Causes and consequences of higher COVID-19 cases in India

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Abstract

As of February 5, 2021, India ranks second in terms of total Coronavirus disease (COVID-19) with more than 10 million positive cases in the world. This has a huge negative impact on the poorer almost 30% of its population severely. In this backdrop, the present study tries to understand why the spread of COVID-19 cases is higher compared to other countries and its consequences on the economy. The study suggests that state-level higher total urban population has a positive impact on the total confirmed (or total active or total deaths) COVID-19 cases. However, the relationship between the state-level percentage of urban population and urban population densities with total COVID-19 cases are not robust. The relationship between state-level urban population and the total number of returned migrants is positive but the relationship between the state-level percentage of urban population and the total number of returned migrants to that state is negative. This indicates that states with the percentage of the higher urban population received a lower number of reverse migrations from urban to rural. Festivals such as Onam and the Vande Bharat Mission are also responsible for spreading COVID-19 cases in India. Furthermore, the lack of remote work opportunities is also supportive for the same. The consequences of higher COVID-19 cases are enormous that includes the significant number of job losses, an increase of higher poverty, and reduction of a higher amount of GDP. Therefore, for a quick recovery of the Indian economy, we need to promote higher state-level urbanization with higher opportunities for formal jobs and remote work opportunities.

1. Introduction

According to the World Health Organization (WHO), Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. The first known human infections were discovered in Wuhan, Hubei, China in December 2019. The human-to-human transmission was confirmed by the WHO and Chinese authorities on 20 January 2020. On 11 March 2020, the WHO announced the COVID-19 outbreak as a pandemic. The United Nations Development Programme stated that the COVID-19 pandemic is the defining global health crisis of our time and it is the greatest challenge humankind has faced after World War Two. As of 5th November 2020, almost 219 countries in the world have suffered from 48 million confirmed COVID-19 cases with 1.2 million dead. Many countries in the world not only suffered life losses but also economic destruction with job loss, GDP contraction, and extreme poverty.

The first COVID-19 case in India was reported on 30th January 2020. But the continuous rise in COVID-19 cases started from 3rd March 2020 onwards. Though initially, the number of cases was very small but later on it has started to rise steadily. As of 5th November 2020, India has 8.36 million positive confirmed COVID-19 cases with 0.12 million deaths. In terms of the number of cases, India ranks second in the world after the United States that has about 9.6 million confirmed cases on the same date.

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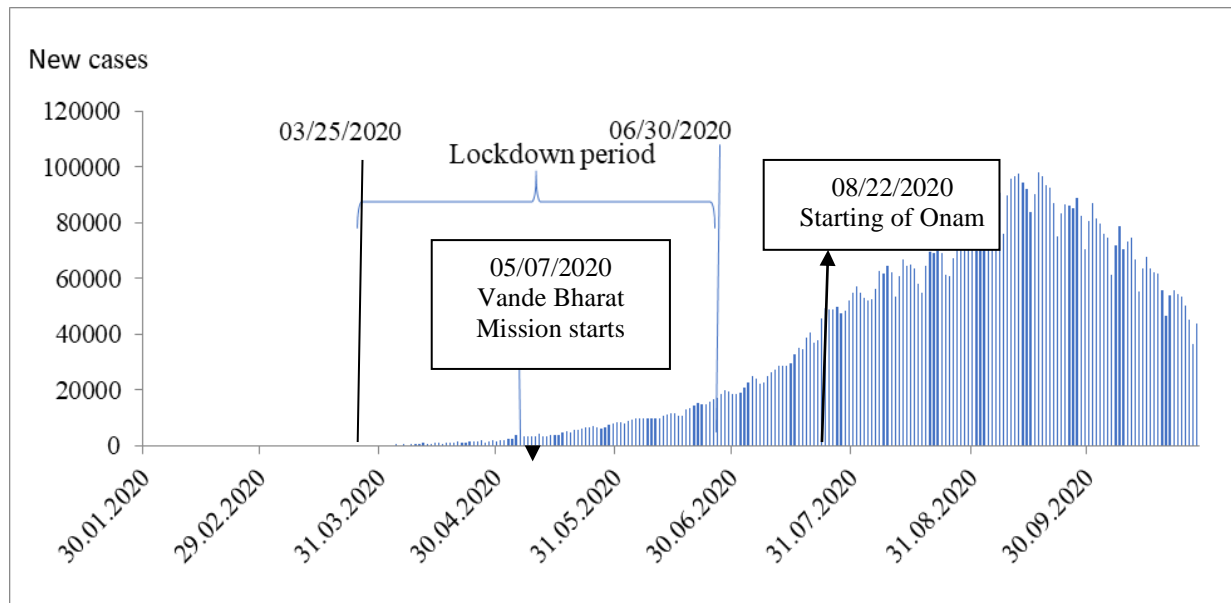
Figure 1. Daily new COVID 19 cases in India

Source: https://www.worldometers.info/coronavirus/country/india/

Figure 1 presents the daily new COVID-19 cases in India from 1st January 2020 to 28th October 2020. It indicates that India has reached it's highest COVID-19 cases on 17 September 2019 with 97894 new cases. Initially, to control the spreading of COVID-19 cases the Central Government of India imposed a national level strict lockdown policy. Though it was declared in four phases but continued from March 25 to June 30, 2020. However, some of the states even extended lockdown after June 2020. During the lockdown, the Indian economy was severely damaged by the loss of jobs, reduction of GDP, and extreme poverty. Most importantly, during lockdown migrants from village to cities have experienced a miserable situation. Therefore, though still, international level travel restriction is on, but the national level movement was relaxed. However, Vande Bharat Mission was started on 7th May 2020 to bring back stranded Indians from foreign destinations after the suspension of regular international flights. After the lockdown period though several restrictions and precautions were imposed on the movement still it has been noticed that more Indians gathered to celebrate famous festivals such as Onam.

So far very few studies in India have attempted to assess the impact of COVID-19 on the Indian economy. Biswas and Das (2020) argue that the supply chains of virtually all manufacturers are facing multiple obstacles. Dandekar and Ghai (2020) state that reverse migration in the age of COVID-19 will perhaps usher in the greatest crisis in the rural landscape of India. An extensive study by Dev and Sengupta (2020) indicates that the COVID-19 pandemic is an unprecedented shock to the Indian economy. The study provides a macroeconomic outcome due to this pandemic and argues that the Indian economy is likely to face a protracted period of slowdown. Sharma and Sharma (2020) attempt to understand the impact of the COVID-19 pandemic on the Indian Economy by applying sentiment analysis. They urge to take immediate steps to not only contain the spread of the COVID-19 but also to address the most affected sectors of the industry. Kappor's (2020) study emphasizes the generation of a clear and comprehensive plan of productive employment which includes strengthening and expansion of employment guarantee programs and adoption of an industrial policy that focuses on the construction and labor-intensive manufacturing as important elements of such a strategy. Pathak et al. (2020) find that the underlying demographic, socioeconomic, and health infrastructure characteristics drive the vulnerabilities related to COVID-19 in India.

Priya et al. (2020) argue that a national lockdown involving 1.3 billion persons would have been more prudent to initiate suppression measures only where the infected were concentrated, in the metro-polises. Karnik (2020) finds that a significant spatial spillover effect across the wards of Mumbai city is likely to make the exit from the enforced lockdown a major challenge. Altaf (2020) points out that social and living conditions play a more dominant role than population density in explaining the spread of COVID-19 in India. Chakraborty (2020) found that the unequal gendered division of domestic chores existed even before the onset of the pandemic, but the COVID-19- induced lockdowns have further worsened the situation. Ray (2020) explains the trajectory of the government's response to the health crisis in the poorer state of Bihar. Mahara (2020) argues that the COVID-19 pandemic and the ensuing lockdown has meant immense hardship for many sections of society. For children, and

especially those from marginalized communities, the impact has been harsher. Jha (2020) indicates that informal workers, migrants in cities, farmers, and small businesses are worst hit by the COVID-19 crisis.

In this backdrop, the present study tries to understand why the spread of COVID-19 cases are higher compared to other countries and its consequences on the economy. It considers several factors such as state-level urbanization, reverse migration from cities to villages, celebration of festivals, Vande Bharat Mission, and remote work opportunities to find out the reason behind the spreading of COVID-19 cases. It also investigates the impact of the spreading of COVID-19 cases on job losses, reduction in GDP, and an increase in extreme poverty with the availability of limited data from different sources. Finally, it proposes policies to control the spreading of COVID-19 cases and damaging the economy.

2. Causes of new COVID-19 cases in India

2.1 Higher level of urbanization: State level analysis

India is the second-largest country in the world in terms of the size of the total urban population after China. India had about 471 million urban population in 2019 whereas China had 843 million. However, in terms of the percentage of the urban population, India had 34% and China had about 60% of the urban population in 2019. Among the Indian states, there is a huge variation in the level of urbanization. For instance, Kerala has about 70% urban population, Himachal Pradesh (or Bihar) has only 10 % (or 12%) urban population in 2020. In fact, among the number of confirmed cases which include the total number of active cases, cured/discharged/migrated, and deaths, there is a lot of variation. As of 22nd October 2020, Mizoram with 54% of the projected urban population in 2020 reported only 2341 cases whereas Maharashtra with 48% urban population reported more than 1.6 million cases in the same period. Therefore, it is interesting to see whether urbanization has any impact on the spreading of COVID-19 cases at the state level in India.

Table 1. Description of the data

Variable	Obs	Mean	Std. Dev.	Min	Max	CV
State wise active cases (active)	34	21053.29	33677.52	44.00	159346.00	159.96
State wise cured/discharged/migrated (cured)	34	202191.70	291937.80	2174.00	1415679.00	144.39
State wise deaths (death)	34	3429.88	7528.50	0.00	42633.00	219.50
State wise total confirmed cases (confirmed)	34	226674.90	328485.00	2341.00	1617658.00	144.91
State wise projected urban population in 2020 (urban)	34	13522.38	15751.59	169.00	58826.00	116.49
State wise projected percentage of urban population in 2020 (percentage)	34	41.96	22.35	10.25	99.66	53.28
State wise projected density of urban Population in 2020 (density)	32	4.93	3.13	1.11	17.32	63.59

Source: Author

Table 1 presents the descriptive statistics of the variables that are considered to link the spreading of COVID-19 cases and urbanization at the state level in India. State-wise projected percentages of urban population and density of the urban population appear to have only little differences in their means, implying a more symmetrical distribution. However, it is not the case for the state-wise total number of deaths, active cases, and confirmed cases due to COVID-19, where the difference is significant.

Table 2. Correlation coefficient

	active	cured	death	confirmed	urban	percentage	density
Active	1						
Cured	0.8669*	1					
Death	0.8367*	0.9131*	1				
Confirmed	0.8921*	0.9985*	0.9202*	1			
Urban	0.7186*	0.8004*	0.7392*	0.8019*	1		
Percentage	0.0803	0.0136	0.0701	0.022	-0.0135	1	
Density	0.0383	0.0655	0.1398	0.0653	0.1376	0.5795*	1

Note: The correlation coefficients are based on 32 observations. * indicates statistically significant at 5 % level or below.
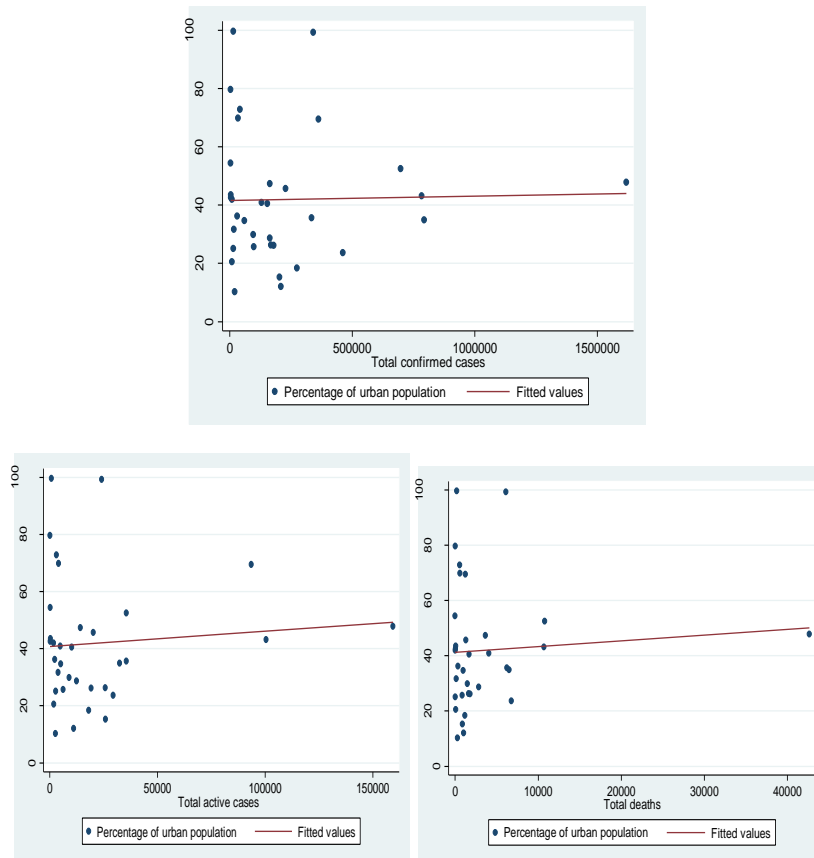
Source: Author

Table 2 presents the correlation coefficients. It indicates that there is a strong positive association among the number of active cases, cured, and deaths due to COVID-19 at the state level in India. On the other hand, the total urban population has a strong positive correlation with total active cases, cured, and deaths at the state level in India. The relationships are statistically significant at the 5% level or below. In contrast, though the spread of COVID-19 cases and the percentage of urbanization and densities of the urban population are positive but not statistically significant. This indicates that the total urban population size is more important than the percentage of urban population and densities of the urban population.
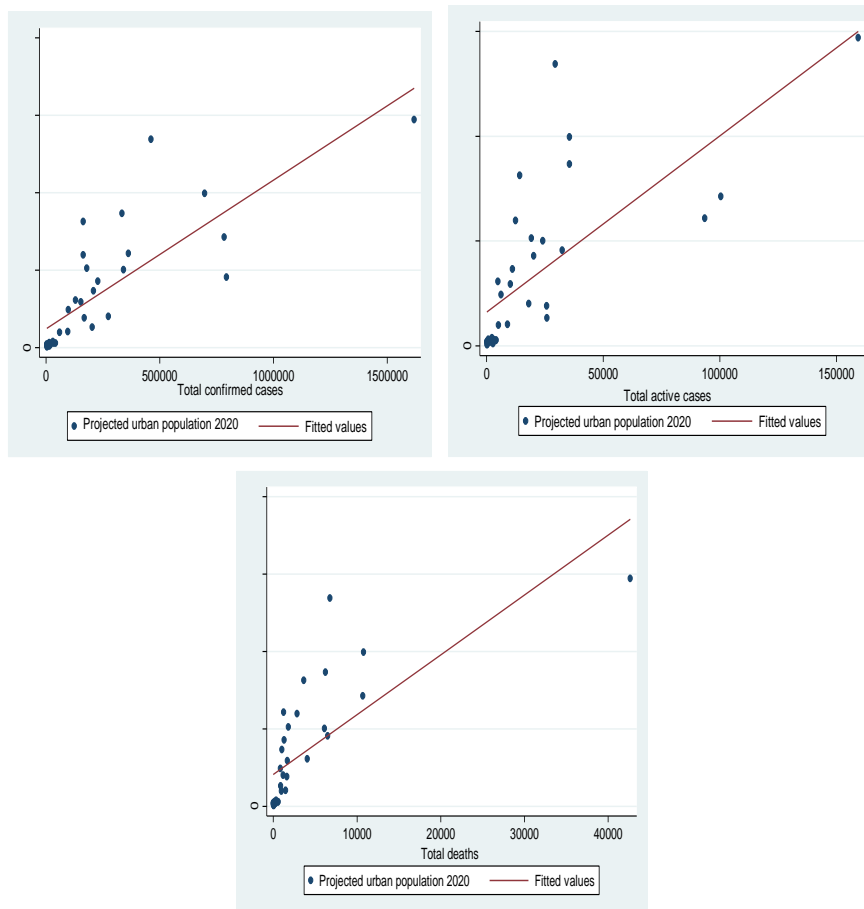
Figure 2. Relationship between state-wise total COVID-19 cases and total urban populations
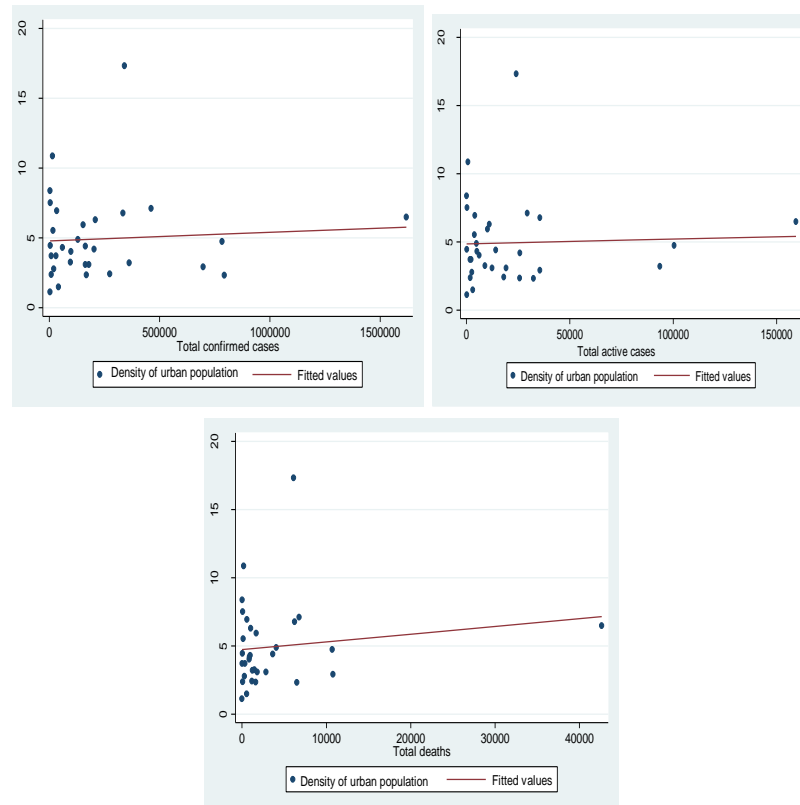
Source: Author

The relationship between urbanization and total COVID-19 cases in different categories across India's states is shown in Figure 2. In Figure 2, a simple regression equation is fitted to the projected total urban population in 2020 and the total confirmed cases, total active cases, and total deaths due to COVID-19 in 2020. This figure clearly indicates that higher levels of urbanization are associated with higher levels of COVID-19 cases in different categories. The relationship between urban population and total confirmed cases (or total active cases or total deaths) is statistically significant (at the 1 percent level) with an adjusted R^2 of 0.63 (or 0.50 or 0.69). From this initial analysis, it is clear that a higher total urban population is responsible for total confirmed (or total active or total deaths) cases due to COVID 19 pandemic.

Figure 3. Relationship between state-wise total COVID-19 cases and total percentage of urban populations

Source: Author

The relationship between the percentage of urbanization and total COVID-19 cases in different categories across India's states is shown in Figure 3. In Figure 3, a simple regression equation is fitted to the projected percentage of the urban population in 2020 and the total confirmed cases, total active cases, and total deaths due to COVID-19. This figure indicates that higher levels of percentage of urbanizations are not strongly associated with higher levels of COVID-19 cases in different categories. The relationship between the percentage of urban population and total confirmed cases (or total active cases or total deaths) is not statistically significant with an adjusted R^2 of -0.03 (or -0.0246 or -0.0262). From this initial analysis, it is clear that the percentage of urban population is not responsible for total confirmed (or total active or total deaths) cases due to COVID-19 pandemic. It is important to note here that though India has the second-highest urban population size; it has a lower level of percentage of urbanization.

Figure 4. Relationship between state-wise total COVID-19 cases and density of urban populations
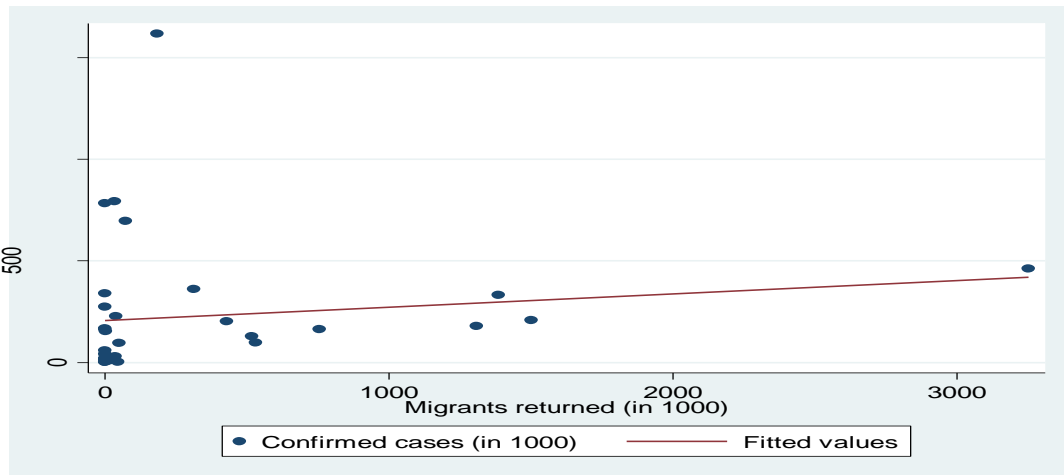
Source: Author

The relationship between the density of urban population and total COVID-19 cases in different categories across India's states is shown in Figure 4. In Figure 4, a simple regression equation is fitted to the projected density of the urban population in 2020 and the total confirmed cases, total active cases, and total deaths due to COVID-19. This figure indicates that higher levels of urban densities are not associated with higher levels of COVID-19 cases in different categories. The relationship between the density of urban population and total confirmed cases (or total active cases or total deaths) is not statistically significant with an adjusted R^2 of -0.03 (or -0.0318 or -0.0131). From this initial analysis, it is clear that the density of the urban population is not accountable for total confirmed (or total active or total deaths) cases due to COVID-19 pandemic. This indicates that though India has highly dense metro cities such as Mumbai, Kolkata, Chennai, Bangalore, and New Delhi which may have been responsible for the spreading of COVID-19 cases, but state-level urban densities may not be supportive for this. For example, Mumbai had 21,000 people per square kilometer, the Maharashtra (where Mumbai belongs to) state urban density was about 5572 people per square kilometer in 2011. Therefore, though metro city level density matters for the spreading of corona virus, but it may not be the case for state-level urban densities.

2.2 Reverse migration from Urban to Rural

India had a very strict lockdown over the periods of 3 months and more. During the lockdown, urban unskilled workers and semi-skilled migrant labourers suffered the most. Due to lack of jobs and corresponding unavailability of food and shelter most of these migrant labourers have returned to their home states from large cities like Delhi, Mumbai, Surat, etc. The best example of this miserable situation can be explained by the story of a 15 year old girl named Joyti Kumari. Kumari was forced to cycle more than 1200 kilometers during the lockdown period to carry back her ailing father who was an autorickshaw driver in the city of Gurgaon to her village in Bihar. Her hard work has been praised by senior White House advisor Ivanka Trump.

Therefore, it is interesting to assess whether return migration from cities to villages has spread COVID-19 cases. Figure 5 presents a simple regression equation that is fitted to the number of returned migrants and the total number of confirmed COVID-19 cases. The figure indicates that the number of returned migration and COVID-19 cases has a positive association. The relationship is statistically significant (at 5% level) with an R^2 of 0.02.

Figure 5. Relationship between state-wise total COVID-19 cases and migrants returned

Source: Author's estimation

Our analysis suggests that returned migration has a positive and statistically significant effect on the number of COVID-19 cases. Similar results are also found in other descriptive studies. Singh et al. (2020) argued that migrant workers returning to native places in COVID-19 times were the host for urban to the rural transmission of cases as the migrant-receiving states witnessed over five times increase in the number of districts having a more significant concentration of COVID-19 cases from 1 May to 31 May 2020. This is also confirmed by Kumar (2020) who indicates that 651 people who had come from outside the state tested COVID-19 positive out of 8,337 tested people in Bihar, a poorer state that sends more people to cities in other states, until May 18, 2020.
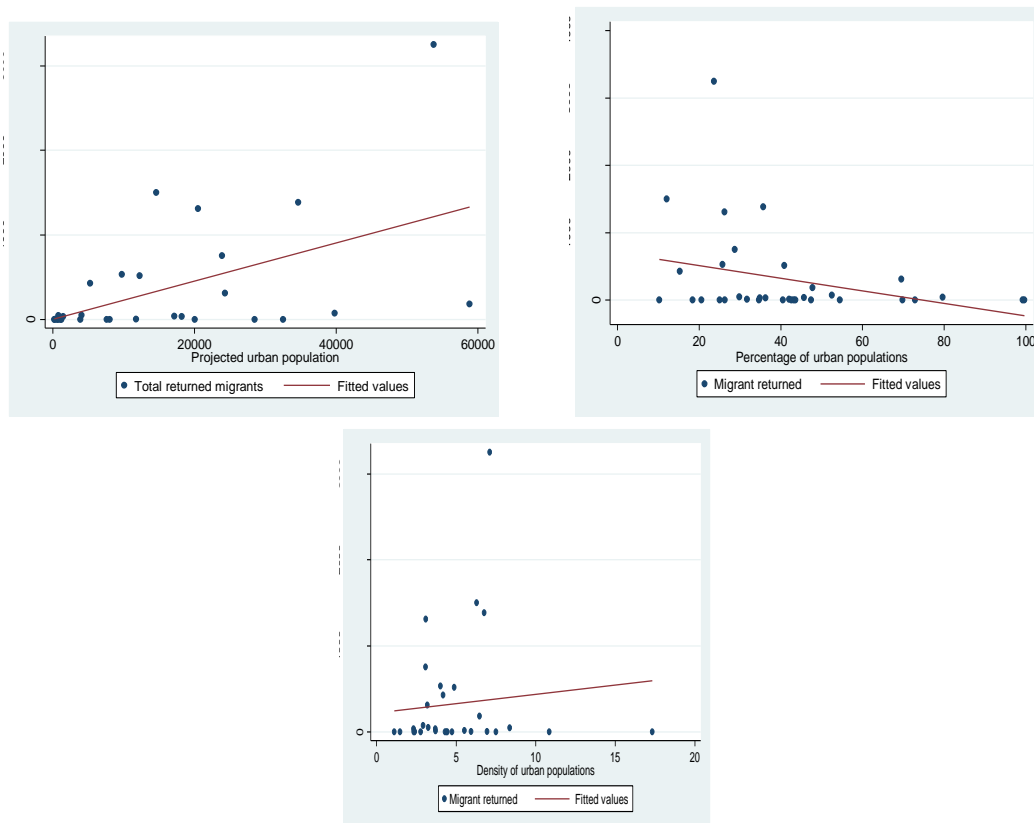
Figure 6. Relationship between state level urbanization and migrants returned
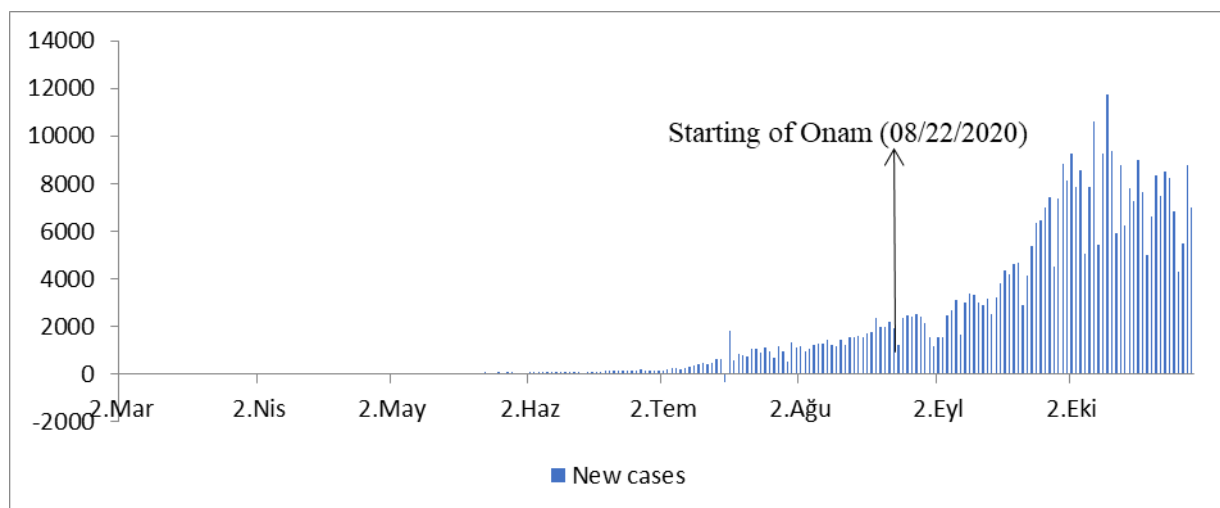
Source: Author's estimation

Figure 6 shows the relationship between the total number of returned migrants to their home states and the total urban population (or percentage of urban population or density of urban population) of that state of India. The relationship between state-level urban population and the total number of returned migrants to that state is positive and statistically significant (at 1 % level) with an adjusted R^2 of 0.2611. In contrast, the relationship between the state-level percentage of urban population and returned migrants is negative and statistically significant (at 10% level) with an adjusted R^2 of 0.069. Finally, the positive relationship between the density of the urban population and returned migrants is not statistically significant. This indicates that states with a higher percentage of urban population are more developed and do not send their workers to other states hence suffered less due to COVID-19 pandemic.

2.3 Festival celebrations

India is a country of festivals. Almost throughout the year, different states celebrate different types of religious and cultural festivals. The Ministry of Culture, Government of India indicates that there are 20 religious and 5 cultural festivals in India in 2020. The major religious festivals include Milad-Un-Nabi/Id-E-Milad, Ram Navami, Buddha Purnima, Janmashtami, Dussehra (Vijay Dashami), Diwali (Deepawali), Muharram, Makar Sankranti, Pongal, Onam, etc. During the festival, a large number of people gathered to celebrate it. As COVID-19 is one of the infectious diseases, the festival has an important role in spreading it.

Kerala is one of the most developed states in India. It did very well and won international acclaim for effectively managing COVID-19. However, after the celebration of Onam which is an annual harvest festival celebrated to commemorate King Mahabali whose spirit is said to visit Kerala at the time of Onam, the number of COVID-19 cases has surged dramatically. Union Health Minister Harsh Vardhan accused Kerala of paying the price of gross negligence during the Onam festival season in September by unlocking restrictions and promoting inter-state travel for trade and tourism.

Figure 7 shows the daily increase of COVID-19 cases in Kerala. This year the Onam festival was celebrated from August 22 to September 2, 2020. The figure shows a sharp increase in the number of COVID-19 cases after the celebration of Onam. From 2nd March 2020 to 22nd August 2020 the average per day increase of new COVID-19 cases was 324. From 22nd August to 29th October 2020, the average per day increase of new-COVID-19 cases was 5325. This indicates a 1544% increase. The festivities in Kerala once portrayed as a model state has brought down its status. It is obvious that how many people exactly infected due to Onam celebration is almost impossible to say but Onam has brought bad luck for Kerala certainly.

Figure 7. Daily increase of COVID-19 cases in state of Kerala

Source: Author's estimation

Most recently, Navratri, another important festival which is celebrated mostly in West Bengal and throughout India also may have similar results. The Navratri, the nine-day long festival of the goddess Durga, has been celebrated this year from October 17 to 25th and has also impacted the increasing number of new COVIS-19 cases. Press Trust of India has reported on 27th October 2020 that the festival season has increased the new COVID-19 cases. In the last 24 hours, 49.4 percent of the fresh coronavirus cases were reported from Kerala (4,287) West Bengal (4,121), Maharashtra (3,645), Karnataka (3,130), and Delhi (2,832) where Navratri is celebrated widely.

2.4 Vande Bharat Mission (VBM)

India has started VBM to bring back Indians who are stranded in different countries by air, land, and sea. So far India has completed about 7 phases under this scheme and still, it is ongoing. The first phase started on 7th May 2020. As of 11 September 2020, almost 14 million Indians were repatriated. Among the other countries, most of the repatriated Indians arrived from the United Arab Emirates, Saudi Arabia, and Oman where low-skilled workers migrate for a job. Though the mission is following all safety and social distancing norms still it has some effect on the spreading of COVID-19 cases in India. 20 passengers out of 179 passengers who came from Dubai to Mangaluru in the first VBM flight-tested COVID-19 positive on May 15, 2020. On June 5, 2020, Gokhale (2020) reports that 0.38 percent, i.e., 227 passengers out of 58, 867 Indians who arrived under VBM tested positive for COVID-19. On the other hand, 6 asymptomatic passengers who arrived in Mumbai under VBM tested positive on May 25, 2020. The Integrated Disease Surveillance Programme (IDSP) in Delhi has indicated that as many as 80% of Indian COVID-19 positive cases are asymptomatic or have very mild symptoms as of 25 August 2020.

Therefore, two cases emerge; first, there is no sufficient data on exactly how many passengers are tested positive who arrived back to India under Vande Bharat Mission in different states such as, Delhi, Telangana, Maharashtra, etc. This indicates that the number of COVID-19 positive cases may be under-reported. Secondly, it may be the case that passengers who landed in India under this mission may be asymptomatic but later tested COVID-19 positive. This argument cannot be ignored as India has witnessed a huge increase in COVID-19 cases and has become home to the second largest number of COVID-19 positive cases in the world. Therefore, Vande Bharat Mission has some influence on the spreading of COVID-19 positive cases in India.

2.5 Lacking formal job: lack of remote-work opportunities

According to the latest Periodic Labour Force Survey (PLFS), 2018-19 as per the usual status which includes principal activity status (ps) and subsidiary economic activity status (ss), the unemployment rate in India was 5.8 percent. At the same time for educated (highest level of education secondary and above) persons of age 15 years and above, it was about 11.0 percent. This indicates that large numbers of workers are out of the workforce. Table 3 indicates that only 59.3 % of the workers who have post-graduate & above level education are engaged in usual status (ps+ss). This indicates that about 40% of the workers, that have a similar level of education do not have a proper job. Approximately, 76% of workers are engaged in self-employment and casual wage employment, who may not have opportunities to work from home and are completely out of work due to lockdown. Only 24% of the workers are engaged in regular wage/ salary earner categories. Among them 70% of the regular wage/salaried employees who had no written job contract that is they are not proper wage/salaried employees. Therefore, only 7.2% (i.e., 30%) of the workers are engaged in regular wage/ salary earner categories may be eligible to work remotely. This means a very small proportion of better educated people who have regular formal jobs are eligible for remote work. This indicates that lockdown which is essential for stopping spreading COVID-19 cannot be applied to India due to a lack of wage/salaried work opportunities. This is evidenced by the increase in the number of COVID-19 cases. Before the relaxation of national-level lockdown (30 June 2020), the number of new averages per day COVID-19 cases were only 3705 and after the national level lockdown relaxation it was about 61862 average cases per day up to 28 October 2020. This clearly shows that due to a lack of remote work opportunities India is experiencing a higher level of new positive COVID-19 cases.

Table 3. Employment scenario at all India level in 2018-19

*Worker Population Ratios (in percent) in usual status (ps+ss) in different levels of education among persons of age 15 years and above**			
Persons (Male+female)	Rural	Urban	Rural+Urban
Not literate	46.7	38.0	45.2
Literate & up to primary	58.4	49.6	56.1
Higher secondary	38.6	32.5	36.2
Diploma/ certificate course	57.4	63.3	60.6
Post graduate & above	59.0	59.5	59.3
Percentage distribution of workers in usual status (ps+ss) by status in employment			
Self employed	58.0	37.8	52.1
Regular wage/ salary	13.4	48.7	23.8
Casual labour	28.6	13.5	24.1
Percentage of regular wage/salaried employees in different categories			
Percentage of regular wage/salaried employees who had no written job contract	67.8	70.5	69.5
Percentage of regular wage/salaried employees not eligible for paid leave	56.7	52.0	53.8
Percentage of regular wage/salaried employees not eligible for any social security benefit	55.9	49.4	51.9

* The percentage of workers in usual status (ps+ss) having particular levels of education among persons with that level of education is defined as the education level specific Worker Population Ratio.

Source: PLFS (2018-19)

3. Consequences of increasing COVID-19 cases

3.1 Job losses and increase of poverty

Due to national and state-level lockdown and restriction on movement, many people have lost their jobs. Table 3 shows that the majority of the workforce in 2018-19 engaged in the self-employed and casual worker. The PLFS (2018-19) also suggested that about 68.4 % of the workers in the non-agriculture sector were engaged in the informal sector. Therefore, it is clear that millions of Indians have lost their jobs. Table 3 also shows that almost 52 % of regular wage/salaried employees are not eligible for any social security benefit. Therefore, the major impact of COVID-19 in India can be summarized by huge job loss along with a lack of social security.

It is hard to calculate the number of persons who have lost their jobs. Vyas (2020) estimated that this year in April (or May or June or July) 121.5 million (or 100.3 million or 29.9 million or 11 million) jobs were forfeited by the lockdown. Most importantly, an independent body namely the Centre for Monitoring Indian Economy (CMIE) estimated that 18.9 million salaried jobs are lost from April 2020 to July 2020. Another phone survey of 4000 workers across 12 states of India by Azim Premji University revealed that in urban areas 80% of workers lost work compared to 50% in rural areas between April 13 and May 20, 2020. Kapoor (2020) indicates that workers engaged in the manufacturing sector and trade, hotels & restaurants face high risk due to the increase of COVID-19 cases. India's media reports flooded with numerous news about the layoffs across different sectors and salary cuts by companies.

Joblessness and poverty are almost synonymous in the case of India. The latest Consumer Expenditure Survey 2017-18 withholds the Centre cities data quality issues. However, some results have been leaked by Business Standard (2019) indicating that real consumption expenditure has fallen by 4% per annum in India. So, this indicates that poverty even increased further from Consumer Expenditure Survey 2011-12. In 2011-12 as per the Rangarajan Committee recommended the poverty line almost 30% (i.e., 363 million) of Indians were below the poverty line. Recently, the World Bank suggested that COVID-19 has pushed 12 million people in India into extreme poverty. Therefore, the major impacts of COVID-19 in the Indian economy are joblessness and extreme poverty.

3.2 Contraction of GDP

Due to the lockdown Indian economy almost stopped functioning. The major impact of lockdown is the falling of GDP. As per the data estimated by the National Statistical Office, GDP for the First Quarter (Q1) of 2020-21 contracted by 23.9% as against a 5.2 % growth in Q1 of 2019-20. At the same time, private consumption spending declined by 26.7 % and investment demand fell by 47.1%. If we consider the supply side, the decline in Gross Value Added (GVA) evidenced due to mainly 50.3 % falling in construction followed by trade, hotels, transport and communication, manufacturing, and mining. However, only the agriculture sector is seen to have grown by 3.4 %.

The World Economic Outlook October 2020 released by the International Monetary Fund (IMF) suggests that India's GDP will contract by 10.3% in this fiscal year. This figure is even lower than Pakistan (0.4%), Sri Lanka (4.6%), and Afghanistan (5%). Currently, India's per capita GDP (in current dollars) is lower than Bhutan and Sri Lanka and will be lower than even Bangladesh in 2020-21. This indicates that India has sacrificed a lot of GDP to fight against COVID-19.

4. Conclusions

The present study highlights the main reason behind the higher spreading of COVID-19 cases and its consequences in India. The state-level analysis suggests that there is a strong positive relationship between total urban population and total confirmed (or total active or total deaths) COVID-19 cases in India. The relationship between state-level percentages of urban population and total confirmed cases (or total active cases or total deaths) is not statistically significant. The associations between the state-wise densities of urban population and total confirmed cases (or total active cases or total deaths) are also not statistically significant. The returned migration from urban to rural has a positive and statistically significant effect on the state level number of COVID-19 cases. In addition to that, the relationship between state-level urban population and the total number of returned migrants is positive but the relationship between the state-level percentage of urban population and the total number of returned migrants to that state is negative. The festivals such as the Onam festival in Kerala have a significant effect on the spreading of COVID-19 cases in India. The Vande Bharat Mission which was designed to bring back Indians who were stranded in different countries is also responsible for spreading of COVID-19 cases in India. Lack of formal job that hinders remote work opportunities also has a positive effect on the spreading of COVID-19 cases in India. The consequences of higher COVID-19 cases are enormous that includes the significant number of job losses and an increase in poverty. In addition to that, GDP for the First Quarter (Q1) of 2020-21 contracted by 23.9% as against a 5.2 % growth in Q1 of 2019-20. Therefore, it is recommended that for a quick recovery of the Indian economy state-level urbanization has to be promoted with higher opportunities for formal jobs.

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