

Impact of Covid-19 on the consumption expenditure pattern of Rural Households in Villupuram District of Tamil Nadu

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Abstract

The study was carried out with an overall objective to analyse the consumption expenditure pattern of farm and non-farm sector rural households during the pre Covid-19 period and Covid-19 impacted period in Tamil Nadu. The Villupuram district was purposively selected as the sample district since this district has the highest rural population in Tamil Nadu as per 2011 population census. The study revealed that there was a reduction in rural households' consumption expenditure during Covid-19 impacted period compared to the pre Covid-19 period. More specifically, the percentage reduction in average consumption expenditure was higher with non-farm sector households than farm sector households. With the estimates of Income elasticity of expenditure, it was inferred that in the farm sector as well as non-farm sector, the significance of expenditure on food and health care got enhanced during Covid-19 impacted period than pre Covid-19 period. The findings in general gave an impression that financially the non-farm sector got affected worse than the farm sector by the Covid-19 epidemic.

Key words : Covid-19, Consumption expenditure, Engel's estimates, Income elasticity of expenditure.

In order to slow down the spread of Covid-19, the Indian government imposed a nationwide lockdown in various phases from March 25, 2020⁹. As a result of the lockdown, many people lost their jobs and thus their income. The reports from the Centre for Monitoring Indian Economy revealed that India's unemployment rate had risen by 20 per cent due to the pandemic and the state of Tamil Nadu had the highest unemployment rate of 49.8 per cent¹ (CMIE, 2020). Job losses and wage cuts forced people to use their savings or else took out loans during lockdown. Obviously, this had a serious impact on the financially vulnerable rural folk who are involved in agriculture and artisanal works.

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Businesses and other economic activities hit hard due to social distancing restrictions and fear of the spread of the virus. Lockdowns, travel restrictions and the cessation of commercial activities had severely affected rural community's financial planning. In several places harvested farm produces were destroyed in the field itself due to travel restriction and consequent disruption in the market network.

In addition, the loss of employment and income had a significant influence on Tamil Nadu's consumption spending. Many people lost their jobs or saw a reduction in income due to the pandemic, which led to a decrease in their ability to spend money. This had a significant impact on lower-income households, who were already struggling to make ends meet even before the pandemic. The fear and uncertainty surrounding the pandemic had also led to a decrease in consumer's confidence in future and that had also impacted consumption expenditure. Many people were hesitant to spend money on non-essential items, instead preferring to save their money or spend only on essential goods and services.

Under this scenario an attempt was made to analyse the consumption expenditure pattern that prevailed during the Pre Covid-19 period (April 2019-March 2020) and Covid-19 impacted period (April 2020-March 2021), with an understanding that the conclusions of the study would help to us to derive at certain precautionary methodologies to handle such havocs in future. For the preparation of the manuscript relevant literature¹⁻¹² has been consulted.

Objectives of the study :

- The specific objectives of the study were
- ❖ To analyse the consumption expenditure pattern of farm sector and non-farm sector rural households in the pre Covid-19 period and Covid-19 impacted period.
 - ❖ To derive at futuristic socio-economic strategies to handle Covid-19 like disasters.

Study Area and selection of sample respondents :

The study totally relied on primary data. The relevant primary data required for the study, pertaining to two phases *viz.*, Pre Covid-19 period (April 2019-March 2020) and Covid-19 impacted period (April 2020-March 2021) were collected from respondents. For selection of respondents, Multistage stratified random sampling technique was adopted. Tamil Nadu state was considered as the universe of the study. As the first stage of sampling, Villupuram district was purposively selected as the sample district, since this district had the highest rural population in Tamil Nadu as per 2011 population census. As the second stage of sampling two blocks *viz.*, Mugaiyur and Vanur block were purposively selected, since these two blocks had the highest rural population in this district. As the third stage of sampling, from each sample block, four largest villages were purposively selected considering their population size. Totally eight villages were selected for the study. As the fourth stage of sampling, from each village twenty farm sector and twenty non-farm sector households were selected at random. The ultimate sample size in total was 320.

*Analytical Tool :
Estimation of Income elasticities using
Engel's Curve Estimates :*

Engel's curve estimates were assessed for basic food items, nutritive food items, education, health, fuel and lighting, clothing, recreation, festival and 'other items' for both farm sector and non-farm sector households for the pre Covid-19 period and Covid-19 impacted period separately. The Engel's curve shows the relationship between expenditure on the consumption of a particular commodity and the level of family income⁶. In this study, a linear functional form with net income and family size as independent variables was used. The choice of the functional form was based on the observed relationship between the dependent and independent variables in the scatter diagram. The general functional form estimated in this study was

$$E_i = \beta_{oi} + \beta_{1i} Y + \beta_{2i} N + u_i \quad (1)$$

Where,

E_i - Annual expenditure on i^{th} commodity

Y - Net annual income

N - Family size (Consumption unit / No. of individuals causing the expenditure)

β_{1i} & β_{2i} - Parameters to be estimated

β_{oi} - Constant term

u_i - Error term

With regard to the expenditure on a particular commodity, it was measured by the amount of money spent on that commodity by the respondent household during the year under reference. With regard to the magnitude of family size, it was specified taking into consideration the real units of individuals influencing the expenditure. The method of specification of family size in Engle's estimation for different categories of expenditure are given below :

Basic food items	}	Expressed as consumption units using Lusk coefficient (Rao 1983) taking into account the influence of demographic characteristics, such as age and sex on consumption of food items. The Lusk coefficient for standardization of households is presented in detail, vide Appendix 1.
Nutritive food items		
Clothing, Fuel, Health, Recreation and Festival	}	Expressed as head count of household members irrespective of age and sex, since it is assumed in this study that the influence of demographic characteristics on these items of expenditure is negligible.
Education		
		Head count of children in the household. It is assumed that number of adults in the family do not have any influence on the expenditure spent on education.

Income Elasticity of Expenditure :

From the Engel's curve estimates the income elasticity for different commodity

groups were worked out for both farm sector and non-farm sector households in the pre Covid-19 and Covid-19 impacted period separately, in order to assess and compare the

sensitivity with which expenditure on different commodities responds for changes in income. This income elasticity could be treated as an indicator of the households financial stability.

From eq (1)

$$\eta_i = \frac{\beta_{1i}}{E_i/Y} \quad (2)$$

Where,

η_i - Income elasticity of i^{th} commodity group

Average Consumption Expenditure Shares in Different Commodity Groups :

The average consumption expenditure shares on different commodity groups for farm sector and non-farm sector households in the

pre Covid-19 period and Covid-19 impacted period are presented in Table 1.

It could be observed from Table-1 that there was a reduction in average consumption expenditure with both farm and non-farm sectors and the percentage reduction in average consumption expenditure was higher in non-farm sector households (27.35 per cent) compared to farm sector households (14.56 per cent). With regard to the actual expenditure, it was comparatively lower in non-farm sector households (Rs 59,649.44) than farm sector households (Rs 93,398.77) as like the trend which prevailed during pre Covid-19 period. The above observations indicate a fact that both the farm and non-farm households were affected by Covid-19 with an income reduction

Table-1. Average Consumption Expenditure Shares on Different Commodity Groups in the Sample Households During Pre Covid-19 Period and Covid-19 Impacted Period

S. No	Commodity Groups	Average Consumption Expenditure of Farm Sector Households			Average Consumption Expenditure of Non-Farm Sector Households		
		Pre Covid-19 Period (Rs)	Covid-19 Impacted Period (Rs)	Percentage Change	Pre Covid-19 Period (Rs)	Covid-19 Impacted Period (Rs)	Percentage Change
1	Basic Food*	29,026.88	35,755.66	23.18	22,450.56	28,589.45	27.34
2	Nutritive Food**	14,834.18	18,309.69	23.42	11,930.04	14,956.51	25.36
3	Health	11,109.01	13,430.25	20.89	7,980.37	9,800.87	22.81
4	Education	6,916.31	2,526.62	(-77.92)	5,898.39	908.20	(-84.60)
5	Clothing	13,882.50	6,437.12	(-53.63)	9,568.23	1,252.17	(-86.91)
6	Fuel and Lighting	8,704.37	5,766.31	(-33.75)	6,292.20	1,449.06	(-76.97)
7	Recreation	4,976.25	1,056.25	(-58.67)	3,273.91	515.65	(-84.24)
8	Festival	6,567.98	1,031.25	(-84.29)	4,646.58	612.32	(-86.82)
9	Others***	13,308.14	9,085.62	(-31.72)	9,564.23	1,565.21	(-73.17)
	Total	1,09,325.62	93,398.77	(-14.56)	81,604.51	59,649.44	(-27.35)

Note: * Basic food items: Rice, Oil, sugar and Pulses

** Nutritive food items: Fruits, vegetables, egg, meat, milk and milk product,

*** Others: Narcotics and drugs, beverages, cosmetics, toiletries, etc.

but among the two the worst hit seemed to be the non-farm households. This reduction in expenditure for both category of households could be attributed to various factors including lockdown measures, closure of markets, reduced operations, financial hardships and changes in consumer behaviour due to the pandemic. These factors resulted in income loss, unemployment and reduction in purchasing power, which led to decline in the overall average consumption expenditure during the Covid-19 lockdown.

It could also be noticed from Table-1 that, with regard to the percentage change in average consumption expenditure on basic food items it was positive with both the categories of households and seemed to be relatively higher in non-farm sector households (27.34 per cent) than farm sector households (23.18 per cent). But the actual expenditure was comparatively lower in non-farm sector households (Rs 28,589.45) than farm sector households (Rs 35,755.66) during Covid-19 impacted period as like the trend during pre Covid-19 period. This increase in expenditure in both category of households could be attributed to various factors *viz.*, changes in food prices due to supply chain disruptions, shifts in consumer preferences and the idle presence of all members of family at home during the pandemic. With regard to the percentage change in average consumption expenditure on nutritive food items, they were also positive for both categories of households and is relatively higher in non-farm sector households (25.36 per cent) than farm sector households (23.42 per cent). In this commodity group also the actual expenditure was comparatively lower in non-farm sector households (Rs 14,956.51) than non-farm

sector households (Rs 18,309.69) during Covid-19 impacted period. This increase in expenditure for both category of households could be attributed to the increased focus on health and nutrition during the pandemic, which led to higher spending on nutritious food items.

The trend was similar with the consumption expenditure on health items also. The percentage change in average consumption expenditure on health items (22.81 per cent) in non-farm sector households was also positive and relatively higher compared to farm sector households (20.89 per cent) during Covid-19 impacted period. But the actual expenditure was relatively lower in non-farm sector households (Rs 9,800.87) than farm sector households (Rs 13,430.25). This increase in expenditure on Health items could be attributed to the increased spending on healthcare products and services, including heightened medical expenses and precautionary measures related to Covid-19. An important observation that could be made with above three commodity groups *viz.*, basic food item, nutritive food item and health was that though the average consumption expenditure was higher in farm sector than non-farm sector in all the three commodity groups, the percentage increase in consumption expenditure during Covid-19 impacted period was higher with non-farm sector than farm sector. This trend spells out an inference that the non-farm sector, a comparatively lower income group who were usually negligent on spending towards food, nutritive food and health even had become more aware and conscious about the significance of good health during Covid period. Hence more money was diverted to the above three commodity groups compromising the expenses on other aspects.

With regard to rest of the commodity groups *viz.*, education, clothing, fuel and lighting, recreation, festival and 'others', the percentage change in average expenditure were negative with both the sectors but higher in non-farm sector households when compared to farm sector households. Also, in sink with the usual trend, the actual expenditures on the above items were lower in non-farm sector than farm sector households during Covid-19 impacted period. This decline in expenditure for both households could be attributed to various factors such as disruptions in educational activities, resulting in lower educational spending; decreased demand for clothing due to lockdown resulting in lower spending on clothes; decreased travel and transportation expenditure resulting in lower fuel consumption; limitations on leisure activities and closure of entertainment venues

resulting in lower spending on recreations respectively.

Income Elasticity of Expenditure for Different Commodity Groups :

The income elasticity of expenditure for different commodity groups for farm sector and non-farm households in the Pre Covid-19 period and Covid-19 impacted period were worked out using Engel's curve estimates and presented in Table-2. The Engel's curve estimates which were arrived at individually for each commodity group are given in Appendix-II.

With regard to basic food, the income elasticities were inelastic for both farm households and non-farm households and the degrees of inelasticities were almost similar

Table-2. Income elasticities of different commodity groups for farm sector and Non-farm sector Households in the Pre Covid-19 period and Covid-19 impacted period

S. No	Commodity Groups	Income elasticity for farm sector Households		Income elasticity for Non-farm sector Households	
		Pre Covid-19 period	Covid-19 impacted Period	Pre Covid-19 period	Covid-19 impacted Period
1	Basic Food*	0.21	0.22	0.41	0.43
2	Nutritive Food**	0.64	0.28	0.74	0.31
3	Health	1.12	0.71	1.18	0.73
4	Education	1.66	0.16	2.05	0.21
5	Clothing	1.27	0.21	1.65	0.32
6	Fuel and Lighting	1.42	0.86	2.11	0.94
7	Recreation	1.74	0.24	2.85	0.34
8	Festival	1.75	0.37	2.66	0.46
9	Others***	1.53	0.65	1.64	0.72

Note: * Basic food items: Rice, Oil, sugar and Pulses

** Nutritive food items: Fruits, vegetables, egg, meat, milk and milk product

*** Others: Narcotics and drugs, beverages, cosmetics, toiletries, etc.

during Pre Covid-19 period and Covid-19 impacted period in the farm (0.21; 0.22) and non-farm households (0.41; 0.43) respectively. Though the degrees of elasticity were similar, it is worthy to note from Table-1 that the average consumption expenditure, in absolute terms were more during Covid-19 impacted period than Pre Covid-19 period with both category, *viz.*, farm households (Rs 35,756; Rs 29,027) and non-farm households (Rs 28,589; Rs 22,451). The similar, inelastic-income elasticities during both the referred periods ensure the inevitable importance attached over the consumption of basic foods.

With regard to nutritive food, the income elasticities were less during Covid-19 impacted period than Pre Covid-19 period with both farm sector households (0.28; 0.64) and non-farm sector households (0.31; 0.74) respectively. As like in basic food, with nutritive food also the consumption expenditure in absolute terms were higher during Covid-19 impacted period than Pre Covid-19 period with both farm households (Rs 18,310; Rs 14,834) and non-farm households (Rs 14,957; Rs 11,930) respectively. The comparative lower income elasticity and higher consumption expenditure on nutritive food items during Covid-19 impacted period would again ascertain the fact that more awareness and care on health prevailed in every household during Covid-19 impacted period. It could also be observed that similar trend prevailed with the category 'Health' also. The income elasticities were comparatively lower during Covid 19 impacted period than pre Covid 19 period with both farm households (0.71; 1.12) and non-farm households (0.73; 1.18). The actual consumption expenditures on health were higher during Covid-19 impacted period than

Pre Covid-19 period with both farm households (Rs 13,430; Rs 11,109) and non-farm households (Rs 9,801; Rs 7,980).

It could also be observed from Table 2 that, with all other categories of expenditure the income elasticities were lower and more inelastic during Covid-19 impacted period than Pre Covid-19 period with both farm households (Education- 0.16; 1.66, Clothing - 0.21; 1.27, Fuel and Lighting -0.86; 1.42, Recreation - 0.24; 1.74, Festival - 0.37; 1.75 and Others- 0.65; 1.53) and non-farm households (Education- 0.21; 2.05, Clothing - 0.32; 1.65, Fuel and Lighting - 0.94; 2.11, Recreation - 0.34; 2.85, Festival - 0.46; 2.66 and Others - 0.72; 1.64). The actual consumption expenditure on the above categories were also lower during Covid 19 impacted period than Pre Covid 19 period, with both farm households (Education- Rs 2,526; Rs 6,916, Clothing - Rs 6,437; Rs 13,882, Fuel and Lighting - Rs 5,766; Rs 8,704, Recreation - Rs 1,056; Rs 4,976, Festival - Rs 1,031; Rs 6,568 and Others - Rs 9,086; Rs 13,308.14) and non-farm households (Education- Rs 908; Rs 5,898, Clothing - Rs 1,252; Rs 9,568, Fuel and Lighting - Rs 1,449; Rs 6,292, Recreation - Rs 516; Rs 3,274, Festival - Rs 612; Rs 4,647 and Others - Rs 1,565; Rs 9,564). The referred above trend might be due to the reasons that the expenditure on these commodity groups were not possible due to the Government imposed Covid restrictions *viz.*, closure of education institutions, travel restriction, decreased social activity, restricted social gathering and celebration, closure of entertainment venues etc..It could also be inferred that the reduction in the consumption expenditure on the above items made them possible to spent more on basic food, nutritive food and health.

Appendix 1
Lusk Coefficient for Standardization of Size of Household

S. No	Consumption Group	Lusk Coefficient
1	Male above 14 years	1
2	Female above 10 years	0.83
3	Male child between 10-14 years	0.83
4	Male and Female child between 6 and 10 years	0.73
5	Male and Female child below 6 years	0.50

Appendix-2

Engel's Curve Estimates of Farm and Non-Farm Sector Households in the Pre Covid-19 Period and Covid-19 Impacted Period

S. No	Commodity	Pre Covid-19 period				Covid-19 Impacted Period				
		Intercept	Family Size	Annual Income	R ²	Intercept	Family Size	Annual Income	R ²	
1	Basic Food	I	16859.12**	4490.98**	0.16**	96.51	16859.12**	4490.98**	0.16**	96.51
		II	6911.89**	1884.17**	0.06**	85.72	8078.81**	820.61**	0.16**	98.19
2	Nutritive Food	I	6845.42**	1454.04**	0.11**	96.41	6845.42**	1454.04**	0.11**	96.41
		II	5768.67**	833.27**	0.04**	85.36	3202.48**	-1055.62*	0.09**	91.82
3	Health	I	650.59**	3145.87***	0.18**	90.59	650.59**	3145.87*	0.18**	90.59
		II	-3805.11**	258.54**	0.11**	95.16	-7248.06*	-403.90**	0.21**	88.69
4	Education	I	-3250.24**	2251.71***	0.04**	68.00	-3250.24**	2251.71**	0.04**	68.00
		II	-5096.48*	-2004.12**	0.12**	89.63	-2093.45**	205.86**	0.01*	98.80
5	Clothing	I	-6468.07**	2569.04**	0.02**	90.13	-6468.07**	2569.04*	0.02*	90.13
		II	-157.13**	-554.82**	0.15**	96.67	-711.33**	396.58**	0.06**	94.80
6	Fuel and Lighting	I	-2019.47**	1488.98**	0.05*	91.51	-2019.47*	1543.98**	0.05**	91.51
		II	1729.26**	1244.76*	0.11**	96.43	-407.85*	48.18 ^{NS}	0.05**	86.95
7	Recreation	I	-85.04 ^{NS}	557.21*	0.02*	89.42	-85.04 ^{NS}	557.21*	0.02**	89.42
		II	408.96**	-463.07 ^{NS}	0.07**	78.02	27.07 ^{NS}	36.07 ^{NS}	0.01 ^{NS}	85.74
8	Festival	I	-90.82**	88.18*	0.02*	83.79	-90.82*	88.18*	0.02**	83.79
		II	252.81**	180.37 ^{NS}	0.05**	94.25	168.27**	-154.16**	0.02**	89.13
9	Others	I	4978.93**	1610.83*	0.07**	72.11	4978.93*	1610.83**	0.07 ^{NS}	72.11
		II	-2554.37**	-1279.75**	0.18**	94.12	-1007.94*	-46.85**	0.07**	87.93

Note: I – Farm Sector, II- Non-farm Sector

*** Significant at 1 per cent, ** Significant at 5 per cent, * Significant at 10 per cent and NS- Non Significant

The study analyzed the consumption expenditure pattern of rural farm sector households and non-farm sector households during the pre Covid-19 period and the Covid-19 impacted period using Engle's law. The average consumption expenditure, percentage change in consumption expenditure and income elasticity of expenditure for different commodity groups during Pre Covid 19 period and Covid 19 impacted period for both farm sector and non-farm sector were estimated. The study revealed that both farm and non-farm sector households experienced a significant decline in income during the Covid-19 impacted period due to the Government's lockdown measures, leading to a reduction in overall consumption expenditure. The reduction was more pronounced in non-farm sector than farm sector households giving an impression that non-farm sector was affected more by Covid-19 than farm sector. The study further revealed that the percentage change in consumption expenditure for commodity groups *viz.*, basic food, nutritive food and health were positive and higher in absolute terms during Covid-19 impacted period than Pre Covid-19 period. The same were negative and lower in absolute terms for commodity groups *viz.*, education, clothing, fuel and lighting, recreation, festival and 'others'. It could be inferred that, understanding the significance of a good diet in maintaining health, both sector households intended to spend more towards food and health during the pandemic than other categories. The shift in spending happened to be feasible since there was a natural drop in expenditure on other commodity groups *viz.*, education, clothing, fuel and lighting, recreation, festival, and others due to the Governmental Covid restrictions. The Income elasticity estimates, of the study also confirmed that, both farm and non-farm

sector households gave much priority for spending on basic food, nutritive food and health, understanding the inevitability of maintaining good health during the pandemic.

Policy suggestions :

- ❖ The government may encourage income diversification as it can boost the resilience of rural households at times of crisis. This may entail promoting small-scale businesses and value-added agricultural activities in rural areas.
- ❖ Implementation of income support programs and social safety nets can help rural households during such crisis periods by providing them with the means to access adequate and nutritious food.
- ❖ Efforts need to be undertaken to establish a shock-proof improved agricultural infrastructure system especially with regard to storage and transportation networks. This will reduce post-harvest losses, and improve market access for farmers even during crisis periods.

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