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Consumption inequality during COVID-19: An interstate analysis

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Consumption inequality during COVID-19: An interstate analysis

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Abstract[1]

COVID-19 had an unprecedented impact on Indian Economy, resulting in one of the worst crises that India faced in the recent past. The pandemic and the subsequent containment measures had seriously affected both the aggregate demand and aggregate supply. As a consequence, there was a significant reduction in household income and consumption. In this study, we try to explore the aggregate behavior of consumption expenditure for major Indian states around COVID 19 period to understand its influence on consumption. We employ CMIE CPHS data on consumption from January 2019 to December 2021 for the purpose of our analysis. We estimate consumption inequality based on various socio-economic dimensions. Our results show that inequality shot up during the pandemic period and the existing gap between various socioeconomic groups increased as a result.

Key Words: COVID-19 Pandemic, Inequality, Consumption, CPHS

JEL Classification numbers: O10, O11, O15

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Introduction

Despite income being a less direct of measure of well-being, developed countries usually use income as the main indicator of well-being. This is because, in formal settings, it is easier to get data on income with greater accuracy compared to consumption (Noll and Weick 2015). However, in the case of developing countries, the same logic may not apply as informal structures and institutions dominate the economy (La Porta and Shliefer 2014). In such situations, surveys may capture information on consumption with greater accuracy as compared to income. Apart from the conceptual superiority of consumption in approximating individual and household well-being (Carver and Grimes 2019), in the case of developing countries, consumption can be measured with relatively less error than income because households are likely to under-report their income earned in the informal sector due to fear of tax authorities (Deaton 2005).

Moreover, since one of the objectives of the current study is to understand the impact of the pandemic shock on well-being in developing country context, consumption certainly takes precedence over income. This is because of several reasons. Firstly, in times of pandemic, income loss may be huge, but families may be able to sustain their minimum consumption based on their savings, accumulated assets and by accessing credit (Deaton 1989). Secondly, insurance provided to households and individuals through welfare programmes in the form of in-kind and

cash transfer is more likely to reflect in consumption than in income (Noll and Weick 2015). In the context of the COVID-19 pandemic, such transfers become critical for the lower economic strata. For example, if an in-kind transfer is a valuable source of insurance for low-income families during the pandemic, it would not be reflected in their income. However, that would show up in their consumption. Therefore, the overarching objective of this paper is to thoroughly examine changes in consumption of various sub-groups of population based on different dimensions of socio-economic classifications to examine the differentiated impacts of pandemic. It is particularly relevant at this juncture to identify the most vulnerable groups in the economy.

Further, in times of huge upheavals such as COVID 19, what matters most, is to ensure that people do not have to make comprises on basic consumption needs that may damage well-being of individuals or households in an irreversible manner. From this point of view, it is important to track changes in consumption and its components particularly food and basic amenities. Those households that make compromises on such consumption can be seen as the most vulnerable groups of people in the population (Kumar and Yazir,2017; Kumar et al., 2019)

In this article, we examine the trends and patterns of consumption expenditure among Indian states. We employ household level monthly time series of consumption expenditure data collected by Centre for Monitoring Indian Economy (CMIE) through their

Consumer Pyramid Household Survey (CPHS) between January 2019 to December 2021. CPHS tracked nationally representative sample of close to 175,000 households for this period resulting in longitudinal data for a period of 36 months. Various sub-components of the consumption reported in the data are given in the Appendix 5.1. The focus of analysis has been on aggregate MPCE, food and non-food MPCE without delving into its sub-components.

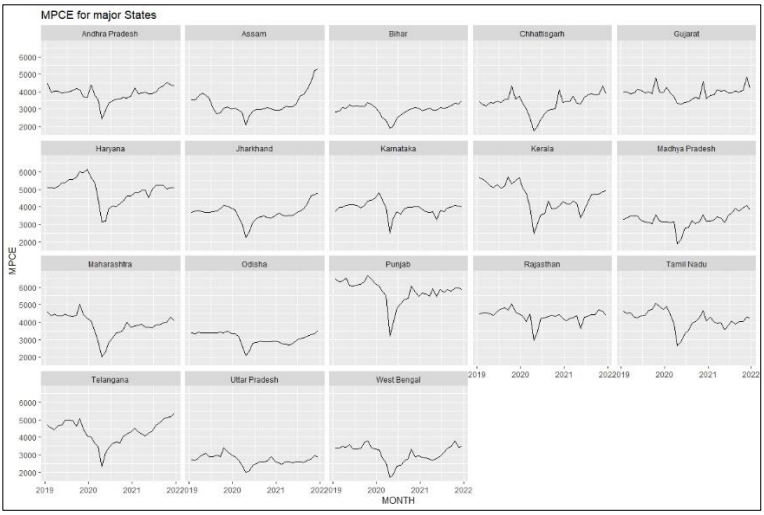
First, we present an analysis of inter-state comparison of changes aggregate MPCE during the pre and post pandemic months. In the second part of the paper, we discuss changes in inequality during pandemic year and the next. Analysis reveals that most states experienced a rise in consumption inequality.

Analysis

Aggregate Consumption

We observe a decisive, historic and abrupt dip in monthly per capita consumption expenditure (MPCE) at the onset of lockdown across all the states of India, irrespective of pre-existing economic positioning of states. States with better economic status and consumption levels tended to experience the brunt of the pandemic, for example, states like Punjab, Kerala, Tamil Nadu, Haryana etc. The depth of the impact is much higher in these states compared to other states like Assam, Bihar, Madhya Pradesh, Odisha and Uttar Pradesh (Figure 1).

Figure 1: MPCE for major states since January 2019 to December 2021



Looking into the states with high pre-pandemic MPCE, we see a drastic fall during the pandemic. When it comes to Kerala, the average MPCE before the lockdown was at Rs. 5,004.3 (All India average being Rs 3526.5) and it hit the rock-bottom at 2,546.8 (All India average of Rs. 2,194.3) during the peak of the lockdown, indicating almost 50 per cent decline in Kerala as compared to a lower decline (37%) at the national level to eventually recover to Rs 3845.2 (All India average of Rs. 3,120.7) in the post-lockdown period, which deteriorated again to Rs. 3427.9 (All India average of Rs. 3,139.02) as the second wave began in May 2021. Thus, we observe a stunted V-shape kind of recovery and a fairly stable level of consumption post June 2020. This pattern gets replicated for

almost all high-income states, with the notable exception of Punjab and Gujrat, where the reported MPCE has almost reached the pre-pandemic levels. Understandably, states with high MPCE like Kerala, Punjab, Haryana, Tamil Nadu experienced a severe reduction in consumption due to complete halt of mobility, closure of retail shops. It is highly plausible that for states with higher consumption levels to have severe decline as these states have higher proportion of discretionary expenditure in their total consumption compared to poor states. Households with higher overall consumption expenditure level will also have higher *discretionary* expenditure. Owing higher proportion of *discretionary* expenditure such households will naturally have capacity to reduce its total consumption expenditure with greater intensity as a result of a complete halt in mobility and supply of *discretionary* goods and services. For example, spending money on outdoor entertainment, tourism, and recreation was not possible. On the contrary, poorer households spending large chunk of their budget on food and other necessary goods and services which falls largely under non-discretionary items will have limited scope for reducing their consumption.. But in some cases, even poor states also had severe dips (e.g., West Bengal and Chhattisgarh). Such a shock in consumption is perhaps one of its kind, at least during last century, which affected the entire nation simultaneously. Surely, this consumption shock affected other sectors of the economy in an unprecedented manner. The abrupt announcement of the

lockdown of the entire nation within four hours of notice period affected both supply and demand side of the economy at the same time. Reduced mobility of individuals meant that

1) people could not maintain their regular purchasing and spending pattern due to which demand plummeted to basic necessities like food and utilities.

2) they could not go to their workplaces which brought the supply side of the economy to complete halt.

Thanks to less severe monitoring of the rural areas during the lockdown, the agriculture sector was not so severely affected. However, the hampering of the supply chain due to lockdown meant fragmentation of markets for agriculture products including livestock. This means that some areas faced severe shortage and prices skyrocketed while others faced oversupply and lower prices. This hampering of supply chain and fragmentation of market not only adversely affected farmers' income and well-being of most populations in major urban centers because prices skyrocketed in major cities due to supply shortages.

The supply-side effect on the economy meant reduced purchasing power due to reduced employment for working classes. This impact has serious implications for the recovery of aggregate demand in the economy. Reduced employment and income essentially mean that consumption would not bounce back to original level even after the lockdown was lifted because incomes

have fallen. On the other hand, entrepreneurs would hesitate in boosting their supply and increasing employment immediately until they see sufficient increase in demand for their products which goes beyond their existing stock of inventories given the uncertainty about future waves of pandemic hitting the economy again.

The downward spiral of economic activities set in motion by lockdown could have been countered through fiscal spending. Cash or in-kind welfare payments could have provided immediate support to most vulnerable peoples. In fact, this is what most developed countries did. They announced generous fiscal support to the economy as soon as they announced the lockdown. Announcements of fiscal support sent a clear message to the rest of the economy that the government will not allow free fall of the aggregate demand in economy beyond a certain threshold level. This greatly reduced level of uncertainty about future level of aggregate demand in the economy. Such a support mechanism helped entrepreneurs to sustain value chain and maintain employment even when demand for their products were low or negligible.

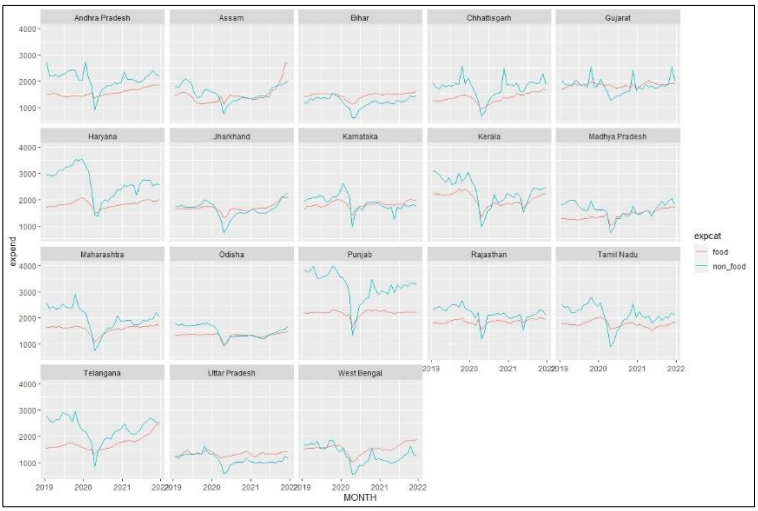
However, in case of India, the unfortunate thing was the lack of sufficient amount of support which would maintain entrepreneurs' confidence that government is interested in maintaining minimum level of aggregate demand in the economy. The quantum of the package announced by the Centre was not significant enough to

stall the free fall of the aggregate demand in the economy. As a result of this great uncertainty on aggregate demand, Indian supply chains got dismantled, fixed capital got liquidated, people associated with those supply chains lost their jobs. This means that if the economy has to recover fully, those fixed capital needs to be brought back and supply chains needs to be reestablished afresh. This obviously is a much bigger task than what developed countries are doing. They are re-activating existing supply chains that were in a dormant state during the lockdown. Even though they remained dormant, keeping those supply chains alive for faster and sustained recovery was necessary. The generous fiscal spending on wage subsidies and other welfare payments did just that. According to Oxford University's government response tracker, India turned out be the country that imposed the strictest lockdown with the stingiest fiscal support (Economist 2020).

Consumption of Food and Non-food items

Next, we analyze two major components of MPCE i.e., food and non-food expenditure. We track the monthly expenditure of these two categories between 2019-2021. We present the results in Figure 2.

Figure 2: Food and non-food consumption expenditure for major states since January 2019 to December 2021



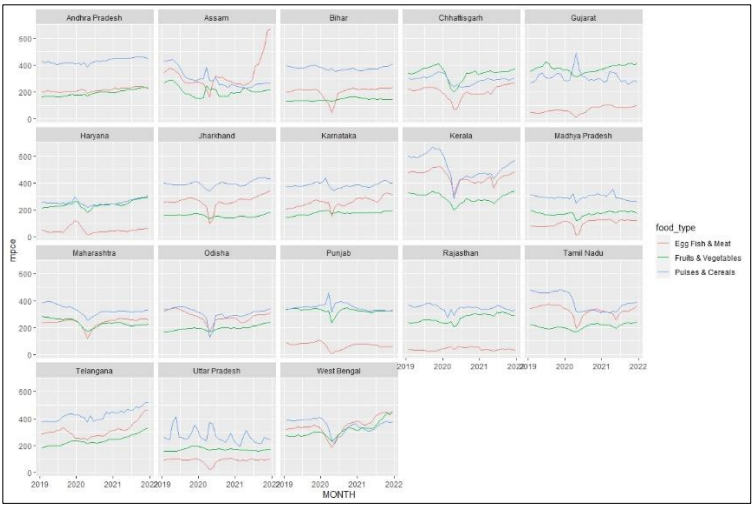
From the plot, we observe that the consumption of non-food items which is likely to have higher proportion of non-discretionary expenditure took a serious dip during the first wave of the pandemic. The dip is most visible in high consuming states such as Kerala, Punjab, Rajasthan and Maharashtra. However, we see a recovery in 2021. For states like Odisha, UP, West Bengal, we see that food consumption expenditure overtook non-food consumption in the COVID and the recovery period, indicating that people are foregoing non-food consumption for subsistence. For states like Maharashtra, Rajasthan and Telangana, the difference between food and non-food consumption reduced in the post-COVID era, indicating that people are spending their money on food and reducing non-food related expenditure. Across the country, there is a marked decrease in the non-food

expenditure in the post-COVID period. This could result in a serious shock to the economy. If people cut their expenses on non-food items, it would have a serious impact on various goods and services produced in the economy, which would lead towards a reduction in aggregate demand and resulting invariably in an economic crisis.

Components of Food Expenditure

Next, we analyze the components of food expenditure bu households. We know that even in food consumption, there are differential patterns across different categories of food items. A major chunk of food expenditure is often dedicated for essentials such as cereals and pulses. The other portion is usually spent on protein-oriented items such as fish, meat, eggs, vegetables and fruits, for maintaining the necessary protein and vitamins intake. In the normal course of time, it is possible for households to maintain a somewhat balanced diet. However, during the pandemic, it is perfectly possible that the households may have to choose between the essentials such as cereals and pulses and the sources for protein and vitamins. If the pandemic forces households to maintain an unbalanced diet, it would be a worrisome situation and have a long-term impact on people's nutritional status and health. In this segment, we try to address this critical issue. In the figure below, we present the monthly MPCE on cereals and pulses, fish meat and eggs, fruits and vegetables.

Figure 3: Consumption expenditure of different food categories for major states since January 2019 to December 2021



We see that cereals and pulses have the highest share at most times among the food expenditure categories for all states. Kerala has the highest absolute MPCE on cereals and pulses in the pre-pandemic period. However, during the post lockdown period, we see a significant reduction in this category, while for other states, whether high income or low income, it is not that pronounced. In case of other states, MPCE on cereals and pulses has only a marginal reduction. However, it is maintained for other states, implying that the essential consumption is more or less maintained. In the case of Kerala, however, we observe a sharp drop in MPCE on cereal and pulses during the lock down, after which it is fairly stable at around Rs.300, roughly half the expenditure compared to

the pre-pandemic level. This is indeed a curious situation. One can safely assume that households do not change their essential food consumption pattern in the short run. Therefore, there has to be a compensating factor that allows the households to curb their expenditure on cereals and pulses. The Government of Kerala had started distributing food kits from May 2020 as part of the COVID-19 release measures. The food kit contained cereals and pulses and other essential items for consumption. Once the households receive the essentials in the form of an in-kind transfer, they can re-allocate that part of their consumption expenditure towards consuming other items of nutritional value. We can see this by examining the MPCE of fish, meat, and eggs and the MPCE of fruits and vegetables.

We see that the level of Kerala's MPCE of fish, meat, and eggs is way above other state values before the pandemic. We see that dip is not severe compared to the MPCE on cereals and pulses. During the post lockdown recovery, we see that MPCE of this segment has significantly recovered, and the relatively high level of consumption is maintained throughout the recovery period. However, we see a slight dip during the second wave of COVID-19 and a recovery in the latter part of 2021. We must keep in mind that as compared to cereals and pulses; fish, meat and eggs had serious supply bottlenecks during the pandemic period that could have resulted in reduced consumption. Looking into the vegetable and fruit consumption, we see that Kerala's MPCE is again

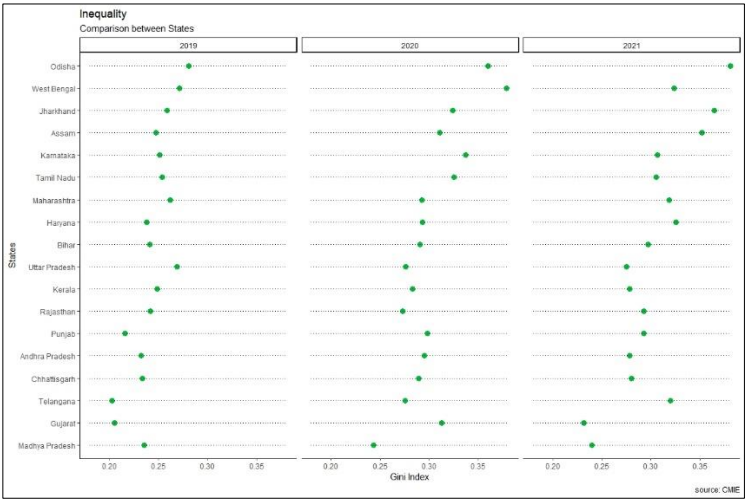
significantly higher than the other state MPCE in the pre-pandemic period. However, this gap has significantly reduced in the post-lockdown period.

We see a recovery of MPCE on fruits, vegetables, eggs and meat in the recovery period across the country. However, the rate of recovery varies between the states. The recovery of MPCE in fish, meat and eggs, and vegetables and fruits for India is a good sign indeed. It implies that the households are back towards maintaining a balanced diet.

Growth of inequality in Consumption

Inequality in consumption expenditure is a well-documented fact in the literature. An unequal society will have a skewed consumption pattern, whereas a relatively equal society will have a much more equitable distribution in consumption expenditure. Among the measures to estimate inequality, the Gini coefficient is the most popular one. Gini coefficient basically provides summary measure of disparity using the share of consumption/income for different consumption/income classes. A Gini coefficient of zero indicates a perfectly egalitarian society, whereas a Gini coefficient of unity indicates a perfectly unequal society.

Figure 4: Gini comparison between major states



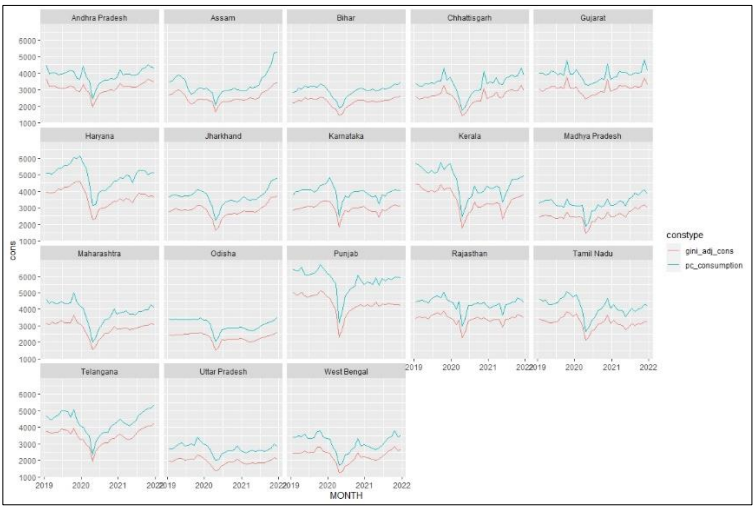
From the Figure 4, we see that the COVID pandemic has resulted in increasing inequalities in consumption in most states. Among the high consuming states, Kerala was one among the states with highest inequality in the pre-pandemic period. However, in the post-pandemic period, we see that Kerala's inequality has not increased much, compared to other high-income states like Maharashtra. Another curious case is the state of Punjab. Well known for their fiscal indiscipline, Punjab's inequality increased significantly in the pandemic period. Here, one needs to analyze whether the increased deficit financing is going to the welfare of the people or is it diverted towards debt financing. Another curious case is the state of Odisha. Well known for their fiscal discipline,

Odisha's inequality has almost doubled in the pandemic period. It would not be misplaced to indicate here that over emphasis of on maintaining fiscal discipline in times of pandemic may put society in troubles of complex nature that may continue to suck more fiscal resources in a sustained manner for times to come. The explosion of inequality in a state that has one of the highest prevalence of poverty, i.e., Odisha, implies that its fight against poverty just has got longer.

In the above we analyzed Gini coefficient on an annual basis. In extreme situations, averages can be misleading. Therefore, we present inequality adjusted MPCE by using monthly time series of Gini coefficients for all the major states. We adjust the per-capita consumption MPCE with the inverse of Gini coefficient, which can be seen as a measure of equality, for all the major states. If the state has high inequality, they will be penalized more. Thus, the inequality adjusted MPCE would be a better measure for comparison of MPCE between states. This measure would help us identify the change in inequality during the pandemic period. The Gini adjusted MPCE for each state is calculated as follows.

$$MPCE_{Gini} = MPCE(1 - Gini)$$

Figure 5: Inequality adjusted MPCE of major states



From the plot, we see some interesting trends. In the pre-pandemic period, we see that the gap between MPCE and Gini adjusted MPCE is high for high income states like Haryana, Punjab, Kerala, Tamil Nadu, Maharashtra and Gujarat. Among these states, Kerala and Punjab has the highest gap, indicating relatively high amount of consumption inequality. However, in the post-pandemic period, we see an interesting trend. In the case of Punjab and Maharashtra, we observe a further divergence, indicating increasing inequality. For Kerala and Tamil Nadu, we see that the gap is reducing. State intervention or lack of it is the key factor behind these interesting patterns in inequality during the pandemic. During a crisis of such magnitude, targeted intervention by the state is the only thing that could control the inequality in a society. In the case of Kerala, the state had made multi-faceted intervention ranging from welfare

pensions, SHG based loans, targeted assistance, and the Food Kit provided for around 82 lakh households of the state. From the change in Gini adjusted MPCE in the post-pandemic period, we can say that the interventions were successful.

Dynamics of disparity in consumption by social groups

As we know, caste is a determining factor of all facets of Indian society. Even after the modernization of the economy, caste still remains as a major determinant of socio-economic outcomes and production relations in India. Therefore, it makes sense that differential consumption patterns may exist between different social groups. Existing research shows that caste is determining factor for consumption inequality in India (Kumar et.al.,2019, Kumar and Yazir 2017)

CMIE's CPHS data provides information on the social group category of households under survey. We employ three social categories viz. Upper caste, OBC, SC and ST. We estimate the consumption inequality among these social groups by applying an inequality decomposition approach. We estimate the total consumption inequality of the particular group, the within-group inequality, and the between-group inequality using the Theil's (1967) inequality decomposition method. The Theil's Index T is calculated as follows:

$$T = 1/N \sum_{i=1}^{N} \frac{x_i}{x} \log\left(\frac{x_i}{x}\right) \qquad \text{……..(1)}$$

Where x_i is the income of individual i, $\bar{x}$ is the overall mean income, and N is the sample size. For K groups, the Theil's index in equation (1) can be decomposed into a between-group component

$$T_b = 1/N \sum_{k=1}^{K} y_k \ln\left(\frac{\bar{x}_k}{x}\right)$$

where y_k is the k[th] group's income share expressed as a pro-portion of the sample or population total income, and $\bar{x}_k$ is the mean income of group k, and a within-component

$$\sum_{k=1}^{K} y_k \sum_{i=1}^{n_k} y_{ik} \ln\left(\frac{x_{ik}}{\bar{x}_k}\right)$$

where y_{ik} is the income share of the i[th] individual within the k[th] group, and x_{ik} is the i[th] individual's income within group k.

The main reason behind adopting Thiel's index for decomposition is that it splits inequality between two components i.e., between and within group inequality in a neat fashion i.e., two components together add up to 100% of the overall inequality measure of Theil's index. This, however, is not the case when we decompose Gini index of inequality because it has an overlap measure which makes interpretation of decomposition less intuitive.

We present the inequality of measure as per Thiels index and its decomposition components in Tables 1, 2 and 3 for 2019, 2020, and 2021 respectively.

Table 1: Caste based inequality decomposition for major Indian states for 2019							
STATE	Over	Within	Betwe	SC	ST	OB	Othe
Andhra	0.089	0.089	0.000	0.08	0.0	0.08	0.095
Assam	0.103	0.102	0.001	0.12	0.1	0.07	0.118
Bihar	0.097	0.096	0.000	0.09	0.0	0.09	0.098
Chhattisgarh	0.098	0.095	0.003	0.07	0.1	0.09	0.086
Gujarat	0.075	0.072	0.003	0.07	0.0	0.06	0.087
Haryana	0.094	0.091	0.003	0.06	0.0	0.08	0.102
Jharkhand	0.111	0.110	0.001	0.11	0.1	0.10	0.152
Karnataka	0.128	0.126	0.001	0.09	0.1	0.09	0.193
Kerala	0.101	0.096	0.006	0.09	0.2	0.09	0.089
Madhya	0.098	0.095	0.003	0.09	0.0	0.08	0.109
Maharashtra	0.116	0.112	0.004	0.08	0.0	0.10	0.134
Odisha	0.135	0.132	0.003	0.10	0.1	0.12	0.169
Punjab	0.077	0.064	0.013	0.06	0.0	0.06	0.066
Rajasthan	0.099	0.095	0.003	0.10	0.1	0.09	0.085
Tamil Nadu	0.107	0.105	0.002	0.10	0.2	0.10	0.096
Telangana	0.070	0.070	0.000	0.06	0.1	0.06	0.058
Uttar	0.125	0.117	0.008	0.10	0.0	0.10	0.135
West Bengal	0.128	0.127	0.001	0.10	0.0	0.14	0.148

First, we analyze the pre-pandemic period, so that we can see a comparative picture. From Table 1, we see that the overall inequality is highest in Odisha, West Bengal Karnataka and Uttar Pradesh. Further, the within group component of decomposed inequality is quite close to overall inequality indicating that inequality across social groups or social stratification is not that serious when it comes to consumption. The between group inequality is highest in Punjab, pointing towards social stratification in case of Punjab. For General category, we find the highest inequality in Karnataka, followed by Odisha, West Bengal, Uttar Pradesh, and Maharashtra. For OBCs, West Bengal reports the highest inequality, followed by Odisha, Uttar Pradesh and Maharashtra. For SC's, we find the highest inequality Assam, followed by Jharkhand, Tamil Nadu and Odisha. For ST's, we find the highest consumption inequality in Tamil Nadu and Kerala, followed by Telangana and Odisha. Next, we analyze the changes in consumption inequality during the pandemic year of 2020. We present the results in table 2.

Table 2: Caste based inequality decomposition for major Indian states for 2020							
STATE	Over	With	Betwe	SC	ST	OB	General
Andhra	0.14	0.14	0.001	0.1	0.1	0.1	0.142
Assam	0.16	0.16	0.003	0.2	0.1	0.1	0.156
Bihar	0.13	0.13	0.001	0.1	0.1	0.1	0.157
Chhattisgar	0.13	0.12	0.008	0.1	0.1	0.1	0.121
Gujarat	0.16	0.16	0.002	0.1	0.1	0.1	0.162
Haryana	0.14	0.13	0.003	0.1	0.0	0.1	0.157
Jharkhand	0.16	0.16	0.005	0.1	0.1	0.1	0.177
Karnataka	0.18	0.18	0.003	0.1	0.1	0.1	0.195
Kerala	0.13	0.13	0.003	0.1	0.2	0.1	0.152
Madhya	0.09	0.09	0.001	0.0	0.1	0.0	0.098
Maharashtr	0.14	0.14	0.001	0.1	0.1	0.1	0.142
Odisha	0.21	0.20	0.006	0.1	0.2	0.2	0.193
Punjab	0.14	0.12	0.020	0.0	0.0	0.1	0.142
Rajasthan	0.12	0.12	0.004	0.1	0.1	0.1	0.107
Tamil Nadu	0.17	0.17	0.001	0.1	0.1	0.1	0.202
Telangana	0.12	0.12	0.003	0.1	0.1	0.1	0.111
Uttar	0.12	0.12	0.004	0.1	0.1	0.1	0.134
West	0.23	0.23	0.006	0.2	0.2	0.2	0.230

From comparison first second columns of Table 1 and 1, we see that the overall inequality has increased significantly in during 2020 from 2019. Inequality is again the highest for Odisha, followed by Karnataka, Tamil Nadu, Gujarat. Further, the within group inequality closely matches with overall inequality for most states as was the case for 2019 indicating that social stratification is not a serious issue when it comes to consumption. The between group inequality is highest in Punjab as was the case in 2019. In fact, social stratification in Punjab has worsened during 2020 (pandemic), as

between group inequality has increased from 0.01 to 0.02. For General category, we find the highest inequality in West Bengal, followed by Tamil Nadu, Karnataka and Odisha. For OBCs, West Bengal reports the highest inequality, followed by Odisha and Karnataka. For SC's, we find the highest inequality in Assam, followed by West Bengal, Odisha and Karnataka. For ST's, we find the highest consumption inequality in West Bengal and Kerala. Overall, we see an increase in inequality in MPCE during the pandemic era. Further, the inequality between various social groups widened during the pandemic period as well.

Next, we analyze the changes in consumption inequality during 2021. We present the results in table 3.

Table 3: Caste based inequality decomposition for major Indian states for 2021							
STATE	Over	With	Betwe	SC	ST	OB	Genera
Andhra	0.129	0.12	0.001	0.1	0.1	0.1	0.130
Assam	0.201	0.20	0.001	0.1	0.1	0.1	0.224
Bihar	0.149	0.14	0.000	0.1	0.0	0.1	0.154
Chhattisgar	0.129	0.12	0.004	0.1	0.1	0.1	0.123
Gujarat	0.089	0.08	0.001	0.0	0.0	0.0	0.091
Haryana	0.174	0.17	0.002	0.1	0.0	0.1	0.186
Jharkhand	0.218	0.21	0.003	0.2	0.1	0.2	0.250
Karnataka	0.155	0.15	0.001	0.1	0.1	0.1	0.155
Kerala	0.126	0.12	0.004	0.1	0.0	0.1	0.130
Madhya	0.095	0.09	0.001	0.0	0.1	0.0	0.095
Maharashtra	0.169	0.16	0.001	0.1	0.1	0.1	0.190
Odisha	0.242	0.22	0.015	0.2	0.1	0.2	0.248
Punjab	0.139	0.12	0.016	0.0	0.0	0.1	0.141
Rajasthan	0.143	0.13	0.004	0.1	0.1	0.1	0.139
Tamil Nadu	0.154	0.15	0.001	0.1	0.1	0.1	0.182
Telangana	0.169	0.16	0.003	0.1	0.1	0.1	0.160
Uttar	0.128	0.12	0.004	0.1	0.0	0.1	0.144
West Bengal	0.172	0.17	0.001	0.1	0.1	0.1	0.196

We see that the overall inequality is highest for Odisha in the recovery period as well, followed by Jharkhand and Assam. Again, overall inequality had increased marginally between 2020 to 2021 for nine states while it declined marginally for eight states among major Indian states. The between group inequality is highest in Punjab in 2021. For General category, we find the highest inequality in Jharkhand, followed by Assam. For OBCs, Odisha and Jharkhand report the highest value followed by Assam. For SC's, we find the highest inequality in Jharkhand, followed Odisha.

For ST's, we find the highest consumption inequality in Odisha and Telangana. Overall, we see an increase in inequality in MPCE during 2021.

Looking into the inequality results, we can see that the pandemic significantly affected the consumption expenditure of various social groups. We see that there is an overall increase in inequality post COVID-19. We witnessed an increase in within group inequality, indicating that there is polarization within social groups. Further, we observed an increase in between group inequality as well, pointing towards increased social stratification due to the pandemic but these increments are marginal at best.

The result from the Theil's decomposition analysis largely justifies the results obtained from the Gini coefficient analysis. In both cases, Odisha tops the table as the state with most consumption inequality during and after the pandemic. From the results, it is further clear that the increase in inequality due to COVID-19 has not come down even after the pandemic has subsided.

Concluding remarks

In this paper, we tried to analyze the impact of COVID-19 on consumption expenditure changes for major Indian states. COVID-19 had an unprecedented impact on Indian Economy, resulting in one of the worst crises that India faced in the recent past. The pandemic and the subsequent containment measures had seriously affected both the aggregate demand and aggregate supply.

As a consequence, there was a significant reduction in household income and consumption. We employed CMIE CPHS data on consumption from January 2019 to December 2021 for the purpose of our analysis. We modelled consumption inequality based on various socio-economic dimensions. Our results showed that consumption inequality shot up during the pandemic period and the existing gap between various socioeconomic groups increased as a result. Our results show that the economy has not fully recovered from the COVID-19 pandemic, and it will take sustained state intervention to bring down the inequality among various social groups.

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