Income Induced Effects of Covid-19 on the Food Consumption Pattern of Indian Households

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ABSTRACT:
The lockdown, imposed national to decrease the unfold of COVID-19, has disrupted financial interest and adversely affected the profits of maximum households. The degree and composition of family intake is anticipated to extrade and create a disequilibrium withinside the economic system thru a downward shift withinside the call for curves of meals and non-meals gadgets. The intake sample is probably to shift from non-critical to critical commodities. The intake of high-fee meals commodities will decline relatively better than of staple foods. Interventions withinside the shape of direct substances of critical meals gadgets and coins doles will make certain the meals safety of the terrible at some point of the pandemic.
KEYWORDS: *Income, households, consumption, profits, expenditure, COVID-19.*

I. INTRODUCTION

Improving financial get entry to to meals has usually been a concern at the schedule for maintaining meals safety in India. Household profits, a prime determinant of get entry to to meals, has witnessed regular progress, and according to capita profits on the country wide degree (at 2011–12 costs) has multiplied 5.sixty four instances from INR 16,836 in 1965–sixty six to INR 94,954 in 2019–20. The degree and composition of the meals basket has gone through a great shift over time (Srivastava et al. 2013). The to be had literature establishes a high quality affiliation among profits degree and meals intake, aleven though the marginal impact of profits has been decreasing over time, and it varies with the aid of using financial magnificence and geographical location (Radhakrishna and Ravi 1990; Kumar et al. 2011; Srivastava, Balaji, and Kolady 2016). Thus, a extrade (increase/decrease) in profits has direct implications for meals safety.

The prevalence of the COVID-19 pandemic pressured the Indian authorities to impose a 21-day national lockdown on 24 March 2020 to decrease the unfold of the virus; the lockdown turned into prolonged later. The lockdown disrupted financial interest and adversely affected the profits degree of maximum households. This is clear from the 23.9% contraction withinside the gross home product (GDP) at constant (2011–12) costs in Q1 2020–21 (April to June) compared to the 5.2% boom in Q1 2019–20 (Government of India 2020). The decline in profits is anticipated to result in a downward shift withinside the call for curves of meals and non-meals commodities and, therefore, a disequilibrium withinside the economic system. An evaluation of the profits-triggered extrade in intake styles is critical to recognize client behaviour at some point of the pandemic and draw implications on call for push measures to restore the economic system.

In this context, the paper has tested intake styles and modelled client behaviour to simulate the probably impact of extrade in profits on the extent and composition of intake expenditure beneathneath one of a kind eventualities in India. This paper examines the intake sample of Indian households; fashions client behaviour and estimates expenditure elasticities for the one of a kind meals agencies and non-meals charges; and constructs viable profits eventualities for the 12 months 2020–21 and simulates the probably results of profits shocks on intake styles.

II. METHODOLOGY

The observe is primarily based totally at the proof from the nationally consultant Consumer Expenditure Surveys (CES) of the National Sample Survey Office (NSSO). The intake expenditure on meals and non-meals gadgets is as in comparison among the 50th (1993–94) and 68th rounds (2011–12) throughout sectors (rural and concrete) and expenditure classes (primarily based totally on decile values of month-to-month according to capita intake expenditure (MPCE)). For the temporal contrast of expenditure, values had been expressed at constant (1987–88) costs the use of the client fee index (CPI) for agricultural labour for the agricultural area and the CPI for city non-guide personnel for the city area.

The intake expenditure of a family is allotted amongst one of a kind meals and non-meals gadgets in this sort of share to fulfil its call for. It is thought that the family is a application maximizer and it allocates its finances rationally. Therefore, for modelling client behaviour, it's far critical to select a version which satisfies the axiom of desire and that is regular with the microeconomic principle of application maximization. The

Linear Approximation-Almost Ideal Demand System (LA-AIDS) version is broadly used as it satisfies the axiom of desire exactly, and it's far rather smooth to estimate and interpret, well suited with aggregation over consumers, and regular with family finances statistics (Deaton and Meulbauer 1980; Alston and Chalfant 1993; Eales and Unnevehr 1994). This observe makes use of the LA-AIDS to version client behaviour and estimate the expenditure elasticities of meals and non-meals gadgets; it makes use of the modern to be had cross-sectional statistics of the CES relating the 12 months 2011–12 (68th round). The specification of the version is

$$S_i = a_i + \sum_{j=1}^{n} b_{ij} \ln p_{ij} + C_i \ln Y + d_i IMR + e_i \ln age + f_i \ln hhsize + g_i URBAN + e_i$$

where,

s_i = budget share of ith commodity in total expenditure, $i = 1, 2, 3, \ldots..n$
$\ln p_{ij}$ = price of jth commodity group in i^{th} equation in logarithmic form,
$\ln Y$ = MPCE divided by the Stone price index in logarithmic form,

IMR_i = inverse mills ratio with respect to i^{th} commodity, age_i = age of household head in logarithmic form, hhsize = household size in logarithmic form URBAN = dummy for urban sector.

Several commodities have a intake fee of 0 for numerous households, because of versions in preference, rare purchasing, and/or misreporting (Keen 1986). To conquer the trouble of 0 observations, the two-step Heckman estimation system is used. First, a probit regression version is used to estimate the chance that a given family consumes a given commodity (Heien and Wessells 1990). This regression is used to estimate for every family the inverse Mills ratio (IMR), that is used as an tool withinside the LA- AIDS version.

The costs used withinside the version are 'unit values', derived because the ratio of the expenditure and the amount of commodities ate up with the aid of using the family. As it's far tough to derive unit costs for non-meals gadgets, a fee index for non-meals commodities turned into built the use of the CPI (state-sensible one by one for rural and concrete areas), the Stone fee index for meals commodities, and family-particular stocks of meals and non-meals charges in overall intake expenditure as weight. The Stone fee index for meals commodities is built the use of the formula

$$\ln I = \sum_i \varpi_i \ln p_i$$

where ϖ_i is the mean of the expenditure share of the ith commodity.

To be steady with microeconomic theory (the customer is a application maximizer), sure regulations had been imposed: homogeneity of diploma 0 in expenses and profits (i.e., clients haven't any cash illusion); symmetrical move elasticities; and additivity (all of the price range stocks upload as much as 1). Since the mistakes of this machine of equations have a tendency to be correlated because the samples drawn had been nearly identical, the apparently unrelated regression estimation (SURE) version, proposed through Zellner (1962), turned into used to get green estimators of the version. The SURE version employs the possible generalized least squares method for estimation. The expenditure elasticity for i^{th} commodity with appreciate to overall meals expenditure turned into expected through the formula

$$n_i = 1 + \frac{C_i}{\varpi_i}$$

Using the expected expenditure elasticities, the impact of profits-caused extrade in overall intake expenditure on the extent and composition of meals and non-meals intake turned into simulated below 3 scenarios.

Scenario 1 assumes that the 26.68% cline withinside the non-public very last intake expenditure (PFCE) at 2011– 12 expenses in Q1 2020–21 over Q1 2019–20 will keep for all of the next 3 quarters (Q2, Q3, and Q4) in 2020–21. Thus, the general decline in PFCE throughout the yr 2020–21 could be 26.68% in comparison to 2019–20.

Scenario 2 assumes a sluggish restoration, in which the extrade withinside the PFCE in Q2, Q3, and Q4 of 2020–21 could be –15%, –10%, and 0% over the respective quarters in 2019–20 and, in 2020–21, the PFCE will decline 12.54% (weighted common) overall.

Scenario three assumes 100% restoration from Q2 onwards, and the closing quarters in 2020–21 will witness the identical degree of PFCE as in 2019–20; overall, the PFCE will decline 6.26%. The degree and sample of intake expenditure throughout 2019–20, the baseline pre-COVID period, turned into received through inflating the values of 2011–12 CES with CPI.

III. RESULTS AND DISCUSSION
Consumption expenditure sample of Indian families
According to the modern-day to be had 2011–12 CES, a median Indian family spends 44.27% of its overall intake expenditure on meals and relaxation is spent on non-meals prices (Table 1).

Table 1 : Trends in consumption expenditure pattern of Indian households (1993–94 to 2011–12)

Year	Real expenditure (at 1987–88 prices)			Share in total		expenditure (%)
	Food	Non-food	Total	Food		Non-food
Rural						
1993–94	103	57	160	64.6	35.4	
2011–12	107	113	221	48.6	51.4	
CGR (%)	0.21	3.93	1.80	-15.9	15.9	
Urban						
1993–94	153	112	265	57.64	42.36	
2011–12	154	246	401	38.47	61.53	
CGR (%)	0.05	4.47	2.33	-19.2	19.2	
Total						
1993–94	116	71	187	62.2	37.8	
2011–12	119	150	270	44.3	55.7	
CGR (%)	0.16	4.29	2.07	-17.9	17.9	

Source Authors' data

Between 1993–ninety four and 2011–12, the common non-meals expenditure (at steady expenses) improved substantially, at 4.29% annual boom rate, in comparison to best a marginal boom in meals prices. Consequently, the proportion of non-meals prices in overall intake expenditure improved from 37.8% in 1993–ninety four to 55.7% in 2011–12. A shift withinside the intake sample farfar from meals is an predicted phenomenon and is broadly found through numerous scholars (Kumar 1996; Meenakshi 1996; Rao 2000; Radhakrishna 2005). The intake sample varies substantially throughout rural and concrete regions and through expenditure magnificence. Although absolutely the cost of expenditure (on meals and non- meals) turned into fantastically better amongst city families, rural families allotted a fantastically better share in their intake expenditure to meals in each years. Between 1993–ninety four and 2011–12, the percent decline in the proportion of meals in overall intake expenditure turned into fantastically much less amongst rural families. These evidences monitor a continuously better propensity amongst rural families to devour meals. Similarly, the intake expenditure sample throughout decile classes (primarily based totally at the MPCE) found out that despite the fact that absolutely the cost of meals and non-meals expenditure will increase as family profits will increase, the proportion of meals in overall intake expenditure decreases (Table 2).

Items	Decile classes*										
	1	2	3	4	5	6	7	8	9	10	All
Total expenditure (INR/capita/month)	533	711	839	959	1,098	1,260	1,470	1,774	2,311	5,033	1,599
Non-Food	38.7	40.4	42.0	43.3	45.4	46.9	49.3	52.6	56.9	71.3	55.7
Food	61.3	59.6	58.0	56.7	54.6	53.1	50.7	47.4	43.1	28.7	44.3
Cereals	34.6	31.7	29.1	27.4	25.7	24.2	22.9	20.9	19.1	14.8	22.7
Pulses	8.0	7.5	7.5	7.3	6.9	6.8	6.7	6.4	6.0	4.9	6.4
Edible oils	9.3	9.1	8.7	8.4	8.1	8.0	7.8	7.3	6.8	5.5	7.4
Milk	8.1	11.5	14.0	15.9	18.1	19.5	20.2	22.3	23.4	22.2	19.2
Fruits	1.0	1.4	1.6	2.0	2.1	2.5	2.8	3.2	3.8	4.8	3.0
Vegetables	12.9	11.7	11.2	10.7	10.1	9.8	9.7	9.2	8.8	7.4	9.5
Non-veg	5.2	6.5	6.7	7.0	7.3	7.5	7.6	7.8	7.9	7.4	7.3
Other foods[#]	21.0	20.6	21.1	21.4	21.7	21.6	22.3	22.8	24.2	33.0	24.4

Source: Authors' data
*based on MPCE; [#] Other foods include dry fruits, beverages, snacks and processed items, cooked meals taken outside home, spices, sugar, and salt

In 2011–12, the families withinside the backside decile magnificence allotted 61.14% in their overall intake expenditure to meals in comparison to best 28.7% through the families withinside the pinnacle decile

magnificence. The growing absolute values of expenditure throughout the successive expenditure classes, along side the fantastically better propensity of rural and bad families for eating meals, means that elevating profits, specially of those families, through offering appealing avenues of incomes could have a tremendous and more potent effect on enhancing the general meals and dietary protection withinside the country.

The meals basket of a median Indian family is ruled through cereals, accompanied through milk and milk products. In 2011–12 cereals constituted 22.7% of the entire meals expenditure and milk 19.2% (Table 2). Interestingly, the composition of the meals basket various through expenditure magnificence: the proportion of cereals, pulses, fit for human consumption oils, and veggies in overall meals expenditure turned into better amongst families withinside the decrease expenditure classes, and the proportion of milk, fruits, non-vegetarian products, and different ingredients (which includes processed ingredients, dry fruits, beverages, etc.) turned into better amongst families withinside the better expenditure classes. This means that as an Indian family's profits will increase, it diversifies its meals basket and allocates a fantastically better share of its meals price range to high-cost meals commodities together with milk, fruits, non-vegetarian products, etc. A comparable dating has been mounted in different studies (Carmelia et al. 2019). Conversely, withinside the state of affairs of a decline in profits, a family could generally tend in the direction of eating staple ingredients and making best essential prices. Such customer behaviour has been simulated through estimating the expenditure elasticities of meals gadgets and non-meals prices.

IV.   ESTIMATION OF EXPENDITURE ELASTICITIES OF MEALS COMPANIES AND NON-MEALS PRICES

The coefficients of the LA-AIDS version implemented on 2011–12 CES statistics are expected (Table three). The version consists of the proportion equations for cereals, pulses, fit for human consumption oils, milk, fruits, veggies, non-vegetarian products, and non-meals prices. The coefficients for 'different ingredients' had been expected the use of additivity restrict imposed withinside the version. Many families said 0 intake of pulses, milk, fit for human consumption oils, fruits, and non-vegetarian products. For those commodities, IMRs had been expected and used withinside the LA-AIDS version as devices to account for 0 intake bias. The impact of rural and concrete regions on intake sample withinside the version turned into managed the use of a dummy variable for city regions.

Table 3 : Estimated parameters of LA-AIDS model using SURE estimation technique

Variables	Cereals	Pulses	Milk	Edible oils	Non-veg	Vegetables	Fruits	Non-food
Dependent variable: Proportion of respective item in total consumption expenditureIndependent variables:								
Intercept	0.4692	0.0950	0.1902	0.1046	−0.0067	0.1521	0.0021	−0.0100
	(0.0021)	(0.0010)	(0.0036)	(0.0009)	(0.0022)	(0.0014)	(0.0008)	(0.0041)
Prices in logarithmic terms								
Cereals	0.0858	−0.0047	0.0085	−0.0060	−0.0017	−0.0147	−0.0034	0.0106
	(0.0004)	(0.0001)	(0.0002)	(0.0001)	(0.0003)	(0.0002)	(0.0001)	(0.0003)
Pulses	−0.0047	0.0204	−0.0042	−0.0045	0.0025	0.0027	−0.0024	0.0110
	(0.0001)	(0.0003)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0002)
Milk	0.0085	−0.0042[NS]	−0.0008	−0.0018	0.0193	0.0070	−0.0009	−0.0058
	(0.0002)	(0.0001)	(0.0005)	(0.0001)	(0.0003)	(0.0002)	(0.0001)	(0.0004)
Edible oils	−0.0060	−0.0045	−0.0018	0.0341	0.0015	0.0023	−0.0005	0.0024
	(0.0001)	(0.0002)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0002)
Non-veg	−0.0017	0.0025	0.0193	0.0015	−0.0194	−0.0027	−0.0019	0.0019
products	(0.0003)	(0.0002)	(0.0003)	(0.0002)	(0.0004)	(0.0002)	(0.0001)	(0.0003)
Vegetables	−0.0147	0.0027	0.0070	0.0023	−0.0027	0.0124	0.0009	0.0099
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0003)	(0.0001)	(0.0002)
Fruits	−0.0034	−0.0024	−0.0009	−0.0005	−0.0019	0.0009	0.0039	0.0016
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Other foods	0.0038	−0.0056	−0.0110	−0.0055	0.0028	0.0047	−0.0010	−0.0341
	(0.0003)	(0.0001)	(0.0004)	(0.0001)	(0.0003)	(0.0002)	(0.0001)	(0.0005)
Non-food	0.0106	0.0110	−0.0058	0.0024	0.0019	0.0099	0.0016	−0.1102
price index	(0.0003)	(0.0002)	(0.0004)	(0.0002)	(0.0003)	(0.0002)	(0.0001)	(0.0007)
IMR	-	−0.0152	−0.0104	−0.0220	−0.0023	-	0.0036	-
	-	(0.0002)	(0.0005)	(0.0002)	(0.0003)	-	(0.0001)	-
MPCE_ln	−0.0783	0.0024	−0.0059	0.0007	0.0106	−0.0225	0.0008	0.1127

	(0.0003)	(0.0002)	(0.0008)	(0.0002)	(0.0005)	(0.0002)	(0.0001)	(0.0005)
Age_ln	0.0110	–0.0047	–0.0055	–0.0067	0.0018	0.0031	0.0004	–0.0117
	(0.0005)	(0.0001)	(0.0005)	(0.0001)	(0.0003)	(0.0003)	(0.0001)	(0.0010)
Household size_ln	–0.0008	0.0112	–0.1218	0.0139	0.0518	–0.0126	–0.0034	0.0136
	(0.0003)	(0.0006)	(0.0014)	(0.0005)	(0.0012)	(0.0002)	(0.0004)	(0.0006)
Urban dummy	–0.0288	–0.0004	–0.0018	0.0032	–0.0045	–0.0030	0.0017	0.0285
	(0.0003)	(0.0001)	(0.0005)	(0.0001)	(0.0003)	(0.0002)	(0.0001)	(0.0007)

Source Authors' data
NS: Non-significant. All other coefficients were found to be significant at 1% level of significance

The expenditure elasticities of meals companies and non- meals prices are expected (Table 4); those range through commodity, implying a differential impact of profits extrade at the intake of various commodities. Among the meals companies, cereals exhibited a tremendous expenditure elasticity cost however, at 0.37, it turned into the lowest. Thus, with a extrade in profits, cereal intake will extrade, however best marginally. Edible oils, pulses, and veggies are fantastically greater elastic, however withinside the case of a extrade in profits, their intake will extrade much less than proportionately. For milk and non- vegetarian products, elasticity values are toward 1. Fruits and different ingredients exhibited elastic expenditure elasticities, and a extrade in family profits will extrade the intake of those commodities greater than proportionately. Overall, the common weighted (with expenditure share) elasticity of meals is 0.80 (inelastic), implying that meals is a essential object for clients. The expenditure elasticity of non-meals prices has been expected at 1.23; thus, with a extrade in profits, families will extrade their expenditure on non-meals gadgets greater than proportionately. These outcomes suggest that the effect of profits extrade on intake will range through commodity and elasticity cost.

Table 4 : Likely change in income-induced (due to COVID-19) consumption expenditure during 2020–21

Particulars 2020–21**: (%)	Expenditure elasticity	Pre-COVID consumption expenditure (2019–20): INR/capita/month	Change in consumption expenditure during		
			Scenario 1	Scenario 2	Scenario 3
Cereals	0.37	238	–9.89	–4.65	–2.32
Pulses	0.53	67	–14.05	–6.60	–3.30
Milk	0.89	202	–23.62	–11.10	–5.54
Edible oils	0.42	78	–11.32	–5.32	–2.66
Non-veg	0.96	77	–25.56	–12.02	–6.00
Vegetables	0.58	100	–15.42	–7.25	–3.62
Fruits	1.25	32	–33.43	–15.71	–7.84
Other foods	1.29	256	–34.30	–16.12	–8.05
Food_total	0.80[#]	1,048	–21.24	–9.99	–4.98
Non-food	1.23	1,318	–32.79	–15.41	–7.69

Source Authors' estimates
**Scenario 1: With same decline in PFCE as during April-June; Scenario 2: With gradual recovery in remaining quarters; Scenario 3:
With 100% recovery in remaining quarters
[#] Weighted average (using expenditure as weight) of elasticities of food groups

V.   THE IMPACT OF THE PANDEMIC-LED PROFITS SHOCKS ON INTAKE STYLES

The COVID-19 pandemic has seriously impacted meals intake: profits has decreased; there was a shift withinside the form of meals gadgets to cereals; and meal styles have changed (Tome et al. 2020). The effect become extra said because of deliver shocks, as labour become now no longer to be had in the course of the lockdown for harvesting the crops, delivery become stalled, and access become confined (FAO 2020 a, b, c). The pandemic is probable to have long-run implications on meals systems—withinside the shape of structural adjustments withinside the deliver chain and in meals intake behaviour—however this have a look at focuses specifically at the short-run implications.

The effect pathway (Figure 1) indicates the short-run effect of the COVID-19 pandemic at the meals intake of Indian families. The effect become categorised primarily based totally at the uncertainty in profits flows and on deliver shocks. During the pandemic, profits go with the drift uncertainty become very high,

starting from deferred fee to overall process loss. Most of the susceptible those who rely on day by day wages misplaced their jobs in the course of the entire lockdown, and that they had been most effective partly reinstated as soon as the lockdown become lifted, due to the fact agencies had been crippled. While part of the susceptible families mitigated the state of affairs through transferring their intake basket closer to inexpensive meals grains, a massive component decreased their meals intake.

Supply shocks additionally affected meals intake due to the fact those confined bodily get entry to meals and raised meals expenses steeply. Civil society organizations (CSO) and the principal and kingdom governments intervened in a first-rate manner and helped the susceptible human beings to tide over this era via direct coins transfers, provision of meals grains and loose food, etc. This have a look at focuses most effective at the short-run effect on meals intake; it does now no longer cowl the quantity of blessings via the interventions of governments and CSOs.
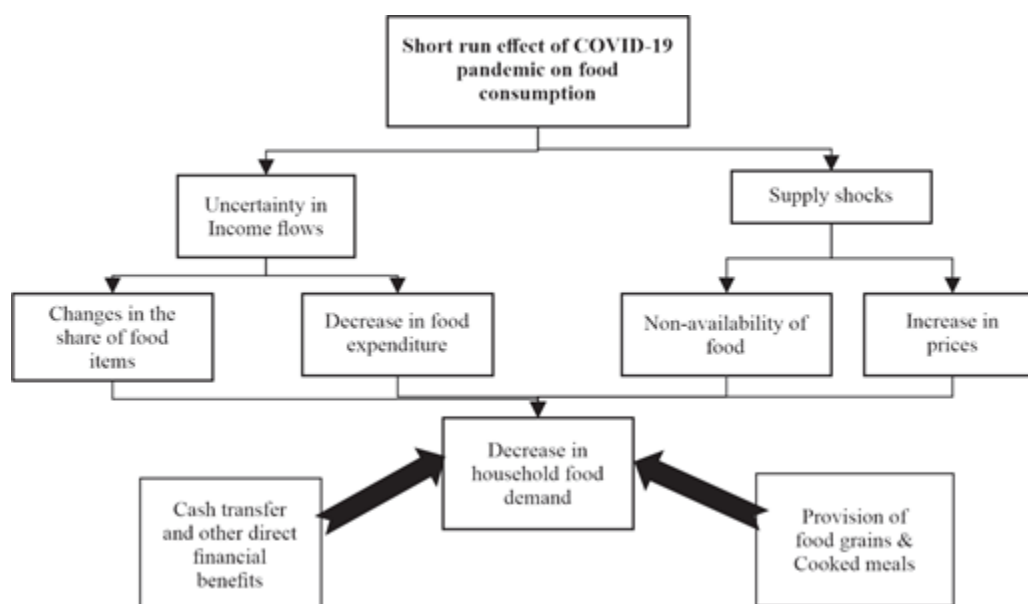

Figure 1 : Pathways of likely impact of COVID-19 on food consumption

The common MPCE of INR 1,599 become allotted amongst diverse meals and non-meals gadgets withinside the 12 months 2011–12. Between 2011–12 and 2019–20, the overall rate degree (CPI) withinside the united states elevated through 48% which inflated intake expenditure to INR 2,366 for retaining the equal degree (2011–12) of intake withinside the 12 months 2019–20. This become taken because the intake expenditure withinside the baseline (pre-COVID) 12 months 2019– 20 and allotted to meals and non-meals gadgets primarily based totally at the 2011–12 intake expenditure sample (Table 4).

The national lockdown disrupted all non-critical financial activity, and the gross price delivered (at 2011– 12 expenses) declined 22.8% in the course of the primary sector Q1 (April-June) of 2020–21 compared to Q1 2019–20 and, consequently, the PFCE declined 26.68%. The probable impact of the pandemic-led decline in profits on intake on the disaggregate degree for the entire 12 months 2020–21 is simulated below 3 situations the usage of the anticipated expenditure elasticities.

As mentioned withinside the method section, typical intake expenditure for the entire 12 months 2020– 21 is predicted to say no 26.68% below Scenario 1, 12.54% below Scenario 2, and 6.36% below Scenario 3. As non-meals gadgets are particularly extra elastic than meals gadgets, the decline withinside the expenditure on non-meals gadgets could be particularly steeper than on meals. The decline in non-meals expenditure is anticipated to variety among 7.69% and 32.79%, and meals expenditure is predicted to fall through 4.98% to 21.24% in the course of 2020–21 below the 3 situations taken into consideration on this analysis (Table 4).

In absolute terms, according to capita month-to-month non-meals expenditure in 2020–21 could be INR 101–432 much less than in 2019–20. The decline in absolute according to capita month-to-month meals expenditure is predicted to variety among INR fifty two and INR 223. Within the meals basket, cereals will witness the bottom decline in intake (2.32%– 9.89%). The decline withinside the intake of high-price meals commodities together with milk, non-vegetarian merchandise, fruits, and different meals merchandise (drinks, dry fruits, processed foods, etc.) could be relatively better than staple foods (like cereals, pulses, and fit to be eaten oils).

A decline in family profits will differentially have an effect on the extent of intake expenditure on special commodities, and the composition of the intake basket is probable to extrade. Households will reallocate

expenditure from non-critical to critical gadgets. The percentage of non-meals expenditure will decline, while critical gadgets like meals will benefit of their percentage in overall expenditure (Table 5). Within the meals basket, the proportion of commodities which have inelastic call for will witness an boom withinside the meals finances.

Table 5 : Expected changes in consumption pattern due to COVID-19-led income shock(%)

Items	2019–20	2020–21		
		Scenario 1	Scenario 2	Scenario 3
Cereals	10.0	12.5	11.0	10.5
Pulses	2.8	3.4	3.1	2.9
Milk	8.5	9.0	8.7	8.6
Edible oils	3.3	4.0	3.6	3.4
Non-veg	3.2	3.3	3.3	3.3
Vegetables	4.2	4.9	4.5	4.3
Fruits	1.3	1.2	1.3	1.3
Other foods	10.8	9.8	10.4	10.6
Food_Total	44.3	48.2	45.8	45
Non-food	55.7	51.8	54.2	55.0
Overall	100	100	100	100

Source Authors' data

Note Scenario 1: With same decline in PFCE as during April-JuneScenario 2: With gradual recovery in remaining quarters Scenario 3: With 100% recovery in remaining quarters

VI.   IMPLICATIONS OF PROFITS-PRECIPITATED EXTRADE IN INTAKE SAMPLE

The discount withinside the degree and extrade withinside the composition of intake expenditure has precise implications on meals and dietary safety and at the revival of the general financial system. In India, many human beings devour much less than the encouraged nutritional allowance and continue to be undernourished (Srivastava et al. 2017). The profits-precipitated decline withinside the degree of meals intake is predicted to irritate the occurrence of undernourishment withinside the united states.

The reallocation of the meals finances from particularly elastic commodities (together with fruits, different foods) to inelastic commodities will lessen the food plan range and adversely have an effect on the consumption of vitamins like nutrients and minerals from those reassets until supplemented with non-meals reassets (medicines). Thus, the COVID- 19-precipitated profits surprise is probable to make Indian families, specially with low incomes capacities, extra liable to meals and dietary insecurity. The principal authorities has carried out a slew of measures to fight the problems confronted through susceptible human beings. The entitlement of meals dispensed via the general public distribution gadget become doubled with none extra charges.

To assist negative human beings and migrant workers, the principal authorities instituted numerous schemes: coins transfers, deferment on hobby fee, advancing fee of PM-Kisan scheme instalment, etc. The kingdom governments additionally got here up with numerous supportive and progressive measures, like coins transfers, in-type switch of critical commodities, and presenting loose food via meals counters. To make certain that meals become to be had to the susceptible sections of society and that they had get entry to to it, CSOs intervened well timed in diverse ways (Press Information Bureau 2020); the outcomes of such interventions, now no longer accounted on this have a look at, are really well worth exploring in destiny research. A discount withinside the call for for meals and non-meals gadgets without delay impacts meals and dietary safety and exerts a deflationary strain withinside the financial system that can also additionally, in turn, lead closer to a recession. The method to restore financial increase should, therefore, encompass call for push measures.

VII.   CONCLUSION

Household profits has an immediate affiliation with the extent and composition of intake expenditure. The proof famous that the intake basket of Indian families is transferring regularly closer to non-meals prices, aleven though meals nevertheless constitutes near 1/2 of the intake expenditure. When profits increases, an Indian family diversifies its meals basket and allocates a particularly better share of its meals finances to high-price meals commodities (together with milk, fruits, non-vegetarian merchandise, and processed foods).

Conversely, a decline in profits will lessen intake expenditure, and a family could generally tend to limition intake to meals staples and prices to necessities. The COVID-19 pandemic has adversely affected the profits of maximum families, and it's miles predicted to create a disequilibrium withinside the financial system

through transferring the call for curves of meals and non-meals commodities downwards. This has precise implications for making sure meals and dietary safety and financial increase withinside the united states. The anticipated expenditure elasticities found out that the profits extrade will have an effect on intake in a different way through commodity and that it's going to cause extra than proportionate extrade in non-meals prices. Food prices will show off inelastic call for and extrade much less than proportionately because of extrade in profits. The reaction inside meals commodities may also vary, relying on the pliability values.

Due to the pandemic-led national lockdown in the course of the primary sector (Q1) of 2020–21, gross price-delivered declined 22.8% and the PFCE 26.68%. Depending at the trajectory of restoration in the course of the last quarters, the decline in profits can also additionally lessen non-meals expenditure in the course of 2020–21 through 7.69% to 32.79%, and meals expenditure can also additionally fall 4.98% to 21.24%. The decline withinside the intake of staple foods (cereals, pulses, and fit to be eaten oils) could be decrease than in high-price commodities (milk, non-vegetarian merchandise, fruits, and different meals merchandise together with drinks and processed foods). Consequently, the intake sample is probable to shift from non-critical to critical gadgets. The discount withinside the degree and extrade withinside the composition of intake expenditure can also additionally irritate the occurrence of undernourishment and malnourishment and exert a deflationary strain withinside the financial system. The interventions of governments (principal and kingdom) and CSOs via diverse schemes, supplementary profits, and welfare measures are predicted to lessen the COVID-19-led profits-precipitated influences withinside the financial system, and the general method to restore the financial system should encompass call for push measures.

REFERENCES

[1]. Alston, J M, and J A Chalfant. 1993. The silence of the lambdas: a test of the almost ideal and Rotterdam models. *American Journal of Agricultural Economics* 75: 304–313.

[2]. Carmelia, A C, A B Frances, S Choudhury, F Harris, L Aleksandrowicz, J Milner, E J M Joy, S Agrawal, A D Dangour, and R Green. 2019. Future diets in India: a systematic review of food consumption projection studies. *Global Food Security* 23: 182–190

[3]. Deaton, A S, and J Muellbauer. 1980. An almost ideal demand system. *American Economic Review* 70: 359– 68.

[4]. Eales, J S, and L J Unnevehr. 1988. Demand for beef and chicken products: separability and structural change. *American Journal of Agricultural Economics* 70(3): 521–532.

[5]. FAO. 2020a. COVID-19 pandemic–impact on food and agriculture: q&a. Food and Agriculture Organization of the United Nations. http://www.fao.org/2019-ncov/ q-and-a/impact-on-food-and-agriculture/en

[6]. FAO. 2020b. The effect of COVID-19 on fisheries and aquaculture in Asia. Policy Brief. Food and Agriculture Organization of the United Nations. http://www.fao.org/ 3/ca9545en/CA9545EN.pdf

[7]. FAO. 2020c. Impacts of coronavirus on food security and nutrition in Asia and the Pacific: building more resilient food systems. Policy Brief. Food and Agriculture Organization of the United Nations. http://www.fao.org/ documents/card/en/c/ca9473en

[8]. Government of India. 2020. Press note on estimates of gross domestic product for the first quarter (April-June) 2020–21. National Statistical Office, Ministry of Statistics & Programme Implementation.http:// www.mospi.gov.in/sites/default/files/press_release/ PRESS_NOTE-Q1_2020–21.pdf

[9]. Heien, D, and R Wessells. 1990. Demand system estimation with microdata: a censored regression approach. *Journal of Business and Economic Statistics* 6: 313– 325.

[10]. Keen, M. 1986. Zero expenditures and the estimation of Engel curves. *Journal of Applied Econometrics* 32: 560–568.

[11]. Kumar, P. 1996. Structural changes in consumption and small farm diversification. In *Small Farm Diversification: Problems and Prospects*, ed T Haque, National Centre for Agricultural Economics and Policy Research, New Delhi.

[12]. Kumar, P, A Kumar, P Shinoj, and S S Raju. 2011. Estimation of demand elasticity for food commodities in India. *Agricultural Economics Research Review* 24(1): 1–14.

[13]. Meenakshi, J V. 1996. How important are changes in taste: a state-level analysis of food demand. *Economic and Political Weekly* December 14: 3265–3269.

[14]. Press Information Bureau. 2020. Pradhan Mantri Garib Kalyan Package: Progress so far. http:// pibarchive.nic.in/newsite/erelease.aspx?relid=202210.

[15]. Radhakrishna, R. 2005. Food and nutrition security of the poor. *Economic and Political Weekly* 60(18):1817– 1,821.

[16]. Radhakrishna, R, and C Ravi. 1990. Food demand projections for India. Research report, Centre for Economics and Social Studies, Hyderabad.

[17]. Rao, C H H. 2000. Declining demand for foodgrains in rural India: causes and implications. *Economic and Political Weekly* January 22: 201–206.

[18]. Srivastava, S K, S J Balaji, and D Kolady. 2016. Is there a convergence in dietary energy intake among expenditure-classes in India? *Agricultural Economics Research Review* 29 (Conference number): 119–128.

[19]. Srivastava, S K, and R Chand. 2017. Tracking transitions in calorie-intake among Indian households: insights and Policy Implications. *Agricultural Economics Research Review* 30(1): 23–35.

[20]. Srivastava, S K, V C Mathur, N Sivaramane, R Kumar, R Hasan, and P C Meena. 2013. Unravelling food basket of Indian households: revisiting underlying changes and future food demand. *Indian Journal of Agricultural Economics* 68(4): 535–551.

[21]. Tome E, G Popovski, M Petkovic, B K Seljak, and D Kocev. 2020. COVID-19 pandemic changes the food consumption patterns. *Trends in Food Science & Technology* 104: 268–272.

[22]. Zellner, A. 1962. An efficient method of estimating seemingly unrelated regression equations and tests of aggregation bias. *Journal of the American Statistical Association* 57: 500–509.