

How a low income state of India managed the unemployment situation during COVID-19? Lessons for future pandemic management

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Abstract

Background: The partial and complete lockdown to curb the spread of COVID-19 caused enormous economic and social disruptions throughout the world. India witnessed the sharpest decline in its Gross Domestic Product (GDP), and the unemployment rate rose sharply in the first quarter of 2020-21. Odisha, one of the low income states of India, has faced a steep rise in unemployment, with lakhs of migrant workers returning to the state. This article attempts to examine Odisha's unemployment situation compared to the low-income states of India as well as with the national average during COVID-19. This also investigates to what extent the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) provided relief to the people by providing short-term employment opportunities.

Design: This is a descriptive study and is based upon repetitive cross sectional secondary data on unemployment rate and labour force participation rate across the low-income states of India.

Method: The study used descriptive statistics to analyze the secondary data from the Center for Monitoring Indian Economy (CMIE) and MGNREGA report. The labour force participation rate (LFPR) and unemployment rate (UER) data were collected from the CMIE trimester reports. The information related to number days of employment demanded and employment provided were collected from the MGNREGA reports. Total time period was divided in to two parts – 2017-19 pre pandemic period and 2020-2021 pandemic period.

Results: The analysis of UER revealed that the unemployment situation in Odisha was better than the low-income states and overall India. The UER during COVID-19 (Sep-Dec 2020 to Sep-Dec 2021) was lower than the pre COVID-19 level in Odisha (1.6% in Sep-Dec 2020), compared to all India, where this was more than the pre-COVID-19 level (7.4% in Sep-Dec 2020). Odisha government had nearly doubled the employment generation through MGNREGA during 2020-21.

The state government undertook a number of proactive measures – increasing wage rate, providing extra days of work in vulnerable districts to address the unemployment situation during the pandemic.

Conclusion: The state government's effort to manage the livelihood crisis was notable during the pandemic.. Proper implementation of the wage employment programmes led to higher decline in the UER in Odisha compared to other states These experiences can be emulated by other states or countries.

Keywords

COVID-19 pandemic, unemployment, health emergency, government policy, Odisha, India

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Introduction

The COVID-19 pandemic caused enormous economic and social disruptions throughout the world. The health crisis turned into an economic crisis that led to a substantial loss of income and wealth across the globe, and almost all countries experienced the perils of the pandemic. It not only led to a huge loss of human life but brought

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unprecedented challenges to the employment, income and livelihood of millions of people. According to the World Economic Outlook 2021, the world economic output contracted by 3.2% in 2020.¹ According to the World Bank estimates, an additional 71 to 100 million people were likely to fall into extreme poverty as a direct consequence of the pandemic by the end of 2020.² As on 26th July 2023, global COVID-19 cases touched 768.5 million (768,560,727) confirmed COVID-19 cases and 6.9 million (6,952,522) COVID-19 deaths.³

COVID-19 severely affected the low and middle income countries in the regions of South Asia,⁴ Sub-Saharan Africa, and East Asia.^{5,6} India experienced 44.99 million (44,995,332) confirmed cases and 0.53 million (531,915) COVID-19 deaths as on 26th July 2023.³ In terms of economic impact, India witnessed the sharpest decline in its GDP in the first quarter of 2020-21, and it was to the tune of 23.9%. The overall contraction of the economy for the whole year was 6.6%.⁷ Further, the unemployment rate increased and the unemployment rate rose to 23% in April-May 2020.⁸

Furthermore, an estimate from the Periodic Labour Force Survey (PLFS) 2019 suggested that the loss to the households was to the tune of around 74.6 USD due to the COVID 19 lockdown, which was around 2.75% of Gross Domestic Product (GDP).⁹ Another study conducted by Azim Premji University estimated that the monthly per capita income in October 2020 (Rs 4979) was around 17% lower than the per capita income of January 2020 (Rs 5989).¹⁰ Further, the Centre for Monitoring Indian Economy (CMIE) estimated that the mean income per capita was 40%, and the median income was 65% lower during the first wave of the pandemic than the average 2019 income.¹¹ Another study conducted by Pinto et al found that almost half of the surveyed households reported a fall in their weekly consumption expenditure during the lockdown in comparison with pre-lockdown levels.¹² According to a report by the International Labour Organization (ILO), the informal workers in India suffered a 22.6% fall in wages, even as formal sector employees had their salaries cut by 3.6% on average.¹³

One of the most vulnerable sections of people hit by the pandemic was the migrants. These migrants faced unsurmountable miseries in terms of job and income losses. A study by Ranjan et al., suggests that the migrant labourers, especially the land-less, were quickly slipping into poverty, as their wage income was adversely affected by lockdown.¹⁴ A primary survey of migrant workers revealed that COVID-19 has led to a decline in employment opportunities, income, and livelihood conditions of migrant workers in their native places.¹⁵ Around 12.8 crores of short-term seasonal/circular and long-term occupationally vulnerable workers whose livelihoods were adversely affected from the onset of COVID19.¹⁶⁻¹⁹

Covid 19 unequivocally affected the economy, health conditions and livelihood of the people around the globe including India. Across Indian states, the impact varied and some states experienced higher fall in income and output compared to others. One recent study suggested that social distancing and containment measures have the most adverse impact in states with higher shares of services (particularly contact-intensive services) and urbanization. In addition, the impact tends to be more persistent in states with lower income and weaker health care infrastructure.²⁰

Given the fact that COVID 19 ravaged the economy and affected the lives and livelihood of millions of people, this study makes a modest attempt to examine the unemployment situation of Odisha compared to the other low-income states and all India average during COVID-19 and to what extent the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) provided relief by generating short term employment opportunities to the people.

Data & methodology

We used secondary data from CMIE, MGNREGA and government sources to investigate the objectives mentioned in this study. The CMIE conducts household survey on a representative household on a continuous basis and provides data on household assets, amenities, income, consumption and employment situation. The CMIE's consumer pyramids household survey (CPHS) data collects longitudinal data in every trimester from 2017 to current period covering 174,405 households (roughly 10,900 households per week and 43,600 households per month) in all India. It covers 6761 households from Odisha, out of which 3024 sample households' information has been collected from 189 villages, and 3737 sample households have been selected from 12 town areas during every round (trimester period) of the survey. The labour force participation rate (LFPR) and unemployment rate (UER) data collected from the CMIE trimester report, available in open source on their website,²¹ were used to estimate the unemployment rate and labour force participation rate in Odisha compared to the other low-income states of India. The time period for this analysis was from January 2017 to December 2021.

Further, we collected data on MGNREGA from its website²² to understand how MGNREGA provided temporary relief to the unemployed rural workforce during COVID-19. The MGNREGA provides monthly data related to number of households registered, employment demanded and provided. The data on MGNREGA was analysed for each low-income state and all of India from April 2017 to March 2021 (fiscal years 2017-18, 2018-19, 2019-20 & 2020-21).

We used the k-mean clustering (The k-mean clustering divided the data series into 'k' group based on the lowest

standard deviation within the group. The main aim of this method is to minimize the sum of distances between the data point and their corresponding clusters.^{23,24}) method to divide the 20 major states of India into three groups – low income states (less than INR118,890), medium income states (INR119,000 to INR187,076) and high income states (more than INR188,000) based on their per capita Gross State Domestic Product (GSDP) in 2019-20. Accordingly, Odisha, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, and Uttar Pradesh were grouped in the low per capita GSDP strata with average GSDP INR67,828/-. Whereas the average per capita GSDP of medium income states is INR122,331/- and higher income states is INR 169,372/-. Data from these low-income states were collated, analysed, and compared to draw meaningful conclusions.

Results

Background of the study state

Odisha is one of the low income states of India, as per the data available during the last decade (2010–2019). The GSDP of Odisha was Rs542,889.59 crores (at the current price) in 2020-21, and the per capita income was Rs 109,071, which was 20th rank across states of India.⁷ Odisha's sectoral composition elucidates that the industry and service sectors contribute around 40% each, and the rest 20% is contributed by the agricultural sector. Around 46.4% are engaged in the industry and service sector, and the rest 53.6% work in the agricultural sector.²⁵ The unemployment rate in Odisha was 7.0% in 2018-19, which further declined to 6.2% in 2019-20.⁴¹ In poverty eradication, Odisha's performance was remarkable among the states of India. The population under BPL (Below Poverty Line) had declined from 57.2% in 2004-05 to 32.6% in 2011-12, which is around a 24% decline.²⁶ Odisha has also a large number of workers, who migrate to other states for seeking job. One estimate showed there were 13 lakh migrant workers in Odisha who had migrated to other states.¹⁵

As Covid 19 affected the economy of all the states of India, Odisha was not an exception. The economy of Odisha, which witnessed a 7.1% per annum growth from 2012-13 to 2019-20, declined to negative growth of (-5.3%) in 2020-21 due to COVID- 19 induced economic disruptions (first revised estimate,²⁷). This sharp decline in economic growth impacted employment, income, and livelihood opportunities for workers, small traders, self-employed groups, and other vulnerable sections of society.

Labour force participation rate (LFPR) and unemployment situation of Odisha and India

Odisha being an agrarian economy, a higher proportion of total workforce is engaged in agriculture. Out of total

employed persons, 59.3% were self-employed, 14.9% were engaged in regular wage or salaried activities and rest 25.6% worked as casual or daily wage labour in Odisha and it was 53.5%, 22.9%, 23.6% in respective activities in all India level.²⁸

The LFPR (Persons who were either 'working' (or employed) or 'seeking or available for work' (or unemployed) constituted the labour force. The Labour force participation rate (LFPR) is the ratio of the labour force to working age (15–59 age group) the population. $LFPR = \{(\text{no. of employed persons} + \text{no. of unemployed person}) / \text{total population}\} * 100$ (PLFS report 2019-20; CMIE-Unemployment methodology- <https://unemploymentinindia.cmie.com>) is important to understand the long run situation of employment in an economy. The LFPR and Unemployment Rate (UER) of the low-income states and all India is presented in Figures 1 and 2. Before the pandemic, the LFPR in the 15–59 age group was 60.6% in Odisha compared to 56.9% in India during 2019-20 (PLFS report 2019-20). During the same period, the unemployment rate (Usual status (Principal + Subsidiary) among working age (15–59 age group) population.) in Odisha was 6.2% and it was 4.8% in India. Further, it was noticed that the UER of male person in Odisha (7.9%) was much higher than India (5.1%), while there was no difference in the female UER between Odisha (4.3%) and India (4.2%).

The nationwide lockdown, which was imposed in March 2020, severely affected the unemployment situation across states of India. The analysis of the data from the CMIE suggested that the LFPR of Odisha was lower than India during the whole study period (2017–2021). Further, the LFPR of Odisha declined from 44.1% in Sep-Dec 2019 to 39.7% in Jan-April 2020. From the next trimester, the LFPR of Odisha started reviving and reached to 47.4% in May-Aug 2021, highest during the study period. At the same time, the UER of Odisha had increased from 4.4% in Sep-Dec 2019 to 7.2% in Jan-April 2020 when the nation witnessed one of the stringent lockdowns, and after that it declined to 1.6% in Sep-Dec 2020. The UER of Odisha marginally increased to 3.3% in May-Aug 2021 and again declined to 1.5% in Sep-Dec 2021.

Compared to Odisha, the LFPR of India had declined from 45.7% in Sep-Dec 2019 to 43.9 in Jan-April 2020 and 42.6% in May-Aug 2020, and after that it started improving. The UER of India increased from 7.9% in Sep-Dec 2019 to 10.7% in Jan-April 2020 and 11.9% in May-Aug 2020. This analysis suggested that time taken to revive both UER and LFPR in Odisha is shorter than that of India. For instance, the UER continued to increase in two trimester (Jan-April and May-Aug, 2020) periods in India whereas, this increased during first trimester (Jan-April 2020) and thereafter, there was a continuous decline in UER with minor fluctuations. It is important to note that the UER during COVID (Sep-Dec 2020 to

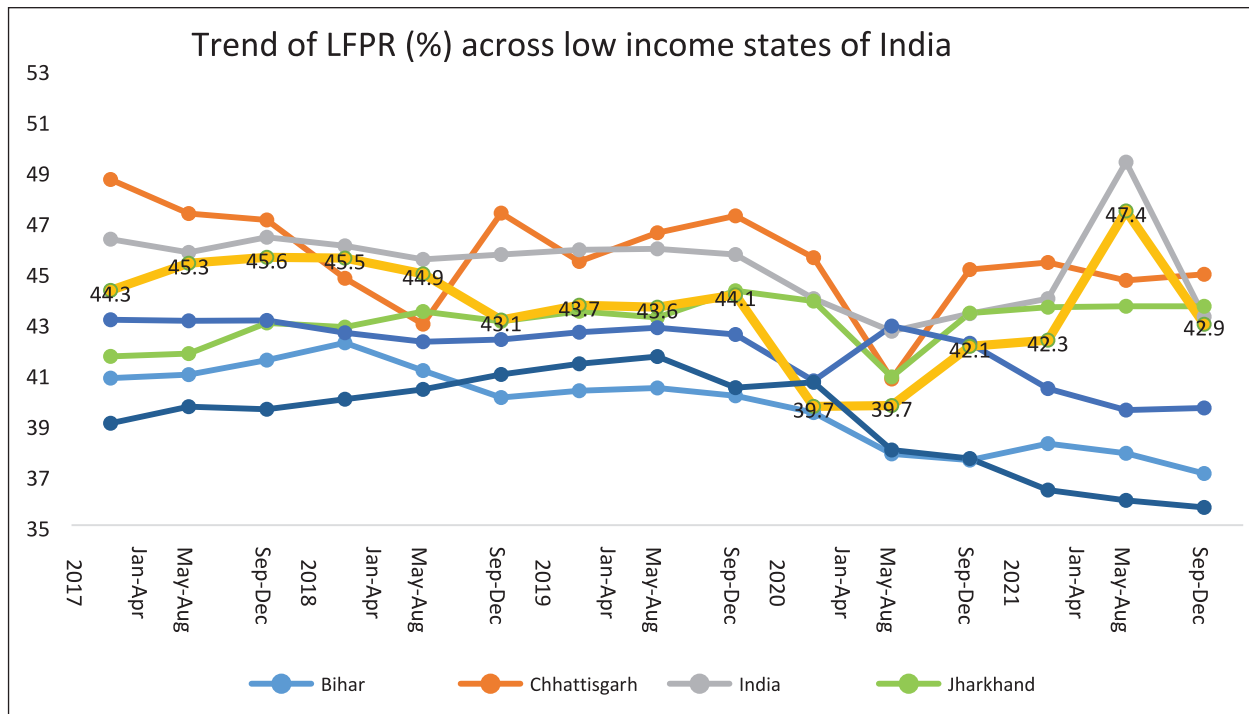


Figure 1. Trend of trimester (4-month) LFPR in low-income states of India. Source: Center for Monitoring Indian Economy (CMIE) report based on Consumer Pyramids Household Survey (CPHS) data (from January 2017 to April 2021).

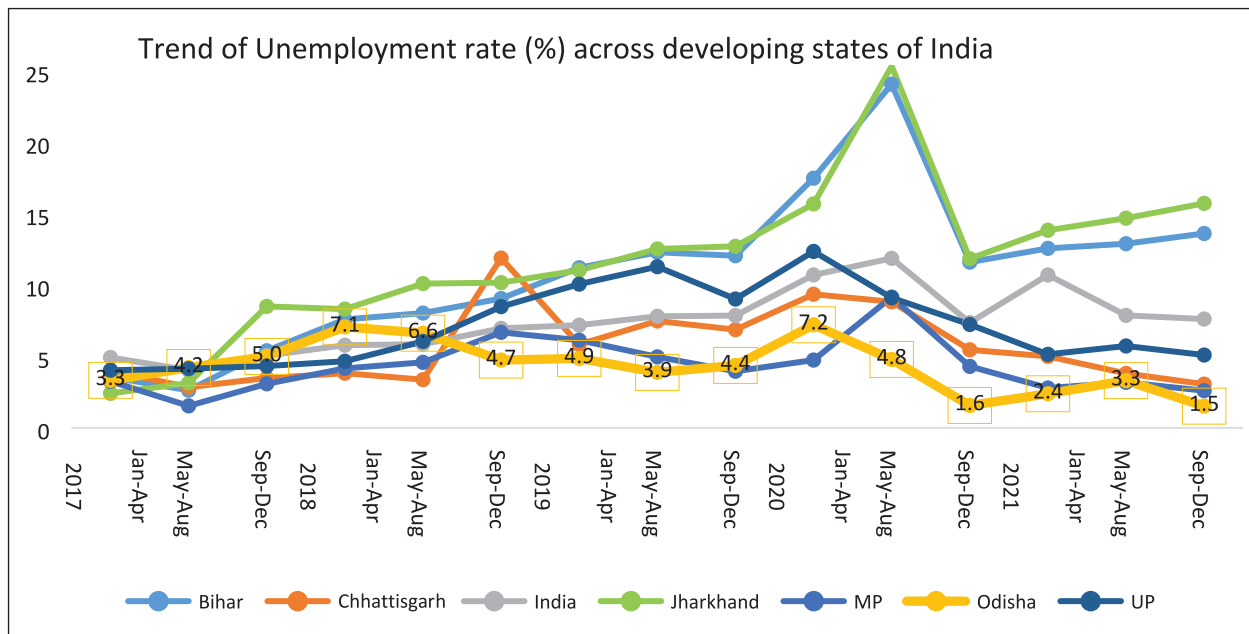


Figure 2. Trend of trimester (4-month) unemployment rate (UER) of low-income states of India. Source: Center for Monitoring Indian Economy (CMIE) report based on Consumer Pyramids Household Survey (CPHS) data (from January 2017 to April 2021).

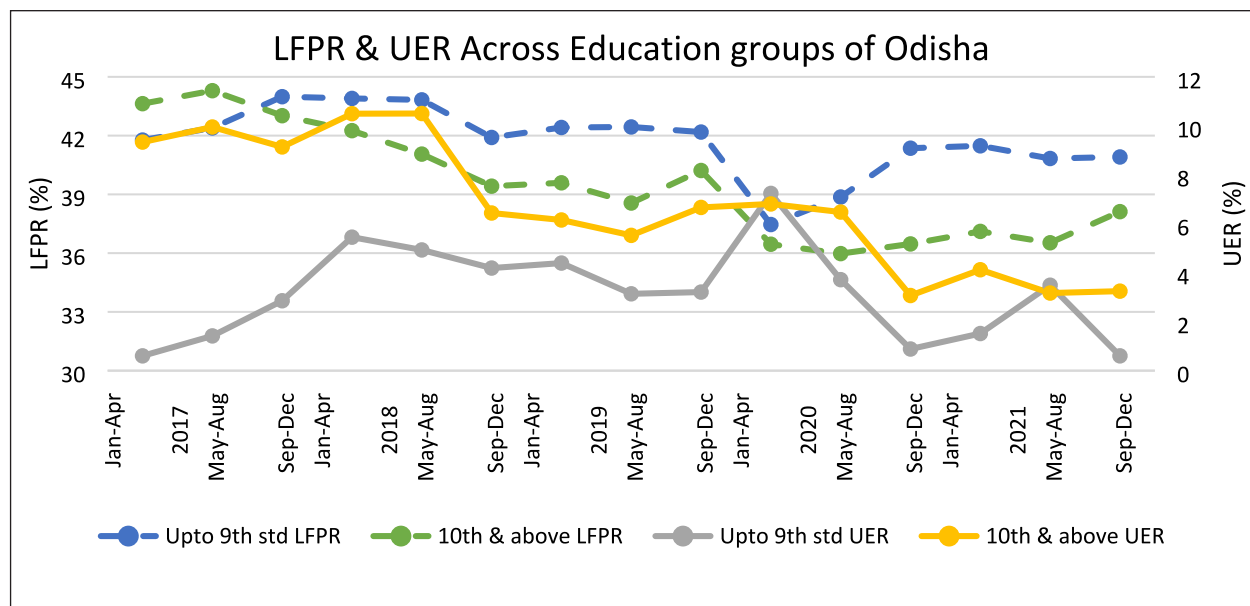


Figure 3. Trend of trimester UER across educational groups of Odisha.

Source: Center for Monitoring Indian Economy (CMIE) report based on Consumer Pyramids Household Survey (CPHS) data (from January 2017 to April 2021).

May-Aug 2021) was lower than the pre COVID level in Odisha, whereas this was more than the pre COVID level in India.

Trend of LFPR in low-income states of India

The LFPR across the low-income states showed a sharp decline during the Jan-April 2020 (middle of March 2020 to May 2020) and continued up to May-Aug 2020 except Odisha and Madhya Pradesh (MP). It was further noticed the LFPR of Uttar Pradesh (UP), MP and Bihar continued to decline in the next three trimesters (Sep 2020 to Aug 2021) whereas it started reviving in the rest of the low-income states from Sep-Dec 2020 (see Figure 1). In Odisha, the LFPR had revived more than the pre COVID level but in other low-income states, it was below the pre COVID level up to Sep-Dec 2021.

Trend of UER in low-income states of India

Across the low-income states, the UER is continuously increasing over the last 4 years with an exception in Odisha and MP. The UER of all the low-income states reached its peak during Jan-April 2020 and after that it revived (see Figure 2).

The peak in the unemployment rate occurred in different time periods in the low-income states of India. Odisha, Chhattisgarh, and UP witnessed the peak in Jan-April 2020, while Bihar, Jharkhand, MP and all India witnessed the peak during the next trimester (May-Aug 2020). There are three difference patterns of UER and LFPR in Odisha,

Bihar and UP. In Bihar, the LFPR continuously declined from Jan-April 2020 to Sep-Dec 2021 at the same time the UER is continuously increased, except Sep-Dec 2020. In this situation, more and more employed persons are losing job. However, in the case of UP, LFPR is declining from Jan-April 2020 to Sep-Dec 2021 and at the same time the UER is also declining. This suggests that the unemployed persons lost interest in searching employment opportunity and leaving the labour force. In Odisha, where the LFPR is increasing and the UER is declining. It suggests that the new persons who are coming to the labour force are getting employment, which is a positive sign of the economy. During the COVID period, Odisha is an outlier in terms of the LFPR and UER compared to the other low-income states and all India.

Education group wise LFPR and UER in Odisha and other low-income states

The analysis of LFPR and UER across education groups (presented in Figure 3) suggests the quality of employment generated. The LFPR of lower education group (up to ninth std) was higher than the higher education group (10th & above). The LFPR among the lower education group declined from 42.2% in Sep-Dec 2019 to 37.5% in Jan-April 2020. Further, it revived from the next trimester and reached more than 40% in Sep-Dec 2020. However, the LFPR of the higher education group declined from 40.2% in Sep-Dec 2019 to 36.5% in Jan-April 2020 and it has been continuously less than 38.1% up to Sep-Dec 2021. The decline of LFPR of higher education group was more

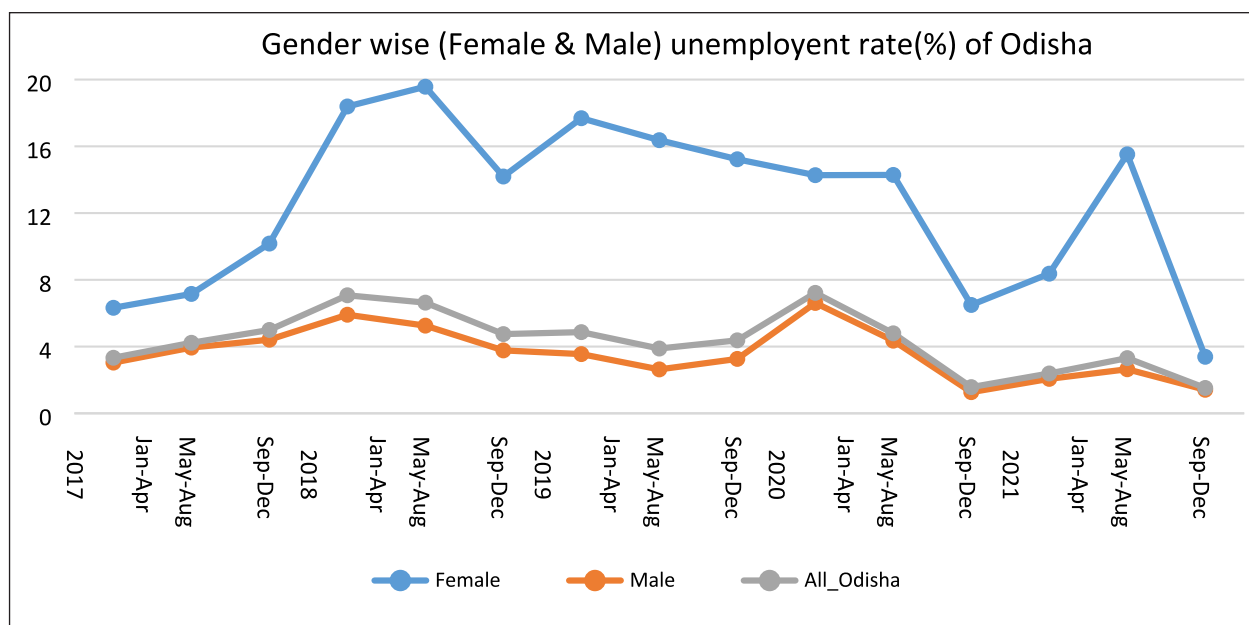


Figure 4. Trend of gender-wise trimester UER of Odisha.

Source: Center for Monitoring Indian Economy (CMIE) report based on Consumer Pyramids Household Survey (CPHS) data (from January 2017 to April 2021).

than the lower education group during COVID period and further, this did not revive even if the LFPR of the lower education group returned to the pre-COVID level.

During the study period, the UER of the 10th & above education group was higher than the lower education group, except Jan-Apr 2020 (first lockdown). The UER of the lower educational group is highly volatile (Most of the lower educated persons work in informal sector as casual labour, the CMIE collects information regarding daily unemployment situation which properly capture the unemployment situation of casual labour.). During the first lockdown, the UER of the lower education group had increased to 7.2%, which was more than the UER of the higher education group. During the relaxation period, the UER has decreased for all groups, and it has declined faster among the lower educational group. The graph further suggested the UER of the lower education group declined much faster than that of the higher education group. Among other low-income states, the UER of lower educated group declined during the relaxation period (see Online Appendix-1-B), but the UER of higher education group continuously increased in Bihar and Jharkhand and declined in other low-income states (see Online Appendix-1-A). The decline in UER of both lower and higher education group is faster in Odisha than other lower income states. Though the COVID-19 had a similar impact across occupational and education groups, government's attempt to create employment opportunities among the unskilled workforce only benefitted the lower education group more than the higher education group. The higher education group continued to lose employment and none of the government schemes supported them.

Gender wise UER of Odisha and other low-income states

Overall, the female UER was higher than the male UER during the study period (Jan 2017 to Aug 2021) in Odisha. Further, the lockdown had a little impact on the female unemployment rate and as observed, the increase in UER for the female workforce was less than their male counterpart. However, during the relaxation phase (Sep-Dec 2020 and Jan-April 2021), due to proactive initiatives by the government, the female UER reduced further. In case of male workers, the UER increased from 3.3% in September-December 2019 to 6.6% in January-April 2020 as small enterprises and self-employed activities were closed due to the lockdown. During the relaxation period (September-December 2020), the UER of male persons dropped to an all-time low at 1.6% (see Figure 4). The gender wise analysis of UER across low-income states suggested that the UER of male increased during the lockdown (Jan-April and May-Aug, 2020) and after that it had declined (See Online Appendix-2 A). The UER of female did not follow any specific trend across the low-income states (See Online Appendix-2 B).

How MGNREGA supported the livelihood of labour class during COVID 19

In order to arrest the growing unemployment situation due to the COVID-19, the state government introduced a number of measures; one of the notable measures was the implementation and expansion of daily wage employment programme through MGNREGA. During COVID-19

Table 1. Coverage of MGNREGA across low-income states of India.

	Employment Provided to percentage of Rural Population (In 2020-21)	Average employment generated in person days per year (2017–2020) (in million)	Employment generated in person days per year (2020-21) (in million)	Percentage increment in employment generation in 2020-21	Average number of Days employment provided per year per Job Card (2017 to 2020)	Average number of Days employment provided per Job Card (2020-21)	Percentage increment in Average number of Days employment provided in 2020-21	Average wage rate paid under MGNREGA (2020-21)
Odisha	26.2	91.0	208.2	128.9	42.2	55.5	31.5	225
Bihar	20.5	108.0	227.9	111.0	40.2	44.7	11.1	193
Chhattisgarh	9.8	120.8	184.1	52.4	54.7	60.2	10	173
Jharkhand	44	62.0	117.6	89.8	43.2	46.3	7.3	193
MP	19.4	167.8	342.0	103.8	50.6	61.8	22.2	178
UP	32	198.8	394.6	98.5	41.8	41.8	0	199
India	28	2505.9	3893.0	55.4	48.3	51.5	6.7	198

Source: MGNREGA progress report (MGNREGA website government of India).

period, the MGNREGA provided robust livelihood support by protecting India's workers. It further proved to be elastic where it expanded at speed, when needed and contracting when demand was low.²⁹

MGNREGA in Odisha

The number of persons demanded employment has risen from 4.4 million in 2019-20 to 8.2 million in 2020-21 whereas, the number of persons provided employment has increased from 3.7 million to 6.2 million during the same period. The employment generated in person-days has also increased from 111.4 million in 2019-20 to 208.2 million in 2020-21 in the same period (MGNREGA Progress Report, 2020-21).

We compared employment generated by Odisha through the MGNREGA with the low-income states of India (Expected population in 2020-21 (E) (one decades

from 2010-11) $E = P \times \left(1 + \left(\frac{d}{100} \right)^{10} \right)$; where, E is

expected Population (in 2021), P denotes population from 2011 census, d is decadal population growth rate (from 2001 to 2011) (see Table 1). In 2020-21 financial year, around 28% of working-age population (15–59) got employment through MGNREGA in India. In Odisha, 26.2% of rural working-age population got employment. However, the employment generated in person days increased by 128% in Odisha where as it increased by 55% in India during 2020-21 compared to the average days of employment generated in the previous 3 years (2017–2020). Hence, the average days of employment provided per job card was 55.5 days in Odisha compared to 51.5 days in India during the same period. Further, the average

number of day's employment provided in 2020-21 had increased by 31.5% compared to the 3-year average of pre-COVID period in Odisha, which is also highest in comparison to the other low-income states and all India level. Further, Odisha government added extra Rs 352 crores assistance package for 32 lakh MGNREGA workers, an additional ₹50 wages for each day of work done during the COVID period.³⁰

Unemployment, COVID-19 cases and government decisions

The Figure 5 presents monthly UER, employment provided through MGNREGA, COVID cases and government decisions in the wave 1 and wave II of the pandemic. Due to imposition of the nationwide lockdown, the unemployment rate of Odisha rose to 13.1% in March 2020 and 23.8% in April 2020. The monthly trend of employment generated under MGNREGA suddenly picked up in May 2020 with the government announcing relaxation from complete lockdown to zone wise lockdown. This led to a decline in UER from 23.8% in April to 11.54% in May 2020. The expansion of MGNREGA further led to decline of UER to 3% in June 2020 (see Figure 5). Between July to October, the lockdown further relaxed and this led to more decline of UER. The UER was lowest in December 2020. It was also observed that even during the peak of the pandemic in September 2020 (per day Peak in COVI-19), the UER did not fall. Moreover, in May 2021, the COVID-19 cases surged and accordingly, the government also brought back complete lockdown.

The pattern of second wave's lockdown was different from the first phase of lockdown. There were more relaxations than the first phase and the government learned from the first phase of lockdown; and expanded the employment generation through MGNREGA before

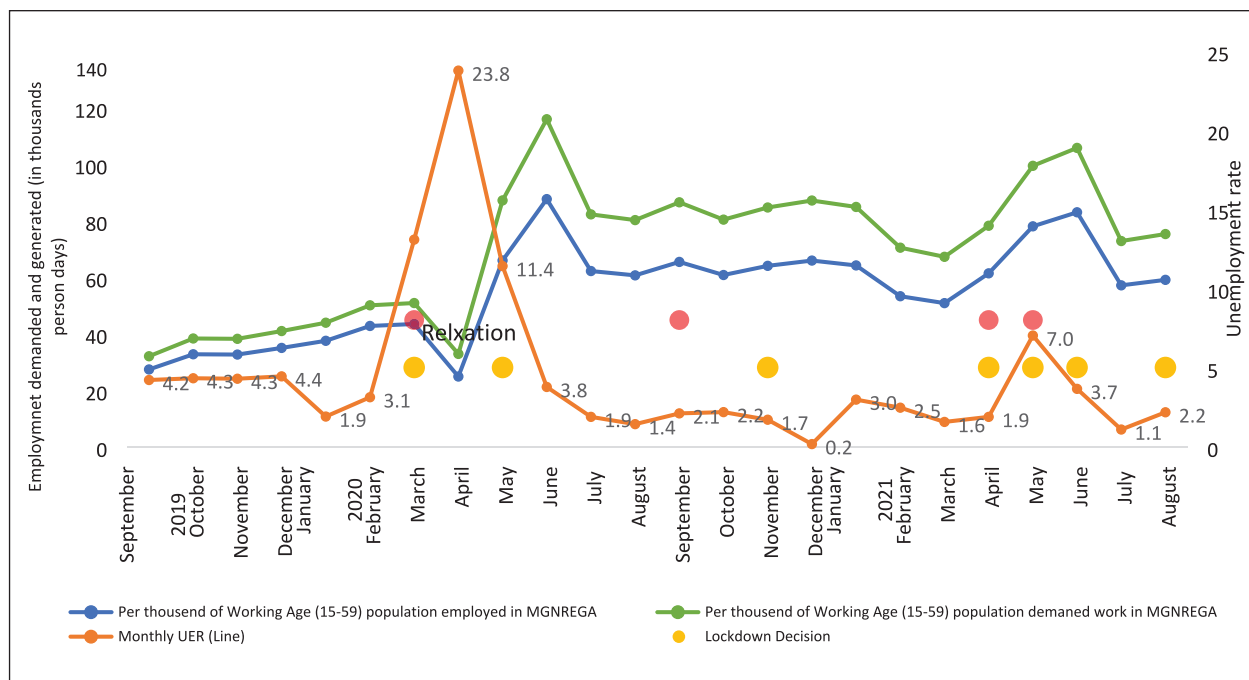


Figure 5. Employment demanded and provided (In per thousand) under MGNREGA, Monthly Unemployment rate, COVID-19 situation and Different government decisions.

Source: MGNREGA progress report, CMIE report, Odisha government circular, COVID-19 data from WHO³¹).

CL: complete lockdown; ZS: zone wise shutdown; CZ: containment zone; NC: night curfew; CPL: complete and partial lockdown.

starting of second wave of COVID-19. Therefore, the UER of second wave was just 7% in May 21 compared to 23% in April 20 during the first wave and subsequently, this declined to 3.7% in June. In July onwards, the Government of Odisha relaxed the lockdown to night curfew, the agricultural season started which further reduced the UER to 1.1% in July 2021.

Discussion

This paper based upon secondary data from the CMIE and MGNREGA sources generated evidence on the unemployment situation of Odisha compared to the other low-income states and all India. It also examined how different measures introduced by the state government protected the livelihood of masses during the COVID-19 pandemic. Though abundant literature are available on unemployment situation during COVID-19,^{9,32-36} however, this study for the first time (to our knowledge) analysed the trend of UER and how MGNREGA and the state government decisions helped addressing the severe unemployment crisis in Odisha during the COVID-19. The findings assume significance for future pandemic management in Odisha and similar states of India.

The study findings suggest that the LFPR in Odisha declined and the UER increased substantially during Jan-April 20 and the UER peaked (23.8%) in April 2020 after the announcement of the nationwide lockdown. Similar

level of increment in UER is also noticed in other low income states and India during the same period and after that it fluctuated around the pre-COVID level.^{10,32,34} The problem compounded with the return of migrant workers to the state. The findings further indicate that the state government managed the unemployment crisis well by providing employment through MGNREGA and introducing slew of measures: introduction of one of its kind schemes for the urban poor named urban wage employment (UWE) scheme and providing employment support to the Women Self Help Groups members (WSHG) and increased wage rate of MGNREGA by 50 rupees. This resulted in the decline of UER of Odisha during Oct-Dec 2020 to all time low at 1.6% which is the lowest during the entire study period.

Other study findings are similar to our findings which, suggested that MGNREGA played a crucial role to supplement short term employment opportunity in rural India,^{34,37} mainly to migrant workers.³⁸ Odisha generated employment to the tune of 208.2 million person-days in 2020-21 that rose from 111.4 million-person days in 2019-20. To make MGNREGA attractive, and provide extra livelihood support to the workers, Odisha government increased wage rate of MGNREGA by 50 rupees. Additionally, over and above the mandatory 100 days of work that was provisioned under MGNREGA, Odisha government supported extra days of work to those who demanded additional work.³⁹ For providing employment support to urban poor,

the state government also introduced URBAN Employment Schemes⁴⁰ which helped many vulnerable groups in urban areas.

The study findings further suggested that the unemployment rate in Odisha was better than the low-income states and all India. The UER during COVID-19 (Sep-Dec 2020 to May-Aug 2021) was lower than pre COVID level in Odisha, whereas for India, the UER was more than the pre COVID level. The study also analysed the share of unemployed persons of Odisha in the total unemployed persons of the low-income states, which shows that the Odisha's performance in creating jobs was better in comparison to the low-income states during COVID-19.

Our study also found out that the lockdown had a little impact on the female unemployment rate and the increase in UER for the female workforce was less than their male counterpart. This could be due to a large number of women members provided employment opportunities through WSHGs. Though the unemployment situation of female workers was better in Odisha during the COVID 19, this was not the same in other low-income states of India. Another study suggested that recovery in unemployment rate of female was lower than the male in all India level.⁴¹

Further, the UER of the lower education group declined much faster than that of the higher education group. The employment opportunities generated by the government were confined only to the unskilled activities, which benefitted the lower education group. Hence, the UER of the lower education group had rapidly declined with increase in LFPR when there was relaxation of lockdown. The UER of the higher education group (10th & above) on the other hand remained unchanged during the initial lockdown. Our results further suggests that the persons from the higher education group left the job market for a longer period of time from the starting of the COVID 19 to Sep-Dec 2021. The LFPR of the higher education group declined from 40% in the pre COVID period to 36% in Jan-Apr 2020 and continued around 36% up to May-Aug 2021, and it improved to 38% in Sep-Dec 2021. Whereas, the UER of the same group continuously declined during the study period. Further, the decline in UER and improvement in LFPR of Odisha is better than other low-income states of India. The low-income states also observed decline in UER among the lower education group immediately during the relaxation period and it was slower among higher education group except Bihar and Jharkhand.

It may be concluded that some educated persons engaged in contractual employment, remained out of the labour force during the COVID period in Odisha and the MGNREGA could not arrest the increasing unemployment of this particular group. Moreover, it can be further inferred that the structure of the economy in Odisha, which is mainly agrarian in nature, where a majority of workforce are engaged in agriculture and other informal activities, had a positive role in addressing the unemployment crisis

during the pandemic. This though was an advantage during the crisis as the aspiration level of the workers was low and the MGNREGA provided a temporary relief, in the long run, the state should work towards moving more and more workforce from the primary to secondary and service sectors.

Our finding further suggests that the lockdown decisions were not guided by the nature of the pandemic. As it was a novel virus, the government and policy makers were sceptical and cautious in their approach to deal with the crisis at the initial phase of the pandemic. Gradually, they learnt and the decisions were guided by scientific evidence. During wave-1, the pandemic reached its peak much later than the peak of the UER. It was mainly due to the lockdown decisions which were introduced earlier than the surge in cases. For instance, the UER reached its peak in April 2020 whereas the surge in COVID-19 cases was observed in September-October 2020. However, during second wave, the state government used a targeted approach to control the infection, including zone wise shutdown, containment zones, night curfews, and partial lockdown based on the epidemiology of the COVID-19 virus. These measures resulted in the slow rise in UER with increase in COVID-19 cases. This clearly showed that the system learnt to manage the second wave better by taking inputs from the COVID-19 epidemiology. These learnings can be used by all other states of India as a preparedness strategy for future pandemics.

Conclusion

This paper generated crucial evidence regarding unemployment situation and how a low-income state of India managed the livelihood crisis by implementing various employment and social security schemes during the COVID 19 pandemic. The findings suggested that compared to similar states of India, Odisha's approach to livelihood and unemployment management was unique. It provided extra days of work and extra wages under MGNREGA during the pandemic, which helped more people to seek employment. Moreover, the involvement of women Self-Help Group members through government-supported initiatives in different economic activities related to COVID-19 prevention generated additional employment during the crisis. These interventions were timely and provided additional cushion to protect the livelihood of the masses. This resulted in sharp decline in unemployment in Odisha less than the pre COVID-19 level. The learnings from Odisha could be useful for future pandemic management in similar socio-economic situations.

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Author's contributions

SKR: led the study, led the manuscript development; interpreted the data and wrote the paper. AM: analysed and interpreted the data; PB: interpreted the data and wrote the paper. GB: revised the paper. SMK: provided critical inputs at different stages of the paper. All authors approved the final version of the manuscript.

Availability of data and materials

The datasets generated and/or analysed during the current study are publicly available in government web site on MGNREGA (<http://mnregaweb4.nic.in/netnrega/MISreport4.aspx>) and CMIE web site (<https://unemploymentinindia.cmie.com/>).

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Public health relevance

The world faced one of the worst health crises which turned in to a human crisis in terms of loss of livelihood and employment for millions of people. The burden on both health and economic front was enormous. States had earlier some experience in dealing with health emergencies however; they had hardly any experience in dealing with the twin emergencies. This crisis exposed the loopholes of the health systems across countries. Especially, in India the nature of the crisis varied from state to state based upon their exposure to the virus. Some states introduced appropriate measures in health front, others in livelihood front. This manuscript shows how a resource constraint state, despite several public health challenges restored the livelihood of the people along with containing the virus to a large extent. Many states can learn from this experience and this provides an apt case to be emulated by many during health emergencies.

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Supplemental material

Supplemental material for this article is available online.

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