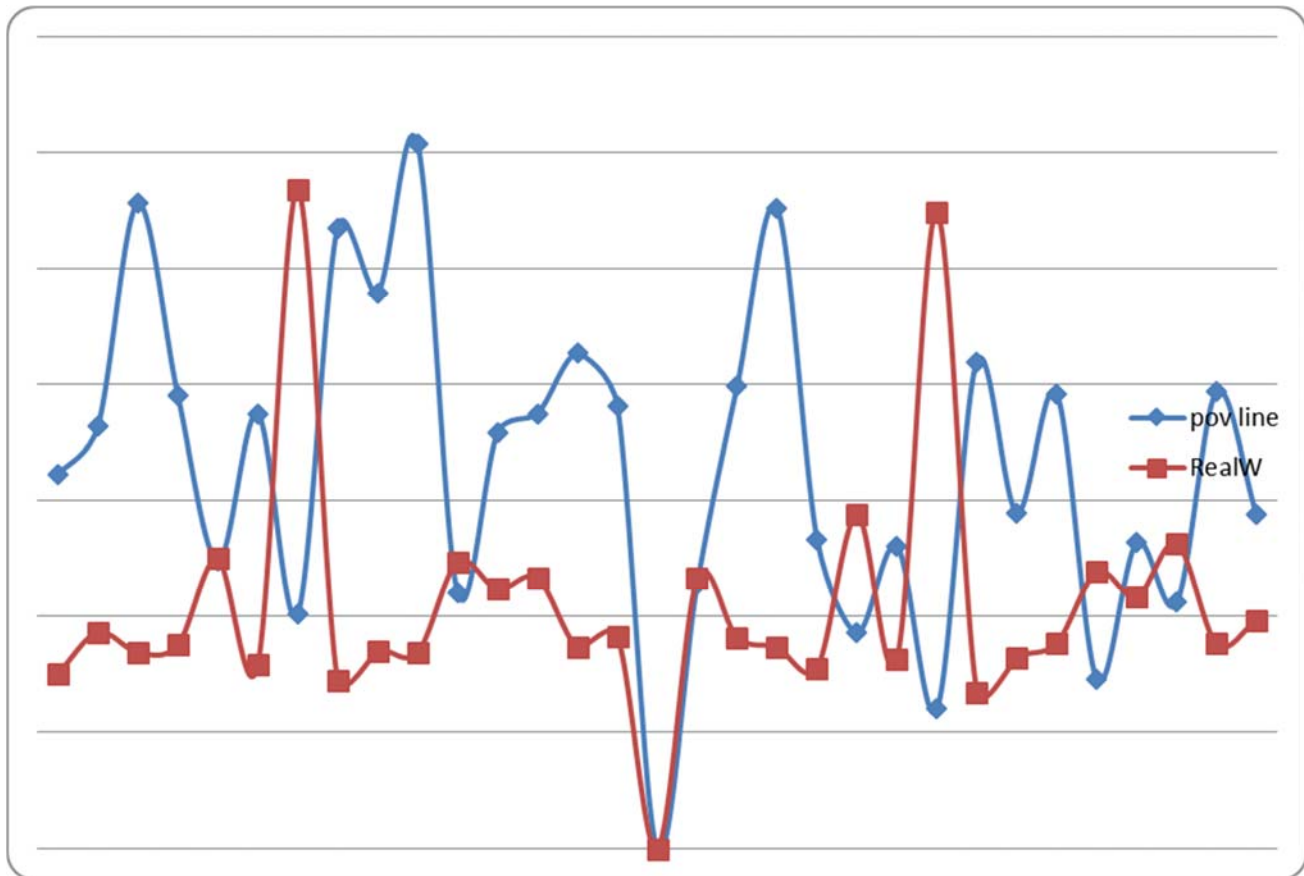


Table 5: This table quite evidently points out the huge rise in inflation. Poverty is somewhat decreasing.

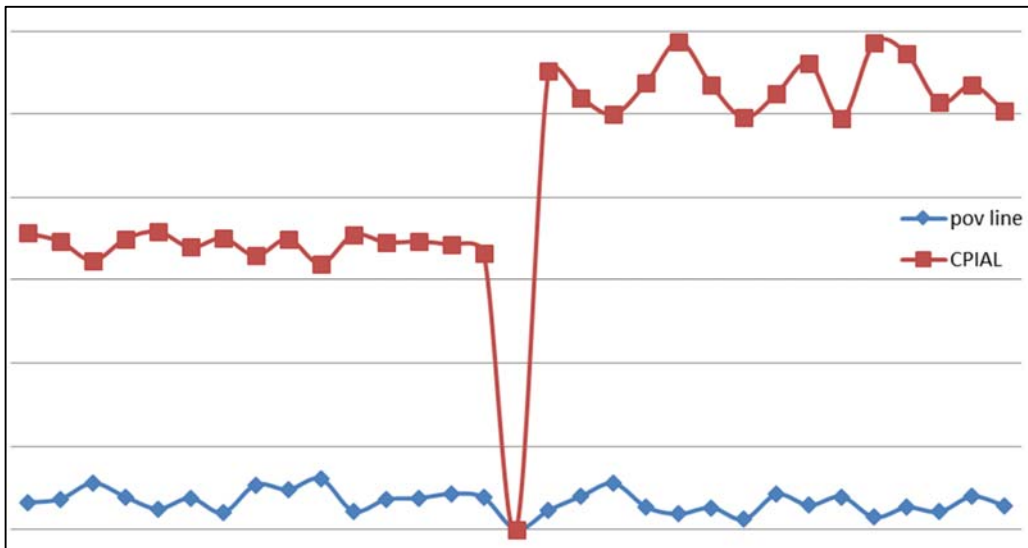


Table 6: This table is showing an interesting pattern of bounce in inflation and very minimal increase in real wages.

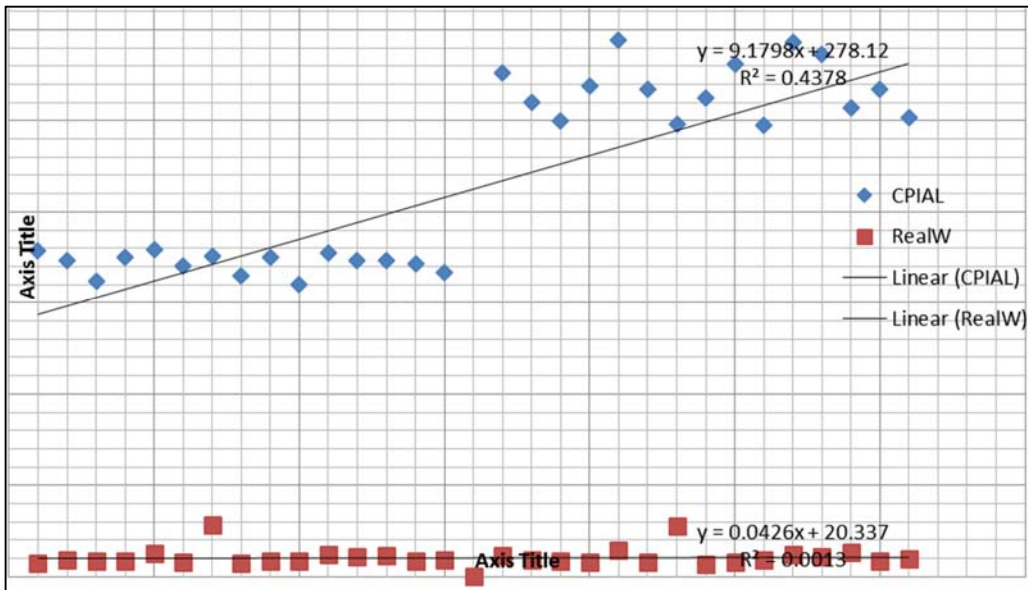
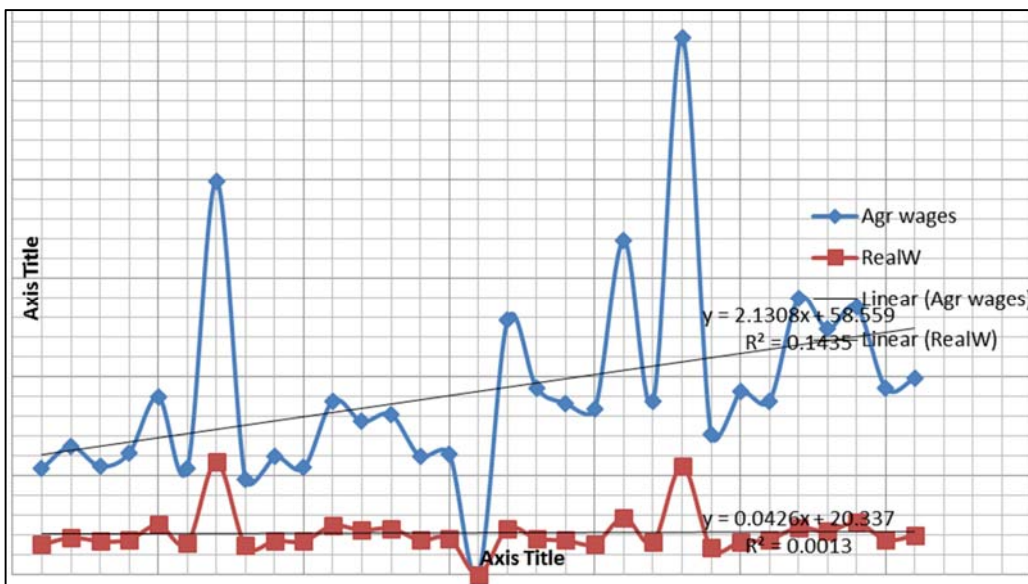


Table 7: This table shows that nominal wages have increased substantially whereas the real wages has not increased to that extent.



Concluding Remarks

Table 5 clearly points out a very little increase in real wages over these five years and some states it has rather declined. A rise in real wages though reduces poverty but it turns out to be a very small factor to it. There are definitely other reasons for an 8.2% fall in poverty over the five years. It could be better health conditions and contribution of other rural development programmes or one reason could simply be wrong estimation of poverty percentages by Tendulkar methodology which has been highly criticized.

At one point, most celebrated flagship program of UPA government seems like taking the credit for the reduction in poverty just by its presence in right circumstances of data, favoring it.

But I cannot entirely criticize the Policy as it has definitely provided employment to the needy rural poor of India to some extent. Lest, we ignore the ground reality of the actual number of rural poor getting the employment under NREGA. I am saying this because in Andhra Pradesh there have been issuing of NREGA cards to people above poverty line as well. (Reason completely based on personal experience)

Also, my work has not incorporated the women wages, as the data was not available for 2004-05 for occupation and sex

wise daily agricultural wages. Had I included then the real wages might have shown some increase as NREGA provides employment to both male and female workers.

Table 8 captivates one's attention toward inflation. There is momentous difference in Nominal wages and real wages over the period. So, it's not wrong to say that, be it rural or urban, one could not do away with inflation.

Overall, the regression results from the period 2004-05 to 2009-10 shows a clear trend of reducing poverty. Average daily agricultural wages for field labours have increased. Inflation increased and as a result real wages have shown only a slight increase. But regression result conforms my hypothesis, 'the rise of daily agricultural wages leads to a fall in rural poverty'

This is a very important conclusion. Since, if a rise in wages can reduce poverty then, Government should work on better implementation of NAREGA. The benefit should reach to the rural poor. I would also suggest digitization of the whole program from distribution of job cards to getting the work and wages. It will check on all the discrepancies and would lead to better implementation of the Programme.

Data Tables

Year	State code	State Nam	pov line	Agr wages	CPIAL
2004-05	AP	Andhra Pra	32.3	53.72	357
	ASM	Assam	36.4	64.64	347
	BH	Bihar	55.7	54.81	324
	GJ	Gujarat	39.1	61.42	350
	HR	Haryana	24.8	89.84	359
	KNT	Karnataka	37.5	53.81	340
	KR	Kerala	20.2	199.54	351
	MP	Madhya Pr	53.6	47.86	330
	MH	Maharasht	47.9	59.65	350
	OR	Orissa	60.8	54.02	320
	PB	Punjab	22.1	87.77	355
	RJ	Rajasthan	35.8	77.4	346
	TN	Tamil Nadu	37.5	80.91	347
	UP	Uttar Prade	42.7	59.58	343
	WB	West Beng	38.2	60.89	333
	2009-10	AP	Andhra Pra	22.8	128.47
ASM		Assam	39.9	94.46	520
BH		Bihar	55.3	86.69	500
GJ		Gujarat	26.7	83.69	538
HR		Haryana	18.6	169.41	588
KNT		Karnataka	26.1	87.42	535
KR		Kerala	12	272.19	496
MP		Madhya Pr	42	70.76	525
MH		Maharasht	29	92.58	562
OR		Orissa	39.2	87.71	495
PB		Punjab	14.6	139.73	586
RJ		Rajasthan	26.4	124.36	573
TN		Tamil Nadu	21.2	135.36	514
UP		Uttar Prade	39.4	94.37	535
WB		West Beng	28.8	99.13	504

Table 8: Data used in regression.

Sr.	States	State Specific Poverty Lines for 2009-10		Tendulkar Methodology (2009-10)						Tendulkar Methodology (2004-05)					
		Monthly per Capita (Rs.)		Rural		Urban		Total		Rural		Urban		Total	
No.		Rural	Urban	% age of Persons	No. of Persons (lakhs)	% age of Persons	No. of Persons (lakhs)	% age of Persons	No. of Persons (lakhs)	% age of Persons	No. of Persons (lakhs)	% age of Persons	No. of Persons (lakhs)	% age of Persons	No. of Persons (lakhs)
1	Andhra Pradesh	693.8	926.4	22.8	127.9	17.7	48.7	21.1	176.6	32.3	180.0	23.4	55.0	29.6	235.1
2	Arunachal Pradesh	773.7	925.2	26.2	2.7	24.9	0.8	25.9	3.5	33.6	3.2	23.5	0.6	31.4	3.8
3	Assam	691.7	871.0	39.9	105.3	26.1	11.2	37.9	116.4	36.4	89.4	21.8	8.3	34.4	97.7
4	Bihar	655.6	775.3	55.3	498.7	39.4	44.8	53.5	543.5	55.7	451.0	43.7	42.8	54.4	493.8
5	Chhattisgarh	617.3	806.7	56.1	108.3	23.8	13.6	48.7	121.9	55.1	97.8	28.4	13.7	49.4	111.5
6	Dalhi	747.8	1,040.3	7.7	0.3	14.4	22.9	14.2	23.3	15.6	1.1	12.9	18.3	13.0	19.3
7	Goa	931.0	1,025.4	11.5	0.6	6.9	0.6	8.7	1.3	28.1	1.8	22.2	1.7	24.9	3.4
8	Gujarat	725.9	951.4	26.7	91.6	17.9	44.6	23.0	136.2	39.1	128.5	20.1	42.9	31.6	171.4
9	Haryana	791.6	975.4	18.6	30.4	23.0	19.6	20.1	50.0	24.8	38.8	22.4	15.9	24.1	54.6
10	Himachal Pradesh	708.0	888.3	9.1	5.6	12.6	0.9	9.5	6.4	25.0	14.3	4.6	0.3	22.9	14.6
11	Jammu & Kashmir	722.9	845.4	8.1	7.3	12.8	4.2	9.4	11.5	14.1	11.6	10.4	2.9	13.1	14.5
12	Jharkhand	616.3	831.2	41.6	102.2	31.1	24.0	39.1	126.2	51.6	116.2	23.8	16.0	45.3	132.1
13	Karnataka	629.4	908.0	26.1	97.4	19.6	44.9	23.6	142.3	37.5	134.7	25.9	51.8	33.3	186.5
14	Kerala	775.3	830.7	12.0	21.6	12.1	18.0	12.0	39.6	20.2	42.2	18.4	19.8	19.6	62.0
15	Madhya Pradesh	631.9	771.7	42.0	216.9	22.9	44.9	36.7	261.8	53.6	254.4	35.1	61.3	48.6	315.7
16	Maharashtra	743.7	961.1	29.5	179.8	18.3	90.9	24.5	270.8	47.9	277.8	25.6	114.6	38.2	392.4
17	Manipur	871.0	955.0	47.4	8.8	46.4	3.7	47.1	12.5	39.3	6.7	34.5	2.3	37.9	9.0
18	Meghalaya	686.9	989.8	15.3	3.5	24.1	1.4	17.1	4.9	14.0	2.9	24.7	1.2	16.1	4.1
19	Mizoram	850.0	939.3	31.1	1.6	11.5	0.6	21.1	2.3	23.0	1.1	7.9	0.4	15.4	1.5
20	Nagaland	1,016.8	1,147.6	19.3	2.8	25.0	1.4	20.9	4.1	10.0	1.5	4.3	0.2	8.8	1.7
21	Orissa	567.1	736.0	39.2	135.5	25.9	17.7	37.0	153.2	60.8	198.8	37.6	22.8	57.2	221.6
22	Puducherry	641.0	777.7	0.2	0.0	1.6	0.1	1.2	0.1	22.9	0.8	9.9	0.7	14.2	1.5
23	Punjab	830.0	960.8	14.6	25.1	18.1	18.4	15.9	43.5	22.1	36.7	18.7	16.9	20.9	53.6
24	Rajasthan	755.0	846.0	26.4	133.8	19.9	33.2	24.8	167.0	35.8	166.4	29.7	43.5	34.4	209.8
25	Sikkim	728.9	1,035.2	15.5	0.7	5.0	0.1	13.1	0.8	31.8	1.5	25.9	0.2	30.9	1.7
26	Tamil Nadu	639.0	800.8	21.2	78.3	12.8	43.5	17.1	121.8	37.5	134.4	19.7	59.7	29.4	194.1
27	Tripura	663.4	782.7	19.8	5.4	10.0	0.9	17.4	6.3	44.5	11.9	22.5	1.5	40.0	13.4
28	Uttar Pradesh	663.7	799.9	39.4	600.6	31.7	137.3	37.7	737.9	42.7	600.5	34.1	130.1	40.9	730.7
29	Uttarakhand	719.5	898.6	14.9	10.3	25.2	7.5	18.0	17.9	35.1	23.1	26.2	6.6	32.7	29.7
30	West Bengal	643.2	830.6	28.8	177.8	22.0	62.5	26.7	240.3	38.2	227.5	24.4	60.8	34.2	288.3
31	A & N Islands			0.4	0.0	0.3	0.0	0.4	0.0	4.1	0.1	0.8	0.0	3.0	0.1
32	Chandigarh			10.3	0.0	9.2	0.9	9.2	1.0	34.7	0.2	10.1	0.9	11.6	1.1
33	Dadra and Nagar			55.9	1.0	17.7	0.3	39.1	1.3	63.6	1.1	17.8	0.1	49.3	1.3
34	Daman and Diu			34.2	0.2	33.0	0.5	33.3	0.8	2.6	0.0	14.4	0.1	8.8	0.2
35	Lakshwadeep			22.2	0.0	1.7	0.0	6.8	0.0	0.4	0.0	10.5	0.0	6.4	0.0
	India	672.8	859.6	33.8	2,782.1	20.9	764.7	29.8	3,546.8	42.0	3,258.1	25.5	814.1	37.2	4,072.2

Table 10: 4-Consumer price index numbers for agricultural labourers and rural labourers

(Base: Agrl. Year 1986-87=100)							
State	General						
	Weight	2005-06	2006-07	2007-08	2008-09	2009-10	
1	2	3	4	5	6	7	
Agricultural Labourers							
Andhra Pradesh	12.97	371	401	430	484	552	
Assam	1.69	362	388	417	451	520	
Bihar	11.38	347	384	411	446	500	
Gujarat	5.20	369	403	424	459	538	
Haryana	1.81	376	403	447	498	588	
Himachal Pradesh	0.10	343	367	376	406	455	
Jammu & Kashmir	0.26	359	392	413	453	524	
Karnataka	6.67	341	367	406	458	535	
Kerala	5.02	356	374	403	454	496	
Madhya Pradesh	6.86	352	388	412	459	525	
Maharashtra	9.96	368	402	432	475	562	
Manipur	0.10	328	337	367	407	455	
Meghalaya	0.13	382	410	439	484	540	
Orissa	5.07	334	365	400	438	495	
Punjab	3.02	380	417	448	501	586	
Rajasthan	2.14	377	413	439	490	573	
Tamil Nadu	8.47	355	371	403	455	514	
Tripura	0.15	351	383	407	433	466	
Uttar Pradesh	9.61	371	408	433	469	535	
West Bengal	9.39	342	365	395	432	504	

References

- Erlend Berg, Sambit Bhattacharyya, Rajasekhar Durgam and Manjula Ramachandra, 2012.
- Agricultural Wages in India (AWI), Indian Ministry of Agriculture.
- CPIAL, Indian Bureau of Labour.

4. Planning Commission.