

# COVID-19 and Dietary Diversity in India

Nidhi Kaicker, Aashi Gupta, Raghav Gaiha

Aashi Gupta  
Research Scholar, Economics Department  
Delhi School of Economics



# Motivation

- A **shift from more nutritious diet to cheaper and less nutritious food**, as a result of the pandemic : Laborde et. al. (2020), Heady and Ruel (2020)
- A **reduction in diet diversity scores** and more for the **rural households**, households with **no formal education, low monthly income, and loss of occupation and income** due to the Covid-19 pandemic : Kundu et al. (2020)
- **Lower dietary diversity scores** in areas with **high number of Covid-19 infections** : Zhao et al. (2020)
- **Larger declines for nutritious food items** such as fruits, eggs, fish and meat as a result of the pandemic : Dreze and Somanchi, 2020
- **Reduced ability of households to access nutrient dense foods** : Harris et al. (2020)

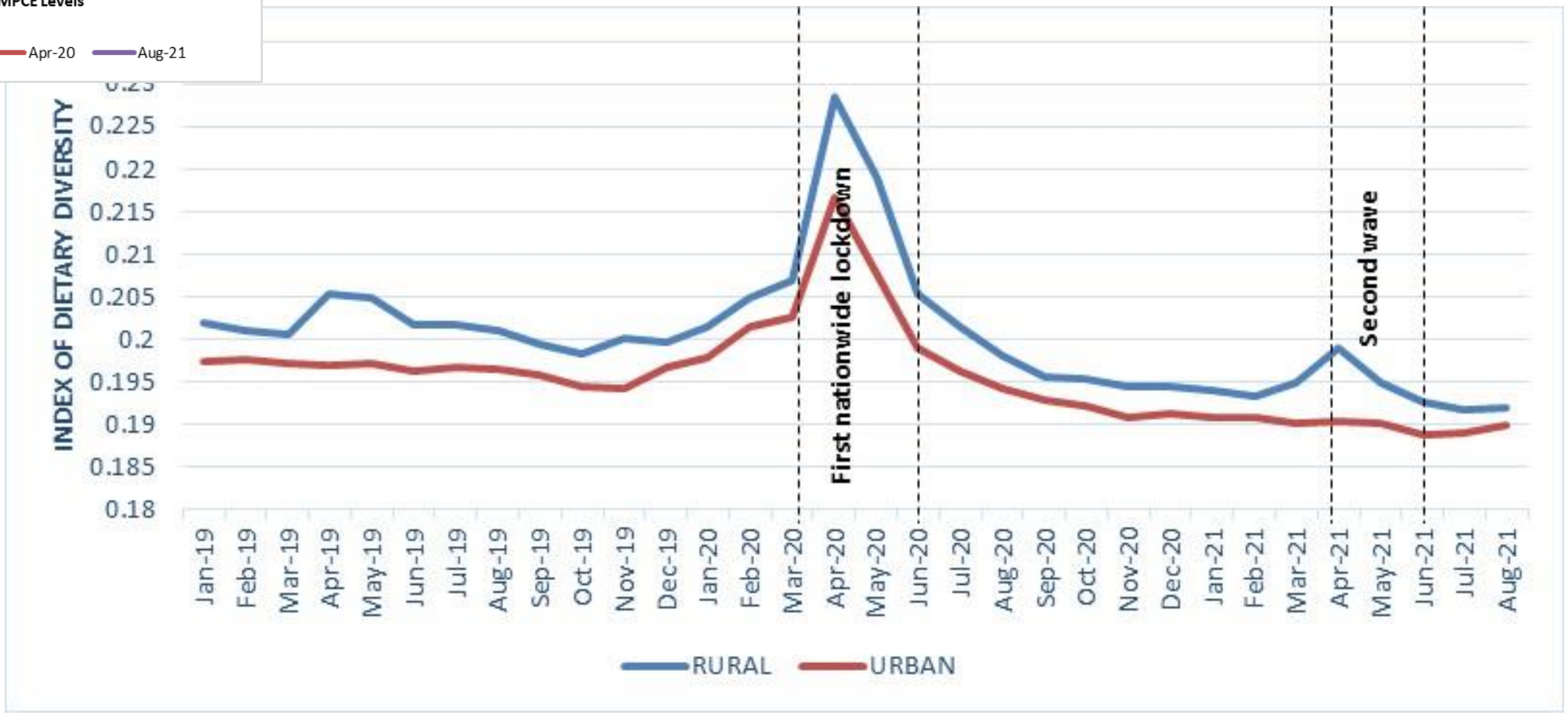
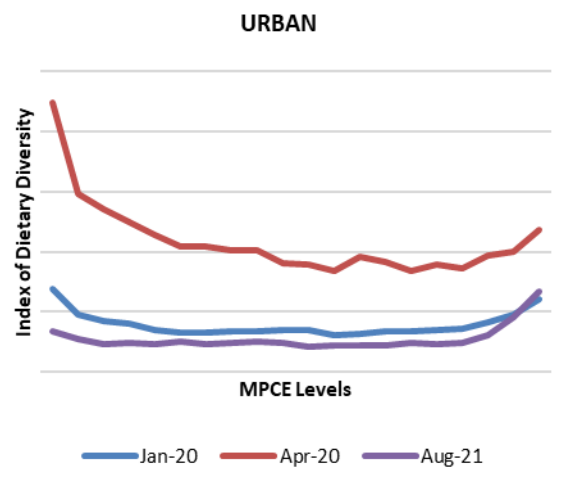
# Objective

- To study the impact of pandemic induced economic stressors and supply shocks on diet diversity.
- Measure of diet diversity :

$$IDD_{it} = \sum_{j=1}^n S_{ijt} ,$$

where  $S_{ijt}$  is the share of  $j^{\text{th}}$  commodity in total food expenditure at time  $t$ .

## Trends in IDD in rural and urban India



# Methodology

(i) *Two-stage least squares regression*

$$IDD_{ijt} = \beta_0 + \beta_1 X_{1ijt} + \beta_2 X_{2jt} + \delta T_t + \epsilon_{ijt}$$

$$Covid - 19 Infections_{jt} = \alpha_0 + \alpha_1 Z_{1jt} + \alpha_2 Z_{2jt} + \gamma_1 X_{1ijt} + \gamma_2 X_{2jt} + \delta T_t + \epsilon_{ijt}$$

(ii) *Difference-in-differences (DID) model*

$$\begin{aligned} \gamma_{it} = & \alpha_0 + \beta_0(IS_i) + \beta_1(T1) + \beta_2(T2) + \beta_3(T3) + DID_1(IS_i * T1) \\ & + DID_1(IS_i * T2) + DID_1(IS_i * T3) + \delta Z_i + \epsilon_{ijt} \end{aligned}$$

# Results

*(i) Two-stage least squares regression*

- Households **shifted to a more concentrated diet** as the pandemic intensified.
- **Greater diversity of diets as households' MPCE increase**, but after a certain threshold, the diets become relatively more concentrated.
- **Increased dietary diversity with household size.**
- **Children- dominated households have a higher dietary diversity.**
- Households with **female head have higher dietary diversity in urban areas**, but **a lower dietary diversity in the rural areas**
- **Age of the household head** is **negatively** related to dietary diversity.
- Relative to Hindus, the **Muslims have a higher dietary diversity**. The **other minorities**, Sikh and the Christian, however, **have a more concentrated diet** as compared to Hindus.

# Results

*(ii) Difference-in-differences (DID) model*

- The **affected households had a relatively more concentrated diet** than the unaffected/less affected households.
- Greater increases in the index of dietary diversification (or **more concentrated diets**) in **rural households** compared to urban.
- The removal of restrictions during the **second year of the pandemic** impacted the dietary diversity of the intervention group in favorable manner, and their diets became more diversified, though the intensity of diversification was lower compared to the control groups.
- **An income shock of any magnitude proves to alter the dietary patterns of households both in rural and urban India.**

# Policy Recommendations

- Checking for regional imbalances : Integration of markets
- Important role of women
- Provision of public goods
- Encouraging active involvement of the private sector
- Generating stable sources of employment



