The dynamics of income recovery during COVID pandemic

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1. Introduction

When the COVID-19 pandemic reached India, the Indian government implemented strict nationwide lockdowns from April to May 2020, halting most economic activity aside from essential services. The COVID-19 pandemic has resulted in a significant increase in job losses. Kerala has been the worst affected, with the highest decline in employment during both the first and second waves of the pandemic. Specifically, between September-December 2019 and Jan-April 2020, Kerala's employment decreased from 1.04 crore to 0.81 crore, reflecting a job loss of 22.5%, the highest among all Indian states. However, Kerala's employment rate did recover in May-August 2020, unlike other low-income and high-income states and the national level, where there was no significant decline in employment.

In addition, it is worth noting that during the second wave of COVID-19 (May-Aug 2021), Kerala experienced a greater job loss compared to other states. Currently, employment in Kerala remains 8.4% below the pre-pandemic level (Sep-Dec 2019). A study by Kakarlapudi (2022) finds that the recovery of employment has been slower in Kerala, whereas other states have largely experienced a V-shaped recovery in employment by May-August 2021.

Thus, it is pertinent to understand the impact of COVID-19 on income, given that states in general and Kerala witnessed severe employment loss. Against this backdrop, this chapter analyses how COVID-19 has impacted income in the last two years and the recovery after that. Kerala's economy can be characterized as a wage economy where labour wage approximately contributes 80% of the total income. Further, since Kerala's labour composition comprises mainly informal labour, and Kerala imposed one of the severest

lockdowns in the country in the form of triple-lockdowns, the income of households would have been severely hit during these periods. On the other hand, an economy more dependent on non-labour income is expected to tide over the COVID-19 shock and coronavirus-induced recession better than a wage economy—the findings from the analysis support this argument.

Given the significant employment loss experienced by states during the COVID-19 pandemic, it is important to examine the impact of the pandemic on income. This paper aims to analyze the impact of COVID-19 on income from 2019Q2 to 2021Q2, as well as the subsequent recovery. Kerala, being a high-wage economy where labor wages account for approximately 80% of total income, is expected to experience a greater proportional impact on income due to employment losses compared to other states. For instance, in 2019-20, the average wage rate of a casual worker in Kerala was Rs 608, which is higher than the All-India average of Rs 275, according to the third wave of the Periodic Labour Force Survey (PLFS).

Additionally, due to the prevalence of informal labor in Kerala, and the implementation of strict triple lockdowns, households in the state experienced a significant reduction in income. In contrast, an economy that relies more on non-labor income is predicted to handle the COVID-19 shock and recession caused by the virus better than a wage-based economy. The results of the analysis corroborate this assertion.

2. Data and study approach

The impact of the COVID shock on income is analyzed in this study using data from the Consumer Pyramids Household Survey (CPHS) conducted by the Center for Monitoring Indian Economy (CMIE). The CPHS gathers information on self-reported monthly household income across various categories. It is India's first nationally representative, longitudinal survey that provides household and individual income data. Table A1 in Appendix presents a description of income variables. Briefly, the CPHS gathers information on the total income of households, which includes the combined income of all earning members from various sources, as well as other collective incomes that cannot be attributed to any specific member. Member income typically includes income received from wages, overtime earnings, bonus payments, pension, dividend payout on equity shares, and interest income from all sources. Meanwhile, household income covers rent, private transfers such as remittances, gifts, and donations, government transfers, business profits, asset sales, lotteries, gambling, and more.

Although there are several measures of income, the primary focus of this paper is on four major income variables, namely, total income, labor income, non-labor income, and private income. Total income is the sum of labor income, non-labor income, and private income. Labor income comprises wage income and self-production income. Non-labor income is calculated by subtracting labor income and private income from the total income. In other words, it is the household's income, excluding labor income and private income (see Table A1 in Appendix for the description of income variables).

When summarizing household income data, mean or average can be misleading due to its noisy nature. The choice between mean and median must be made, as the mean represents the center of gravity while the median represents the center of probability. Mean tends to lose its attractiveness as a measure of central tendency as the skewness in the income data increases. This analysis uses the median to represent the data better in case of extreme values, while mean figures are reported for heavily right-skewed distributions resulting in zero median income. The Stiglitz-Sen-Fitoussi Commission supports the use of median for assessing the general experience of the population (Stiglitz et al. 2009). No outliers or extreme observations are removed in this analysis. However, mean figures are reported when it is found that the distribution is heavily right-skewed, which results in zero median income.

This study focuses on 18 major states, which are categorized into high-income states (HIS) and low-income states (LIS) based on their weighted average per capita income in 2018-19. Despite being a high-income state, Kerala is not included in the HIS group, which allows for comparison with the remaining HIS states. Table A2 in the Appendix displays the distribution of observations across state groups for the entire period, indicating that there are sufficient observations to estimate population means from sample means. The data analyzed in this study spans from April 2019 to June 2021, with the pre-pandemic period of 2019-20 serving as the reference or benchmark period for analysis.

3. Analysis of income dynamics

(a) Total income

As described earlier, the household's total income captures total earnings from all sources during a month. Table 1 shows the median monthly income for each quarter from 2019Q2 to

2021Q2. Kerala's median income was Rs 22000 in 2019Q2 compared to Rs 15280 in the HIS, Rs 13000 in the LIS, and Rs 14500 in all states.

The arrival of the pandemic in 2020Q2 (April - June) dealt a severe blow to states' median income, resulting in a sharp decline. Kerala's median income plummeted from Rs 22000 in 2019Q2 to Rs 10000 in 2020Q2, a staggering 54.5% drop as shown in Table 2. In contrast, HIS, LIS, and All-States experienced a decline of 34 to 38%. Unfortunately, Kerala suffered the most significant loss of income.

Table 1: Monthly household median total income (Rs)				
Quarter	Kerala	High Income States	Low Income States	All States
2019Q2	22000	15280	13000	14500
2019Q3	21178	15250	12800	14230
2019Q4	22000	16500	14000	15196
2020Q1	19700	15270	12200	13752
2020Q2	10000	10000	8005	9000
2020Q3	16200	14300	12000	13000
2020Q4	17900	16000	12664	14155
2021Q1	18500	16000	12026	14000
2021Q2	14500	16000	11955	13500
Source: Compiled from CMIE-CPHS.				

- The median total income of Kerala dropped by 54.5% in 2020Q2 compared to 2019Q2.
- As of 2021Q2, the median total income of Kerala is 34% below the pre-covid level of 2019Q4. The corresponding figures for high-income states are 3% and about 11% for All-States.
- Labor income in 2021Q2 is 47.5% behind 2019Q4 (the pre-pandemic period), non-labor income is about 43% behind, and private income is about 20% behind.

Although Figure 1(a) suggests a V-shaped recovery for state groups until the second wave of COVID-19 hit the states, it is observed that Kerala's revival since 2020Q2 has been tardy and slow. On the other hand, the recovery of LIS, HIS, and All-States has been faster. By 2021Q1, HIS was close to its pre-covid level median household income. Table 2 reveals that the median income of HIS and All-States increased by 4.8% and 1.8%, respectively, between 2020Q1 than 2021Q1. In contrast, Kerala recorded a drop of about 6%.

In 2021Q2, as COVID-19 made a resurgence, many states reinstated lockdowns. Like the first wave of the pandemic, Kerala was hit hard once again during the second wave. The

severity of the pandemic in Kerala, accounting for over 60% of the cases in the country, resulted in a frozen state of economic activity, which is reflected in the substantial decline in median income in 2021Q2. While Kerala's median income fell from Rs 18500 in 2021Q1 to Rs 14500 in 2021Q2 (a 22% decrease), HIS and LIS were barely affected. Therefore, while Kerala's median income rose by 45% in 2021Q2 compared to 2020Q2, LIS and All States experienced an increase of approximately 50%, and the HIS witnessed a surge of 60%.

Table 2: Percentage change in median total income (Y-o-Y)				
Quarter	Kerala	High Income States	Low Income States	All States
2020Q2	-54.5	-34.6	-38.4	-37.9
2020Q3	-23.5	-6.2	-6.3	-8.6
2020Q4	-18.6	-3.0	-9.5	-6.9
2021Q1	-6.1	4.8	-1.4	1.8
2021Q2	45.0	60.0	49.3	50.0
Source: Compiled from CMIE-CPHS.				

To determine whether households have recovered from the income slump, a comparison is made between the median income in 2021Q2 and the pre-pandemic period of 2019Q4. The analysis reveals that Kerala's total income in 2021Q2 remains approximately 34% lower than its pre-pandemic level. In contrast, HIS was only 3% behind, and All-States lagged by about 11%. Thus, it is clear that Kerala's recovery from the income slump is lagging behind the rest of the country.

Figure 1: Income during COVID-19 Years (Rs)
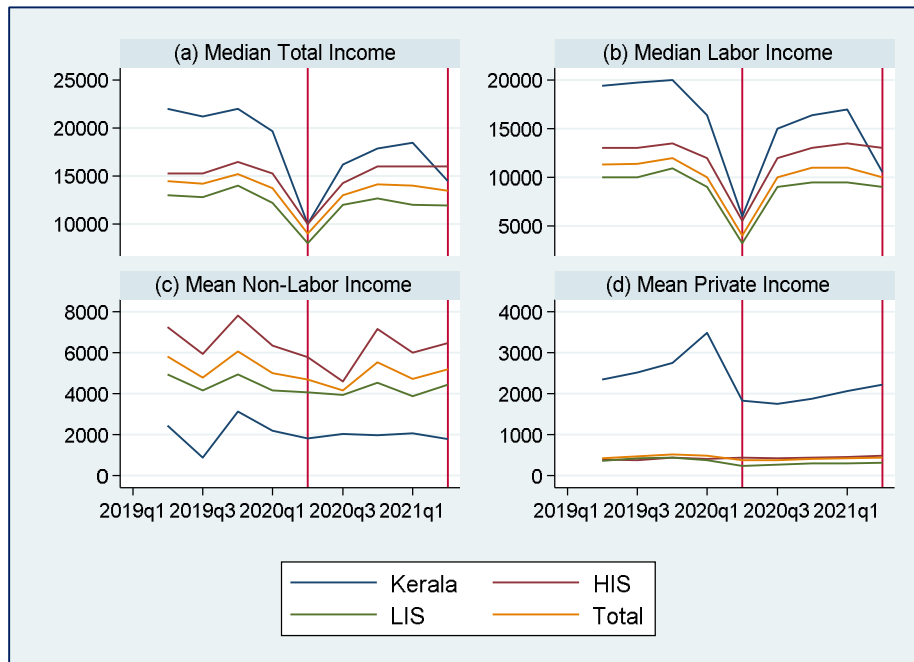
Notes: *The two red vertical bars represent the two waves of pandemic (Apr-Jun 2020 and Apr-Jun 2021).*
        Total represents All-States category.

(b) Labor income

Throughout the study period, labor income accounted for about 79% of Kerala's total income, which is slightly over 10% of the categories considered. In comparison, HIS, LIS, and All States had a labor income share of 67.8%, 70.8%, and 69.6%, respectively. This suggests that Kerala's economy is heavily reliant on labor-income-related jobs. The high share of labor income in Kerala's total income can be attributed to the state's labor-intensive industries, such as agriculture, fisheries, and construction, which employ a significant portion of the state's workforce.

According to Figure 1(b), the median labor income in Kerala was significantly higher in 2019Q2 at Rs 19400 compared to HIS, LIS, and All States, which had labor income between Rs 10000 to Rs 13000. However, during the first wave, Kerala experienced a steep decline of about 69% (as shown in Table 3) from Rs 19400 to Rs 6000 in 2020Q2. This decline needs to be viewed in the context of almost 2.3 million job losses reported during the first quarter of 2020. Except for HIS, LIS was equally affected by this decline. In the same period, all states experienced an average loss of 64.6%, resulting in a loss of almost 2.58 crore jobs.

Table 3: Percentage Change in Median Labor Income (Y-o-Y)				
Quarter	Kerala	High Income States	Low Income States	All States
2020Q2	-69.1	-57.7	-68.0	-64.6
2020Q3	-23.9	-7.7	-10.0	-12.3
2020Q4	-18.0	-3.7	-12.8	-8.3
2021Q1	3.7	12.5	5.6	10.0
2021Q2	75.0	136.4	181.3	150.0
Source: Compiled from CMIE-CPHS.				

All groups witnessed a rapid revival in labor income. In 2020Q3, the median income in Kerala increased to Rs 15000, while LIS saw an increase from Rs 3200 to Rs 9000, HIS from Rs 5500 to Rs 12000, and All-States from Rs 4000 to Rs 10000. This significant increase in median income indicates a positive trend towards economic recovery. Further, Table 3 provides additional insights into the trend of the recovery. The median labor income in HIS was 12.5% higher in 2021Q1 than in 2020Q1, while for Kerala, it was 3.7% and 10% for All-States. Although the recovery from the recession was slower for Kerala compared to HIS and All-States, there was a steady improvement in median labor income across all groups. This also indicates that the revival from the recession was more robust for HIS and All-States compared to Kerala.

During the second wave of the pandemic in 2021Q2, the data shows that households' median labor income in Kerala experienced a significant decline of about 38%, dropping from Rs 17000 in 2021Q1 to Rs 10500 in 2021Q2. This indicates a severe impact of the second wave on the state's economy. On the other hand, HIS and LIS saw a comparatively lower decline in income, around 5%, during the same period, while the average decline for all states was 10%.

Despite the decline in income during the second wave, the data also shows a positive trend of recovery when compared to the same period in the previous year. In particular, Kerala witnessed a significant increase of 75% in median labor income during 2021Q2 compared to 2020Q2. However, the increase was even more significant for HIS (136.4%), LIS (181.3%), and All States (150%). These results suggest that the recovery from the pandemic-induced recession is still ongoing but with notable differences in the pace of recovery across state groups.

Has the labor income of states returned to the pre-COVID levels? The data shows that the labor income in Kerala has not yet returned to the pre-pandemic level of 2019Q4 (October-December). Specifically, Kerala's median labor income in 2021Q2 is about 47% lower than the level in 2019Q4. This indicates that despite some recovery, the state's economy is still

struggling to reach pre-pandemic levels. On the other hand, the data shows that other state groups, such as HIS, LIS, and All-State, are performing relatively better. Specifically, HIS is trailing by about 4%, meaning that the median labor income in HIS is only 4% below the pre-COVID level of 2019Q4. Similarly, LIS and All-State are trailing by about 17%, indicating that they are also performing better than Kerala in terms of labor income recovery.

These figures suggest that there are significant variations in the pace of recovery across different state groups in India. Kerala seems to be lagging behind other state groups in terms of labor income recovery. The slower recovery in Kerala can be attributed to several factors, such as the state's high dependence on the service sector, which was severely impacted by the pandemic-induced restrictions.

(c) Non-labor income

Non-labor income contributes approximately 10% to the total household income in Kerala. The corresponding figures are about 30% for the HIS, 27% for the LIS, and 28% for All States. Given that many households report zero income for non-labor sources, the average serves as a representation for non-labor income. While the mean may not accurately reflect the income distribution for households with non-labor income, it provides a useful benchmark for understanding the overall financial landscape. Figure 4(c) shows that the mean income was Rs 2,444 in 2019Q2 for Kerala, Rs 7276 for the HIS, Rs 4,948 for LIS, Rs 5834 for All States. Despite the small share, Kerala was the worst hit among states, a decline of 25.6% in 2020Q2 compared to 2019Q2; other state groups lost around 18-20% (see Table 4). One interesting dimension of non-labor income is that it did not experience an extreme drop as it happened for labor income at the onset of the lockdown.

Table 4: Percentage Change in Mean Non-Labor Income (Y-o-Y)				
Quarter	Kerala	High Income States	Low Income States	All States
2020Q2	-25.6	-20.5	-17.9	-19.4
2020Q3	132.0	-23.0	-4.8	-13.4
2020Q4	-37.4	-8.4	-8.3	-8.9
2021Q1	-5.1	-5.3	-6.9	-6.1
2021Q2	-2.3	12.0	9.7	10.7
Source: Compiled from CMIE-CPHS.				

By 2020Q4, the mean non-labor income had recovered for all state groups except for Kerala. However, during the second wave, Kerala was the only state to experience a decline of approximately 14% in 2021Q2 compared to 2021Q1. In contrast, both HIS and All-States witnessed a rise in income by 7.6% and 10.6%, respectively. Despite the improvement, the

non-labor income for all state groups is still below the pre-pandemic level (2019Q4). As of 2021Q2, Kerala's non-labor income is about 43% lower than the pre-pandemic level, while HIS and All-States have experienced a decline of about 17% and 14%, respectively.

(d) Private income

This is the income a household receives from a family member as a remittance or a gift or donation from any non-government agency. For assessing this income component, the mean has been used because a large proportion of households report zero income under this head. Its share in total household income is about 9% in Kerala against the all-state average of 2.1% during the study period. The households in Kerala collect an average income of Rs 2,343 in 2019Q2 from private transfers against the national average of Rs 427.

Table 5: Percentage Change in Mean Private Income (Y-o-Y)				
Quarter	Kerala	High Income States	Low Income States	All States
2020Q2	-22.1	13.4	-33.1	-14.1
2020Q3	-30.2	11.0	-39.3	-21.4
2020Q4	-32.0	1.9	-34.2	-21.3
2021Q1	-40.8	12.0	-20.2	-13.7
2021Q2	21.5	9.9	33.7	20.0
Source: Compiled from CMIE-CPHS.				

In the wake of the first wave of the pandemic, Figure 4(d) shows that Kerala recorded a significant decline in mean private income of 22% from Rs 2343 in 2019Q2 to Rs 1824 in 2020Q2. It fell about 14% for all states on average (see Table 5). Given its importance for Kerala's household income, this sharp fall in private income is a huge loss of income for the households. Kerala's revival has been slower. According to Table 5, households in the state were not affected by the second wave in terms of private transfers or remittance income. Instead, private transfers increased by approximately 20% for all states in 2021Q2 compared to 2020Q2. During this period, Kerala's private income rose by 21.5%, while HIS had the lowest increase at 9.9%.

The average income of households in Kerala in 2021Q2 is 20.7% lower than the pre-covid level observed in 2019Q4. Nevertheless, households in high-income states (HIS) and all states have experienced an increase in mean remittance income, exceeding pre-covid levels by 10.5% and 3%, respectively.

In summary, the analysis of income measures, including total income, labor income, non-labor income, and private income, reveals that although Kerala had a higher median household income compared to other states in 2019Q2, it suffered significantly during the two waves of the pandemic. Its recovery has been slower than both HIS and LIS, and a faster revival is essential since Kerala heavily relies on labor income for its revenue. Even a significant share of remittance in Kerala is dependent on migrant workers' labor income. The pandemic disproportionately impacted labor income as entrepreneurs and businesses implemented salary cuts and layoffs due to plummeting demand. States with a higher proportion of non-labor income in total household income experienced lower dips in median income but recovered faster than states with a higher proportion of labor income.

4. Analysis of income by region

- The pandemic affected both rural and urban regions more or less equally.
- Kerala was affected the worst among the states, and recovery has been slow.
- While households in rural Kerala in 2021Q2 trail about 32% and urban Kerala lag about 35% behind 2019Q4, urban and rural households in high-income states are only about 6% below 2019Q4.

In the previous section, the impact of COVID-19 on income was analyzed for all households across state groups. However, COVID-19 might have imposed a disproportionate impact on urban households instead of rural households. This may be on account of several reasons. For example, the agriculture sector did not experience as strict a lockdown as other sectors. In fact, the agriculture sector was one of the sectors where restrictions were removed early on. The government allowed agricultural businesses and stores selling farming supplies to resume operation starting from 20th April 2020, along with sectors like public works programmes, cargo transport, and banks and government centers distributing benefits. Secondly, the level of monitoring lockdown by police remained less strict in rural areas, which may mean that economic activities within rural communities may have continued. This section discusses how COVID-19 has affected the household income of rural vis-à-vis urban areas.

The analysis of income disparity between rural and urban areas shows that both rural and urban households in Kerala experienced a decline in income by 53% during the first wave of the pandemic, which is higher than the national average of 37.6% for rural areas and 34.4%

for urban areas. The median income for both rural and urban areas in Kerala witnessed an increase of approximately 40% and 39%, respectively, in 2021Q2 compared to 2021Q1 during the second wave. However, the figures for All-States were comparatively higher, with a 75.5% increase for rural areas and a 41.7% increase for urban areas. On the other hand, when we analyze the change in median income between 2021Q1 and 2021Q2, households in both rural and urban regions of Kerala experienced a decline of around 20%, which is higher than the national average of 5%.

Additionally, it is worth noting that as of 2021Q2, the median total household income for rural and urban regions in Kerala is still lagging behind the pre-pandemic period of 2019Q4 by 32.4% and 34.8%, respectively.

Table 6: Percentage Change in Median Total Income by Region (Y-o-Y)							
	Rural				Urban		
Quarter	Kerala	HIS	LIS	All States	Kerala	HIS	LIS	All States
2020Q2	-52.8	-41.4	-37.2	-37.6	-53.0	-32.6	-43.6	-34.4
2020Q3	-21.3	-9.8	-9.1	-9.0	-27.3	-5.5	-13.5	-10.5
2020Q4	-13.5	-7.7	-8.5	-8.8	-21.7	-4.1	-12.1	-6.4
2021Q1	-3.7	4.2	-1.1	0.5	-7.0	4.0	-0.9	0.0
2021Q2	40.0	75.5	46.7	51.9	38.9	46.3	47.6	41.7
Source: Compiled from CMIE-CPHS.							

5. Analysis of income by gender

- Gender-wise analysis of income reveals that in the first wave of the pandemic, male gender groups marginally lost more income compared to female gender groups.
- The pace of recovery has been slow for Kerala across all gender groups.

Aggregate income analysis may not accurately reflect the economic impact of a crisis on different groups. Women are particularly vulnerable to economic crises, including the COVID-19 pandemic. As discussed earlier, CPHS decides the appropriate gender category of a household based on the number of males and females. The CPHS classifies gender into seven groups which are clubbed into five groups in this analysis. They are Balanced, Female Dominated, Male-Dominated, Female Majority, and Male Majority.

Gender-wise analysis of income reveals that in the first wave of the pandemic, male groups marginally lost more income compared to female gender groups. In Kerala, Male-Dominated and Male Majority lost about 60% and 52%, respectively, in 2020Q2 versus 2019Q2, whereas Female Dominated and Female Majority saw median total income decline by 53.7%

and 49.3%, respectively. The pace of recovery has been slow for Kerala across all gender groups. In contrast, the median total income of all gender groups in HIS, LIS, and All-States has bounced back by 2021Q1. When the second wave of the pandemic hit the state economies, all gender groups in Kerala suffered a loss of around 22% in 2021Q2 compared to 2021Q1. On the other hand, the income of five gender groups from other state groups only slightly declined by approximately 3%.

Have households across different gender groups recovered from the economic downturn in 2021Q2 and reached the level of income they had during the pre-pandemic period of 2019Q4? The median total income of households in HIS and All States is 5% and 12% lower, respectively, compared to the pre-COVID level. However, in Kerala, households across gender groups continue to struggle, earning approximately 36% less than what they used to earn in 2019Q4.

6. Analysis of income by occupation

- Occupations with higher median income are Technicians and Higher Academicians, and Clerks across all state groups.

- Households with occupations such as Elementary (about 62%), Teaching and Skilled Professionals (about 42%), and Home Makers & Retired (about 41%) were the worst hit in the first wave of the pandemic in Kerala.

- The income of all occupations in Kerala was about 27% below the pre-covid level of 2019Q4 compared to 2021Q2. The high-income states have, however, recovered.

The pandemic has had varying effects on income levels among different occupation categories and state groups. The CPHS provides information on 19 occupation categories, which have been regrouped into nine categories to analyze the impact of the coronavirus on the income of various occupations. In Kerala, the major occupation categories are Elementary (30%), Retired (19%), Teaching and Skilled Professionals (5.84%), Clerks (5.55%), and Technicians and Higher Academicians (4.4%). In comparison to the second quarter of 2019, during the first wave of the pandemic, the occupations that experienced the largest decline in household total income in Kerala were Elementary (62.4%), Teaching and Skilled Professionals (42%), and Home-based Workers & Retired (41%). This decline was observed to be the highest across all states. The national average decline for these categories was

Elementary (44.3%), Teaching and Skilled Professionals (39%), and Home-based Workers & Retired (36.8%).

During the second wave of the pandemic (Apr-Jun 2021), households in Kerala with Elementary occupations experienced a 32% drop in income, compared to the national average of 7.7%. For Teaching and Skilled Professionals, income fell by approximately 25% in Kerala, compared to the national average of 3.7%, between 2021Q1 and 2021Q2. This decline was observed to be the highest across states and the national average. As of 2021Q2, households with Elementary occupations were approximately 36.8% below the pre-COVID median income level (i.e., 2019Q4), compared to the national average of 9%. The corresponding numbers for other occupations were Home-based Workers & Retired at approximately 36% (national average 24%), Technicians and Higher Academicians at approximately 30% (national average 1.5%), and Teaching and Skilled Professionals at approximately 25% (national average 3.7%).

Has households' median income across occupations bounced back to the pre-pandemic level (i.e., 2019Q4? Except for Home Makers & Retired, median total household income of HIS is above its pre-covid level. Households in Kerala, in contrast, are approximately 27% below their pre-covid level. Elementary (about 36%), Home Makers & Retired (about 37%), Technicians and Higher Academicians (about 30%), Teaching and Skilled Professionals (about 25%), and Clerks (about 8.5%) still trail behind the median income level of 2019Q4.

7. Analysis of income by social category

- The marginalized castes, such as SC and ST suffer the most in the first wave of the pandemic compared to the same period in the previous year, followed by OBC.
- The median household total income of SC-ST families in Kerala plummeted by 60.8% in Apr-Jun 2020 compared to Apr-Jun 2019. The high-income states average and national average lost about 40% each.

The analysis of income by caste indicates that the marginalized castes, such as SC and ST, were the most affected by the first wave of the pandemic in comparison to the same period in the previous year. The OBC group followed next. This pattern is evident across Kerala, high-income states, low-income states, and all states. Specifically, in Apr-Jun 2020, the median household income of SC-ST families plummeted by 60.8% compared to Apr-Jun 2019. The

average income loss in high-income states and the national average was approximately 40% each. The income loss for OBC households was slightly lower, with a 52.2% loss for Kerala, 36.5% for high-income states, and 40% for all states.

During the second wave of the pandemic in Apr-Jun 2021, the worst-hit families belonged to marginalized castes in Kerala. The income of Kerala's SC-ST households declined by 38% between 2021Q1 and 2021Q2, while the household income of both OBC and general castes decreased by about 20%. However, both high-income states and all states experienced only mild losses (0 to 5%). Furthermore, it has been observed that the households of Kerala have a long way to go to recover their pre-pandemic income levels (2019Q4), especially those of marginalized castes, whose income is still 44.2% below pre-COVID levels. In comparison, the OBC and general castes trail by 32% and 20.6%, respectively. However, both high-income states and all states fall short of 0 to 5%.

8. Conclusion

The overall picture has been remarkably benign for LIS, HIS, and All-States, but not Kerala. At the aggregate level, the monthly median household total income is still about 34% below its pre-covid level of 2019Q4. The study shows that Kerala has suffered more than high-income states and All-States, with household income still 34% below pre-COVID levels. Marginalized communities have been hit the hardest, with SC-ST families experiencing a 60.8% decline in income in the first wave of the pandemic. Recovery of income has been slow in Kerala, with urban households and male gender groups experiencing greater declines. Occupations in elementary, teaching, skilled professions, home-based work, and retirement were also hit hard. The pandemic's impact on industry sectors was particularly severe, with households working in construction, personal services, travel, tourism, hotels, and restaurants seeing a 60% decline in median total income. Despite some recovery in high-income states and All-States, Kerala's income continued to decline.

Based on the findings of the study, it is clear that the impact of the pandemic has been more severe in Kerala than in HIS and LIS, particularly for marginalized communities and the above-mentioned occupations. The slow recovery of household income across different regions, genders, and occupations in Kerala requires immediate attention from policymakers. It is crucial to implement policies that support households and businesses in the worst-affected sectors, such as Construction, personal services, travel, tourism, hotel, and

restaurants. Policymakers must also take into account the gender and social category dimensions of the impact and prioritize support for those who have been hit the hardest. Moreover, it is essential to ensure that recovery efforts are sustained and equitable and that vulnerable communities are not left behind. To this end, targeted measures such as income support, debt relief, and skill-building programs can play a vital role in supporting the recovery of household income and boosting the overall economic growth in Kerala.

However, the fiscal capacity of the governments across the states are limited, and there is a significant debt overhang that the states are desperately trying to shed by limiting expenditure and raising taxes, both tax revenue and non-tax revenue. In the interest of society, this may not be a wise policy decision. In other words, the government needs to worry less about the debt and fiscal deficit and instead spend more on projects which will put money where the mouth is. Stated otherwise, governments across the states need to raise both the quality of spending and quantity of spending.

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Annexure

Table A1: Income variables and description		
Sl. No	**Name**	**Description**
1 (2+8)	Total income	It is the summation of the total income of every earning member and the income of the household collectively, which cannot be attributed to any individual member. This includes income received from all sources such as rent, income earned from self-production, private transfers, wages, overtime, bonus, etc.
2 (3 to 7)	All members income	This is the total income received by all the members of the household from all sources during a month. This includes income received from wages, overtime earnings, bonus payments by all the employed members, income received as pension by members, income earned through dividend payout on equity shares held by members and income earned in the form of interest from all sources.
3	Wage income	This is the total income received by all the working members of the household in the form of wages during a month. Wages includes over-time payments received.
4	Pension income	This is the total income received by all retired members of the household in the form of pension.
5	Dividend income	This is the total income received by all the members of the household through dividend earned from shares held in a business.
6	Interest income	This is the total income received by all the members through interest earned on bank deposits, bonds, and individual money lending business.
7	Provident fund and insurance income	Income earned by all members of the household after withdrawing monies from a fixed deposit account, public provident fund and insurance is given here.
8 (9 to 15)	Household income	This is the total household income received from sources such as rent, imputed income, private transfers, government transfers, business profit, sale of assets, lotteries, gambling, etc. These are sources of income that are not attributed to any specific member of the household.
9	Rent income	This is the total income earned by the household from rent during a month.
10	Self-production income	This is the total household income received from the production of agricultural goods for self-consumption during a month.
11	Private income	This is the total income received by the household from private transfers during a month. A private transfer is the income a household receives from a family member as a remittance, or as a gift or donation from any non-government agency. Private transfers are mostly the money sent to families by individuals working in other cities or even foreign countries.
12	Government transfers income	This is the total income received by the household from government transfers. Government transfer income includes Direct Benefit Transfer (DBT). It excludes pensions and salaries of government employees, payment under Mahatma Gandhi National Rural Employment Guarantee (MGNREGA) scheme.
13	Business profit income	This is the total income received by the household in the form of profits or transfer of money from business operations owned by the household.
14	Sale of assets income	This is the total income received by the household from the sale of assets. Assets include property, land, jewellery, financial assets, etc.

15	Gambling income	This is the total income received by the household through lotteries, gambling, prizes or even money lost and subsequently found. This include legal forms of gambling like horse racing, state-run lottery, and online games of skill as well as income from gambling that may not be legal.
16 = 3 + 10	Labor income	This is the total household income received from wages and self-production income.
17 = 4 + 5 + 6 + 7 + 8 + 9 + 12 + 13 + 14 + 15	Non-labor income	This is the total household income received from sources other than wages, income from self-production activities, and income from remittance. This is basically the non-labor income accruing to the household.

Table A2: Distribution of observations across regions			
State	Freq.	Percent	Cum.
HIS	1,393,629	45.92	45.92
KL	93,144	3.07	48.99
LIS	1,547,824	51.01	100
Total	3,034,597	100	