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**COVID-19 and Household Income:
V or W-Shaped Recovery?**

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COVID-19 and Household Income: V or W-Shaped Recovery?

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Abstract¹

The COVID lockdowns significantly impacted the livelihoods of marginalized individuals. An estimated 121.5 million people lost employment in April 2020 - nearly 30% job loss. Against this backdrop, this study quantifies the magnitude of income loss and its recovery in the first two years of the pandemic in Kerala in comparison with other states. Kerala's median total household income recorded a precipitous decline of 54.5%, while high-income states experienced 34.6% and all states 37.9%. Moreover, our results indicate that males, marginalized communities, urban households, and blue-collar and self-employed people in the formal sector faced the most significant income losses. In terms of recovery, Kerala as of 2022Q2 still lagged behind both High-Income States (HIS) and Low-Income States (LIS). The study found that OBC households, women, people working in the informal sector (blue collar and formal self-employed), and higher educated people (graduation and above) in Kerala showed faster income recovery.

A major finding of this study is that Kerala's labor-income-driven economy, mainly reliant on informal sectors, faced a disproportionate impact in both pandemic waves, compared to non-labor income during the pandemic. Regions with diversified income sources, particularly beyond labor earnings, demonstrated greater resilience and swifter recovery post-crisis. This suggests fostering a diverse income base could buffer against economic shocks and facilitate quicker recoveries. In summary, this study underscores the urgency for nuanced policies targeting diverse income sources, occupation-specific challenges, and industry

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sectors still struggling to recover. By fostering a diverse income base and implementing targeted interventions, Kerala and other affected regions can pave the way for a swifter and more sustainable post-pandemic economic recovery.

Key Words: COVID-19, Lockdown, India, Income decline, Wage income, Household Income

JEL Classification numbers: D31, H24, D33

1. Introduction

As the COVID-19 Pandemic swept through Indian states, the government imposed nationwide lockdowns from April to May 2020. These stringent measures, aside from essential activities, effectively halted economic operations across most sectors. The pandemic struck India's economy during a period of pre-existing decline, with GDP growth decreasing from 8.27% in 2016-17 to 6.53% in 2018-19. This simultaneous economic slowdown and pandemic dealt a severe blow to India's economy. As expected, India's GDP contracted by 23.9% year-on-year in the April–June quarter of 2020. The resurgence of the pandemic in 2021 again hindered subsequent economic recovery.

In the second wave of the pandemic, though there was no national lockdown, several states enforced restrictions in response to the resurgence of cases. For instance, Kerala opted for the stringent measure of triple lockdowns². These subnational restrictions significantly constricted economic activities across various sectors, impacting states like Kerala, known for its wage-centric economy where labor wages contribute approximately 80% to the total income. The prevalence of informal labor coupled with the enforcement of strict measures likely led to substantial income

² See “Explained: What are the new Covid-19 restrictions under Kerala ‘triple lockdown?’”, published in *The Indian Express*, on May 25, 2021, available at <https://indianexpress.com/article/explained/explained-kerala-covid-triple-lockdown-restrictions-7317707/>

reductions for households during these periods. In contrast, economies more reliant on non-labor income are expected to navigate the COVID-19 shock and pandemic-induced recession more effectively.

The lockdowns had a direct bearing on the lives of people who live on the margins, particularly in developing countries such as India. In India, 77.1% of employment is considered non-regular, and 13.7% of jobs, though regular, lack protection. Walter (2020) estimates that approximately 364 to 473 million workers are at risk of suffering adverse effects due to the lockdown. The CMIE (2020) estimates revealed that approximately 121.5 million people experienced job loss in April 2020 amid the initial lockdown, marking a nearly 30 percent decline in employment.

According to CMIE data, there was a decrease in incomes and an increase in unemployment during the second wave of the pandemic. By the week ending on May 16, 2021, approximately 56% of households reported a loss of income compared to the previous year, while 41% mentioned that their income remained unchanged from a year ago.

Multiple surveys provide evidence of a significant drop in employment and incomes during the nationwide lockdown in April-May 2020. According to the Dalberg survey, conducted across 15 states, over 80% of households reported income reductions in both months, with nearly 25% reporting zero

income. Dreze and Somanchi (2021) presented evidence showing average income reductions in various months compared to pre-lockdown levels, highlighting that substantial income losses endured well beyond the national lockdown.

The CEP-LSE survey, conducted by Dhingra and Kondirolli (2021), covering 8,500 individuals residing in urban regions of Bihar, Jharkhand, and Uttar Pradesh, reported a substantial 48% reduction in average income. Additionally, they also observed a notable shift in income distribution, as the top quartile's share increased from 64% to 80%, highlighting a significant exacerbation of pre-existing income disparities.

Based on the CMIE-CPHS data, Bertrand et al. (2023) showed that the per capita total income witnessed a significant drop, with a 44 percent decrease in April 2020 and a 39 percent decrease in May 2020 compared to the corresponding months in 2019.

The "IDinsight+" survey, encompassing nearly 5,000 households across six states, revealed a staggering 72% plunge in the average weekly income of non-agricultural participants. This income dropped from Rs. 6,858 in March 2020 to Rs. 1,929 in May, maintaining a similar level through September.

Gupta et al. (2021) utilized the CPHS data on a national scale and found that the decline in incomes was significantly higher for daily laborers compared to salaried workers (75% versus 35%).

Additionally, they observed that individuals from households in the highest income quartile experienced a greater decrease in incomes.

Using the CPHS data, Sanyal et al. (2021) investigated the impacts of the pandemic and lockdown on total household income in Punjab. Their analysis indicated that rural households saw more persistent income declines than urban households, particularly witnessing greater setbacks in their wages. Among these households, those reliant on daily laborers experienced the most severe impacts, especially among the lowest income brackets.

In summary, available surveys consistently reveal widespread unemployment and significant income declines extending throughout 2020, not solely confined to the national lockdown period. This collective evidence underscores the crucial need to understand the profound impact of COVID-19 on income, especially in states like Kerala that have experienced severe employment losses. Considering this backdrop, this paper aims to analyze the effects of COVID-19 on income over the past two years and during the subsequent recovery period.

The surveys conducted during or after the pandemic-induced nationwide lockdowns provide valuable insights, but there remains a necessity for further research to grasp and quantify the impact of the second wave of the Covid-19 outbreak on individuals' incomes and the recovery of incomes to pre-pandemic levels. In light of this

context, our study is timely as it adds to existing literature by broadening our understanding of the extent of income loss and its recuperation across a much larger time period at the subnational level.

The remainder of this paper is organized as follows. The methodology used in the analysis is discussed in Section 2. Section 3 presents the results and discussion of the analysis of aggregate income and its composition. Then, the analysis of aggregate income by region (rural/urban) is presented in Section 3.3.1, by gender groups in Section 3.3.2, by caste in Section 3.3.3, by education in Section 3.3.4, by occupation type in Section 3.3.5, by industry of occupation in Section 3.3.6, and by sectors of the economy in Section 3.7. Finally, the paper concludes with reflections on policy recommendations in Section 4.

2. Data and Study Approach

This study analyses data from the Consumer Pyramids Household Survey (CPHS) conducted by the Center for Monitoring Indian Economy (CMIE). The CPHS collects data on self-reported monthly household income for various categories. This survey is India's first-ever nationally representative, longitudinal household data on income available at household and individual levels. The CPHS is a panel survey covering about 175,000 households across India at four-month intervals. Despite the COVID-19 lockdown causing disruptions, the survey continued with nearly 45% of its

typical sample and resumed regular survey operations by mid-August. Remarkably, the data collected has sustained its representativeness throughout this period, despite the challenges posed by the pandemic and associated lockdown measures.

Table A.1 in the Appendix presents a description of income variables. Briefly, it collects data on the total income of households, which is the sum of the income earned by every earning member of the household from all sources and other incomes that accrue to the household collectively but cannot be attributed to any particular member of the household. Member income generally consists of income received from wages, overtime earnings, bonus payments, pension, dividend payout on equity shares, and interest income from all sources. The household income includes income received from rent, private transfers (remittance, gifts, and donations), government transfers, in-kind transfers provided by NGO and governments, business profit, sale of assets, lotteries, gambling, etc.

This paper focuses on four major income variables: total income, labor income, non-labor income, and private income. Labor income is the sum of wage income and self-production income. Non-labor income is derived by subtracting labour income and private income from total income. In essence, it represents the household's earnings, excluding labor and private incomes (see Table A.1 in the Appendix for the description of income variables).

Household income data often exhibit variability, and relying solely on a summary statistic such as the mean or average can be misleading, potentially obscuring more nuanced information. Hence, selecting between the mean and median as the appropriate summary measure becomes crucial. While the arithmetic mean considers all the values in distribution and thus can be seen as the center of gravity of the data, the median value only considers a subset of values, eliminating all other observations except for the most central values. Thus, it can be seen as the center of the probability of the data. As the skewness in the income data increases mean tends to lose its attractiveness as a measure of central tendency because extremely high values in the data tend to unduly pull the mean towards itself. Given the possibility of extreme values within household datasets, the use of the median or probability center is preferable as it better reflects the data. Otherwise, the mean might be disproportionately influenced by extreme values, rather than the typical values. Notably, the Stiglitz-Sen-Fitoussi Commission on the Measurement of Economic Performance and Social Progress advocated for using the median instead of the mean to gauge the general experience of the population (Stiglitz et al., 2009). Therefore, this analysis refrains from excluding apparent outliers or extreme observations and opts to use the median. Nevertheless, mean figures are presented in cases where the distribution shows significant right-skewness, leading to a median income of zero.

Since the focus is on understanding the pandemic's impact on household income and its recovery, the analysis utilizes data spanning from 2019Q2 to 2022Q2 to assess the dynamics of income growth throughout the COVID-19 period. The fourth quarter of 2019 (October – December) serves as the reference or benchmark period for this analysis

This paper's primary focus is on Kerala; however, for comparison purposes, 17 states are classified into high-income (HIS) and low-income (LIS) categories based on their per capita income. States exceeding the national average per-capita income of 2018-19 are categorized as high-income states (Andhra Pradesh (AP), Gujarat (GJ), Haryana (HR), Karnataka (KA), Maharashtra (MH), Punjab (PB), Tamil Nadu (TN), and Telangana (TS)). States with per-capita income lower than the national average are classified as low-income states (Assam (AS), Bihar (BH), Chhattisgarh (CT), Jharkhand (JH), Madhya Pradesh (MP), Odisha (OD), Rajasthan (RJ), Uttar Pradesh (UP), and West Bengal (WB)). The distribution of observations across state groups for the whole period is reported in Table A.2 in the Appendix, indicating adequate sample sizes for estimating population means from sample means.

3. Analysis of Income Dynamics

a) Total Income

Table 1 presents the quarterly median total income of households for Kerala, High-Income States (HIS), Low-Income States (LIS), and the aggregate for All States from 2019Q2 to 2022Q1, along with the year-on-year quarterly percentage change. As previously explained, the household's total income encompasses earnings from all sources within a quarter. Notably, Kerala consistently demonstrated a higher median total income compared to LIS, with HIS usually positioned between the two. In 2019Q2, Kerala recorded a quarterly median income of Rs 66,000, signifying a 44% increase compared to Rs 45,840 in high-income states (HIS), a 69% increase compared to Rs 39,000 in low-income states (LIS), and a 52% increase compared to Rs 43,500 across all states.

During the COVID-19 pandemic, all regions experienced a significant drop in median total income in 2020Q2. Kerala suffered the most substantial decline, recording a decrease of 54.5%, while the other three regions experienced income losses ranging from 34.6% to 38.4%.

Although Figure (a) of Figure 1 indicates a V-shaped recovery for state groups up until the onset of the second wave of COVID-19, it is evident that Kerala's economic resurgence since 2020Q2 has been sluggish and delayed. Conversely, the recovery of low-income

states (LIS), high-income states (HIS), and the entirety of All-States has been notably faster. By 2021Q1, HIS had nearly reached its pre-COVID level of median household income. Table 1 reveals that the median income of HIS and All-States rose by 4.8% and 1.8%, respectively, between 2020Q1 and 2021Q1. In contrast, Kerala experienced a decline of approximately 6% during the same period.

Table 1: Household Median Total Income and Change

Quarter	Median Total Income (Rs)				Y-o-Y % Change			
	Kerala	HIS*	LIS	All States	Kerala	HIS	LIS	All States
2019Q2	66000	45840	39000	43500				
2019Q3	63534	45750	38400	42690				
2019Q4	66000	49500	42000	45588				
2020Q1	59100	45810	36600	41256				
2020Q2	30000	30000	24015	27000	-54.5	34.6	38.4	-37.9
2020Q3	48600	42900	36000	39000	-23.5	-6.2	-6.3	-8.6
2020Q4	53700	48000	37992	42465	-18.6	-3.0	-9.5	-6.9
2021Q1	55500	48000	36078	42000	-6.1	4.8	-1.4	1.8
2021Q2	43500	48000	35880	40500	45.0	60.0	49.3	50.0
2021Q3	57000	48150	39000	45000	17.3	12.2	8.3	15.4
2021Q4	61500	51600	42786	47700	14.5	7.5	12.6	12.3
2022Q1	63000	52500	41910	47415	13.5	9.4	16.2	12.9

Notes: HIS: High-Income States, * HIS excluding Kerala, LIS: Low-Income States

Source: Author's calculations based on CMIE-CPHS data

With the resurgence of COVID-19 in 2021Q2, most of the states reinstated lockdown measures. Similar to the initial wave of the pandemic, Kerala was severely impacted by the second wave. The substantial prevalence of cases in Kerala, constituting over 60% of

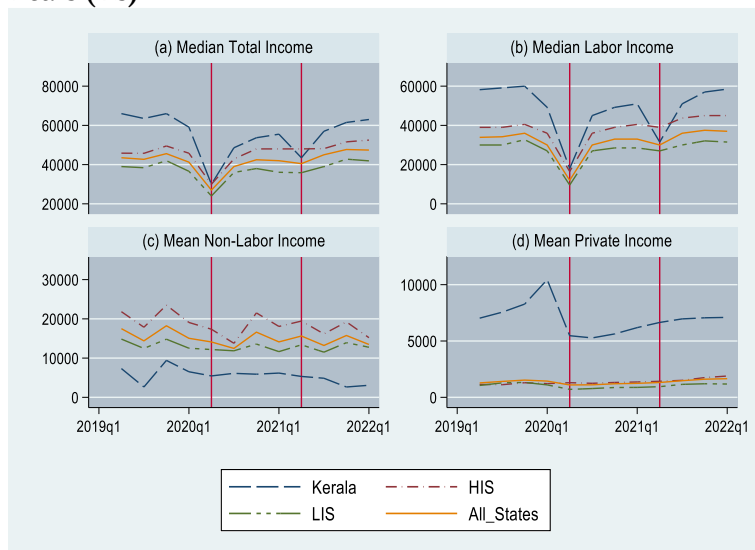
the country's total, led to a halt in economic activity. This frozen state of economic activity significantly contributed to the considerable decline in median income during 2021Q2. While Kerala's median income dropped from Rs 55500 in 2021Q1 to Rs 43500 in 2021Q2 (a 22% decrease), high-income states (HIS) and low-income states (LIS) were minimally affected. Consequently, as Figure (a) of Figure 1 shows Kerala's median income saw a 45% increase in 2021Q2 compared to 2020Q2, while LIS and All States experienced an approximately 50% rise, and HIS witnessed a surge of 60%. It's important to highlight that the significant year-on-year high quarterly growth observed is a result of the low-income base in 2020Q2. Significantly, the disparity in median household income between Kerala and All States decreased substantially from 52% in 2019Q2 to merely 7% by 2021Q2.

Nevertheless, the subsequent quarters showcased a gradual recovery, especially notable is Kerala which experienced a consistent high year-on-year growth since 2022Q1. This positive trend continued across all regions, resulting in median total income improvements by 2022Q1, signifying a steady rebound from the pandemic-induced downturn.

To ascertain the recovery status of households from the income downturn, a comparison between 2021Q2's median income and the pre-pandemic period of 2019Q4 is conducted. In 2022Q2, Kerala's total income remains approximately 4.5% below its pre-

pandemic level from 2019Q4. Conversely, high-income states (HIS) have surpassed by 6.1%, while All-States were approximately 4% above their pre-pandemic levels.

Figure 1: Household Median 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)

Source: Author's calculations based on CMIE-CPHS data

b) Labor Income

Kerala consistently maintained a labor income share of approximately 79% throughout the observed period, constituting slightly over 10% higher than the other regions. In contrast, high-income states (HIS), low-income states (LIS), and the total income of all states had shares of 67.8%, 70.8%, and 69.6%, respectively.

This emphasizes that Kerala's primary income source is derived predominantly from labor income-related occupations.

Figure (b) of Figure 1 indicates a notable disparity in median labor income in Kerala, which stood considerably higher at Rs 58200 in 2019Q2 compared to other state groups ranging between Rs 30000 to Rs 39000. However, a sharp decline in median labor income was observed across all regions during the second quarter of 2020, attributed to the initial impact of the pandemic, with percentages ranging from -57.7% to -69.1%. Kerala faced a significant downturn during the first wave, experiencing a staggering decline of about 69% (as shown in Table 2) from Rs 56200 in 2019Q2 to Rs18000 in 2020Q2. This decline needs to be understood in the context of almost 2.3 million job losses reported during the initial quarter of 2020. Similarly, except for the high-income states (HIS), low-income states (LIS) were equally impacted. Concurrently, during this period, all states, on average, witnessed a decline of 64.6%.

However, a remarkable recovery ensued in 2020Q2, with substantial increases ranging from 75.0% to 136.4%, signifying a swift rebound from the economic downturn. The recovery in labor income exhibited an accelerated pace across all state groups. Table 2 shows that the median labor income in HIS increased by 12.5% in 2021Q1 compared to 2020Q1. In contrast, Kerala saw a

3.7% rise, and All-States witnessed a 10% increment. However, the recovery from the recession in Kerala was notably slower compared to HIS and All-States.

Table 2: Household Median Labor Income and Change

Quarter	Median Labor Income (Rs)				Y-o-Y % Change			
	Kerala	HIS	LIS	All States	Kerala	HIS	LIS	All States
2019Q2	58200	39000	30000	33900				
2019Q3	59100	39000	30000	34200				
2019Q4	60000	40500	32700	36000				
2020Q1	49200	36000	27000	30000				
2020Q2	18000	16500	9600	12000	-69.1	-57.7	-68.0	-64.6
2020Q3	45000	36000	27000	30000	-23.9	-7.7	-10.0	-12.3
2020Q4	49200	39000	28500	33000	-18.0	-3.7	-12.8	-8.3
2021Q1	51000	40500	28500	33000	3.7	12.5	5.6	10.0
2021Q2	31500	39000	27000	30000	75.0	136.4	181.3	150.0
2021Q3	51000	43725	30000	36000	13.3	21.5	11.1	20.0
2021Q4	57000	45000	32100	37500	15.9	15.4	12.6	13.6
2022Q1	58500	45000	31500	36984	14.7	11.1	10.5	12.1

Source: Same as Table 1.

This positive turnaround in labor income growth by 2020Q2 masks the actual repercussions of the second wave of the pandemic. Therefore, to gauge the true impact, a comparison is made between the income declines between 2021Q1 and 2021Q2. Kerala experienced a notable decline in households' median labor income, plummeting by approximately 38.2% from Rs 51,000 in 2021Q1 to Rs 31,500 in 2021Q2. In contrast, high-income states (HIS) witnessed an income reduction of about 3.7% during the same period, while the average decline among all states stood at approximately 9%.

Subsequent quarters demonstrated steadier positive growth, with percentages ranging from 10.5% to 14.7% by 2022Q1 across all categories. These consistent increases indicate a gradual and sustained recovery in median labor income, signaling progress toward pre-pandemic levels for Kerala, HIS, LIS, and All States.

As of 2022Q2, has labor income returned to pre-pandemic levels of 2019Q4? Kerala's median labor income in 2021Q2 remains approximately 2.5% below the level observed in 2019Q4. In contrast, High-Income States (HIS) have surpassed pre-pandemic levels by about 11%, and All-States are ahead by approximately 2.7% during the same period.

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. The non-labor income is represented by mean since many households report zero income under this head. Figure (c) of Figure 1 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, with a decline of 25.6% in 2020Q2 compared to 2019Q2; other state groups lost around 18-20% (see Table 3). 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.

Non-labor income accounts for approximately 10% of the total household income in Kerala, while constituting about 30% for High-Income States (HIS), 27% for Low-Income States (LIS), and 28% for All States. Given that numerous households report zero income in this category, mean values are used to represent non-labor income. Figure (c) of Figure 1 highlights a notable disparity in non-labor income among households, indicating that Kerala's households earn substantially less from non-labor income compared to High-Income States (HIS) households, which earn the highest amount in this category. Table 3 shows that in 2019Q2, the mean income stood at Rs 7333 for Kerala, Rs 21829 for HIS, Rs 14843 for LIS, and Rs 17501 for All States, indicating the disparity.

Despite its smaller share, Kerala experienced the most significant impact among states, with a 25.6% decline in 2020Q2 compared to 2019Q2, while other state groups lost around 18-20% (refer to Table 3). An intriguing aspect of non-labor income is its resilience compared to labor income, as it did not undergo an extreme drop at the onset of the lockdown.

In the second wave, all states recorded mean income decline by approximately 5.9%. However, it does not reflect the accurate impact of the second wave of the pandemic during the April – June 2021. Between 2021Q1 and 2021Q2, only Kerala suffered income decline by about 14%. In contrast, both HIS and All-States saw income rise by 7.6% and 10.6%, respectively.

Significantly, non-labor income remains considerably below the pre-pandemic levels (2019Q4) across all regions. In 2021Q2, Kerala's non-labor income was approximately 67.4% lower than its pre-pandemic level, whereas it stood at approximately 35.3% and 26.1% lower for High-Income States (HIS) and All-States, respectively.

Table 3: Household Mean Non-Labor Income and Change

Quarter	Median Non-Labor Income (Rs)				Y-o-Y % Change			
	Kerala	HIS	LIS	All States	Kerala	HIS	LIS	All States
2019Q2	7333	21829	14843	17501				
2019Q3	2637	17872	12462	14394				
2019Q4	9415	23497	14819	18240				
2020Q1	6519	19085	12520	15046				
2020Q2	5454	17361	12185	14114	-25.6	-20.5	-17.9	-19.4
2020Q3	6116	13769	11861	12470	132.0	-23.0	-4.8	-13.4
2020Q4	5896	21519	13582	16618	-37.4	-8.4	-8.3	-8.9
2021Q1	6184	18070	11653	14129	-5.1	-5.3	-6.9	-6.1
2021Q2	5326	19440	13388	15632	-2.3	12.0	9.9	10.8
2021Q3	4869	16165	11510	13222	-20.4	17.4	-3.0	6.0
2021Q4	2634	19226	13937	15765	-55.3	-10.7	2.6	-5.1
2022Q1	3072	15205	12771	13475	-50.3	-15.9	9.6	-4.6

Source: Same as Table 1.

d) Private Income

This income comprises remittances or gifts from family members or non-governmental agencies received by households. Due to a considerable number of households reporting zero income under this category, the mean is used to evaluate this income component. In Kerala, its contribution to total household income amounts to approximately 9%, notably higher than the all-state average of 2.1% throughout the study period. In 2019Q2, households in Kerala received an average income of Rs 7029 from private transfers, significantly exceeding the national average of Rs 1280.

In the wake of the first wave of the pandemic, Table 4 reveals that Kerala recorded a substantial 22% decline in mean private income, from Rs 7029 in 2019Q2 to Rs 5472 in 2020Q2. Notably, Figure (d) within Figure 1 highlights the sharper decline in income for Kerala compared to other regions, with a roughly 14% decrease across all states on average (as shown in Table 4). In contrast, High-Income States (HIS) reported a 13.4% increase during the same period. This significant plunge in private income holds substantial significance for Kerala's household income, signifying a considerable loss for households.

Following the initial wave of the pandemic, Kerala's recovery lagged behind other regions. Apart from High-Income States (HIS), all regions witnessed a continued decline in income until

2021Q1. However, in 2021Q2, Kerala showcased a remarkable increase in private income, soaring by 21.5% compared to the corresponding period in the previous year. In comparison, High-Income States (HIS) experienced a growth of 9.5%, Low-Income States (LIS) by 3.7%, and All States by 19.8%.

Upon closer examination of Table 4, it becomes evident that the second wave during 2021Q2 did not significantly impact the private transfers or remittance income for households in the state between 2021Q1 and 2021Q2. Surprisingly, the mean transfers income for Kerala witnessed an increase in 2021Q2, rising by approximately 7.4% from Rs 6190 to Rs 6649. Similarly, other regions also experienced approximately 6% growth during this period.

Finally, has the private income of households reached the pre-pandemic levels of 2019Q4? As of 2022Q2, Kerala's mean private transfer income for households remained 14.3% below the pre-COVID level. However, households in High-Income States (HIS) and across all states had surpassed the pre-COVID levels in mean remittance income by 45.9% and 8.2%, respectively.

Table 4: Household Mean Private Income and Change

Quarter	Mean Private Income (Rs)				Y-o-Y % Change			
	Kerala	HIS	LIS	All States	Kerala	HIS	LIS	All States
2019Q2	7029	1147	1056	1280				
2019Q3	7558	1121	1285	1413				
2019Q4	8279	1296	1325	1530				
2020Q1	10448	1217	1103	1441				
2020Q2	5472	1300	707	1100	-22.1	13.4	-33.1	-14.1
2020Q3	5275	1244	780	1111	-30.2	11.0	-39.3	-21.4
2020Q4	5628	1321	871	1204	-32.0	1.9	-34.2	-21.3
2021Q1	6190	1362	881	1243	-40.8	12.0	-20.2	-13.7
2021Q2	6649	1424	945	1318	21.5	9.5	33.7	19.8
2021Q3	6963	1509	1150	1477	32.0	21.3	47.4	32.9
2021Q4	7061	1751	1205	1609	25.5	32.6	38.3	33.7
2022Q1	7096	1891	1183	1655	14.6	38.8	34.3	33.1

Source: Same as Table 1.

e) In-kind Transfers Income

In response to the widespread loss of employment and income triggered by the COVID-19 pandemic, governments worldwide, including the Indian and subnational governments, initiated various relief measures. The Pradhan Mantri Garib Kalyan Package, a comprehensive relief program amounting to Rs. 1.70 lakh crore, was launched in India to aid the economically disadvantaged in battling the challenges posed by the pandemic. This relief package aimed to assist the poor, migrants, and urban underprivileged populations. It encompassed several support measures, including in-kind transfers such as food and cooking gas, cash transfers to specific vulnerable groups like senior citizens, widows, disabled individuals, and women Jan Dhan Account holders, as well as farmers. Indian policymakers responded promptly by offering cash transfers along with supplementary food

grains to alleviate the financial repercussions on family income and consumption.

In-kind transfers have been a pivotal component of relief measures, offering immediate assistance to vulnerable sections of society during crises. These transfers, such as food provisions and cooking gas allocations, ensure essential needs are met directly, reducing the financial burden on recipients. Furthermore, in-kind transfers often guarantee the utilization of assistance for its intended purpose, promoting food security and basic amenities for those most affected. In India, several states have also implemented in-kind transfers tailored to their regional requirements. For instance, states like Tamil Nadu have distributed relief kits containing essential food items, while Kerala has provided free food kits and cooked meals to marginalized communities. Similarly, Andhra Pradesh and Telangana provided food assistance to vulnerable communities affected by the pandemic. The state government distributed essential food items, including rice, pulses, and other necessary provisions, through the Public Distribution System (PDS) and other welfare schemes to ensure food security for those in need during the crisis. These in-kind transfers by states have played a crucial role in alleviating hardships faced by individuals and families grappling with the socio-economic repercussions of the pandemic.

Research also shows that transfers – both in-kind and cash - have significant impact in alleviating poverty, enhancing household welfare, and fostering socio-economic development. A recent study by Kumar *et al.* (2021) examines the impact of government cash disbursements on food insecurity within the geographic boundaries covering Bihar, the eastern regions of Uttar Pradesh, Jharkhand, Odisha, and West Bengal. Their findings reveal that India's government cash transfer initiative reduced moderate food insecurity by 2.4% and severe food insecurity by approximately 0.92%. In another study, Makkar *et al.* (2022) surveyed 859 households after the lockdown in Gaya and Nalanda district of Bihar from December 2019 to September 2020. They find approximately 42% had received cash transfers from the government. These transfers ranged from 200 rupees to 7500 rupees during the three-month lockdown period (April–June 2020), with a median receipt of 1500 rupees. Additionally, 55% of households received food and other in-kind assistance from NGOs, while 28% benefited from both cash and in-kind support. The study found that households receiving cash transfers showed a lower incidence of food insecurity (43.6%) compared to those without cash aid (49.7%).

The CPHS provided data on the income of households from in-kind transfers from the government and NGO since August 2021. This income comprises the total income earned by the household

from in-kind transfers received from NGOs and the government. This is the total income by considering the market value of the goods provided by the government. These transfers encompass various in-kind provisions such as consumer durable goods, food, housing, etc., supplied by the government.

As numerous households reported zero income in this category, the mean is employed to assess this income component.

Table 5: Household Mean In-kind Transfers Income and Change

Quarter	Mean Transfer Income (Rs)				% Change			
	Kerala	HIS	LIS	All States	Kerala	HIS	LIS	All States
2021Q3	1942	811	482	662				
2021Q4	1934	1199	807	1003	-0.4	47.9	67.3	51.4
2022Q1	2087	1893	1104	1459	7.9	57.9	36.8	45.5

Source: Same as Table 1.

Table 5 provides data on average in-kind transfers to households by states. In the third quarter of 2021, Kerala's income averaged Rs 1942, High-Income States at Rs 811, and Low-Income States at Rs 482, with an overall average of Rs 662 across all states. By the first quarter of 2022, incomes increased across regions: Kerala rose to Rs 2087, High-Income States to Rs 1893, and Low-Income States to Rs 1104, resulting in an aggregated average of Rs 1459 for All States. Significant fluctuations occurred in quarterly changes. From 2021Q3 to 2021Q4, Kerala decreased by 0.4%, while High-Income States and Low-Income States rose substantially by 47.9%

and 67.3%, respectively. The subsequent quarter (2022Q1) saw varying increments: Kerala at 7.9%, High-Income States at 57.9%, and Low-Income States at 36.8%, resulting in a 45.5% overall rise for All States. This surge in in-kind transfers amid slowing state economies indicates states' increased support to households, showcasing potential policy shifts to address economic challenges.

Summary of Income Variables

In summary, the comprehensive analysis of various income measures (total income, labor income, non-labor income, and private income) indicates that although Kerala had a stronger position in 2019Q2 or 2019Q4 (the pre-pandemic period) with higher median household income compared to other states, it suffered severe setbacks due to the dual waves of the pandemic in comparison to other state groups. In terms of recovery, Kerala has lagged behind both High-Income States (HIS) and Low-Income States (LIS). As of 2022Q2, it still trails behind HIS, highlighting the crucial need for a swifter revival. This urgency is underlined by the fact that a significant portion of Kerala's income stems from labor income, including a substantial share of remittances derived from migrant workers' labor income. The pandemic disproportionately affected labor income, with businesses resorting to salary cuts and layoffs due to a drastic decline in demand. Moreover, the analysis indicates that states with higher non-labor income share in total household income tended to

experience smaller declines in their income but demonstrated a quicker recovery compared to states where a larger portion of income came from labor sources.

The pandemic disproportionately impacted labor income while non-labor income was insulated from this. The implication of this is that a diversified income portfolio, including substantial non-labor income sources, appears to offer a degree of resilience during economic downturns. States or regions reliant on a variety of income streams beyond labor earnings might experience less severe income reductions during crises and could potentially recover more swiftly than areas highly dependent on labor income. This suggests that fostering a diverse income base could potentially buffer against economic shocks and aid in a quicker recovery post-crisis. Moreover, policies should focus on fostering entrepreneurship, enhancing skill development, and bolstering social welfare programs, all aimed at creating a more resilient economy less susceptible to economic shocks. These measures will not only reduce dependency on labor income but also facilitate a quicker and more sustainable recovery from future crises.

3.1 Income Impact by Region

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. Table 6 presents the distribution of households, showing that the weighted urban share of households in Kerala is 47.6% compared to the All-State average of 32%.

Table 6: Distribution of Households (%)

	Kerala	HIS	LIS	Total
RURAL	52.38	56.22	77.65	68.02
URBAN	47.62	43.78	22.35	31.98
Total	100	100	100	100

Source: Same as Table 1.

Comparing the median income of rural households with urban counterparts across the state groups throws stark differences. First, in general, the income of urban households is higher than rural

households, which are well known. Second, the rural-urban differential of household income in the case of Kerala is much lower than in other regions of India. The urban-rural median household income ratio is 1.05 (during the ten quarters between 2019Q2 and 2021Q2), whereas the corresponding numbers are 1.37 for HIS, 1.44 for LIS, and 1.47 for All-States. It reconfirms the well-perceived notion about Kerala's unique feature that there is not much difference between rural and urban regions within Kerala. However, this notion should not be taken too liberally as the analysis on employment dynamics suggests that urban areas were much more severely affected.

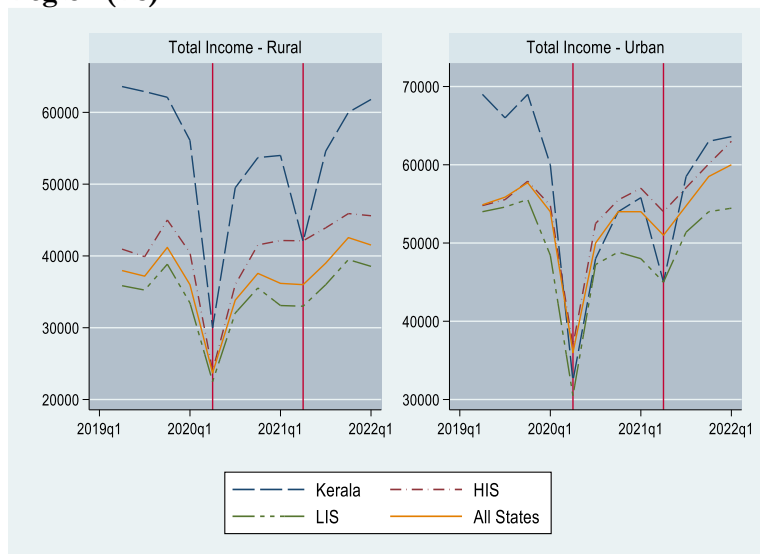
(a) Rural Region

Figure 1 shows that Kerala's quarterly median household total income in 2019Q2 in the rural area was Rs 63600, much higher than HIS (1.5 times), LIS (1.8 times), and All-States (1.7 times), where households earned between Rs 40950 and Rs 37965. In the first wave of COVID-19 (Apr-Jun 2020), Kerala's median income declined by 52.8%, 41.4% in the HIS, and approximately 37% in both LIS and All States compared to 2019Q2. This higher decline in Kerala could be due to severe lockdown and the resulting decline in labor income. Recall that close to 80% of income for the median household in Kerala comes from labor wages. In contrast, the share of non-labor income is very high for other states, which may have cushioned the decline in income. For example, the share of

non-labor income for a median household in Madhya Pradesh is around 23%, a low-income state as per GDP per capita ranking. States with higher non-labor income shares tended to show a lower dip during the second quarter of 2020-21 and demonstrated faster recovery. Almost the HIS has a larger share of non-labor income compared to Kerala. Hence, HIS states saw milder shock than Kerala and experienced faster and fuller income recovery for the median household.

Rural Kerala's revival of median income has been slow compared to other states (see left panel of Table 7). The median income continued falling until 2021Q1, whereas HIS and All-States had registered positive growth. Further, as the second wave of COVID-19 unfolded in 2021Q2, Kerala's median rural income declined 22% compared to 2021Q1, while the income of other state groups hardly declined. The median income of urban households in 2022Q1 in Kerala is still about 0.5% lower than 2019Q4 (pre-pandemic period). In contrast, the HIS and All-States are marginally 1.3% and 0.8% above the pre-pandemic level.

Figure 1: Household Quarterly Median Total Income by Region (Rs)



Source: Same as Figure 1.

Table 7: Percentage Change in Household Median Total Income by Region (Y-o-Y)

Quarter	Rural				Urban			
	Kerala	HIS	LIS	Total	Kerala	HIS	LIS	Total
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
2021Q3	10.3	22.0	12.4	15.2	21.9	8.7	8.8	9.5
2021Q4	11.7	10.5	11.1	13.3	16.7	8.3	10.6	8.3
2022Q1	14.4	8.2	16.5	14.8	14.0	10.5	13.4	11.1

Source: Same as Table 1.

(b) Urban Region

The quarterly median household total income for urban areas shows a similar trend, *albeit* in magnitude (see Table 7). The total income in the urban region was approximately 1.25 times the other three groups in 2019Q2. Urban Kerala's median household income was about Rs 1.08 times higher than rural Kerala, *i.e.*, Rs 69000 in 2019Q2, and that of HIS, LIS, and all states; it was around 1.34, 1.51, and 1.45 times, respectively. The urban median income fell 53% in 2020Q2 for Kerala compared to 2019Q2 (See right panel of Table 7), the same as rural Kerala. However, the fall in subsequent quarters was worse than rural households in Kerala, implying the recovery of income was much slower. In 2021Q2, while Kerala's median household income grew about 39%, HIS and All-States saw record growth of about 46% and about 42% compared with the corresponding period last year.

Table 7 shows that Kerala's urban households were relatively more affected than rural households. The impact on income in both HIS and All-States has been more or less similar. Rural India's relative resilience could be due to MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act), the resumption of agricultural activities in rural area, and lower surveillance of rural areas by the police during the lockdown.

In the second wave, median urban income declined by about 19% in 2021Q2 compared to the previous period (i.e., 2021Q1). The comparable Figure for other state groups is about 6%. As of 2022Q1, the median income of urban households in Kerala lags 8% behind its pre-COVID level (2019Q4). In contrast, HIS and All States have surpassed by about 9% and 4%, respectively.

3.2 Income Impact by Gender

Research findings indicate the higher susceptibility of women to economic downturns compared to men; a pattern observed during the COVID-19 crisis. Within the context of this study, the Consumer Pyramids Household Survey (CPHS) delineates household gender categorization based on male and female composition. CPHS employs seven distinct gender classifications, condensed into five categories for the purpose of this analysis. These categories include Balanced (household with equal males and females), Female Dominated (household with twice females than males), Male-Dominated (household with twice males than females), Female Majority (household with *more* females), and Male Majority (household with *more* males). Detailed insights into the weighted distribution and definitions of each group can be found in Table A.3 in Appendix.

Figure 2: Household Quarterly Median Total Income by Gender (Rs)



Source: Same as Figure 1.

The gender distribution manifests a significant presence across diverse categories in both All States and Kerala. A detailed examination of the frequencies reveals similarities in the distribution of gender groups in Kerala is similar to the All States, particularly evident within the Balanced and Female Majority segments. However, notable disparities emerge in the Female Dominated and Male categories, highlighting nuanced differences in gender proportions between the two regions. For instance, Kerala exhibits a more pronounced presence in the Female Dominated category at 14.82%, significantly higher than that observed within All States (8.5%). Additionally, both the Male

Dominated and Male Majority categories demonstrate a lower representation within Kerala, standing at 12.58% and 22.68%, respectively. This showcases a distinctive gender distribution pattern in comparison to All States, where these categories hold proportions of 15.05% and 26.1%, respectively.

Table 8 presents median total income across genders along with the year-on-year quarterly change. Irrespective of the gender of the household, Kerala is at the top of the table with respect to median total income followed by HIS. The second observation is that males (both Male-Dominated and Male Majority) earn more than female counterparts across the state groups. Third, Kerala's loss of income is the maximum irrespective of gender groups.

During the initial wave of the pandemic, data reveals a widespread negative growth trend across all regions, regardless of gender dominance, in 2020Q2, encompassing a range from -59.9% to -35.7%. Moreover, the data indicates a slight disparity in income loss between male and female genders. Specifically in Kerala, the Male-Dominated and Male Majority categories witnessed approximately 60%- and 52%-income reduction, respectively, in 2020Q2 in comparison to 2019Q2. Conversely, the Female Dominated and Female Majority categories experienced median total income declines of around 53.7% and 49.3%, respectively. Households demonstrating equal gender representation

encountered a 50% income erosion during this period. Meanwhile, within HIS, income dwindled by approximately 38% for both Female Dominated and Male-Dominated categories, while experiencing a reduction of 37.2% for Male Majority and 34.3% for Female Majority groups.

Table 8: Percentage Change Household Median Total Income - by Gender

	Gender: Balanced				Gender: Female Dominated			
	Kerala	HIS	LIS	All States	Kerala	HIS	LIS	All States
2020Q2	-50.0	-37.9	-34.9	-37.8	-53.7	-38.5	-36.8	-37.0
2020Q3	-21.1	-9.4	-8.3	-10.2	-25.4	-10.0	-10.3	-14.0
2020Q4	-16.4	-0.9	-9.7	-8.3	-18.2	-6.5	-15.0	-8.2
2021Q1	-6.7	3.0	-0.2	0.4	6.7	8.2	0.0	4.3
2021Q2	22.0	63.9	38.6	48.1	31.8	62.9	53.1	51.7
2021Q3	10.7	15.6	11.2	15.5	21.4	14.5	10.4	17.9
2021Q4	11.7	6.7	12.0	11.1	23.2	7.0	19.6	11.1
2022Q1	13.1	6.7	13.2	14.9	21.9	7.7	21.0	14.3
	Gender: Female Majority				Gender: Male Dominated			
2020Q2	-49.3	-34.3	-35.0	-35.7	-59.9	-38.0	-38.8	-38.1
2020Q3	-26.5	-6.3	-5.8	-7.1	-33.3	-10.9	-5.2	-7.9
2020Q4	-22.2	-6.3	-11.2	-7.1	-26.4	-7.9	-7.8	-9.0
2021Q1	-7.1	5.1	0.0	2.7	-12.2	-0.8	-1.5	0.0
2021Q2	34.8	65.6	43.8	51.1	54.2	59.1	46.5	51.0
2021Q3	18.3	15.0	9.7	15.4	16.7	16.8	8.1	14.3
2021Q4	19.6	9.9	15.5	13.2	20.5	14.3	12.2	14.0
2022Q1	12.8	8.5	14.2	14.1	9.5	10.0	15.4	13.3
	Gender: Male Majority							
2020Q2	-52.0	-37.2	-40.6	-39.5				
2020Q3	-26.4	-11.1	-8.6	-9.0				
2020Q4	-20.0	-5.3	-8.1	-7.8				
2021Q1	-10.1	0.8	-1.0	1.3				
2021Q2	40.0	59.3	49.8	56.3				
2021Q3	14.7	15.6	9.7	11.9				
2021Q4	17.5	11.1	10.3	11.6				
2022Q1	16.7	10.2	14.4	15.1				

Source: Same as Table 1

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. Except for Female Dominated in Kerala, other gender groups continued to slide down. It is observed from Table 8 that revival in income for Female Majority, Male Dominated and Male Majority households has been slow for Kerala. Compared to 2020Q2, the median income of males in 2021Q2 rose strongly as opposed to female and balanced gender households. In contrast, this pattern is observed among other state groups. In addition, Kerala's revival growth was very much less compared to HIS and All-States.

The recovery process has been notably sluggish for Kerala across all gender categories. Conversely, the median total income of all gender groups within HIS, LIS, and All-States exhibited a rebound by 2021Q1 (the quarter before the onset of the second wave of the pandemic). However, with the exception of female-dominated households in Kerala, Table 8 highlights the remaining gender groups continued to experience a decline. Notably, in comparison to 2020Q2, there was a marked surge in median income for males by 2021Q2, whereas female-dominated, Female Majority, and Balanced gender households exhibited slower progress. Conversely, this trend differed among other state groups. Moreover, Kerala displayed a significantly slower growth in recovery compared to HIS and All-States.

As mentioned earlier, the growth figures of 2021Q2 do not accurately depict the income growth situation in states due to the low base in 2020Q2, where income experienced an approximate 50% decline. Notably, Kerala implemented a triple lockdown to mitigate the loss of lives and contain the virus spread. Consequently, when the second wave affected state economies, all gender groups in Kerala encountered an average decline of 22% in 2021Q2 compared to 2021Q1. In contrast, gender groups in other states experienced a marginal decline of approximately 3% in income during the same period. Specifically, female-dominated households in Kerala saw a significant 27.5% reduction in income. Thereafter Kerala's growth of income gathered pace and was marginally higher than other regions. However, this higher growth was because other state groups experienced positive growth in income when households in Kerala continued to record income loss.

Have households across various gender groups fully recovered from the economic downturn by 2022Q2 in comparison to 2019Q4, the pre-pandemic period? The data illustrates that even after two years since the onset of the pandemic, households across gender groups in Kerala remain approximately 3.8% below their earnings in 2019Q4. In contrast, household income in HIS and All States has surpassed the pre-COVID level of median total income by about 5.5% and 3.9%, respectively. Notably, Male-Dominated

and Female Majority households in Kerala still lag behind the pre-pandemic income levels by 13.2% and 7%, respectively.

The analysis highlights Kerala's disproportionate income loss across gender groups during the pandemic and its slower recovery compared to other states. Despite being at the forefront in terms of median total income, Kerala has experienced a slower recovery compared to other state groups, with households across various gender categories still struggling to return to pre-pandemic income levels. Initiatives focusing on gender-specific economic empowerment programs could be pivotal, aiming to uplift female-dominated and Female Majority households that have experienced considerable income reductions. Tailored financial support, skill development, and entrepreneurial opportunities for women within these gender categories may play a crucial role in revitalizing their economic standing.

3.3 Income Impact by Social Category

In India, the occupational hierarchy often mirrors the caste structure, with marginalized groups primarily occupying low-paying informal sector jobs. According to Sengupta and Kannan (2008), nearly 98% of individuals within the SC/ST categories, living below the poverty line, are employed in the informal sector. Given the evidence indicating the severe impact on the informal sector, the repercussions of the COVID-19 crisis on employment

are expected to disproportionately affect various social categories. Recent studies by APU (2021) and Abraham et al. (2021) further demonstrate the heightened vulnerability of SC-ST communities to the crisis. Thus, it is expected that the covid pandemic would have disproportionately affected households from marginalized caste groups.

The quarterly median household total income is calculated for each caste. While the CPHS survey collects information on four castes namely, Upper Caste, OBC, SC, and ST, the SC and ST castes have been merged in this analysis. The weighted share of observations is reported in Table A.4 in Appendix for both All States and Kerala. The table indicates that OBC households comprise 42% nationwide, but in Kerala, they make up 70%. Kerala's SC-ST household share is 20%, below the national average of 29.6%. Additionally, Kerala has a 10% share of General caste (Upper Caste) households compared to the overall state average of 28%.

The quarterly median household total income is reported in Table 9. It shows that the marginalized castes, such as SC and ST, suffered the most in the first wave of the pandemic compared to the same period in the previous year, followed by OBC. This pattern is salient across states. In particular, the median household total income of SC-ST families in Kerala plummeted by 61.9% in April-June 2020 compared to the corresponding period in 2019. In

contrast, the HIS, LIS, and All States lost between 41% and 45.5%. The loss of income of OBC households is slightly lower: 51.8% for Kerala, 40% for HIS, and approximately 44% for All States and LIS. On the other hand, households from the General Caste experienced a median income decline ranging from 30.3% (LIS) to 34.5% (Kerala).

Table 9: Median Total Income (Rs) by Social Category

	Caste: OBC				Caste: SC-ST			
	Kerala	HIS	LIS	All States	Kerala	HIS	LIS	All States
2020Q2	-53.9	-36.5	-41.1	-40.8	-60.9	-38.9	-41.0	-40.4
2020Q3	-25.0	-6.7	-6.4	-7.9	-16.4	-8.3	-11.9	-8.5
2020Q4	-18.2	-5.0	-10.9	-6.7	-11.7	-1.8	-6.2	-7.1
2021Q1	-7.5	4.8	-0.8	3.7	1.1	0.0	0.3	3.8
2021Q2	41.5	62.9	53.3	55.9	48.0	66.7	52.3	59.4
2021Q3	16.4	14.5	7.6	13.0	9.7	12.9	13.1	15.0
2021Q4	16.7	11.8	12.5	10.7	12.1	6.7	8.8	12.0
2022Q1	15.7	8.0	13.7	9.5	13.9	10.0	16.9	14.8
	Caste: General							
2020Q2	-34.5	-33.3	-30.3	-31.5				
2020Q3	-20.0	-14.4	-7.7	-7.4				
2020Q4	-20.4	-5.3	-11.5	-11.1				
2021Q1	-13.6	5.9	-4.6	0.5				
2021Q2	-1.6	45.8	30.8	33.9				
2021Q3	8.8	17.1	14.1	13.3				
2021Q4	13.8	11.1	17.3	14.0				
2022Q1	13.2	5.6	19.6	16.9				

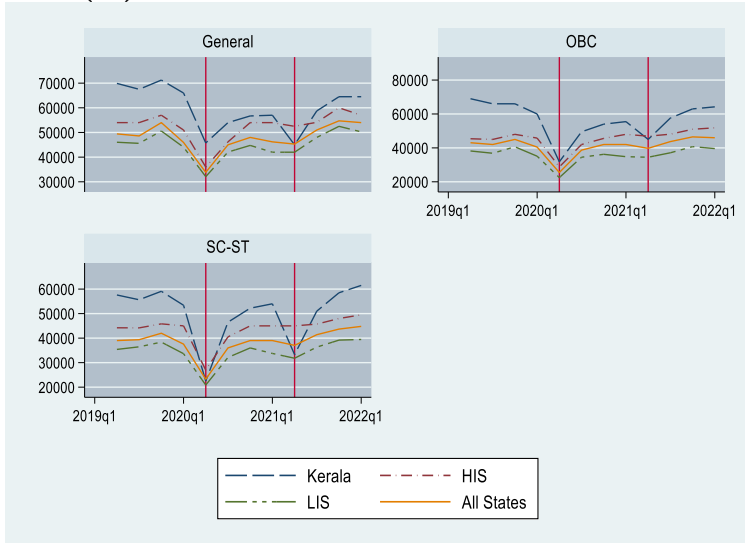
Source: Same as Table 1

However, when it comes to recovery of income, Figure 3 reveals that the revival of income of marginalized castes is better than OBC households. The households belonging to the general caste saw a protracted recovery in the median income.

As the pandemic hit the states for the second time in April-June 2021, the worst-hit families belong to marginalized castes in Kerala. Kerala's SC-ST household income tanked 38.3% between 2021Q1 and 2021Q2, whereas the household income of OBC and general castes declined by about 19% and 21% respectively. However, HIS and All States lost mildly (0 to 5.8%). It is also observed that median income registered a decline in growth for both OBC and General caste household in the HIS group.

Finally, the revival of income to the pre-pandemic level (2019Q4) is long for Kerala households compared to HIS and All States. The median household income for General and OBC households stands at 9.5% and 2.7% below pre-COVID levels, respectively, whereas marginal castes have exceeded these levels by 4.1%. Conversely, in high-income states, OBC and SC-ST households have surpassed pre-pandemic levels by 8%, while General caste households have reached the pre-pandemic income level. In alignment with high-income states, the median household income across All States stands at 2.2% higher than pre-pandemic levels for OBC households, 6.6% for SC-ST households, and remains unchanged for General households.

Figure 3: Household Quarterly Median Total Income by Caste (Rs)



Source: Same as Figure 1.

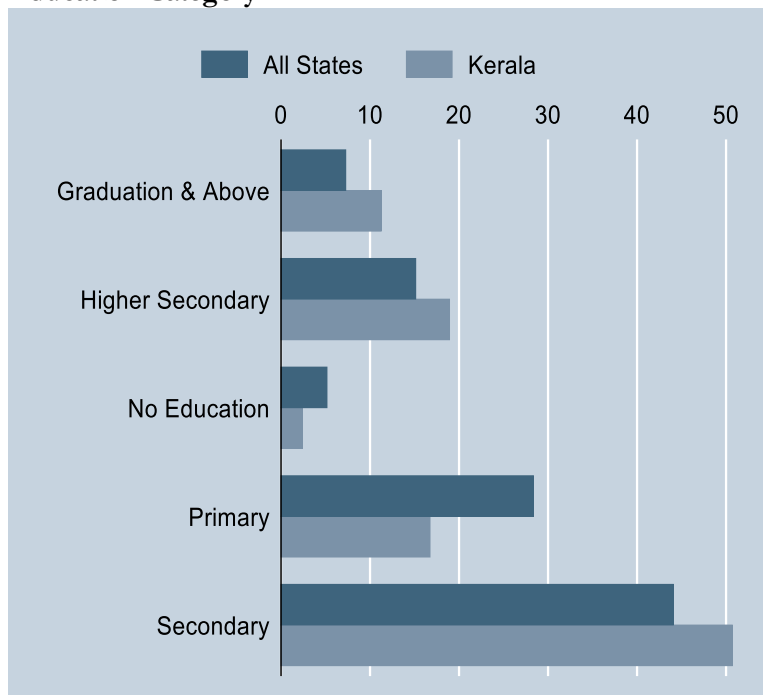
3.4 Income Impact by Education

Next, how the income dynamics of households during the COVID-19 pandemic is analyzed based on the educational categories of these households. Notably, the Income Pyramids derived from the Consumer Pyramids Household Survey (CPHS) lack data about education specifics. To bridge this gap, the educational information concerning households is garnered from the People of India Pyramids, achieved through the mapping of household IDs to corresponding education categories.

Household education status is categorized into five distinct classifications based on the educational attainment of the household head. A household falls into the "No Education" category if the head has received no formal education. The classification "Primary Education" is attributed to households where the head has attained education up to the 5th standard. "Secondary Education" designates households where the head's education ranges from the 6th to the 10th standard. If the household head has completed the 12th standard, the category is labeled as "Higher Secondary." Lastly, households where the head holds a Graduate, Post Graduate, or Ph.D./M.Phil. degree are categorized as "Graduation & Above."

Table A.5 provides a comprehensive tabulation of educational attainment across different categories in both Kerala and all states combined. Notably, when considering all states collectively, the majority of individuals fall under the Secondary education category, constituting 44.08% of the total population surveyed, closely followed by the Primary education group at 28.36% (See Figure 4.7). Conversely, in Kerala, a significant proportion of individuals tend to have attained Higher Secondary education (18.93%) and Secondary education (50.7%), indicating a comparatively higher educational attainment in these categories among the states.

Figure 4: Frequency Distribution of Households by Education Category



Source: Same as Figure 1.

The data spanning from 2019Q2 to 2022Q1 provides a stark portrayal of income dynamics in the aftermath of the pandemic's initial wave (2020Q2) and the recovery witnessed during the subsequent wave (2021Q2). Across education levels, the second quarter of 2020 was marked by substantial negative growth rates in median income across education categories and states. For instance, households falling under the "Secondary," "Primary," and "No Education" groups experienced a significant decline in

income growth rates, ranging from approximately -46% to -56%, indicating a severe economic impact during the first wave of the pandemic. This substantial decline was evident across state groups. However, while groups such as HIS, LIS, and All States exhibited positive growth rates across all education categories before the onset of the second wave (2021Q2), Kerala continued to grapple with negative income growth rates, particularly among households categorized under "Graduation & Above" and "Higher Secondary" education.

During the onset of the pandemic's second wave, spanning from 2021Q1 to 2021Q2, Kerala suffered the most substantial decline in income growth across all education categories. The reduction ranged from 9.1% (in the "Graduation & Above" category) to 28.6% (in the "Secondary" category), averaging 21.6%. Conversely, households in HIS and All States exhibited minimal negative income growth, ranging merely from 0.1% to 2.5%. Thereafter Kerala and other states saw a marked rebound across education categories, signifying a phase of recovery. Notably, income figures exhibited a noteworthy surge, showcasing positive growth rates well above 25% across most education and state groups.

Has income growth across various education and state groups fully recovered? A comparative analysis between income growth in 2021Q2 and the pre-pandemic era (2019Q4) reveals an incomplete

income recuperation status for Kerala. Conversely, HIS and All States exhibit positive growth trends (refer to Table 7).

Table 10: Median Total Income (Rs) by Education Category

	Education: No Education				Education: Primary			
	Kerala	HIS	LIS	All States	Kerala	HIS	LIS	All States
2020Q2	-45.9	-44.8	-47.5	-46.7	-53.8	-42.9	-40.8	-40.9
2020Q3	-20.7	-14.6	-16.7	-17.0	-22.1	-12.7	-10.2	-8.6
2020Q4	-13.4	-3.3	-18.2	-13.0	-19.1	-3.4	-6.0	-7.2
2021Q1	7.8	1.8	2.9	0.0	-3.6	3.7	-2.2	-0.2
2021Q2	26.7	86.1	68.2	75.2	25.8	75.0	50.4	60.0
2021Q3	17.0	24.3	20.0	22.1	16.0	22.0	13.2	13.0
2021Q4	13.4	10.7	23.7	20.8	20.0	7.4	8.4	11.6
2022Q1	8.0	14.5	20.3	20.8	14.9	7.7	13.9	12.6
	Education: Secondary				Education: Higher Secondary			
2020Q2	-56.7	-34.3	-37.9	-39.8	-46.4	-33.1	-32.7	-33.1
2020Q3	-23.5	-7.2	-6.5	-7.8	-24.6	-7.9	-6.8	-7.8
2020Q4	-15.0	-7.9	-9.1	-7.3	-22.0	-2.7	-9.5	-8.7
2021Q1	1.6	4.9	0.0	3.0	-7.1	0.0	0.4	2.6
2021Q2	40.7	55.0	48.2	55.0	27.8	50.0	30.4	37.4
2021Q3	17.6	13.5	9.1	15.4	14.3	14.4	8.0	13.3
2021Q4	14.7	11.8	12.4	10.7	17.5	11.3	10.3	10.2
2022Q1	11.1	6.9	13.2	11.5	12.8	11.1	14.4	12.5
	Education: Graduation & Above							
2020Q2	-34.0	-25.7	-30.8	-28.5				
2020Q3	-16.7	-0.7	-9.6	-5.0				
2020Q4	-12.8	4.0	-6.1	1.3				
2021Q1	-14.9	11.8	8.0	13.0				
2021Q2	16.6	45.9	29.0	37.0				
2021Q3	25.0	16.1	7.4	13.6				
2021Q4	18.2	15.4	7.6	5.8				
2022Q1	18.2	9.5	14.0	5.2				

Source: Same as Table 1.

Specifically, households in Kerala with a "Higher Secondary" education are trailing behind in income by approximately 8.3% and other education groups lag by about 1.5%. However, households

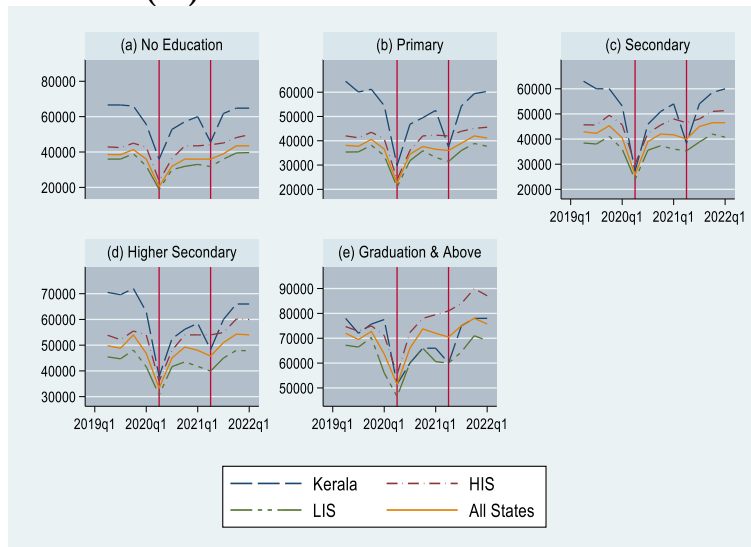
with an educational status of "Graduation & Above" have notably surpassed the pre-pandemic income levels by 3%. In contrast, both HIS and All States have exceeded the income levels of 2019Q4, surpassing them by 8.7% and 2.6%, respectively.

The observed income disparities among education and state groups following the pandemic highlight the urgency for nuanced policy interventions. While certain segments, notably those with "Graduation and above" education, have demonstrated resilience and even surpassed pre-pandemic income levels, others, particularly the "Higher Secondary" educated households in Kerala, are yet to recover fully. A holistic policy approach focusing on skill enhancement, educational incentives, and targeted support can foster more equitable income growth, ensuring a more inclusive economic recovery across diverse education and state demographics. Such efforts will be instrumental in fostering greater economic stability and prosperity for all segments of society in the post-pandemic era.

To address the income disparities among different education and state groups post-pandemic, targeted interventions are necessary. Implementing skill development programs and vocational training tailored to the needs of individuals with a "Higher Secondary" education in Kerala can aid in enhancing their employability and income prospects. Additionally, incentivizing continued education

for this demographic could further empower them to bridge the income gap with other education groups.

Figure 5: Household Quarterly Median Total Income by Education (Rs)



Source: Same as Figure 1.

3.5 Income Impact by Occupation Type

The pandemic has a varied effect on income levels across occupation categories across state groups. While the Income Pyramids of CPHS lack specific information regarding household occupation types, insights into income growth dynamics during the pandemic and its aftermath are obtained by utilizing occupation characteristics sourced from the People of India pyramid within the CPHS. It assigns the occupation to an individual who engages

in maximum duration during a typical day³. This information is then linked to household income data. The CPHS originally records details on 20 occupation categories, which have been regrouped into six categories (refer to Table A.6) for analysis.

Table A.7 in the Appendix presents the weighted frequency tabulation of various occupation types in two different regions: All States and Kerala. The table reveals a striking similarity in the distribution of all occupation types, except for the Student/Retired/Homemaker and Farming categories. Notably, the Student/Retired/Homemaker classification demonstrates the highest prevalence in both regions, signifying a significant portion of households consisting of students, retirees, or homemakers. In All States, this category constitutes 52.77% of households, followed by Blue Collar occupations at 18.92%. Comparatively, in Kerala, the Student/Retired/Homemaker category comprises 62% of households, also being the most prevalent, while Blue Collar stands at 18.72%. There is a noticeable difference in the occupation types between the two groups, especially in the Farming categories, where Kerala (1.26%) exhibits lower percentages compared to All States (12.74%). Overall, the data provides insights into the varied distribution of household occupations between All States and Kerala.

³ To gain further insights into the nature of occupation, please see the "Description of Indicators" in the CPHS website's "How We Do It" section.

Figure 6 highlights several significant observations. First, households in Kerala exhibit notably higher median total income compared to other regions, regardless of their occupational nature. Secondly, occupations such as White Collar and Self-Employment–Informal showcase higher median income across all state groups. Thirdly, a striking finding is that households engaged in Self-Employment – Informal occupations earn more than those in Self-Employment – Formal occupations. Fourth, households associated with the Farming occupation tend to earn the least. Finally, regardless of the occupation, households in Kerala experienced the most substantial income decline compared to both HIS and All-States.

Table 11 illustrates the quarterly changes in income levels for different occupation types across various state groups, offering insights into the impact of the pandemic waves on income levels. It indicates fluctuating trends in income growth among different occupation types over time. Notably, across all state groups, including Kerala, HIS, LIS, and All States, the trajectory of income growth shows variances for distinct occupation categories.

In the first wave of the pandemic (2020Q2), the data reveals a considerable downturn in income across various occupation types in all regions. Particularly noticeable is the substantial income loss

experienced by most occupation categories, such as Blue Collar, White Collar, Self-Employment - Informal, and Self-Employment - Formal. The income reduction ranged from -62.6% to -16.7% in Kerala for Blue Collar and White-Collar occupations, respectively. Similarly, Self-Employment - Informal and Self-Employment - Formal also recorded significant income declines, with figures ranging from -60.0% to -36.5% in Kerala. The most heavily impacted occupations in Kerala were blue-collar workers, experiencing a 62.6% income reduction, and Self-Employment – Formal, facing a decline of 60%. Conversely, households engaged in Self-Employment – Informal, White Collar and Farming occupations observed relatively lower income reductions, approximately around 37% during this period. In HIS and All States, occupations like Farming (-44.4% and -41.4%), Blue Collar (approximately 40%), and Student/Retired/Homemaker (-36.7% and -39.5%) encountered the most significant declines in income growth. Conversely, households engaged in White Collar occupations experienced the least income decline, recording -16.7% for HIS and -24.6% for All States.

Figure 6: Household Quarterly Median Total Income by Occupation Type (Rs)



Source: Same as Figure 1.

Post the initial pandemic wave, there was a diverse recovery trend observed across occupation types. Some categories exhibited a gradual uptick in income levels, showcasing a positive recovery trajectory in subsequent quarters (2020Q3 to 2022Q1). For instance, Self-Employment – Informal occupations in Kerala displayed a consistent rise in income levels, gradually moving towards positive percentages over subsequent quarters. Similarly, white-collar occupations in Kerala consistently exhibited an improvement in income levels. Conversely, Self-Employment - Formal Farming, and Blue-Collar occupations experienced sluggish recoveries. Meanwhile, the majority of occupations in

other regions (HIS, LIS, and All States) demonstrated rapid income recovery and turned towards positive growth by the first quarter of 2021.

However, during the second wave of the pandemic (2021Q2), another income decline emerged across many occupation types in all regions. Notably, despite the recovery efforts post the first wave, certain occupation types experienced setbacks, resulting in negative growth rates again in 2021Q2. For example, in Kerala, median household income levels for Blue Collar (-30.6%), White Collar, Self-Employment - Informal, and Self-Employment - Formal (each -26.5%) occupations declined significantly during this period compared to 2021Q1. Notably, the median income of households in Kerala experienced an average loss of 24% between 2021Q1 and 2021Q2 across all occupations. Conversely, the other three regions displayed a consistent growth trend across various occupation types. Notably, Farming occupations in All States exhibited a 4.5% growth in 2021Q2 compared to 2021Q1, while white-collar occupations showed a 3.2% growth in the same period. However, occupations in the other three regions experienced a slight decline, varying from -0.3% to -1.7% for Blue Collar occupations, approximately 6% for Self-Employment – Informal, and between 4.6% to 6.7% for Self-Employment – Formal and Student/Retired/Homemaker occupation types.

After the second wave, there was a renewed effort towards income recovery observed across various occupation types. While all state groups maintained growth momentum across almost all occupation categories, specific occupations in Kerala, especially White Collar and Self-Employment – Informal, exhibited diverse patterns of income growth.

Table 11: Median Total Income (Rs) by Occupation

	Occupation Type: White Collar				Occupation Type: Blue Collar			
	Kerala	HIS	LIS	All States	Kerala	HIS	LIS	All States
2020Q2	-37.5	-16.7	-33.4	-24.6	-62.6	-40.0	-43.5	-39.8
2020Q3	-15.5	4.2	-6.5	0.0	-22.9	-10.0	-11.7	-8.7
2020Q4	-10.7	14.0	-8.7	3.9	-18.3	-1.8	-7.2	-7.4
2021Q1	8.3	20.0	15.6	16.3	-5.0	0.3	0.6	1.7
2021Q2	37.1	48.9	48.0	50.0	56.3	66.7	68.5	63.7
2021Q3	21.8	20.2	13.1	19.0	11.4	14.8	14.3	16.5
2021Q4	20.0	19.3	16.2	16.7	13.7	6.7	12.1	13.6
2022Q1	6.5	6.8	11.1	11.8	11.1	10.2	16.1	13.5
	Occupation Type: Self-Employment - Informal				Occupation Type: Self-Employment - Formal			
2020Q2	-36.5	-44.4	-39.9	-37.6	-60.0	-29.7	-34.7	-34.3
2020Q3	-1.9	-8.6	-11.5	-9.1	-28.8	-2.9	-5.7	-4.3
2020Q4	-2.6	-5.9	-8.1	-7.8	-22.5	-2.9	-8.5	-5.3
2021Q1	0.0	15.8	4.5	3.9	-12.7	4.8	1.1	1.3
2021Q2	11.5	70.4	46.7	46.7	41.0	47.1	36.2	45.0
2021Q3	-3.8	13.6	12.2	8.6	17.9	19.2	9.5	12.0
2021Q4	6.5	11.8	16.2	11.1	19.6	9.4	11.6	11.4
2022Q1	10.8	4.1	16.7	12.6	14.6	7.0	14.7	11.8
	Occupation Type: Farming				Occupation Type: Student/Retired/HM			
2020Q2	-37.8	-44.4	-39.7	-41.4	-53.5	-36.7	-38.0	-39.5
2020Q3	-19.2	-29.2	-14.9	-18.1	-23.4	-8.0	-6.3	-8.8
2020Q4	-20.0	-11.5	-14.9	-15.0	-15.1	-5.8	-9.6	-7.5
2021Q1	-21.9	-4.9	-8.2	-8.3	-2.7	4.3	-1.6	2.2
2021Q2	-15.3	68.9	40.4	48.4	35.0	56.0	43.1	47.5
2021Q3	9.1	28.3	10.1	12.5	16.8	14.3	7.2	13.8
2021Q4	22.5	10.8	15.9	15.0	13.2	9.5	10.6	10.4
2022Q1	36.0	4.0	21.0	16.7	11.1	7.6	14.2	11.5

Source: Same as Table 1.

Has households' median income across occupations bounced back to the pre-pandemic level (i.e., 2019Q4, after two years of the onset of the pandemic? All occupations in HIS, LIS, and All States have seen median income rising past the pandemic level by above 4%. On the other hand, Except for Home Makers and retired, high-income states' median total household income is above its pre-covid level. In contrast, the median income of household three occupations still trails behind the 2019Q3 income level while the other three occupations have surpassed it. In particular, Blue Collar occupations lag 6.7%, Self-Employment – Formal by 7.3%, and Student/Retired/Homemakers by 2.4%. On the other hand, income of households having Collar occupation has seen income recuperated by 4.6% compared to the 2019Q4 income level, and Self-Employment – Informal and Farming occupations by about 2.3%.

The key finding from the analysis indicates that while the other three regions have surpassed pre-pandemic income levels, Kerala remains behind in certain sectors. Thus, to mitigate income disparities and bolster post-pandemic recovery, policies addressing occupation-specific challenges are crucial. Introducing targeted financial aid or training programs for heavily impacted sectors like Blue Collar and Self-Employment – Formal in Kerala could aid in income recovery. Additionally, fostering technological innovation and skill development in these sectors might enhance resilience

against future economic shocks. Further, empirical research, such as comprehensive sectoral studies on income disparities during crises, could offer insights into devising effective policies for income stabilization and growth across occupation types.

3.6 Income Impact by Industry of Occupation

The quarterly estimates of GDP published by the National Accounts Statistics showed the varying impact of the COVID-19 pandemic on different sectors of the economy. This section aims to assess how the pandemic affected the median income of households across industries of occupations. To delve into this, insights into the industry of occupations of households are essential. However, the *Income Pyramids* of CPHS do not provide information on the household's industry of occupation or the classification of household occupations into distinct industrial activities. To bridge this gap, the industry of occupations characteristics obtained from the *People of India Pyramid* within the CPHS are used. The CPHS assigns an industry category to each member of a household based on the institution, company or establishment he/she works for⁴. The CPHS gathers data on 37 industry categories, which have been condensed into eleven categories (refer to Table A.8) for detailed analysis purposes. They are Agriculture and allied, Communication Services, Construction,

⁴ For more detailed information about the industry of occupation, visit the "Description of Indicators" within the "How We Do It" section on the CPHS website.

Education and health, Financial Services, Fishing, Industry, Other Services, Personal Services, Trade, and Travel, Tourism, Hotels and restaurant.

The weighted share of the sample is presented in Table A.9 in the Appendix. The frequency tables for occupation types in All States and Kerala reveal notable distinctions and similarities. In All States, Agriculture & Allied occupations constitute the largest share at 34.59%, contrasting with Kerala's lower proportion at 5.72%, nearly six times. Additionally, sectors like Construction, Industry, and Trade contribute substantially and display substantial differences in both regions. Notably, Construction is noticeably lower in All States (16.12%) compared to Kerala (29.28%), a difference of 13.2 percentage points. Hence, the revival of this sector holds importance for the revival of employment growth in Kerala and, thus, the recovery of household income. Furthermore, Trade holds a slightly higher proportion in Kerala (18.08%) than in All States (15.85%). Similarly, the Industry's share is higher by six percentage points in All States (10.24%) vis-à-vis Kerala. In sectors like Travel, Tourism, Hotel & Restaurant, and Personal Services have significantly larger shares in Kerala (16.65% and 14.55%, respectively) compared to All States (6.57% and 7.72%, respectively). This data indicates that while the Agriculture & Allied sectors dominate in All States, Kerala's economy appears more diversified, with a substantial reliance on service-oriented

occupations like Travel, Tourism, Hotel & Rest. and Personal Services. These tables indicate a considerable divergence in the occupational landscape between the two regions, highlighting Kerala's emphasis on service-oriented sectors compared to the more varied occupational distribution in All States, including a stronger reliance on agriculture.

Figure 7 indicates distinct trends in median total income across various industries and regions. Financial Services, Other Services, Education and health, and Communication Services emerge as the top industries with the highest median total income across regions, while Agriculture & Allied and Construction industries accrue comparatively lower remuneration. Notably, households in Kerala demonstrate the highest income levels across both industries and regions. Additionally, Kerala faced the most severe impact during both waves of the pandemic compared to other regions across various industries of occupation. Furthermore, concerning the quarterly median household total income, four out of eleven industry occupations in Kerala still lag behind the pre-pandemic income levels.

Table 12 illustrates the impact of the COVID-19 pandemic on household median income across various industry occupations in the first quarter of 2020, compared to the same period in the previous year. Except for Education & Health and Other Services,

most industry occupations experienced a notable decline in median income. Specifically, Fishing, Construction, Travel, Tourism, Hotel, Restaurant, and Personal Services were significantly affected, demonstrating substantial income reductions such as Fishing (-65.6% in Kerala and -42.3% in All States), Construction (-63.3% in Kerala and -47.1% in All States), Travel, Tourism, Hotel, and Restaurant (-64% in Kerala and -44.2% in All States), and Personal Services (-59.5% in Kerala and -45.6% in All States).

Table 12: Median Total Income (Rs) by Industry of Occupation

Quarter	All States				All States			
	Kerala	HIS	LIS	All States	Kerala	HIS	LIS	All States
	Industry of Occupation: Agriculture & Allied				Industry of Occupation: Fishing			
2020Q2	-49.1	-41.5	-37.6	-40.2	-65.6	-29.3	-52.1	-42.3
2020Q3	-5.3	-18.6	-15.5	-17.0	-29.5	6.7	-25.9	-3.8
2020Q4	-15.0	-12.6	-13.9	-12.7	-36.0	4.3	-13.8	-1.6
2021Q1	-14.1	-0.4	-6.8	-6.4	10.7	5.8	-5.1	5.7
2021Q2	3.1	72.3	39.6	54.2	97.1	85.1	70.9	91.2
2021Q3	-2.2	25.0	12.5	20.0	9.7	18.8	25.0	11.1
2021Q4	15.9	12.9	14.9	14.2	21.9	26.2	10.8	21.0
2022Q1	24.3	11.5	20.1	17.2	20.5	16.7	40.0	19.4
	Industry				Construction			
2020Q2	-50.1	-34.9	-33.9	-37.7	-63.3	-43.0	-49.0	-47.1
2020Q3	-17.0	-3.8	-9.1	-9.5	-23.2	-12.0	-10.6	-7.7
2020Q4	-10.5	-7.5	-10.2	-8.8	-19.1	-7.0	-15.0	-7.4
2021Q1	10.0	4.3	6.3	7.5	-4.7	0.0	2.0	0.4
2021Q2	45.2	47.8	46.1	57.6	63.6	70.1	81.8	70.5
2021Q3	13.6	5.6	12.4	12.6	13.2	17.8	12.0	12.8
2021Q4	17.0	8.1	13.1	11.5	9.6	9.7	16.6	10.1
2022Q1	-1.8	10.5	6.7	9.1	9.3	6.7	14.3	12.0
	Communication Services				Travel, Tourism, Hotel and Restaurant			
2020Q2	-40.0	-11.1	-30.1	-18.5	-64.0	-37.0	-47.1	-44.2
2020Q3	0.0	14.9	-23.6	5.3	-29.8	-7.8	-4.9	-7.4
2020Q4	7.1	16.8	-9.8	10.1	-23.2	-4.9	-6.2	-4.1
2021Q1	6.4	11.4	-2.4	12.0	-8.3	5.9	-0.8	5.3

2021Q2	30.6	25.2	16.7	27.3	69.0	67.5	72.1	73.5
2021Q3	-4.8	20.7	24.3	11.7	15.8	18.3	8.1	13.1
2021Q4	3.3	21.3	2.5	16.7	16.7	9.7	11.1	10.3
2022Q1	3.3	22.4	14.2	13.6	12.8	4.4	15.4	10.0
	Occupation by Industry: Trade				Financial Services			
2020Q2	-45.1	-27.5	-32.8	-30.4	-30.0	-28.5	-16.7	-26.0
2020Q3	-25.6	-5.8	-6.5	-7.0	-6.7	2.9	-0.8	0.0
2020Q4	-18.4	-4.5	-9.5	-8.3	-9.1	-0.5	-1.5	0.0
2021Q1	-8.5	0.0	-0.4	3.2	13.8	26.7	7.9	19.0
2021Q2	20.0	39.9	29.6	34.6	42.9	53.8	28.1	48.5
2021Q3	18.3	12.8	6.0	13.0	12.5	14.3	12.0	10.5
2021Q4	21.6	7.5	11.2	11.5	6.7	16.7	15.4	16.7
2022Q1	16.3	5.6	15.1	10.6	6.1	9.4	8.4	4.4
	Education & Health				Personal Services			
2020Q2	-13.8	-17.0	-19.0	-17.4	-59.5	-36.4	-51.3	-45.6
2020Q3	-12.5	5.2	1.4	10.0	-21.9	-6.3	-6.9	-10.5
2020Q4	-14.3	18.9	7.8	7.5	-17.0	-3.6	-7.5	-6.2
2021Q1	-30.1	32.0	22.9	21.2	-6.7	5.5	1.1	4.6
2021Q2	20.0	58.8	39.4	47.8	49.5	60.0	87.4	68.8
2021Q3	14.3	25.0	18.0	20.0	10.1	13.3	14.0	16.0
2021Q4	10.3	16.7	15.5	17.5	18.4	10.0	14.7	12.3
2022Q1	15.4	9.4	21.8	16.7	18.7	12.5	17.5	13.6
	Other Services							
2020Q2	6.7	1.9	-23.7	-10.0				
2020Q3	23.8	10.9	-2.6	2.0				
2020Q4	26.9	23.8	0.0	12.0				
2021Q1	0.0	31.5	11.1	16.8				
2021Q2	3.1	23.9	37.5	28.9				
2021Q3	1.5	25.0	17.3	20.0				
2021Q4	3.0	13.1	6.3	7.4				
2022Q1	20.0	7.3	18.1	15.7				

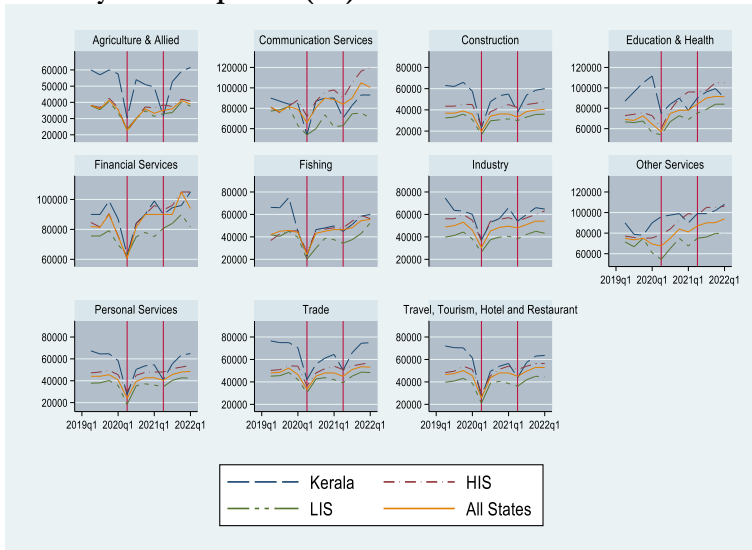
Source: Same as Table 1.

Regarding the recovery phase, the notable observation indicates that HIS and All States experienced a swifter rebound compared to Kerala across various industry occupations. In Kerala, except for Communication Services, Financial Services, and Agriculture and Allied activities, households in other occupations continued to face income losses until the first quarter of 2021. Consequently,

Kerala lagged behind high-income states and the national averages in terms of income recovery across most industry occupations.

The second wave of the pandemic, occurring between April and June 2021, impacted the states during April and May 2021. However, when assessing the quarter-on-quarter income growth figures, it's important to note that the year-on-year figures may misrepresent the actual impact due to the low base caused by the initial wave of the pandemic in the first quarter of 2020. For a more accurate assessment, examining the change in income between 2021Q1 and 2021Q2 becomes crucial. In this context, Kerala bore the brunt of the pandemic yet again, with significant drops in income across various occupations, as highlighted in Figure 6 denoting the second vertical bar at the 2021Q1 quarter symbolizing the second wave of the pandemic. Conversely, HIS and All States displayed more resilience amid the pandemic. Specifically, the median total household income in Kerala witnessed a 22% decline compared to the first quarter of 2021. Meanwhile, high-income states faced a 5.6% decrease, and All States and LIS experienced a 6.4% decline. Notably, occupations such as Agriculture and allied (-36.4%), Construction (-31.1%), and Travel, Tourism, Hotel, and Restaurant (-22.3%) suffered the most significant income declines during this period.

Figure 7: Quarterly Household Median Total Income by Industry of Occupation (Rs)



Source: Same as Figure 1.

Following 2021Q2, the subsequent quarters exhibit signs of stability and gradual recovery, marked by incremental growth across different occupation sectors and states. This economic rebound, though variable, showcases a consistent upward trend with successive quarters showing positive growth rates, indicating a sustained revival, particularly evident in various state groups. However, Kerala continues to experience erratic income fluctuations across most industrial occupations, struggling to achieve a steady recovery.

When analyzing the extent of income recovery and whether states have returned to pre-COVID levels (2019Q4), it becomes evident that households in Kerala face a prolonged path to full recovery. In contrast, other state groups have surpassed the pre-pandemic income levels by the first quarter of 2022. As of 2022Q1, Kerala's median income has reached a similar level to its pre-pandemic state across various sectors. This is in stark contrast to HIS and All States, which have exceeded the pre-COVID income levels by 17.5% and 10.3%, respectively. Notably, specific industry sectors still trailing behind the 2019Q4 income level include Fishing (-20%), Education & Health (-14.3%), Travel, Tourism, Hotel, and Restaurant (9.5%), and Construction (9.1%).

The above analysis of household median income during the pandemic highlights significant declines across various industry occupations in the initial quarters, particularly impacting Fishing, Construction, Travel, Tourism, Hotel, Restaurant, and Personal Services, facing substantial income reductions. Kerala witnessed a slower income recovery compared to HIS and All States. Therefore, policymakers should prioritize targeted interventions for industry sectors still lagging, like Fishing, Education and health, Travel, Tourism, Hotel, and Restaurant, and Construction, to accelerate their recovery. Additionally, bolstering income support and employment-generating programs specifically for impacted

sectors in Kerala would aid in achieving a more robust and equitable recovery across industry occupations.

3.7 Income Impact by Economic Sector

During the COVID-19 pandemic, income dynamics underwent substantial fluctuations across various economic sectors and state groups. Thus, analyzing the data from different sectors - Agriculture, Industry, Construction, and Services - will reveal the impact of the pandemic's first wave in 2020Q2 and the subsequent recovery post-2021Q2. The Income Pyramids in the CPHS data lack information regarding the economic sector of households. This missing data is supplemented by the People of India Pyramids, which offer insights into the economic sectors. Thus, the unique household IDs from the People of India Pyramids are integrated with the Income Pyramids, enabling the mapping of the economic sector for each household. The CPHS provides data pertaining to 37 distinct occupational industries. To facilitate our analysis, these occupations have been aggregated and categorized into four distinct economic sectors (see Table A.10).

Table A.10 presents data on economic sectors in both All States and Kerala. Overall, the difference in sectoral distribution between All States and Kerala is evident, with notable differences observed in the Construction and Services sectors. First, while the Agriculture sector dominates the All States (45.32%), it is 2.1 times

the share of Kerala (21.43%). Second, the Construction sector contributes 30% of state GDPs, almost twice that of All States (16.2%). Third, the Industry sector contributes 9% to the state economies while it contributes meager 3.56% in Kerala. Fourth, while 45% output comes from Kerala, it contributes 29.5% for All States. Given that Kerala's economy is characterized as a service-oriented economy and construction-intensive economy, it is expected that both those sectors would be significantly affected.

Table 13: Median Total Income (Rs) by Economic Sector

	Sector: Agriculture				Sector: Industry			
	Kerala	HIS	LIS	All States	Kerala	HIS	LIS	All States
2020Q2	-51.1	-40.1	-39.3	-39.8	-46.6	-37.0	-40.7	-41.2
2020Q3	-16.7	-11.1	-13.8	-12.9	-11.8	-10.0	-12.5	-10.5
2020Q4	-19.5	-6.7	-12.3	-9.1	-7.1	-6.1	-10.0	-7.8
2021Q1	-8.0	1.7	-2.7	0.0	-1.9	4.7	6.4	5.0
2021Q2	34.8	68.7	45.2	55.0	43.9	48.7	56.3	60.0
2021Q3	7.4	20.8	14.3	16.6	16.7	5.6	15.9	10.4
2021Q4	18.6	9.7	15.1	14.1	12.8	6.2	11.1	8.4
2022Q1	18.0	7.9	17.2	14.9	4.3	8.3	9.8	7.5
	Sector: Construction				Sector: Services			
2020Q2	-65.4	-42.3	-49.0	-47.2	-50.4	-27.5	-31.2	-30.8
2020Q3	-23.7	-10.3	-9.4	-6.4	-26.8	-5.8	-4.4	-8.8
2020Q4	-16.0	-6.6	-15.4	-7.4	-20.0	-1.3	-9.8	-4.4
2021Q1	-4.2	0.0	1.9	-0.1	-12.5	5.3	0.5	4.5
2021Q2	68.0	65.4	81.8	70.7	36.8	45.5	31.2	37.5
2021Q3	12.5	15.6	11.3	10.9	17.5	16.5	6.7	13.8
2021Q4	9.6	9.4	16.3	10.3	17.5	13.2	12.2	9.7
2022Q1	9.9	7.0	14.3	12.1	14.3	10.0	14.6	8.6

Source: Same as Table 1.

In the first wave of COVID-19 pandemic (2020Q2), there was a marked decline in median household incomes across all sectors and states. For instance, in Agriculture, Kerala experienced a drastic

drop in income by 51.1%, while both HIS and LIS recorded reductions of around 40%. This downturn was consistent across sectors, as seen in Industry, Construction and Services, where substantial negative growth rates of income were recorded, signifying the pandemic's severe economic impact. The precipitous fall in Construction sector by 47.2% in all states was due to the shutdown of the economy.

As the economy started recovering gradually after the second quarter of 2020, the decline in median income of households across sectors and states slowed down as well. During the second wave of pandemic (2021Q2), Kerala showcased a remarkable revival with a staggering 34.8% income growth rate in Agriculture, a robust 43.9% growth in Industry, 68% income growth in the Construction, and 36.8% growth in Services sector. However, this does not reflect the true picture of income growth during the April-June quarter of 2021 since the yearly growth came on top of a very low base. Recall that the same period in 2020 suffered the maximum income loss.

Between 2021Q1 and 2021Q2, median household income of Kerala fell 30.8% in Construction, 21.2% in Agriculture, 18.6% in Services, and 13.5% in Industry. In contrast, the decline in median income of households belonging to HIS, LIS, and All States was marginal. For instance, median income of all states combined

declined by about 1.2% in Agriculture, 4.8% in Industry, 7.8% in Construction, and 5.7% in Services. Thus, a closer look at the data shows that Kerala suffered the most among all major states as it went for a triple-lockdown.

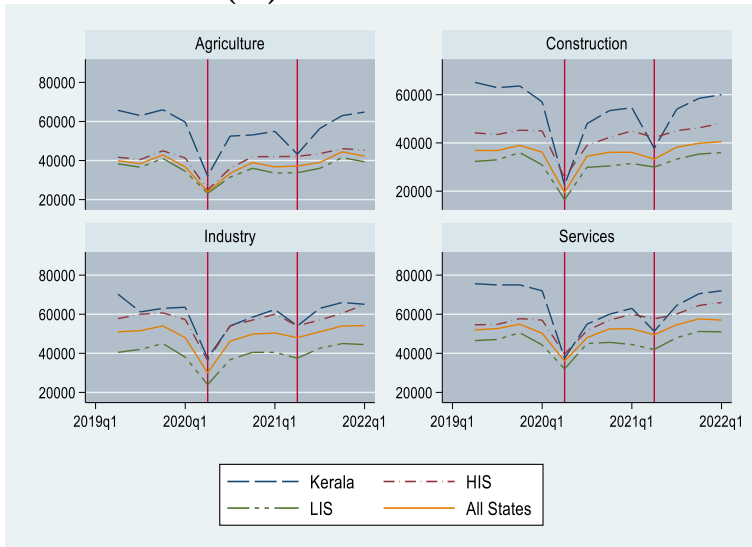
Post the second wave, a trajectory of recovery emerged. By 2022Q1, median incomes showed signs of stabilizing and gradually rising across sectors and states. Kerala continued to display steady growth rates in median incomes, reflecting a consistent recovery pattern, in all sectors but Industry (4.3%).

The question arises: has the median household income managed to surpass its pre-pandemic levels or is it still trailing behind? Analyzing the period between 2019Q4 and 2022Q2 reveals nuanced trends. In the realm of Agriculture, households in Kerala experienced a 1.8% income loss, whereas the decrease was 1.6% for households across All States. Conversely, the median income in HIS saw a 0.7% rise above the 2019Q4 level. Moving to the Industry sector, Kerala exhibited a 3.3% income growth compared to pre-pandemic levels, whereas HIS demonstrated a notable 7% increase, significantly higher than the mere 0.3% rise observed across All States. However, in the Construction sector, Kerala's median household income lagged, standing 5.7% below the 2019Q4 level, while the Services sector showed a 4% dip. In contrast, HIS depicted a 6.3% and 14.3% decline in Construction

and Services sectors, respectively, while All States recorded declines of 3.8% and 3.8% in these sectors.

This data underscores the striking disparity in income dynamics observed between the initial and subsequent waves of the COVID-19 pandemic, as well as the ensuing period of recovery.

Figure 8: Household Quarterly Median Total Income by Economic Sector (Rs)



Source: Same as Figure 1.

4. Conclusions and Policy Suggestions

This study aims to assess the economic impact of COVID-19 on income in Kerala, drawing comparative insights from high-income states, low-income states, and the states combined (All India). Our

findings indicate that Kerala experienced the most significant income decline during the initial and subsequent waves of COVID-19, trailing behind other regions in terms of income recovery. Overall, by 2022Q2, the quarterly median household total income in Kerala remains approximately 4.5% lower than its pre-COVID level recorded in 2019Q4. In comparison, the HIS has exceeded the pre-pandemic income level by 6.1%, while All States have surpassed it by 4%.

The impact of the pandemic is disproportionately felt across states, across regions, social categories, gender, education, nature of the occupation, industry of occupation, and economic sectors. One consistent finding is that Kerala suffered very badly in every parameter compared to HIS and All States, but better than the LIS. Moreover, the recovery of household income has been slow and dragging for Kerala. This is not evident in the case of high-income states and All-States.

The pandemic's impact exhibits significant disparities among states concerning regions, social categories, genders, education, types of occupations, industries, and economic sectors. A consistent observation is Kerala's substantial adversity across all parameters compared to High-Income States (HIS) and All States. Furthermore, Kerala's household income recovery has been

notably sluggish compared to the swift recovery witnessed in high-income states and the overall state scenario.

Our research reveals that urban households in Kerala and low-income states experienced slightly greater adverse effects compared to rural households in Kerala. An examination of the pandemic's impact from a gender perspective indicates that households predominantly composed of males witnessed a relatively higher decline in income during 2020Q2 in comparison to the preceding year. When analyzing income variations based on social categories, marginalized communities were severely impacted by the pandemic, with Other Backward Classes (OBC) following closely. Particularly concerning, the quarterly median household total income of Scheduled Caste (SC) and Scheduled Tribe (ST) families in Kerala plummeted by 60.8% in 2020Q2 compared to 2019Q2. In contrast, both high-income states and all states experienced approximately a 40% income decline each.

Within various occupation categories, notable income declines were observed among households engaged in occupations such as Blue Collar, Self-Employment–Formal, and among Students/Retirees/Homemakers during the initial wave of the pandemic in Kerala. Additionally, farming occupation exhibited income decline across all states. In terms of the pandemic's impact on income across different occupational industries, the study

shows considerable income reductions among households employed in Fishing, Construction, Travel, Tourism, Hotel, Restaurant, and Personal Services sectors. Analyzing the pandemic's influence on income based on education levels reveals significantly higher income losses for individuals with no education, primary education, and secondary education. Conversely, individuals with higher secondary education managed to recover their lost income by 2022Q2, indicating that those with no education and primary education suffered more. This disparity was more pronounced in Kerala, whereas All States have surpassed their pre-pandemic income levels. Finally, the analysis demonstrates that households in the construction sector experienced substantial income loss across states, closely followed by the agriculture sector.

The analysis of household income recovery across different income measures indicates that while Kerala required a significant amount of time to regain lost income, other regions (High-Income States, Low-Income States, and All States) have completely recovered, demonstrating a swifter recovery process.

As the coronavirus struck states again in the second quarter of 2021, Kerala faced the most severe repercussions once more. Conversely, households in high-income states and the combined states (All-States) experienced relatively lesser impacts. For

instance, households in Kerala witnessed a substantial income decline of 21.6% in 2021Q2 compared to 2021Q1, while High-Income States did not report any income loss during this period. This pattern persisted across all income categories—total income, labor income, non-labor income, and private income—as well as across gender, social categories, regions, occupations, and industry sectors.

When examining the household income recovery in 2022Q2 against the pre-pandemic phase (2019Q4), it reveals that the household total income remains 4.5% lower than the pre-COVID level. High-income states and All-States display figures of approximately 6.1% and 4%, respectively. Kerala, in particular, faces a considerable journey ahead to recuperate from the pandemic's impact. This conclusion is reinforced by a detailed analysis based on region, gender, and occupation, further emphasizing the substantial distance Kerala must cover for recovery.

Further, the spread of the Omicron variant is likely to curtail growth in 2022. Nevertheless, the economic recovery is still likely to continue over the year. Going by the findings, it can be said that households in Kerala are likely to bear the maximum brunt again compared to other states. The uneven effects of the pandemic, in other words, will endure. The pace of revival depends on the rate

of double-dose vaccination, mobility restrictions, and shutting down of the economy.

Moreover, the emergence of the Omicron variant is anticipated to hinder growth in 2022. Nonetheless, there remains an expectation of ongoing economic recovery throughout the year. Our findings suggest that if another wave of the virus strikes the states, households in Kerala might once again bear the brunt more significantly than households in other states. In essence, the unequal repercussions of the pandemic are expected to persist. The pace of this recovery hinges upon factors such as the rate of double-dose vaccination, mobility constraints, and the extent of economic shutdowns.

Governments should implement targeted financial aid focusing on vulnerable groups in Kerala and low-income states, while designing gender-specific support programs. Investment in education and skill development for individuals with lower education levels is crucial, alongside tailored assistance for occupations and sectors hit hardest by income declines, including Blue Collar workers, farming, fishing, and service sectors. Special attention must be given to marginalized communities like Scheduled Caste and Scheduled Tribe families. Likewise, the government should prioritize income-generating projects, emphasizing the revitalization of the construction and agriculture sectors as vital

components of economic recovery. Accelerating vaccination efforts, deploying effective mitigation strategies, and maintaining policy flexibility are vital to manage future waves. These measures aim to mitigate income disparities and aid in the overall economic recovery from COVID-19's impact.

Any conversation regarding government stimulus or expenditure measures necessitates a discussion on the financing method. Following the pandemic, the state introduced several welfare schemes to alleviate its negative impact on household income. However, the fiscal capacity of various state governments has dwindled, resulting in a considerable debt burden. Consequently, states are striving to alleviate this burden by curbing expenses and enhancing tax revenues, encompassing both tax and non-tax sources. From a societal standpoint, this strategy might not be the most prudent policy choice. In essence, the government should worry less about the debt and fiscal deficit, focusing instead on allocating more resources to projects that generate tangible outcomes. In simpler terms, state governments must enhance both the *quality* and *quantity* of expenditure to address these issues.

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Annexure A

Table A.1: 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 17)	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 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	NGO transfers income	This represents the total household income derived from in-kind transfers provided by non-governmental organizations within a month, calculated based on the market value of the goods received. These transfers encompass a wide range of items, including consumer durable goods, food, housing, and similar contributions offered by non-governmental organizations.
14	Government transfers income	This represents the total household income originating from in-kind transfers provided by the government within a month. The total income calculation includes the market value of goods supplied by the government, encompassing various in-kind transfers such as consumer durables, food, housing, etc.
15	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.
16	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.
17	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.
18 = 3+10	Labor income	This is the total household income received from wages and self-production income.
19 = 4+5+6+7+8+9+ 12+13+14+15+ 16+17	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 A.2: Distribution of Observations across Regions

State	Freq.	Percent	Cum.
HIS	1,715,052	41.26	41.26
KL	128,793	3.1	44.36
LIS	2,312,783	55.64	100
Total	4,156,628	100	

Table A.3: Distribution of Households by Gender (Percent)

Gender Group	Definition	All States	Kerala
Balanced	This is a household in which the number of female members is the same as male members.	34.35	34.04
Female Dominated	A household in which females are more than twice males	8.52	14.82
Female Majority	A household in which females outnumber males but are not twice as many as males	15.98	15.88
Male Dominated	A household in which males are more than twice females.	15.05	12.58
Male Majority	This is a household in which males outnumber females but are not twice as many as females.	26.1	22.68
Total		100	100

Table A.4: Distribution of Households by Social Category

Caste	All States			Kerala		
	Freq.	Percent	Cum.	Freq.	Percent	Cum.
General	1,150,258	28.1	28.1	11,493	10.1	10.1
OBC	1,725,570	42.2	70.4	79,539	70.0	80.1
SC-ST	1,211,094	29.6	100.0	22,589	19.9	100.0
Total	4,086,922	100.0		113,621	100.0	

Table A.5: Distribution of Households by Education

Education	All States			Kerala		
	Freq.	Percent	Cum.	Freq.	Percent	Cum.
No Education	212,874	5.16	27.56	3,040	2.37	32.55
Primary	1,169,269	28.36	55.92	21,475	16.74	49.3
Secondary	1,817,269	44.08	100	65,023	50.7	100
Higher Secondary	623,689	15.13	22.39	24,279	18.93	30.18
Graduation & Above	299,535	7.27	7.27	14,432	11.25	11.25
Total	4,122,636	100		128,249	100	

Table A.6: Categorisation of Occupation Types

Nature of Occupation	Occupation Code
White Collar Clerical Employees	White Collar
Legislator/Social Worker/ Activists	White Collar
Non-Industrial Technical Employee	White Collar
Manager	White Collar
White-Collar Professional Employees and Other Employees	White Collar
Wage Labourer	Blue Collar
Unoccupied	Blue Collar
Support Staff	Blue Collar
Home-based Worker	Blue Collar
Industrial Workers	Blue Collar
Agricultural Labourer	Blue Collar
Small Trader/Hawker/ Businessman without Fixed Premises	Self-empt- Informal
Businessman	Self-empt- Informal
Qualified Self Employed Professionals	Self-empt- Formal
Self Employed Entrepreneur	Self-empt- Formal
Small Farmer	Farming
Organised Farmer	Farming
Student	Student/Retired /HM
Retired/Aged	Student/Retired /HM
Home Maker	Student/Retired /HM

Table A.7: Distribution of Households by Occupation Type

Occupation Code	All States			Kerala		
	Freq.	Percent	Cum.	Freq.	Percent	Cum.
Blue Collar	759,440	18.92	18.92	23,588.85	18.72	18.72
Farming	511,185	12.74	31.65	1,581.84	1.26	19.98
Self-empt-Formal	300,541	7.49	39.14	11,560.54	9.18	29.15
Self-empt-Informal	104,431	2.6	41.74	1,916.87	1.52	30.68
Student/Retired/HM	2,118,209	52.77	94.51	78,105.11	61.99	92.67
White Collar	220,209	5.49	100	9,236.79	7.33	100
Total	4,014,014	100		125,990	100	

Table A.8: Industry of Occupations and Economics Sectors

sector_new	industry_new	industry_of_occupation
Agriculture	Agriculture & Allied	Agriculture- allied activities
Agriculture	Agriculture & Allied	Crop Cultivation
Agriculture	Agriculture & Allied	Plantation Crop Cultivation
Agriculture	Agriculture & Allied	Poultry Farming, Animal Husbandry and Vermiculture
Agriculture	Fishing	Fishing
Agriculture	Industry	Fruits and Vegetable Farming
Agriculture	Industry	Mines
Agriculture	Other Services	Public Administrative Services
Agriculture	Personal Services	Personal Non-Professional Services
Construction Industry	Construction	Real Estate & Construction
Industry	Agriculture & Allied	Footwear and other Leather Industries
Industry	Agriculture & Allied	Forestry including Wood Cutting
Industry	Communication Services	Media and Publishing
Industry	Industry	Automobiles and Other Transport Equipment Manufacturers
Industry	Industry	Cement, Tiles, Bricks, Ceramics, Glass and other construction materials
Industry	Industry	Chemical Industries
Industry	Industry	Food Industries

Industry	Industry	Gems & Jewellery
Industry	Industry	Handicraft Industries
Industry	Industry	Machinery Manufacturers
Industry	Industry	Metal Industries
Industry	Industry	Pharmaceutical Manufacturer
Industry	Industry	Soaps, Detergents, Cosmetics, Toiletries
Industry	Industry	Textile Industries
Services	Communication Services	Communication, Post & Courier
Services	Communication Services	IT & ITES
Services	Edu & Health	Education
Services	Edu & Health	Health Care
Services	Financial Services	Financial Services
Services	Other Services	Defence Services
Services	Other Services	Entertainment and Sports
Services	Other Services	Utilities
Services	Personal Services	Personal Professional Services
Services	Trade	Retail Trade
Services	Trade	Wholesale Trade
Services	Travel, Tourism, Hotel & Rest.	Hotels and Restaurants
Services	Travel, Tourism, Hotel & Rest.	Travel and Tourism

Table A.9: Distribution of Households by Industrial Occupations

Occupation by Industry	All States			Kerala		
	Freq.	Percent	Cum.	Freq.	Percent	Cum.
Agriculture & Allied	1,343,767	34.59	34.59	6,039	5.72	5.72
Communication Services	36,370	0.94	35.52	1,512	1.43	7.16
Construction	626,155	16.12	51.64	30,894	29.28	36.44
Edu & Health	132,414	3.41	55.05	2,350	2.23	38.67
Financial Services	68,306	1.76	56.81	5,288	5.01	43.68
Fishing	9,125	0.23	57.04	1,021	0.97	44.65
Industry	397,661	10.24	67.28	4,469	4.24	48.88
Other Services	100,029	2.57	69.85	1,940	1.84	50.72
Personal Services	299,851	7.72	77.57	15,347	14.55	65.27
Trade	615,965	15.85	93.43	19,079	18.08	83.35
Travel, Tourism, Hotel & Rest.	255,423	6.57	100	17,561	16.65	100
Total	3,885,066	100		105,501	100	

Table A.10: Distribution of Households by Economic Sectors

Sector	All States			Kerala		
	Freq.	Percent	Cum.	Freq.	Percent	Cum.
Agriculture	1,760,658	45.32	45.32	22,608	21.43	21.43
Construction	629,564	16.2	61.52	31,641	29.99	51.42
Industry	348,856	8.98	70.5	3,764	3.57	54.99
Services	1,145,988	29.5	100	47,488	45.01	100
Total	3,885,066	100		105,501	100	



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