

**SUBJECT I**

**COVID AND THE AGRICULTURAL AND RURAL ECONOMY**

**Impacts of COVID-19-Induced National Lockdown on Agriculture and Rural Livelihoods in India: A Macro Perspective**

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ABSTRACT

In the last year and a half, COVID-19 has disrupted economies and livelihoods across the world, as well as causing large-scale infections and deaths. In this paper, an attempt has been made to analyse the economic impacts of COVID-19-induced lockdowns in India, with an emphasis on the agricultural sector and rural economy. The study has found that although, production, growth, and trade were affected less adversely in the agricultural sector than in the other sectors; the lockdowns had huge bearing on unemployment, incomes, and consumption in both rural and urban areas. The findings also indicate that the people in the urban areas suffered more than those in the rural areas; and that people in the bottom quintile were more adversely affected than those in the top quintile. COVID-19 thus worsened the already slow economy, and post-lockdown, it is yet to fully recover.

**Keywords: Covid-19, Rural livelihood, Agriculture and allied sectors**

**JEL.: I15, I38, O11, Q10**

I

INTRODUCTION

The paper addresses the impact of COVID-19 on India's rural economy with an emphasis on the agricultural sector. It does so by conducting an analysis at three levels. We first calculated the changes in various macro-level indicators such as gross value added (GVA), and examined statistics related to crop production, imports and exports, prices, and procurement. Second, we estimated the impact of COVID-19 induced lockdowns on consumers in terms of their incomes and their consumption expenditure. Third, we recorded government's policy responses and the implications of these policies for the economy.

In March 2020, the World Health Organisation (WHO) declared the COVID-19 outbreak, to be a pandemic caused by a novel coronavirus (SARS-CoV-2). Since the beginning of the pandemic till June 2021, the world witnessed more than 183 million confirmed cases of COVID-19 and more than 3.9 million fatalities (WHO, n.d.). In addition to being a health emergency, COVID-19 has wrecked havoc on the economies

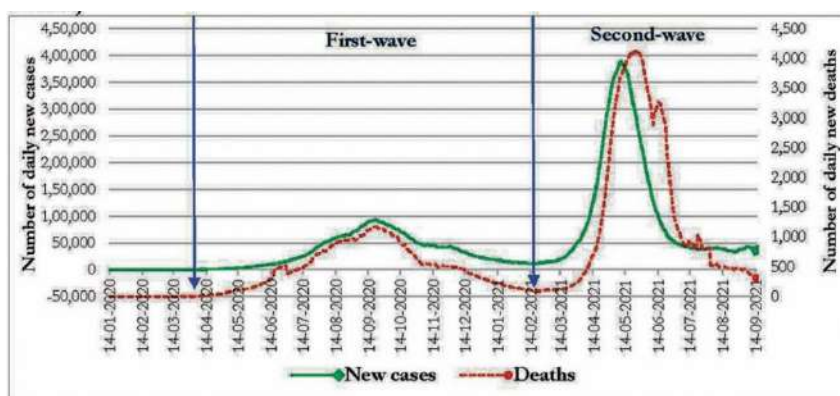
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around the world causing serious damage to incomes and livelihoods. The pandemic is far from over and the virus continues to spread at a rapid rate, with new mutations and variations continually evolving.<sup>1</sup>

India's first case of COVID-19 was detected in January 2020 and since then, the country has witnessed two waves. The first wave peaked in September 2020, with the number of new cases per day reaching slightly below 100,000. The second wave began in early March 2021; it was more severe, and reached its peak in May 2021, the number of new cases per day reached 400,000 (Figure 1).



Source: World Health Organisation(n.d.).

Figure 1. Number of New Cases and Deaths Per Day (14-Day Rolling Average) Due to COVID-19 in India (2020 and 2021).

As a primary tool for preventing the spread of COVID-19, governments across the world have imposed various types of restrictive measures, or “lockdowns” on the movement of people. The Government of India and various state governments have utilised these measures with different level of strictness in order to combat the spread of the virus (NDMA, 2020). Though the lockdowns have proven to be effective in controlling the spread of COVID-19, they have caused deleterious economic and social impacts (Kumar *et al.*, 2021). The economy has shrunk causing increased unemployment rates and higher poverty levels (Laborde *et al.*, 2020; Sumner *et al.*, 2020). The emerging and developing countries have been particularly vulnerable to the pandemic due to their higher poverty-levels and resource constraints.

In countries of the global South, the lockdowns have also highlighted the inadequacy of post-harvest facilities, mainly storage infrastructure near farms. Wastage of agricultural commodities, especially perishables, was widely reported during the closures or partial closures of wholesale markets that accompanied the lockdowns. The agricultural supply chains were also disrupted due to the lockdowns, which affected the rural economy in developing countries (NIAP, 2020).

Having said that, the effect of lockdowns has been comparatively less severe on the agricultural sector than in the other sectors of the economy. The agricultural gross value added (GVA), in fact, increased during lockdown, while exhibiting a decline in the

industry and services sectors. A deeper analysis of the impact of lockdown on agriculture is therefore warranted, one which is based on the latest available secondary data.

This paper examines the effects of lockdown during 2020, in the initial phases of the outbreak. It considers its impact on the Indian economy in general and on the agricultural sector in particular. The remainder of the paper is divided into three sections. The next section briefly describes the methodology used the subsequent section presents and discussed the results; and the final section offers the main findings of the study.

## II

### DATA AND METHODOLOGY

#### 2.1 *Data*

The study uses all-India time series data on agricultural production, gross value added, trade, inflation-rates, month-wise unemployment rate, labour participation rate, Government's procurement of rice and wheat, month-wise consumption expenditure, and month-wise household incomes.

The data for agricultural production, GVA, trade, inflation rate and cereal-procurement relate to last seven years ending 2020-21 and are sourced from various Union Ministries of the Government of India. The month-wise data on unemployment rate, labour participation rate, consumption expenditure and income relate to the last two years, sourced from the Centre for Monitoring Indian Economy (CMIE).

#### 2.2 *Methodology*

The study employs descriptive analysis to examine the impact of 2020 lockdown in India, that is, during the country's first wave of COVID-19. It considers agricultural GVA, total GVA, international trade, unemployment, government's procurement of cereals, inflation rate, consumption expenditure, and household incomes. The impact of 2020 lockdown is assessed in terms of both the annual and quarterly changes over the previous year.

The household consumption expenditure and incomes are measured as per capita consumption expenditure and per capita income, respectively. In the analysis, the paper also attempts to distinguish between the rural and urban sectors with regard to the implications of lockdown.

## III

### RESULTS AND DISCUSSION:

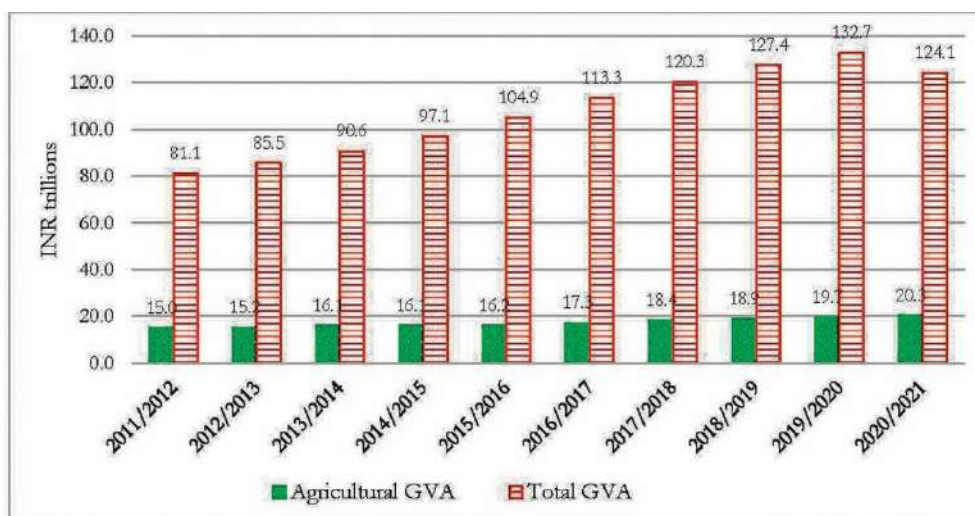
We present the results in three categories. The first set of results comprises analysis related to the performance of the agricultural sector, that is, GVA figures as well as

production- and trade-related statistics. The second set of results includes the implications of this agricultural performance on consumers in terms of employment, labor force participation, household incomes, and consumption expenditures. The third set of results highlights the government's response.

### 3.1 Agricultural Performance

#### 3.1.1 Impact of COVID-19 on Agriculture and Allied Sector

The study has analysed the impacts of COVID-19-induced lockdowns on India's GVA for the agricultural sector and for all sectors combined (Government of India, 2021d; 2021f). Figure 2 highlights the total GVA and the agricultural GVA between 2011-12 and 2020-21 at 2011-12 prices. The overall GVA between 2011-12 to 2019-20, before the onset of the pandemic, has been increasing at a compound annual growth rate (CAGR) of 6.7 per cent whereas the CAGR for agricultural GVA was only 3.5 per cent. In the period after the start of the pandemic, however, the agricultural GVA continued to grow a rate of 3.0 per cent, increasing from Rs 19.7 trillion (US\$ 277.7 billion) in 2019-2020 to trillion (US\$ 286.2 billion) in 2020-21. In the same period, the total GVA declined by 6.5 per cent, from Rs 132.7 trillion (US\$ 1,872.4 billion) to Rs 124.1 trillion (US\$ 1,751.1 billion). This illustrates the fact that in the wake of the crisis caused due to COVID-19 the agricultural sector was more resilient than the other sectors.



Source: Government of India, 2021d, 2021f.

Figure 2. Total Gross Value Added (GVA) and Agricultural GVA of India in INR Trillions, at 2011/2012 Prices.

The resilience of the agricultural sector is also reflected in the quarterly growth rates of the agricultural GVA. Table 1 shows percentage change in India's quarterly GVA by economic activities, during 2019 and 2020. The April-June quarter (or Q1) of 2020 coincided with the most stringent national lockdown-period and the restrictions were eased in the subsequent two quarters. The total GVA in Q1 2020 declined by 22.4 per cent, as compared to a growth-rate of 5.0 per cent in Q1 2019. All economic activities witnessed negative growth rates during April-June quarter of 2020, with the exception of the agriculture and allied sectors, which grew at 3.3 per cent.

TABLE 1. QUARTER-WISE PERCENTAGE CHANGE IN GVA BY ECONOMIC ACTIVITIES OVER PREVIOUS YEAR IN 2019 AND 2020 (AT 2011-12 PRICES)

Economic activity (1)	April-June		July-September		October-December	
	2019 (2)	2020 (3)	2019 (4)	2020 (5)	2019 (6)	2020 (7)
Agriculture and allied sectors	3.3	3.3	3.5	3.0	3.4	3.9
Mining	-1.3	-18.0	-5.2	-7.6	-3.5	-5.9
Manufacturing	0.6	-35.9	-3.0	-1.5	-2.9	1.6
Electricity, Water Supply & Other Utility Services	6.9	-9.9	1.7	2.3	-3.1	7.3
Construction	3.7	-49.4	1.0	-7.2	-1.3	6.2
Trade, Hotels, Transport, Communication, Broadcasting	6.2	-47.6	6.8	-15.3	7.0	-7.7
Financial, Real Estate and Professional Services	8.8	-5.4	8.9	-9.5	5.5	6.6
Public Administration, Defence and Other Services	5.6	-9.7	8.8	-9.3	8.9	-1.5
GVA at Basic Prices	5.0	-22.4	4.6	-7.3	3.4	1.0

Source: Government of India, 2021f.

The steep decline in GVA across sectors recovered to some extent in Q2 of 2020. Even in that quarter, besides that of agriculture, only the GVA of utility services (electricity and water supply) registered positive growth; all the other sectors continued with negative growth. During the July-September quarter (Q2), and the October-December (Q3), respectively, the agriculture and allied sectors grew by 3.0 per cent and 3.9 per cent, successfully overcoming the impact of the lockdown.

The robust growth in the agricultural GVA is also reflected in the production of major crops. Table 2 presents the trend in production and annual growth rates for major crop-groups from 2014-15 to 2020-21 (Government of India, 2021a). For almost all crop-groups, the production-quantity increased in 2020-21. The cereal production increased at an annual rate of 1.6 per cent in 2020-21 reaching 278.9 million metric tonnes (Mmt); pulse production grew by 6.0 per cent in 2020-21 reaching 24.4 Mmt; and production of sugarcane, cotton, and horticultural crops increased by 7.3 per cent, 1.3 per cent and 1.8 per cent, respectively. Oilseed production surpassed the growth rates of past few years and grew by a whopping 12.3 per cent in 2020-21. It is thus evident that crop production largely remained unaffected by the COVID-19 induced lockdowns.

TABLE 2. PRODUCTION (MILLION METRIC TONNES) AND ANNUAL GROWTH RATES (PER CENT) OF MAJOR CROP GROUPS IN INDIA, 2014-15 TO 2020-21

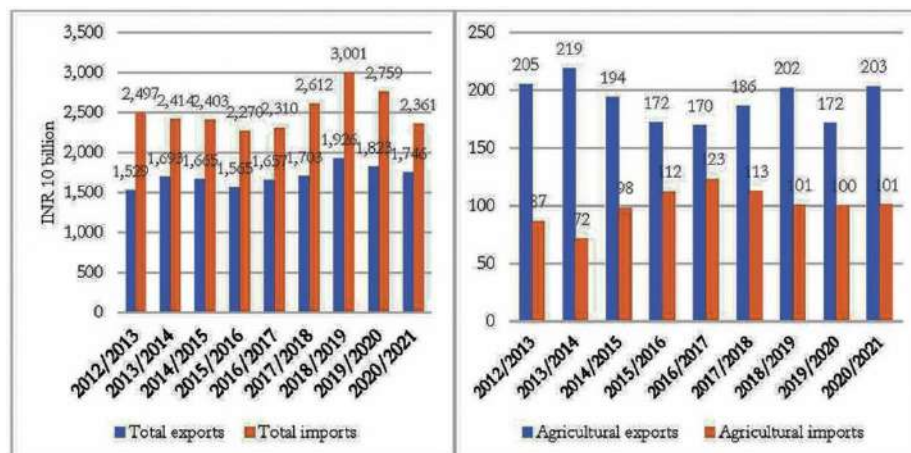
Crop groups (1)	Production (Growth Rate)					
	2015-16 (2)	2016-17 (3)	2017-18 (4)	2018-19 (5)	2019-20 (6)	2020-21 (7)
A. Food grains	252 (-0.2)	275 (9.4)	285 (3.6)	285 (0.1)	298 (4.3)	303 (2.0)
A1. Cereals	235 (0.2)	252 (7.1)	260 (3.0)	263 (1.4)	274 (4.3)	279 (1.6)
A2. Pulses	16 (-4.8)	23 (41.7)	25 (9.9)	22 (-13.0)	23 (4.3)	24 (6.0)
B. Oilseeds	25 (-8.2)	31 (23.9)	31 (0.6)	32 (0.2)	33 (5.4)	37 (12.3)
C. Sugarcane	348 (-3.8)	306 (-12.2)	380 (24.0)	405 (6.7)	371 (-8.6)	398 (7.3)
D. Horticulture	286 (1.9)	301 (5.1)	312 (3.7)	311 (-0.2)	321 (3.1)	327 (1.8)

Source: Government of India, 2021a.

Note: Numbers in parentheses indicate year-on-year growth rates.

### 3.1.2 Impact of COVID-19 on India's Agricultural Trade

COVID-19-induced lockdowns have disrupted value chains across the world. Figure 3 shows the trend in agricultural exports and imports as well as total exports and imports of India between 2012-13 and 2020-21, in value-terms at 2011-12 prices (Government of India, 2021g). It is evident that total exports and imports were declining since 2018-19, well before the onset of COVID-19. The declining trend continued, with the total exports decreasing from INR 18.22 trillion (US\$ 257.13 billion) in 2019-20 to INR 17.45 trillion (US\$ 246.30 billion) in 2020-21 (a decline of 4.2 per cent). The total imports have also been declining significantly in the last three years, decreasing by a further 14 per cent in 2020-21.



Source: Government of India, 2021g.

Figure 3. Trend in Total Trade and Agricultural Trade of India (in INR tens of billions) (at 2011-12 Price), 2012-13 and 2020-21

In contrast, agricultural exports increased from INR 1.72 trillion (US\$ 24.2 billion) in 2019-20 to INR 2.03 trillion (US\$ 28.7 billion) in 2020-21, an increase of 18.5 per cent. This is, however, still lower than the peak of INR 2.19 trillion (US\$ 30.9 billion) in 2013-14, after which agricultural exports kept on declining before recovering in 2017-18. The increase in agricultural exports in 2020-21 that occurred despite the COVID-19-induced slowdown is due to high cereal exports, particularly wheat and non-basmati rice.<sup>1</sup> The demand for these commodities surged during the pandemic as several countries imposed export restrictions in order to safeguard domestic supplies. India, on the other hand, had accumulated huge surpluses of these cereals because of the country's robust public procurement system. Agricultural imports have been declining since 2016-17; they have stagnated since last three years and remained more or less unchanged in 2020-21. It can be said, in short, that the agricultural trade in 2020-21 was not adversely affected by the lockdown.

The resilience of agricultural trade in contrast to overall trade is also reflected in the quarterly statistics. Table 3 shows India's quarterly agricultural and total exports and imports, at 2011-12 prices. The quarterly decline of agricultural exports and imports in Q1 was significantly lower than that of all commodities combined. Agricultural exports declined by a mere 4 per cent, as opposed to a 29 per cent decline in total exports. Agricultural exports then recovered quickly to positive growth in the second quarter, while total exports continued to register a negative growth rate for both Q2 and Q3 2020.

TABLE 3. CHANGE IN QUARTERLY TRADE BETWEEN 2019 AND 2020 (IN INR TENS OF BILLIONS) IN 2011-12 PRICES

(1)	(2)	April-June (Q1)			July-September (Q2)			October-December (Q3)		
		2019	2020	Per cent change	2019	2020	Per cent change	2019	2020	Per cent change
		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Total Trade	Exports	464	329	-29	454	452	-0.5	460	447	-3
	Imports	745	391	-47	684	553	-19	675	655	-3
Agricultural Trade	Exports	44	42	-4	41	50	22	42	50	19
	Imports	24	21	-12	28	26	-8	25	28	15

Source: Government of India, 2021g.

Note: INR 10 billion = US\$ 141.1 million (using average exchange rate for 2019-2020 i.e., 1 US\$=INR 70.88)

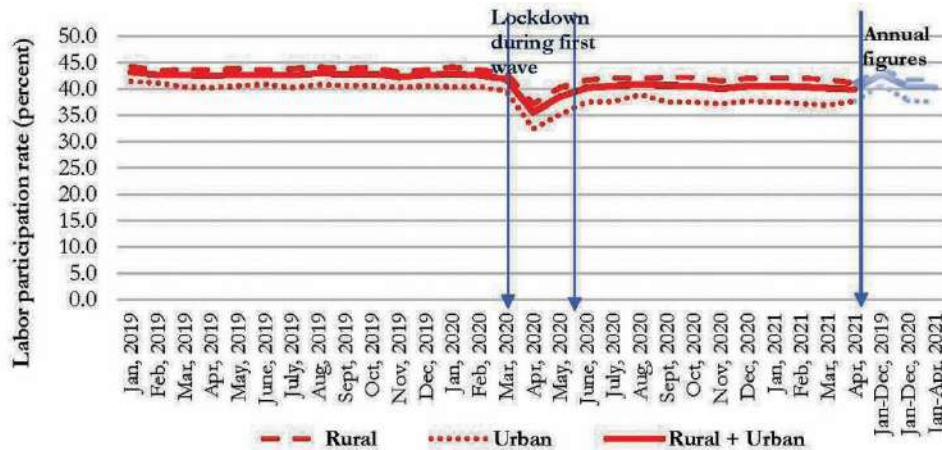
Total imports, similarly, declined by a whopping 47 per cent year-on-year for Q1 and kept on registering negative growth in Q2 and Q3. Agricultural imports, however, suffered a significantly lower impact and after shrinking by 12 per cent in Q1 and 8 per cent in Q2, registered a year-on-year growth of 15 per cent in Q3.

### 3.2 Impacts on Livelihoods

#### 3.2.1 Impact of COVID-19 on Unemployment

Figure 4 shows month-wise labour participation rate for 2019 and 2020 for rural, urban, and combined sectors (CMIE, 2021c). In April 2020, the labour participation rate dipped sharply in all areas and shrank by 15 per cent year-on-year in rural areas,

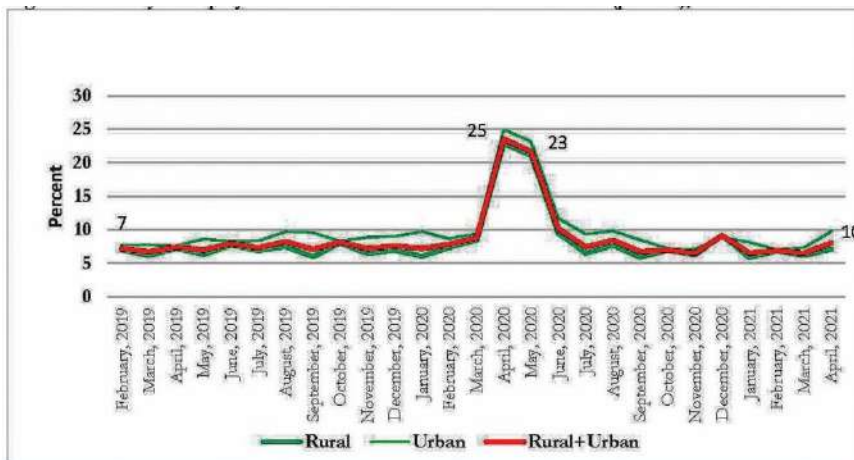
19 per cent in urban areas and 16 per cent overall. It improved after the initial three months of lockdown, but for the rest of 2020 it remained lower than in the pre-lockdown period.



Source: Centre for Monitoring Indian Economy (CMIE).

Figure 4. Month-wise Labour Participation Rate (per cent), in Rural and Urban India in 2019 and 2020.

Figure 5 shows the month-wise unemployment rate for rural, urban, and combined sectors. It is evident that April and May 2020 registered a sudden spike in unemployment. The unemployment rate peaked during April 2020 in rural (22.90 per cent), urban (25.0 per cent) and combined (23.5 per cent) sectors. Compared to April 2019, the unemployment rates in April 2020 for rural and urban areas were 3.2 and 2.6



Source: Centre for Monitoring Indian Economy (CMIE), 2021c.

Figure 5. Monthly Unemployment Rate in Rural and Urban Areas an India (per cent), 2019 to 2021

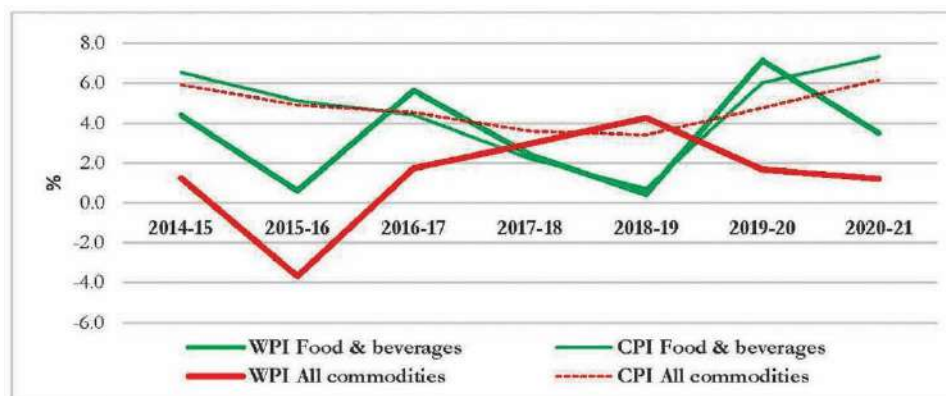


times, respectively. Similarly, the rural unemployment rates for May and June 2020 were 2.7 times and 1.4 times the unemployment rates in May and June 2019, respectively. The corresponding urban unemployment rates in May and June 2020 were 2.8 times and 1.4 times the unemployment rates in May and June 2019, respectively.

After June 2020, as lockdowns were lifted, the unemployment rate came down; this and the implementation of relief package are expected to help normalise the unemployment rate.

### 3.2.2 Inflation in Agricultural Commodities

Disruption in India's supply chains has significantly inflated the prices of foods in the major food groups. Figure 6 shows inflation rates based on the wholesale price index (WPI) and consumer price index (CPI) for food and beverages and all commodities during 2014-15 and 2020-21 (Government of India, 2021b,c). The WPI-based inflation-rate for food and beverages declined from 7.1 per cent in 2019-20 to 3.5 per cent in 2020-21, presumably due to reduction in demand during lockdown; in the same period, however, the CPI-based inflation-rate for food and beverages slightly increased from 6.0 per cent to 7.3 per cent, possibly due to supply bottlenecks in transportation to retail outlets, owing to lockdown. The WPI-based inflation rate for all commodities also decreased from 1.7 per cent in 2019-20 to 1.2 per cent in 2020-21, while the CPI-base inflation rate rose from 4.8 per cent to 6.2 per cent in the same period.



Source: Government of India, 2021 b,c.

Figure 6. Trend in Inflation Based on the WPI and CPI for Food and Beverages and for All Commodities in India (Constant Price)

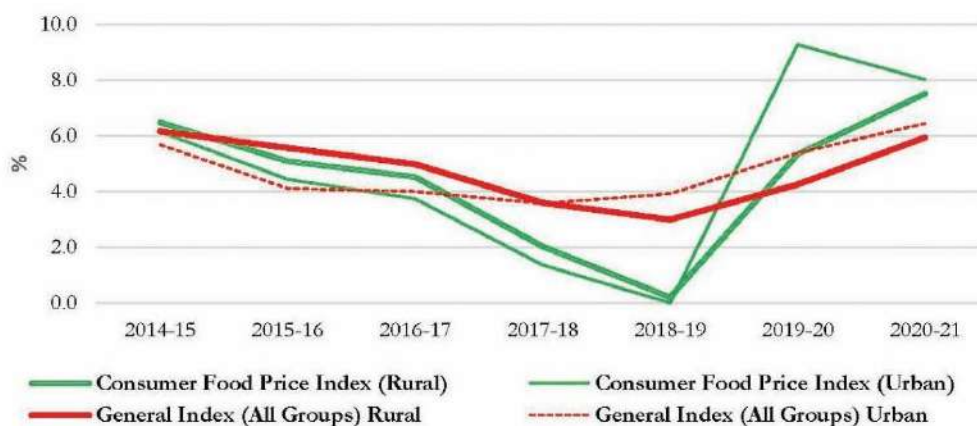
Table 4 gives quarter-wise CPI- and WPI-based inflation rates for various food groups during 2020-21. In April-June 2020, for various food groups, the WPI-based inflation rate was significantly lower than the CPI-based inflation rate. The difference between them declined progressively in the subsequent quarters.

TABLE 4. COMPARISON OF INFLATION RATES BASED ON THE WPI AND CPI DURING FIRST, SECOND, THIRD AND FOURTH QUARTERS OF 2020-21

Food groups (1)	<i>(per cent)</i>							
	April-June		July-September		October-December		January-March	
	CPI (2)	WPI (3)	CPI (4)	WPI (5)	CPI (6)	WPI (7)	CPI (8)	WPI (9)
Cereals and cereal products	7.6	2.5	5.8	-1.7	2.3	-5.3	-0.3	-5.2
Meat and fish	14.8	3.8	17.1	4.6	16.9	0.2	13.0	0.6
Egg	9.2	-10.1	11.1	5.9	19.3	15.7	11.6	7.6
Milk and milk products	8.4	6.0	6.1	4.2	4.7	3.6	2.5	1.9
Oils and fats	11.4	12.2	12.7	17.4	17.7	22.4	21.9	27.1
Fruits	1.6	1.2	1.4	-2.3	1.0	-1.2	6.3	9.3
Vegetables	10.7	-6.3	14.6	17.6	8.2	9.6	-9.4	-10.5
Pulses and pulse products	20.4	10.5	14.9	9.8	17.4	12.7	13.1	10.2
Sugar and confectionery	6.4	1.9	3.4	1.1	1.0	-0.8	-0.5	-1.6
Spices	12.9	12.9	12.3	5.2	10.8	2.9	7.9	1.7
Non-alcoholic beverages	3.1	-1.4	5.5	-0.8	10.2	-1.2	13.9	-0.3
Prepared meals; snacks; sweets etc.	4.2	-1.0	4.0	-3.9	4.6	-6.0	5.3	-4.8
Food and beverages	8.9	3.7	8.9	4.9	7.6	3.4	4.0	2.0
All commodities	6.6	-2.3	6.9	0.5	6.4	1.9	4.9	4.7

Source: Government of India, 2021b,c.

Figure 7 compares annual inflation rates for rural and urban sectors, based on the Consumer Food Price Index (CFPI) and the General Index (GI). The rural CFPI-based inflation rate depicts an increasing trend during 2020-21, while the urban CFPI-based inflation rate shows a decline in the same period. The all-commodities GI-based inflation rate shows an increasing trend for both rural and urban sectors, with rural sector exhibiting a sharper increase.

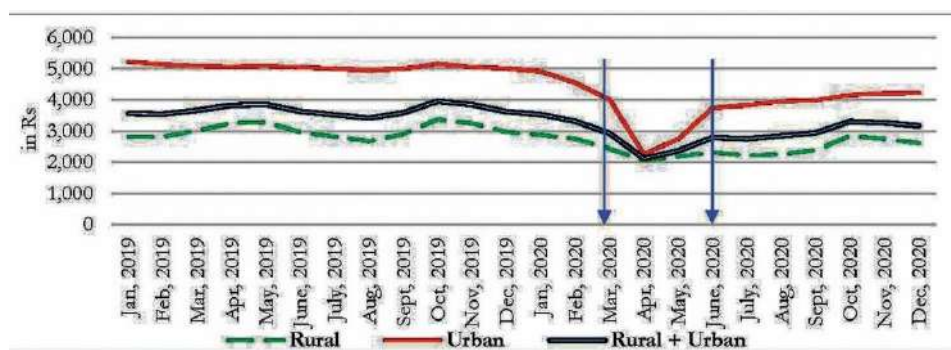


Source: Government of India, 2021b,c.

Figure 7. Annual Inflation Rates Based on Consumer Food Price Index and General Index (All Commodities) for Rural and Urban Sectors At 2012 Prices) (per cent)

### 3.2.3 Impact of COVID-19 on Per Capita Income

As we have discussed above, COVID-19-induced lockdowns have led to significant rise in unemployment; there has thus been a notable reduction in household incomes in both rural and urban areas. Figure 8 shows the monthly per capita total income (MPCTI) during 2019 and 2020 (CMIE, 2021b). In April 2020, there was a large reduction in MPCTI, followed by a further decline in May. The decline was steeper for the people living in urban areas than those living in the rural parts of the country.



Source: CMIE, 2021b.

Figure 8. Monthly Per Capita Income in Rural and Urban Areas in India, 2019 and 2020.

The average monthly per capita incomes in the rural sector declined by 37 per cent and 33 per cent during April and May 2020, respectively, as compared to the same months in 2019. The average per capita incomes in the urban areas, on the other hand, declined by 55 per cent and 46 per cent during April and May 2020, respectively, compared to the same months in the previous year. From June 2020 onwards, MPCTI showed a slight, albeit slow, improvement, halting its decline with respect to the previous year; however, even after June 2020 it remained below that of the pre-lockdown period, particularly for the urban sector.

We also look at the quarter-wise changes in per capita income during 2020 over same period in 2019. Table 5 gives the monthly per capita total income for each quarter in 2019 and 2020, showing it separately for the top and bottom quintiles. It offers four takeaways. Firstly, incomes were declining well before the lockdown started owing to the overall slowing of economy. Thus, for the January to March quarter, there was a 6 per cent year-on-year decline in incomes in rural areas and 12 per cent in urban areas. Second, the urban areas suffered even steeper decline in incomes than the rural areas. For instance, the year-on-year decline for the April to June quarter (period when the lockdown was most stringent) for urban areas was 41 per cent as compared to 31 per cent for the rural areas. Third, the bottom quintile suffered disproportionately more

than the top quintile. In rural areas in the April to June quarter, the incomes of the top quintile shrank by only 0.7 per cent as opposed to the 41 per cent decline for the bottom quintile. The corresponding decline in urban areas was 13 per cent and 55 per cent. Fourth, the decline in incomes in 2020 continued, but at a lower rate, well after the stringent lockdown measures were uplifted in June. This is in line with overall statistics for the large-scale COVID-19 economic disruption.

### 3.2.4 Impact of COVID-19 on Consumption

We now look at the impact of COVID-19-induced lockdown on per capita total consumption expenditure (PCTCE) and per capita food consumption expenditure (PCFCE) (CMIE, 2021a). Table 6 presents quarter-wise PCTCE and PCFCE in 2019 and 2020, at 2012 price. It reveals a sharp decline in both PCTCE and PCFCE in 2020 over 2019 figures. Predictably, the decline is steeper in case of total consumption expenditure as compared to expenditure on food. The PCTCE in April-June 2020 for rural and urban sectors decreased by 35 per cent and 39 per cent, respectively. In the same quarter, the PCFCE declined by 21 per cent and 23 per cent for rural and urban areas, respectively. The April-June quarter of 2020 accounts for the maximum decrease in per capita expenditures. Urban areas witnessed greater decline in per capita consumption expenditures than rural areas. The PCTCE and PCFCE figures depict steady improvement in the subsequent quarters of 2020. Thus, COVID-19 induced lockdown significantly impacted the per capita expenditures in India.

Figure 9 shows monthly per capita total consumption expenditure (MPCTCE) and monthly per capita food consumption expenditure (MPCFCE) for 2019 and 2020, for rural and urban sectors. Both MPCTCE and MPCFCE were lowest during April 2020. The MPCTCE for rural and urban sectors decreased by 43 per cent and 48 per cent, respectively, in April 2020 over same month in the previous year. Similarly, the MPCFCE for rural and urban sectors also decreased by 26.7 per cent and 29.7 per cent, respectively, in April 2020 over April 2019.

From May 2020, the decline in monthly per capita expenditure over same month in the previous year slowed down significantly; there was also a progressive rise in MPCTCE and MPCFCE in the subsequent months of 2020. Per capita expenditures from June-onwards, however, remained lower than that in the pre lockdown months i.e., before March 2020.

To capture the state-wise differences, we have plotted the change in total per capita expenditure for the Q1 2020 (as compared to Q1 2019) for all states (Figure 10). The highest declines in total per capita expenditure (over 45 per cent) were registered in Jammu & Kashmir, West Bengal, Maharashtra, Chandigarh, and Delhi; meanwhile, a less than 30 per cent reduction in PCTCE was observed in Gujarat, Rajasthan, Andhra Pradesh, Jharkhand, Meghalaya, and Karnataka.

TABLE 5. MONTHLY PER CAPITA INCOME IN RURAL AND URBAN AREAS OF INDIA FOR TOP AND BOTTOM QUINTILES, AND TOTALS; QUARTERLY FIGURES FOR 2019 AND 2020 AT 2012 PRICES, IN INR

Income group (1)	January-March		April-June		July-September		October-December		
	2019 (2)	2020 (3)	2019 (5)	2020 (6)	2019 (8)	2020 (9)	2019 (11)	2020 (12)	
									Per cent change (13)
Total	2,882	2,713	3,169	2,199	2,802	2,293	3,209	2,739	-15
Bottom 20 per cent	627	486	604	356	494	440	492	452	-8
Top 20 per cent	8,603	8,046	9,215	9,149	8,220	7,480	8,593	8,324	-3
Total	5,145	4,538	5,064	2,988	4,982	3,930	5,073	4,198	-17
Bottom 20 per cent	1,557	1,419	1,550	701	1,518	1,400	1,517	1,432	-6
Top 20 per cent	12,695	11,635	12,434	10,850	12,084	10,354	11,961	10,507	-12

Source: CMIE (Income Pyramids database).

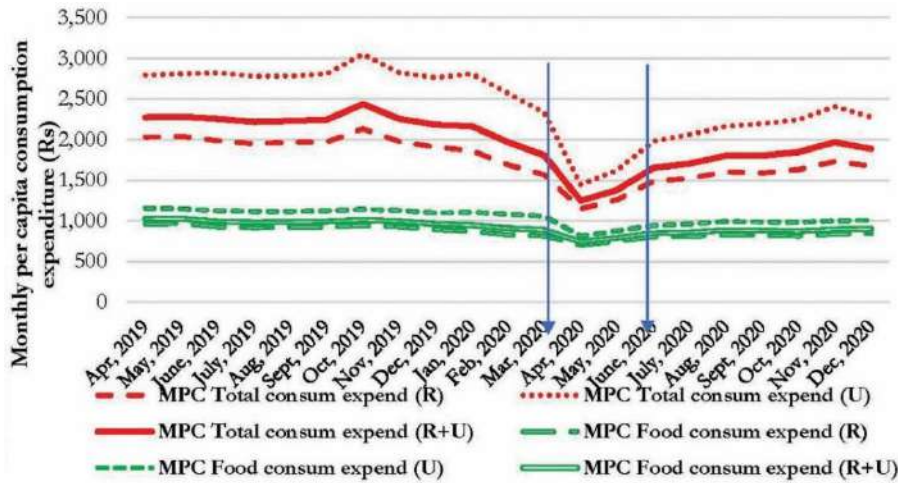
Note: Deflator used: CPI General Index All-Groups.

TABLE 6. QUARTERLY PER CAPITA TOTAL CONSUMPTION AND FOOD CONSUMPTION EXPENDITURE IN INDIA FOR 2019 AND 2020, AT 2012 PRICES (IN INR)

Consumption head (1)	Rural/Urban (2)	January-March		April-June		July-September		October-December		
		2019 (3)	2020 (4)	2019 (6)	2020 (7)	2019 (9)	2020 (10)	2019 (12)	2020 (13)	
									Per cent change (14)	
Per capita total consumption (Rs)	Rural	1,966	1,722	2,019	1,314	1,962	1,576	2,011	1,679	-16.5
	Urban	2,867	2,594	2,806	1,709	2,789	2,145	2,888	2,310	-20.0
	Rural + Urban	2,252	1,997	2,271	1,445	2,231	1,772	2,300	1,900	-17.4
Per capita food consumption (Rs)	Rural	927	842	953	756	923	820	924	833	-9.9
	Urban	1,165	1,087	1,144	885	1,120	981	1,124	997	-11.4
	Rural + Urban	1,002	918	1,013	798	987	876	989	890	-10.0

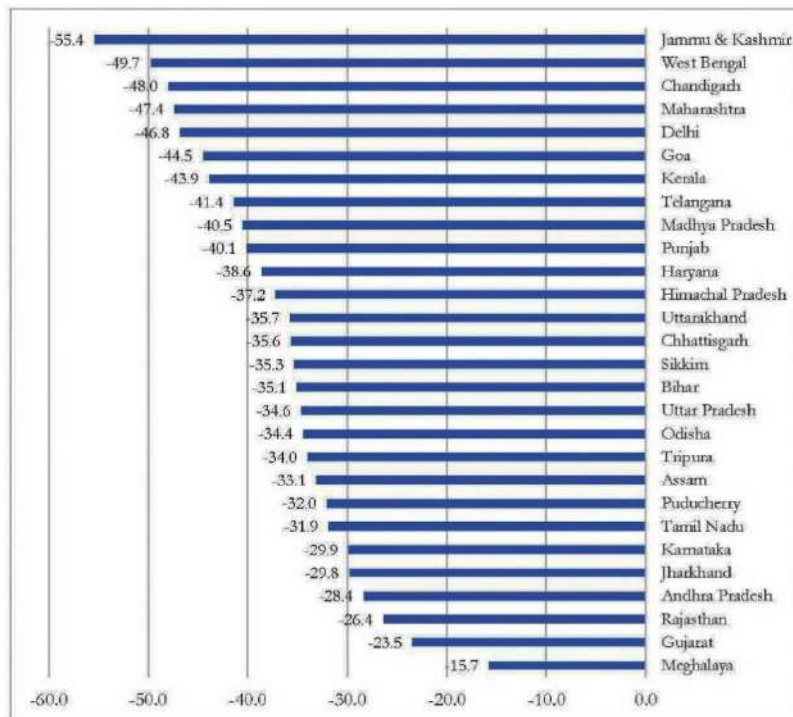
Source: CMIE (Consumption Pyramids database)

Note: Deflators used: CPI General Index All-Groups for total expenditure and CPI Food & Beverages Index for food expenditure.



Source: Food Corporation of India

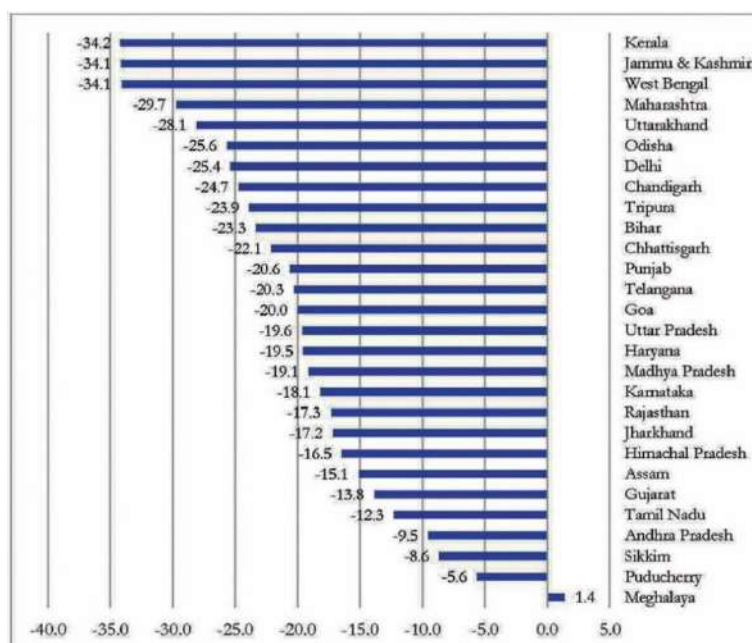
Figure 9. Monthly Per Capita (MPC) Total and Food Consumption Expenditures (Rs.) During 2019 and 2020 in Rural and Urban Sectors in India.



Source: CMIE, 2021a.

Figure 10. Change in per capita total consumption expenditure during April-June (2020) quarter over same period in previous year in states (rural + urban).

In Figure 11, as in Figure 10, we plotted the state-wise change in per capita food consumption expenditure. It shows the decline in PCFCE across states for April–June 2020 over the previous year. Kerala, Jammu & Kashmir, and West Bengal saw an over 30 per cent reduction, while Andhra Pradesh, Tamil Nadu, and Gujarat observed a decline of less than 15 per cent.



Source: CMIE, 2021a.

Figure 11. Change in per capita food consumption expenditure during April–June (2020) quarter over same period in previous year in states (rural + urban)

### 3.3 Government’s Response

#### 3.3.1 Impact of COVID-19 on Procurement of Rice and Wheat

Table 7 exhibits India’s production of rice and wheat and their procurement by the Government agencies from 2014-15 to 2021-22 (Government of India, 2021e). The quantity of rice-procured increased from 520.0 lakh tonnes in 2019-20 to 539 lakh tonnes in 2020-21(as on June 03, 2021). The procurement of rice as a share of production marginally increased from 43.7 per cent in 2019-20 to 44.8 per cent in 2020-21. Similarly, in case of wheat, the quantity-procured increased from 341.3 lakh tonnes in 2019-20 to 389.9 lakh tonnes in 2020-21, and 412.5 lakh tonnes in 2021-22. The procurement of wheat as a share of its production increased from 31.6 per cent in 2019-20 to 35.7 per cent in 2020-21, and 37.8 per cent in 2021-22. It can thus be inferred that the COVID-19 related lockdown had no impact on the Government’s procurement programme.



TABLE 7. PRODUCTION AND PROCUREMENT OF RICE AND WHEAT (MILLION METRIC TONNES) AND PROCUREMENT AS PER CENT OF PRODUCTION IN INDIA, 2014-15 TO 2021-22

Year (1)	Rice			Wheat		
	Production (2)	Procurement (3)	Procurement as percentage of production (4)	Production (5)	Procurement (6)	Procurement as percentage of production (7)
2014-15	105.5	32.0	30.4	86.5	28.0	32.4
2015-16	104.4	34.2	32.8	92.3	28.1	30.4
2016-17	109.7	38.1	34.7	98.5	23.0	23.3
2017-18	112.8	38.2	33.9	99.9	30.8	30.9
2018-19	116.5	44.4	38.1	103.6	35.8	34.6
2019-20	118.9	52.0	43.7	107.9	34.1	31.6
2020-21*	120.3	53.9	44.8	109.2	39.0	35.7
2021-22**	-	-	-	109.2	41.3	37.8

Source: Government of India, 2021e.

Notes: \*Procurement of rice as on June 03, 2021; \*\*Procurement of wheat as on June 03, 2021; Production figure for 2020-21 is taken for 2021-22 for wheat.

During late March 2020, the Union Government had announced a relief package of INR 1.70 trillion (US\$ 23.9 billion) under Pradhan Mantri Garib Kalyan Yojana (PM-GKY) to support the vulnerable sections of the society in the wake of the COVID-19 (Government of India, 2020). The key features of the package included: insurance coverage of of INR 5 million (US\$ 70.5 thousand) per health worker; 5 kg wheat or rice and 1 kg of preferred pulses for free every month for eight months to 80 crore poor people; INR 500 (US\$ 7.1) per month for next three months to 20 million women Jan Dhan account holders; increase in Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) wage from INR 182 (US\$ 2.6) to INR 202 (US\$ 2.8) per day in order to benefit 136.2 million families; an ex gratia of INR 1,000 (US\$ 14.1) to 30 million poor senior citizens, widows, and disabled people; and a front-loading INR 2,000 (US\$ 28.2) to be paid to farmers in the first week of April under the existing Pradhan Mantri Kisan Samman Nidhi Yojana (PM-Kisan Yojana) program, to benefit 87 million farmers.

The relief package also provided support to the agriculture sector and the rural economy. Varshney *et al.* (2021) observed that cash transfers under PMGKY significantly contributed to alleviating credit constraints and increasing investments in agricultural inputs. Farmers receiving benefits from the PMGKY scheme spent significantly more on the procurement of seeds, fertilisers, and pesticides.

The World Bank, in collaboration with the Centre for Monitoring Indian Economy, included additional questions related to the PMGKY in the 21st round of its Consumer Pyramids Household Survey (CPHS). The survey results are published in Bhattacharya and Roy (2021) and are reproduced in Tables 8 and 9, below. It is evident from Table 8 that almost 80 per cent of households in India received some sort of support (either food or cash) under the PMGKY; in rural areas the figure is almost 85 per cent and in urban areas it is 69 per cent.



TABLE 8. SHARE OF HOUSEHOLDS RECEIVING BENEFITS UNDER THE PRADHAN MANTRI GARIB KALYAN YOJANA(PMGKY) PACKAGE DURING MAY TO AUGUST 2020

Benefit received (1)	All-India (2)	Rural (3)	Urban (4)	Poor (5)	Not Poor (6)	Male headed household (7)	Female headed households (8)
Only Food	39.5	37.9	43.0	41.5	38.7	33.1	40.4
Only Cash	6.1	7.0	4.3	6.1	6.1	6.3	6.1
Both Food & Cash	34.1	40.0	21.9	39.8	31.6	45.4	32.7
Either Food or Cash	79.7	84.9	69.1	87.4	76.4	84.7	79.2

Source: Bhattacharya and Roy (2021)

TABLE 9. SHARE OF ALL HOUSEHOLDS REPORTING RECEIVING BENEFITS UNDER THE PMGKY PACKAGE BY STATE DURING MAY TO AUGUST 2020

S. No. (1)	State (2)	Food only (3)	Cash only (4)	Both (5)	Atleast one benefit (food or cash) (6)
1.	Andhra Pradesh	53	0	42	96
2.	Assam	34	5	37	76
3.	Bihar	32	12	35	78
4.	Chhattisgarh	39	2	54	95
5.	Delhi	23	6	13	42
6.	Goa	75	0	4	79
7.	Gujarat	53	3	25	81
8.	Haryana	11	18	29	58
9.	Himachal Pradesh	72	0	14	86
10.	Jharkhand	32	2	50	84
11.	Karnataka	36	2	43	80
12.	Kerala	53	2	27	81
13.	Madhya Pradesh	17	17	21	55
14.	Maharashtra	59	2	18	79
15..	Meghalaya	63	3	12	77
16.	Odisha	19	23	18	59
17.	Punjab	8	20	16	44
18.	Rajasthan	16	15	48	80
19.	Sikkim	52	2	15	69
20..	Tamil Nadu	62	0	32	95
21.	Telangana	40	1	48	88
22..	Tripura	58	0	41	100
23.	Uttar Pradesh	37	4	42	83
24..	Uttarakhand	6	12	22	40
25.	West Bengal	53	1	41	95
26.	All-India	39.5	6.1	34.1	79.7

Source: Bhattacharya and Roy (2021).

The state-wise share of beneficiaries from the PMGKY is given in Table 9. In Andhra Pradesh, 96 percent of households received at least one benefit (either cash or food); it thus tops the list in terms of share of households covered. Uttarakhand, Delhi, and Punjab have the worst coverage with only 40 per cent, 42 per cent, and 44 per cent of the households, respectively, receiving some form of support.

#### IV

#### CONCLUSION

This study examines the impacts of COVID-19-related lockdown on the agricultural sector and the rural economy in 2020. While it does not observe any

significant impact of the lockdown on agricultural growth, the impact on the rural economy was reflected in terms of an increase in the unemployment rate, a decline in the labor participation rate, and a decrease in per capita incomes and expenditure; this was especially noticeable during the 2020 lockdown period.

The agricultural GVA grew at an annual rate of 3 per cent in 2020/2021 as compared to a decline of 6.5 per cent in the overall economy. Agricultural production also grew consistently during 2020/2021 and agricultural exports and imports were affected less than were other commodities. Government procurement of rice and wheat also increased in 2020/2021 as compared to previous years.

The government's easing of the lockdown soon after it was imposed in order to allow agricultural operations, including marketing and transportation, helped minimize the ill effects of lockdown on the agricultural sector. A government package for revival of that sector focused on strengthening agricultural storage and marketing and addressing supply bottlenecks; this seems to have helped maintain growth in the agricultural sector. Demand decreased during lockdown and thus WPI-based inflation also declined; however, the impact of lockdown restrictions was reflected in supply chain disruptions, which led to an increase in CPI-based inflation during 2020/2021.

Per capita income in rural areas was less severely impacted than it was in urban areas. The restoring of income levels in the rural sector was helped by growth in the agricultural sector that was propelled by various government initiatives; these included the exemption of agricultural operations from lockdown, an economic revival package that contained measures aimed at the agricultural sector, and increased expenditure on employment programs such as MGNREGA.

The agriculture and allied sectors thus acted as a silver lining amid COVID-19 lockdown, overcoming the impact of the global pandemic. There is a need, however, for investments in post-harvest infrastructure—including storage as well as marketing reforms—if the agricultural sector and the rural economy are to prepare themselves sufficiently for similar or more serious challenges in the future (Kumar et al. 2020).

#### NOTE

1) In 2020/2021, in value terms, the year-on-year exports of non-basmati rice increased by 247 percent, wheat by 946 percent, and other cereal crops by 376 percent.

#### REFERENCES

- Bhattacharya, S., and S. Roy Sinha (2021), Intent to Implementation: Tracking India's Social Protection Response to COVID-19, World Bank Discussion Paper No. 2107, June 2021, available at <https://openknowledge.worldbank.org/handle/10986/35746>
- Centre for Monitoring Indian Economy (CMIE) (2021a), *Consumer Pyramids data*, Mumbai, India. <https://consumerpyramidsdx.cmie.com/>
- Centre for Monitoring Indian Economy (CMIE) (2021b), *Income Pyramids data*, Mumbai, India. <https://incomepyramidsdx.cmie.com/>
- Centre for Monitoring Indian Economy (CMIE) (2021c), *Unemployment Rate in India*, Mumbai, India. <https://unemploymentinindia.cmie.com/kommon/bin/sr.php?kall=wtabnav&tab=4020>

- Government of India (GoI) (2020), *Finance Minister announces Rs 1.70 Lakh Crore relief package under Pradhan Mantri Garib Kalyan Yojana for the poor to help them fight the battle against Corona Virus*, press release March 26, 2020, Ministry of Finance, New Delhi, India.
- Government of India (GoI) (2021a), *Advance Estimates of Food Grains, Oilseeds & Other Commercial Crops*, Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare, New Delhi, India.
- Government of India (GoI) (2021b), *Annual Average of Monthly Index (Financial Year 2012-13 Onwards)*, Office of the Economic Advisor, Ministry of Commerce & Industry, New Delhi, India.
- Government of India (GoI) (2021c), *Consumer Price Index*, Ministry of Statistics and Programme Implementation, New Delhi, India.
- Government of India (GoI) (2021d), *National Account statistics 2020*, Ministry of Statistics and Programme Implementation, New Delhi, India.
- Government of India (GoI) (2021e), *Procurement*, Food Corporation of India, New Delhi, India.
- Government of India (GoI) (2021f), *Second Advance Estimates of National Income, 2020-21 and Quarterly Estimates of Gross Domestic Product for the Third Quarter (OCT-DEC), 2020-21, February 26, 2021*, Ministry of Statistics and Programme Implementation, New Delhi, India.
- Government of India (GoI) (2021g), *System on Foreign Trade Performance Analysis (FTPA) Version 3.0*, Department of Commerce, Ministry of Commerce and Industry, New Delhi, India. <https://tradedstat.commerce.gov.in/ftpa/comgrpq.asp>.
- Kumar, A.; A.K. Padhee, and S. Kumar (2020), "How Indian Agriculture Should Change after COVID-19", *Food Security, Opinion Piece*. <https://doi.org/10.1007/s12571-020-01063-6>.
- Kumar, P., S.S. Singh, A.K. Pandey, R.K. Singh, P.K. Srivastava, M. Kumar and M. Drews (2021), *Multi-Level Impacts of the COVID-19 Lockdown on Agricultural Systems in India: The Case of Uttar Pradesh*. *Agricultural Systems*, 187, 103027.
- Laborde, D.; W. Martin and R. Vos (2020), *Poverty and Food Insecurity Could Grow Dramatically as COVID-19 Spreads*, International Food Policy Research Institute (IFPRI), Washington, D.C., U.S.A.
- National Disaster Management Authority (NDMA) (2020), *COVID-19 Impacts and Responses: The Indian Experience, January–May 2020*, NDMA, India, 52 pages.
- National Institute of Agricultural Economics and Policy Research (NIAP) (2020), *COVID-19 Lockdown and Indian Agriculture: Options to Reduce the Impact*, Working Paper, NIAP, New Delhi.
- Sumner, A.; C. Hoy, and E. Ortiz-Juarez (2020), *Estimates of the Impact of COVID-19 on Global Poverty*, No. 2020/43, WIDER Working Paper.
- Varshney, D.; A. Kumar, A.K. Mishra, S. Rashid, and P.K. Joshi (2021), "India's COVID-19 Social Assistance Package and its Impact on the Agriculture Sector", *Agricultural Systems*, Vol.189, pp.1-11. <https://doi.org/10.1016/j.agsy.2021.103049>.