

Food prices and inflation during the pandemic:

Kerala remains an exception?

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Introduction

The impact of supply shocks due to COVID 19 has contributed to soaring prices, especially food prices, during the first two quarters of 2020-21 despite the weak aggregate demand (RBI, 2021). The observed rise was driven by an increase in fuel and transportation costs along with an increase in some components of the food basket. While the prices showed an upward trend in most Indian states during the pandemic year, Kerala showed an impressive trend of declining prices during the pandemic compared to the pre-pandemic price trends, particularly in rural areas (Kakarlapudi and Renjith, 2020; Renjith and Kakarlapudi, 2021). When the economies were recovering from the first wave of the pandemic, India faced the worst second wave with a surge in the number of cases, death tolls, and collapsing health systems. The massive second wave again forced the state and local governments to impose curfews and restrictions on movement leading to disruptions in supply chains, albeit less intense. Over and above the domestic supply shocks due to the second wave, inflation in the US and global inflationary pressures could create inflationary pressures in the domestic economy through import of goods (Patnaik and Pande, 2021).

As is well known, Kerala demonstrated exemplary performance in the first wave of the COVID-19 pandemic through active participation of local governments and the people's campaigning. But Kerala turns out to be one of the most affected states in the second wave and continues to register record high numbers till the end of September 2021. In this context, the question that assumes importance is, has Kerala remained successful in arresting the price rise despite the devastating second wave amidst higher inflationary pressures globally? This article builds further on Kakarlapudi and Renjith (2020) and Renjith and Kakarlapudi (2021)

and analyses the price trends during 2020-21 and Q1 of 2021-22 (the period that corresponds to COVID second wave) using the monthly Consumer Prices Index (CPI) data published by MOSPI. The price changes are analyzed through estimating 'base effect', which represents price change from the reference months, and 'momentum effect', which represents the changes from the previous months. The rationale is that the difference between the year-on-year (YoY) rate of inflation in two subsequent months is approximately the same as the difference between the month-on-month (MoM) rate in the current month and the month-on-month rate twelve months previously (GoI, 2021). The formula for estimating the base effect and momentum effect is as follows.

$$\pi_t - \pi_{t-1} = [(\ln(p_t) - \ln(p_{t-1})) - (\ln(p_{t-12}) - \ln(p_{t-13}))] * 100$$

where π is the rate of inflation and p is the price index. While left-hand side variable $\pi_t - \pi_{t-1}$ describes why inflation in t th period moved to $t-1$ th period (YoY inflation in period t), the right-hand side variables explain the month-on-month changes in the price index, capturing the recent MoM price changes $p_t - p_{t-1}$ with MoM price changes a year ago, i.e., $p_{t-12} - p_{t-13}$.

Headline inflation during the pandemic: Kerala's trend reversal

The previous article by Kakarlapudi and Renjith (2020) showed that Kerala was the only state among the south Indian states to reverse the increasing headline inflation during May to September 2020. More importantly, headline inflation in rural Kerala was lower than in Urban Kerala during the pandemic, while the trend was just the opposite in other states. However, their analysis used the data up to September 2020, the period after which COVID cases started to increase gradually. Extending the data further, Table 1 compares the trends in headline inflation during the pandemic with pre-pandemic years. The combined CPI for all India increases to 6.16 percent in 2020-21 from 4.77 percent in 2019-20. This increase could be due to supply disruptions during the lockdowns, non-availability of labour at mandis, increased transportation costs etc. The natural shocks in the form of excess rains during the kharif harvest led to crop damages and pushed up food prices, especially vegetables (RBI, 2021). The prices increased during the pandemic year both in rural and urban India (Table 1). Contrary to the trends observed at all India level, Kerala shows price deceleration during the pandemic year (2020-21). The overall CPI in Kerala marginally declined from 6.14 percent in 2019-20 to 5.95 percent in 2020-21. As a result, the level of inflation in Kerala during 2020-

21 is second-lowest after Karnataka (5.77 percent). The finding that Kerala is the only South Indian state to record lower inflation during the pandemic year compared to the pre-pandemic year reaffirms the initial finding by Kakarlapudi and Renjith (2020). In addition, only Kerala and Tamil Nadu show rural inflation lower than urban inflation during the pandemic.

Table 1: Headline inflation during the COVID-19 Pandemic

	Rural			Urban			Combined		
	2018-19	2019-20	2020-21	2018-19	2019-20	2020-21	2018-19	2019-20	2020-21
Andhra Pradesh	0.04	2.20	9.29	3.00	5.93	8.37	1.08	3.54	8.97
Karnataka	2.63	5.03	5.79	3.91	6.03	5.76	3.32	5.57	5.77
Kerala	5.01	6.55	5.71	4.76	5.38	6.47	4.94	6.14	5.95
Tamil Nadu	4.05	5.31	7.02	3.44	5.99	7.89	3.67	5.72	7.52
Telangana	2.56	2.31	9.87	2.60	6.42	7.79	2.59	4.53	8.74
All India	2.99	4.25	5.94	3.92	5.38	6.45	3.41	4.77	6.16

Note: The data for April and May 2020 was imputed. For states, years 2020-21 corresponds to an average of June 2020 to March 2021.

Source: Authors estimates based on NSO

Constituents of CPI

The drivers of CPI headline inflation during the pandemic year (2020-21) showed different trends across states as well as rural-urban categories. It is important to note that the data for constituents of CPI at the state level is available only from August 2020. The figures in Table 2 indicate the average growth in prices during August 2020 to March 2021. The following inferences could be drawn from Table 2. First, Kerala shows lower prices at the aggregate level and in the rural and urban areas as in most commodity groups except personal care and effects and miscellaneous as compared to all India and South Indian states. The growth of prices in personal care is double (20.82 percent) than that of all India average (10.4 percent). Though Andhra Pradesh, Karnataka and Tamil Nadu show higher prices than the national average, their growth rates are much lower than Kerala. Similarly, Kerala shows higher prices in the miscellaneous category (7.68 percent) compared to the all-India average (6.61). Among the south Indian states, Telangana shows higher prices of miscellaneous items (8.03 percent) than Kerala. In all other commodity categories, Kerala's price rise is lower than the national average and all other south Indian states, especially food and beverages. RBI (2021) showed that with the weight of 45 percent, food and beverages prices contributed to 54 percent of the overall inflation during 2020-21. It was argued that prices food price inflation showed a slight decline May-June 2020 with the gradual relaxation of lockdown conditions and easing supply

constraints, but it picked up again from August 2020-January 2021 as excess rains led to crop damage. The primary sources of food inflation were pulses, oils and fats, meat and fish, eggs, and spices, animal protein items, and vegetables (Renjith and Kakarlapudi, 2021). Despite the inflationary pressures in food items, Kerala has successfully managed to control the prices of food and beverages throughout the pandemic year, notwithstanding the surge in COVID cases from October 2020.

Table 2: Constituents of CPI inflation during the Pandemic

State	Food & beverages	Pan, tobacco & intoxicants	Clothing & footwear	Fuel & light	Household goods & services	Personal care & effects	Miscellaneous
	Combined						
Andhra Pradesh	9.32	24.88	3.54	4.90	2.05	12.71	6.22
Karnataka	5.32	8.69	1.25	4.04	1.90	11.78	6.06
Kerala	4.30	3.84	0.64	3.74	0.78	20.82	7.68
Tamil Nadu	7.57	11.22	3.00	5.49	4.44	12.57	6.55
Telangana	9.25	17.05	5.73	-4.61	2.60	7.00	8.03
All India	6.39	10.10	3.46	3.01	2.93	10.40	6.61
	Rural						
Andhra Pradesh	9.36	25.77	3.96	2.14	0.40	12.45	6.08
Karnataka	5.13	8.94	0.48	1.18	1.07	12.94	5.91
Kerala	3.67	3.08	0.00	2.87	2.66	20.25	7.55
Tamil Nadu	6.61	8.01	2.56	3.54	2.27	10.33	5.19
Telangana	9.84	15.47	9.08	13.05	1.14	6.15	9.84
All India	6.02	9.60	3.21	0.67	1.59	9.79	5.83
	Urban						
Andhra Pradesh	9.21	21.41	2.65	11.01	4.89	13.29	6.44
Karnataka	5.59	8.11	2.14	7.61	2.59	10.41	6.17
Kerala	5.93	6.39	2.27	5.64	-2.58	22.50	7.91
Tamil Nadu	8.51	16.83	3.45	7.40	6.46	14.48	7.61
Telangana	8.61	20.54	2.54	7.12	4.14	7.96	6.46
All India	7.02	11.47	3.88	7.24	4.49	11.26	7.43

Source: Authors estimates based on NSO

The effect of COVID second wave on food price inflation

The inflation trends analyzed thus far are based on the twelve-month change in the index to eliminate the effect of seasonal fluctuations. However, the year-on-year changes do not consider the recent changes in prices and price changes a year before (GoI, 2021). Taking into account the recent changes and comparing with a year before assumes importance, especially during the pandemic period as the regulations change from time to time. Hence, base effect and momentum effect are estimated to distinguish whether changes in inflation are caused by price changes in the current quarter or by extreme price changes in the base

period. Here, a lower base effect or higher momentum has a positive impact on the change in inflation.

In order to measure the inflationary pressures during the pandemic, the base and momentum effect for food and beverages has been estimated. It may be noted that data for Q1 of 2020-21 is not available and Q2 covers only two months, August and September, as the data at disaggregate level is available only from August 2020. Similarly, due to the data constraint base effect for Q1 of 2021 cannot be estimated. Hence, the analysis focuses on the momentum effect for the same to draw inferences on the impact of the second wave. The momentum effect for all India shows a considerable decline from 8.54 percent in Q1 2020-21 to 3.97 percent in Q4 2020-21. The decline is sharp from Q3 2020-21 to Q4 2020-21. A similar trend could be observed in the base effect.

Further, it may be noted that the momentum effect is lower than the base effect in Q3 and Q4 of 2020-21, indicating the price stabilization after the initial shocks. A series of policy measures such as relaxing import norms and releasing buffer stocks imposing stock limits on wholesalers and retailers to curb market speculation and hoarding contributed to a decline in prices (RBI, 2021). However, the momentum effect increases marginally in Q1 2021-22 to 4.37 per cent from 3.97 per cent from the previous quarter but remained lower than base effect 5.10 percent. This clearly shows that Q1, which corresponds to the peak of India's second wave, did not lead to a rise in food price inflation as much as the first wave. First, this could be due to the less distortions in the supply chain in the second wave as states implemented lockdowns strategically to offset the movement of goods and services. Secondly, consumers have not resorted to panic buying as they did in the lockdowns in the first wave.

In sync with the all-India trends, both momentum and base effect showed a declining trend in Kerala (Table 3). The trends reveal some interesting features that signify Kerala's remarkable performance. Kerala records the lowest momentum and base effect in all the quarters except in quarter 4 compared to the other South Indian states. In quarter 3, the decline in price momentum despite high base effect helped ease food inflation. In quarter 4, both momentum and base effect clearly indicate Kerala's success in curtailing the food prices during the pandemic. While momentum effect is higher than base effect in two of the three quarters in all other south Indian states, Kerala maintained a consistent lower momentum effect in all three quarters.

Table 3: Base and Momentum effect in Food and Beverages prices

	2020-21Q1	2020-21Q2	2020-21Q3	2020-21Q4	2021-22Q1
Momentum Effect					
Andhra Pradesh	NA	3.01	0.83	-0.75	0.85
Karnataka	NA	1.44	0.33	-0.12	1.35
Kerala	NA	1.79	-0.04	0.47	0.69
Tamil Nadu	NA	1.93	0.51	-0.30	0.82
Telangana	NA	1.64	0.46	-0.72	1.15
All India	1.12	1.56	-0.08	-0.90	1.23
Base Effect					
Andhra Pradesh	1.21	0.60	1.26	-0.42	NA
Karnataka	1.16	0.38	1.45	-0.99	NA
Kerala	1.13	0.33	1.17	0.06	NA
Tamil Nadu	1.47	0.71	1.45	-0.08	NA
Telangana	1.48	1.10	0.86	0.28	NA
All India	1.09	0.99	1.77	-1.34	1.12
YoY					
Andhra Pradesh	NA	9.40	10.05	8.14	NA
Karnataka	NA	6.18	5.73	3.85	NA
Kerala	NA	5.62	4.08	3.33	NA
Tamil Nadu	NA	9.05	7.50	6.20	NA
Telangana	NA	10.85	10.28	6.11	NA
All India	8.54	8.49	7.31	3.97	4.37

Source: Authors estimates based on NSO

Conclusion

This article analyzed the price trends during 2020-21Q1 to 2021-22 Q1. The price changes are analyzed through estimating 'base effect' and 'momentum effect'. The study reaffirms the previous findings, as Kerala is the only South Indian state to record a lower inflation during the pandemic year in comparison to the pre-pandemic year. Also, only Kerala and Tamil Nadu show rural inflation lower than urban inflation during the pandemic. Interestingly, Kerala has successfully managed to the prices of food and beverages throughout the pandemic year notwithstanding the surge in COVID cases. Realizing the base effect, the countercyclical policy interventions in the price momentum in different quarters clearly indicate Kerala's success in curtailing the food prices during the pandemic.

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