Factors Affecting the Adoption of MGNREGA Work in India: Empirical Evidence from Indian States

Parth Shah

The Cathedral and John Connon School

1. INTRODUCTION

Employment implies work for which one has been engaged and is being regularly paid by an employer.[1] The Government of India passed the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), in September, 2005. In 2004-05 India had a poor employment rate of about 42% and had extremely high poverty levels hence this act was initiated by the government to solve problems along these lines.[2] The Act gave a legal guarantee of a hundred days of wage employment in a financial year to adult members of a rural household who demanded employment and were willing to do unskilled manual work. The Act was to be applicable to areas notified by the Central Government and its objective was to enhance the livelihood security of the people in the rural areas by generating wage employment through works that develop the infrastructure base of that area.[3]

By guaranteeing 100 days of wage employment annually to rural households that were willing to perform unskilled manual labor, it provided an option to fall back on and reduced unemployment. The scheme not only created employment but also focused on developing infrastructure in rural areas like roads, canals, ponds, irrigational facilities and enhancing the quality of life. It promoted social inclusion by ensuring marginalized groups, including women and disadvantaged communities, had equitable access to work.

---

[1] https://www.merriam-webster.com/dictionary/employment#:~:text=noun-,em%C2%B7%E2%80%8Bploy%C2%B7%E2%80%8Bment,the%20state%20of%20being%20employed

[2] https://casi.sas.upenn.edu/sites/default/files/iit/515part1_employment.pdf

[3] https://haryanarural.gov.in/mahatma-gandhi-national-rural-employment-guarantee-scheme-mgnregs/

The MGNREGA gave rise to the largest employment program in human history and it is unique in its nature due to its scale, design and architecture and impact. It is a bottom-up scheme which means that decisions on delegations can be made from the center to even local governments as and when required. It is a demand driven scheme where the provision of work is due to people seeking jobs of their choice making it self-selecting as well. It guarantees a hundred days of employment as well implying its right based structure.

In this research paper the aim is to explore the following three research questions:(1) What are the trends of the major variables under the MGNREGA scheme in all states over the last 5 years? (2)Is there any statistically significant difference for the selected variables across the states in India,(3)What are the factors that affect the major outcome variables under the MGNREGA scheme? By conducting a thorough analysis and evaluation of the selected data, we will be able to identify trends in the major variables across the different states, any statistical differences and the reason for their existences and the factors affecting major outcome variables under the scheme, allowing and assisting economists and officials to use this data for development and advancements. Given that MGNREGA has been in operation for 20+ years, India still suffers from unemployment as well as poverty at the rural level therefore there is a need to examine the effectiveness of the program across various parameters as well as different states in India. We use publicly available data from the official MGNREGA website to answer these research questions and examine the interstate-variation of the key variables including number of individuals worked, average daily wage rate, as well as estimate the impact of the ley variables on total number of individuals worked under the MGNREGA scheme. We find that while the proportion of female workers and the average wage rate per day negatively impacts the number of individuals worked, other factors do not have any significant effect. The main contribution of this paper is to examine the trends of MGNREGA after two-decades of its inception. The paper studies the performance of MGNREGA across states in India and provides an analysis of how states have performed over the last five years.

2. LITERATURE REVIEW

Himanshu and Kundu (2017) examined the reasons behind the increase in wages for agricultural laborers under the MGNREGA Act. The study used secondary data through a panel data regression, and concluded that the rise in wages was not solely due to the impact of the program, but accompanied by other factors including agricultural productivity per worker and literacy rate to be major determinants of real wage rates in rural India at both state- and region-level. Kalarani and Kumar(2012)attempted to analyze the state-wise performance of the MGNREGA and its impact on various streams of agriculture and rural agricultural wages with an emphasis on the Act's impact on poverty alleviation, with states like Rajasthan, Madhya Pradesh, and Chhattisgarh showing higher coverage and wage accruals. The paper assesses MGNREGA's

performance in addressing poverty and employment, utilizing state-specific data to evaluate the Act's effectiveness in different regions. Reddy et al. (2016) undertook a study to assess the impact of the scheme on change in the income, savings pattern and extent of employment after the implementation of the scheme in Kalaburagi district of Karnataka state which was covered during the third phase of implementation of MGNREGA and was selected for the study with the pre-set objective of analyzing the impact of the scheme on participant households. This required primary data which was collected from the participants for the agricultural year 2013-14. It was found that earnings, bank savings and income was significantly higher for farmers that were fully involved in the scheme than those partially involved. Harish et al. (2011) evaluated the impact of MGNREGA on income generation and labor supply in agriculture in one of the districts in the central dry zone of Karnataka. Their results have shown that the number of days worked in a year with the implementation of MGNREGA program has significantly increased to 201 days with a 16% increase. The authors find that gender, education and family size of the workers are the significant factors influencing the worker's employment under the program. Additional employment generated from MGNREGA has increased income by 9.04%. Among the increase in income the highest percent has come from the agricultural sector. Mukherjee (2018) used primary data from three districts of West Bengal see whether there exists any non-monotonic effect of restrictiveness on household's expenditure across caste and religion. The author finds that as a result of participating the labor force through MGNREGA, the contribution of women to household earnings increased, which potentially increased their bargaining power within the household. The analysis showed that women of the upper caste community were able to exercise the highest level of agency in allocating household resources compared to the women of scheduled caste communities.

Nagaraj et al. (2016) examined the impact of MGNREGA on labor scarcity, wages, production costs, and wage rates in agriculture and non-agriculture employment. Results show an upward trend in real wages for farm and non-farm work, particularly for male farm workers. However, gender wage inequality persists, with a decline in labor use for some crops and increased participation of female labor in major crops. Kumar and Chakraborty (2016) give a general outlook of selected households of the different states, their socio-economic class, occupation, income, and pattern of expenditure. They find that 20% of the households have sources of income through self-employment in agriculture and livestock business, 5% have income from business, and 10% have an income from regular salary employment. The value of assets and land ownership has a negative sign and wherever it is found more, people are likely to participate in MGNREGA activities less. Ranaware et al. (2015) examined the impact of MGNREGA works in the state of Maharashtra. Using a primary survey data of over 4,800 users, the study found that the program supported a large number of small and marginal farmers in the agricultural sector. Varshney et al. (2019) assessed the impact of MGNREGA on the cropping patterns, crop yields

and other such agricultural indicators across the states in India, they found modest changes in cropping patterns with no improvements in crop yields and no impact.

3. DATA AND DESCRIPTIVE STATISTICS

The data for this study has been taken from the MGNREGA website[4]. We compute data for five variables from all the states and union territories in India over the past five years. Total individual workers is defined as the number of people that worked and benefited from this scheme and is expressed in Lakhs. Women person days out of Total is a measure of out of the total number of days worked, how many of those were worked by women, providing an insight into the gender balance. Average Wage Rate is an average of the wages that workers received under the scheme and gives an idea into the kind of pay they received. Total Number of Households completed 100 days of Wage Employment provides a lens at how many households actually worked for 100 days or more under the scheme giving us an idea of the true nature of their employment. Lastly, Wages and Total Expenditure, expressed in Lakhs state the total wages received by the workers as a whole and the government's total expenditure on the workings of the scheme respectively. Table 1 provides the values for these indicators at an All India level and the data was collected from 2017-18 to 2022-23.

Table 1: Descriptive Statistics of key variables in the study

Variable	Total individuals worked (in INR Lakhs.)	Women person days out of Total (%)	Average Wage rate per day per person (Rs.)	Total No of HHs completed 100 Days of Wage Employment	Wages(Rs. In Lakhs)	Total Exp(Rs. in Lakhs.)
Average	25.49	53.51	230.73	1,25,249	1,83,624.06	2,64,507.37
Standard Deviation	30.82	17.31	58.01	216395.78	233209.57	335530.77
Maximum	118.26	90.49	355.98	12,31,428	10,57,014.90	13,39,283
Minimum	0	0	0	0	0	0

---

[4] https://nreganarep.nic.in/netnrega/nrega_ataglance/At_a_glance.aspx

At an all-India level, approximately 26 lakh individuals worked in the MGNREGA scheme over the last five years, approximately 54% of them being women. The average wage rate per person per day was INR 230 amounting to a total wage bill of INR 18 billion. The total expenditure incurred by the government over these five years across India was approximately INR 26 billion. The total number of households that completed 100 days of wage employment was 1.2 lakh households. While these figures provide an overall view, there are certain interesting state level heterogeneity that need to be examined. For instance, it will be interesting to note which states performed the best according to these indicators and which performed the worst. To compute this, We graphically depict the state level analysis on a few indicators. Out of these indicators the standard deviation is highest for Total Expenditure and Lowest for Women Person Days % out of 100.

Figure 1: State-wise number of individuals worked under MGNREGA from 2020-21 to 2024-25
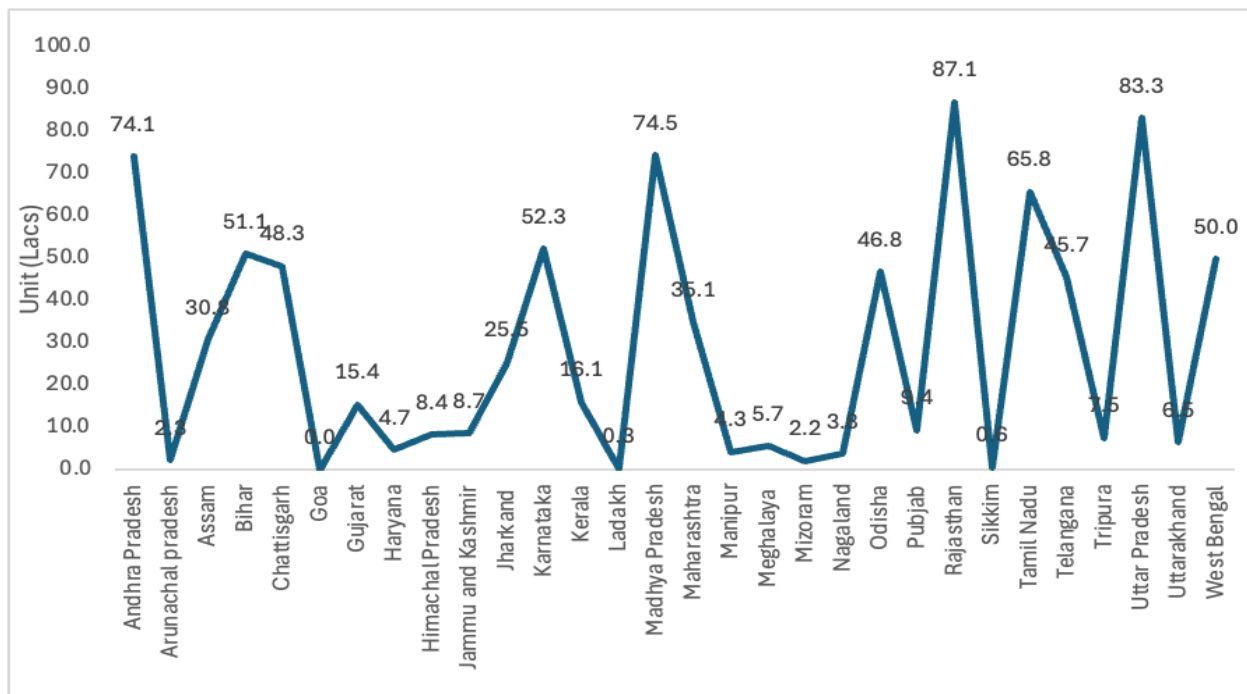
Source: Author's computation from MGNREGA data

Figure 1 shows us that the largest number of individuals working is in Rajasthan, while the lowest number of individuals working is in the north eastern states. Rajasthan has an average of approximately 87 lakhs under the MGNREGA scheme in the last five years while the northeastern states have approximately 4-5 lakh individuals working under the scheme over the last five years.

Figure 2: State-wise proportion of women person days under MGNREGA scheme from 2020-21 to 2024-25
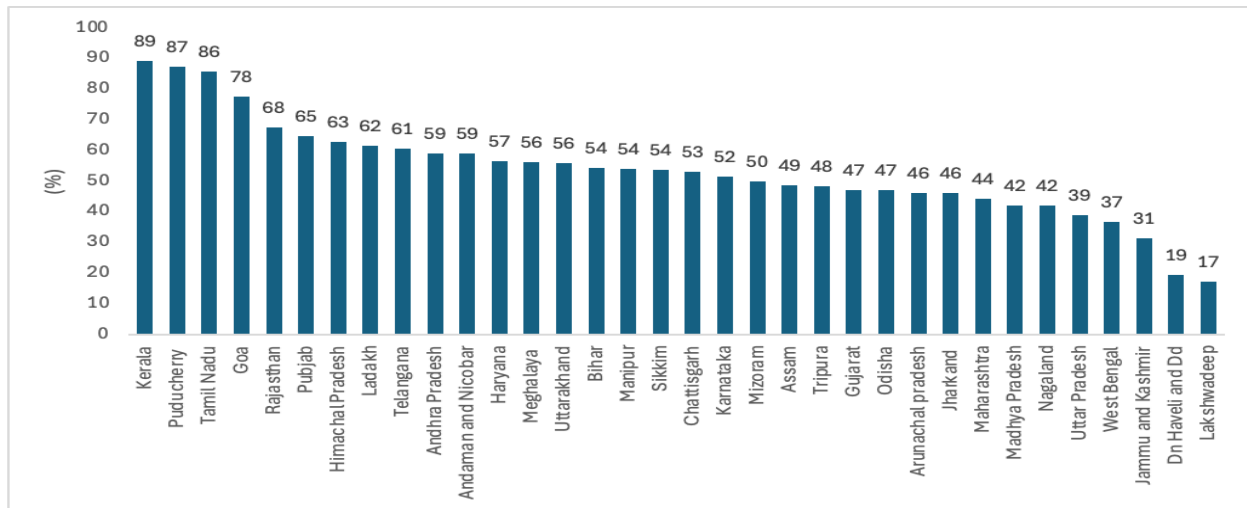
Source: Author's computation from MGNREGA data

Figure 2 represents the women person days out of the total person days for all the states in India. Figure 2 indicates that Kerala has a maximum proportion of women among the labor force while Daman Haveli and Diu have the lowest. While Kerala has 89% of the workforce as women working under the scheme, Daman Haveli and Diu has only 19%

Figure 3: State-wise average wage rate per day per person under MGNREGA scheme
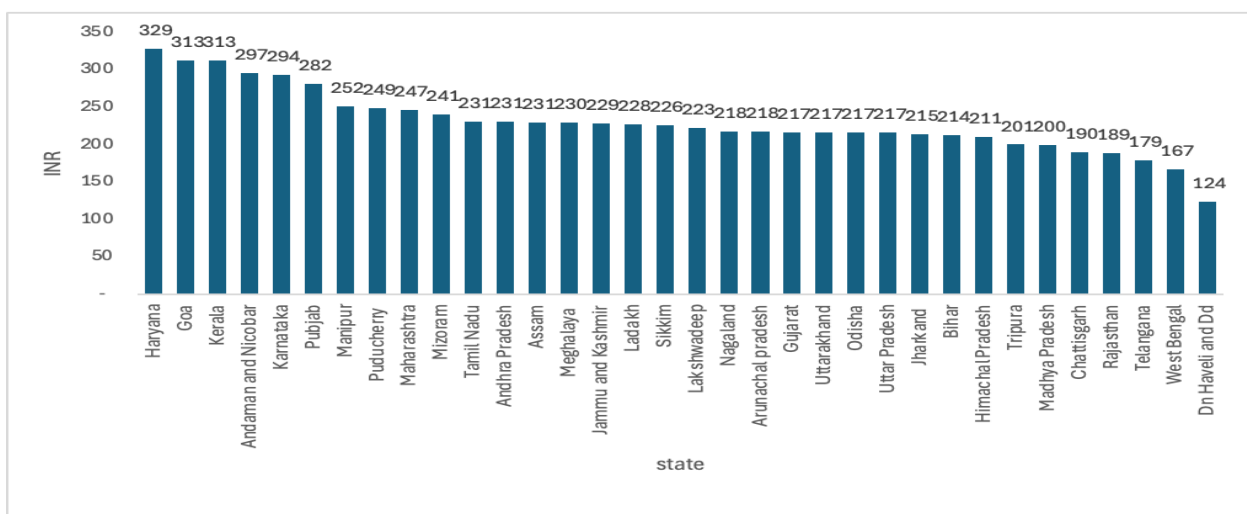
Source: Author's computation from MGNREGA data

Figure 3 represents the average wage rate per day per person. Haryana has the highest wage rate per person per day at INR 329 while Daman Haveli and Diu once again has the lowest at INR 124

Figure 4-Change in total individuals worked from 2020 to 2024
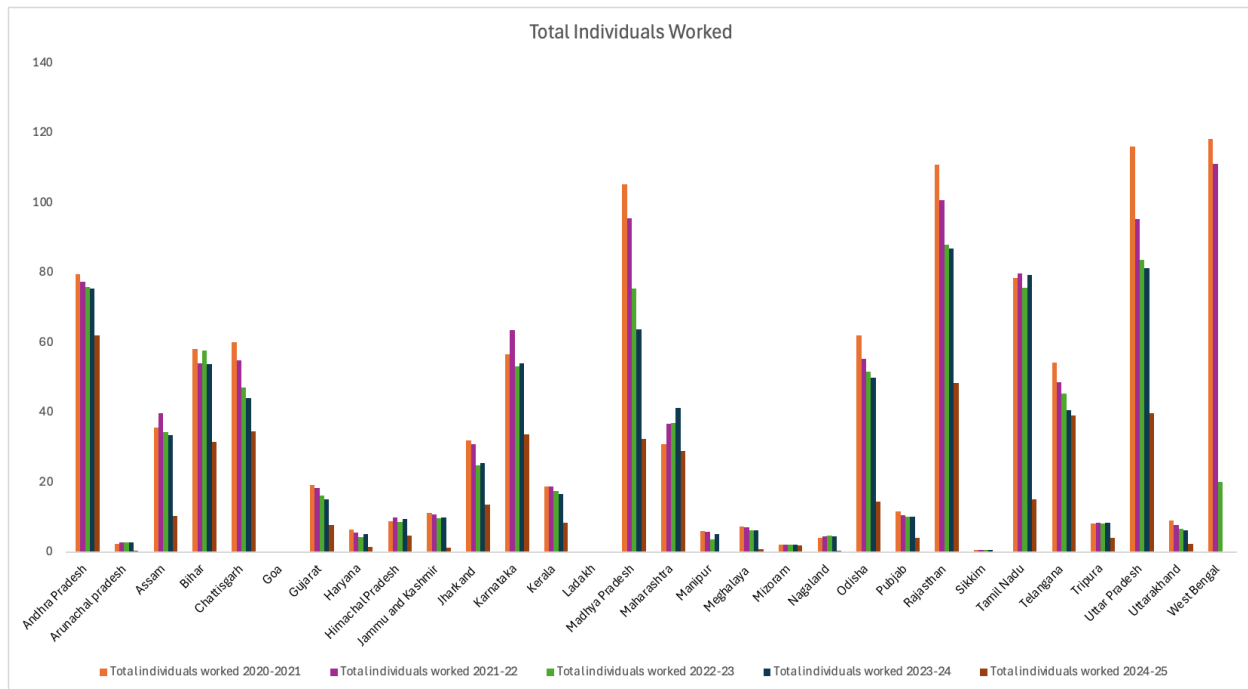
Source: Author's data from MGNREGA data

Figure 4 represents the average individuals worked across all states from 2020-21 to 2024-25. Surprisingly we find that the average individual's work has seen a decline from 37.2 lakhs to 14.82 lakhs. Uttar Pradesh, Madhya Pradesh and Rajasthan were among the top three states that contributed to the maximum decline.

4. RESULTS AND ANALYSIS

In this section, we measure the interstate variation across the six important indicators being studied. We define this by the coefficient of variation indicator defined by standard deviation/mean. A high coefficient of variation indicates high interstate variation whereas a low coefficient of variation indicates low interstate variation. Here, we compute the coefficient of variance for each indicator by using the average value of each indicator across the time period for each state. We find that the coefficient of variation is largest for Total Households Completed 100 days, Individuals Worked and Total Expenditure, whereas coefficient of variation is lowest

for Percentage of Women persondays out of total as well as average wage rate per day. This implies that while there exists very little variation across states with respect to average wage rate per day, there's a large variation across states with regards to individuals worked and households completed 100 days. The high variation with regard to individuals worked and households completed 100 days indicates that in certain states, there is high competition for the jobs available under the MGNREGA scheme while in other states there is very less competition for MGNREGA employment.

However, the low variation with respect to average wage rate per day implies that irrespective of the labor supply for MGNREGA work across states, the wage rates do not fluctuate much.

Table 2: Coefficient of Variation for different variables from 2020-21 to 2024-25

Year	2020-21	2021-22	2022-23	2023-24	2024-25
Total individuals worked(in Lakhs.)	1.04	1.00	0.99	1.02	1.18
Women Persondays out of Total (%)	0.35	0.38	0.34	0.24	0.35
Average Wage rate per day per person(Rs.)	0.27	0.27	0.28	0.22	0.32
Total No of HHs completed 100 Days of Wage Employment	1.43	1.36	1.52	1.49	3.42
Wages(Rs. In Lakhs)	1.13	0.97	1.15	1.25	1.41
Total Exp(Rs. in Lakhs.)	1.15	1.11	1.18	1.18	1.30

Table 2 provides the coefficient of variation for the main variables in our study from 2020-21 to 2024-25. The coefficient of variation is the highest for Total number of households completed 100 days of wage employment, with this value being significantly high across all the other years.

Therefore, this implies that there exists high variation in the number of households getting MGNREGA employment in India. Conversely, the variable with the lowest coefficient of variance across all other variables is the Average Wage rate per day per person (Rs.). This implies that the wage rate per day per person is almost the same across all states in India. Lastly, the coefficient of variation is approximately the same for most other variables in the study.

We now examine the relationship between our key independent variables on the main dependent variable in our study (Number of Individuals Worked). Table 3 summarizes the results of the regression where we find that the number of women person days and the average wage rate per day per person negatively affects the dependent variable, however the wages and total expenditure positively affects the dependent variable. It should be noted that there is a null effect of the impact of wages and expenditure on the dependent variable. The number of women person days negatively affects the total individuals working implying that there could be a gender competition or divide with respect to the workforce wherein with more women entering MGNREGA, leads to a substitution of men for women. This effect can also be explained by the fact that most jobs within MGNREGA have a reservation for females. The average wage rate also negatively affects MGNREGA which could be due to the fact jobs apart from MGNREGA are providing workers with much higher wages, thereby causing wage rates to negatively affect individuals' working days.

Table 3: Regression results of the impact of key variables on number of individuals worked under the MGNREGA scheme

Variable	Coefficient
Intercept	20.55** (4.28)
Women Person days out of Total	-0.15** (0.06)
Average Wage rate per day per person	-0.04** (0.02)
Wages (Rs. In Lakhs)	0.00**

	(0.00)
Total Exp (Rs. in Lakhs.)	0.00** (0.00)
Total No of HHs completed 100 Days of Wage Employment	0.00 (0.00)

Note: ** denotes the significance of the variable with the p value < 0.05

5. CONCLUSIONS AND LIMITATIONS OF THE STUDY

The study examines the effect of various explanatory factors on the number of individuals worked under the MGNREGA scheme in India. We find that while the proportion of female workers and the average wage rate per day negatively impacts the number of individuals worked, other factors do not have any significant effect. The results of the study point to the fact that policymakers should focus on the design of these schemes to ensure maximum participation and welfare for the beneficiaries of the scheme. Furthermore, through collaborative efforts with NGOs and the private sector, large job employment schemes such as MGNREGA can have a much higher effect on the overall employment in India. One of the limitations of our study is that we only focus on the broader effect of the total number of individuals worked under this scheme, but do not evaluate other possible impacts of this scheme.

REFERENCES

- Himanshu, and Sujata Kundu. "Rural wages in India: recent trends and determinants." The Indian Journal of Labour Economics 59 (2016): 217-244.

- Rengasamy, Kalarani, and B. Sasi Kumar. "State level performance of MGNREGA in India: a comparative study." *International Multidisciplinary Research Journal* 1.10 (2012).

- Reddy, P. Divakar, et al. "Impact of MGNREGA on income, expenditure, savings pattern of beneficiaries in North-Eastern Karnataka." *Economic Affairs* 61.1 (2016): 101-106.

- Harish, B. G., et al. "Impacts and implications of MGNREGA on labour supply and income generation for agriculture in central dry zone of Karnataka." *Agricultural Economics Research Review* 24.conf (2011): 485-494.

- Mukherjee, Arghya Kusum. "Traditional Institutions and Female Labor Force Participation: The Effect of Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in West Bengal." *International Journal of Social Economics* 45.1 (2018): 43-56.

- Nagaraj, N., et al. "Impact of MGNREGA on rural agricultural wages, farm productivity and net returns: an economic analysis across SAT villages." *Indian Journal of Agricultural Economics* 71.02 (2016): 176-190.

- Kumar, Parmod, and Dipanwita Chakraborty. *MGNREGA: employment, wages and migration in rural India*. Routledge India, 2016.

- Ranaware, Krushna, et al. "MGNREGA works and their impacts: A study of Maharashtra." *Economic and Political Weekly* (2015): 53-61.

- Varshney, Deepak, Deepti Goel, and J. V. Meenakshi. "The impact of MGNREGA on agricultural outcomes and the rural labour market: A matched DID approach." *The Indian Journal of Labour Economics* 61 (2018): 589-621.