



CONSUMER BEHAVIOUR DURING A CRISIS: THE IMPACT OF COVID-19 ON FOOD CONSUMPTION PATTERNS IN THE URBAN AREAS IN THE WESTERN PROVINCE OF SRI LANKA

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ABSTRACT

Several studies have identified the substantial influence of crises on the changes in food consumption behavior in various economies. This research examines the impact of the COVID-19 pandemic on food consumption patterns of the urban areas in the Western Province of Sri Lanka. Further, the research investigates the difference in food consumption expenditure over two periods: before COVID-19 and during restrictions. The study was based on primary data collected from structured questionnaires. Simple Random Sampling method was adopted to select 52 households representing the urban areas of Western Province. Primary data were analyzed utilizing the Paired t-Test and Descriptive Statistical Methodologies. Even though there is no statistically significant difference in the food consumption expenditure over two periods, the research found substantial changes in the food consumption behavior and patterns especially during the restriction i.e. quarantine curfew/lockdown. Astonishingly, the study revealed that urban consumers have increased their spending on essential food items whilst reducing the spending on non-essential food items i.e. Beverages and fast food. Moreover, the majority of the consumers have reduced the consuming quantities to manage income shocks, food price increase, and food scarcity. The research concludes that the uncertainties arisen in the goods and services market and the labour Market have substantially changed the food consumption behavior during the crisis period. Policy makers may develop a social protection system to provide basic needs of the people during a crisis.

KEYWORDS: COVID-19, Food consumption behavior, urban consumers, income shocks, food price increase, and food scarcity

INTRODUCTION

The emergence of some critical incidents of economic, biological type- crises, armed conflicts, and natural cataclysms can significantly affect the activity of human society (Silvius, et al., 2020). Due to the spread of COVID 19, most of the economies are suffering several economic difficulties as well. The World Bank (2020a, 2020b) emphasizes that the impact of COVID-19 on commodities has been uneven. This can influence adversely consumer behavior in world economies. Most especially, the International Monetary Fund (2020a) depicts that low-income developing countries (LIDCs) are in a particularly challenging

situation to react to the socio-economic shocks of the COVID-19 pandemic. Most LIDCs cannot sustain their economies for long as large sections of the population live at near subsistence levels (IMF 2020a). Some constraints make it problematic to reach the needy such as large informal sectors, weak institutional capacity, and incomplete registries. Further, the fiscal resources of the government are inadequate to facilitate them. Recent surveys conducted across 20 African countries reveal that more than 70 percent of the people in the African countries are at risk running out of food during a lockdown (IMF, 2020b, 2020c).



For Sri Lanka, a high 68% of the workforce are in informal employment and with only 29% of the country's workforce covered by social protection, the risks of widening existing income disparities are elevated (Institute of Policy Studies, 2020). Thus, the informal community of the country faces substantial difficulties with the pandemic and considerable changes could be seen in their consumption pattern. Currently, more than 1.7 million temporary employees in the private sector are at the risk of facing drastic wage cuts and layoffs (Jayawardena, 2020). These wage cuts and job losses substantially cause a decline in the income level. The change of the income received for the consumers can significantly change the consumer decision making and their consumption patterns. Thus, examining the changes in consumer behavior, identifying the reasons for those changes, and formulating effective policies to overcome the consumers' difficulties would significantly assist to mitigate the negative impacts of the crisis on the market equilibrium.

The urban population in Sri Lanka raised at nearly 3.94 million people in the year 2020 (Statista, 2020). Around 23 percent of the workforce in urban areas has engaged in informal sector enterprises. The percentage of living in informal settlements in urban areas is around 28 percent (Perera, 1994). Moreover, the external sources mostly supply the foods in urban areas. As a consequence of these circumstances, urban areas in Sri Lanka are more vulnerable to income shocks and supply chain interruptions that could arise with the prevailing pandemic. Thus, there is a substantial possibility of occurring consumer behavioral changes in urban areas of the country within the crisis. Therefore, the main purpose of the current study is to study the consumer behavior of urban people during the crisis. The urban areas in the Western Province of Sri Lanka was selected for this study. The objectives of the current study are as follows:

- i. To examine whether there are substantial changes in consumer behavior in the urban areas of Sri Lanka during the crisis.
- ii. To propose effective policy recommendations which can mitigate the negative impacts on urban consumer behavior during a crisis.

LITERATURE REVIEW

Consumer behavior is the process of groups or individuals making their purchase decisions and choices to satisfy needs. Buying behavior depends on factors such as demographics, earning, sociocultural factors (Drakopoulos 2008, Kar, 2010). Consumer behavior is also defined as a combination of consumer's buying behavior and awareness coupled

with external factors and motivators which results in a change (Kar, 2010). The socioeconomic impacts of the crisis are more consequential in the developing nations where the communities below the poverty line are being severely affected as the demand for labour falls whereas the prices of essential food items exponentially rise whilst social services are cut (Amalia and Ionut 2009, Arnould, 2002). It is more pellucid that consumer buying behavior before the crisis was not based on thorough decision-making processes. However, with the effects of the crisis a change in consumption patterns can be observed. This had taken a toll on inflation, purchasing power, unemployment, and a decrease in wage rates.

Considering the supply side, primarily, the negative effect of the crisis restricts the mobility of people, leads to the imposition of border restrictions, employee absenteeism, quarantine curfews, and lockdowns. This contributes to labour shortages in food production by slowing harvests and cultivation (OECD, 2020). Secondly, limited access to the physical markets to sell food items and logistical disruptions in the supply chain has created significant interruptions in the food supply chain (HLPE, 2020), thereby resulting in unsold food items. This paved the way for food loss and waste of perishable products such as vegetables, fruits, dairy products, and other meat and fish items (FAO, 2020a, 2020b). In many countries, due to the supply interruptions, producers and farmers have been burying perishable food items as a result of supply chain disruption and falling consumer demand. Cappelli and Cini (2020) state that the COVID-19 pandemic has heavily impacted the local production of food and dismantled the short food supply chain across various product lines. Thirdly, even though the international food market supplies were effective during the pandemic (FAO, 2020a), protectionist measures and export restrictions in some countries including Sri Lanka have created food shortages thereby increasing instability in global food markets, and leading to an increase of world food prices, and ultimately setting up a global food crisis similar to the 2008 crisis (OECD, 2020). Similar to the Sri Lankan context, many countries have decreased meat and fish consumption as it could be possible hosts of the virus (FAO, 2020b) and in Sri Lanka, the Peliyagoda fish market infection cluster also lead to a stark reduction in the food consumption.

Focusing on the demand side, the consumer behavior, and the patterns of purchase and incurring of expenditure on food items and consumption has significantly changed. According to Beard-Knowland (2020) at the inception of the epidemic, the viral pathogenesis and its severity were limited. Hence, the



consumers focused on reaction-based panic buying to maintain buffer stocks to mitigate the risk of future shortages. Panic purchase of non-perishable food items (i.e., rice, wheat flour, pasta, canned foods, and frozen foods) have been observed throughout the world. Baker et al. (2020) state that consumers from the United States have increased their spending on food items during the pandemic in an attempt to stockpile food as essential food and nutrition intake is the most vital aspect. The majority of the consumers stockpile food items to reduce the number of shopping visits made to the physical markets, to mitigate the risk of exposure to the infection (Cranfield, 2020). It is also noted that the reactionary panic buying behavior of consumers may disturb the supply chain and have negative repercussions, such as an unusual increase in food prices, stock-out, food waste, over-consumption, and unequal distribution of food products and could ultimately impact vulnerable groups (i.e., poor and the

elderly) from access to essential food items (Wesseler, 2020). Since physically shopping at a grocery store has been limited, consumer buying behavior has drastically shifted to online shopping and online grocery delivery and pickup services (Deloitte, 2020). It is expected that E-commerce for food consumption gained continuous traction as a part of digitization (Deloitte, 2020).

CONCEPTUAL FRAMEWORK

The conceptual framework for this study was developed based on the Model of Consumer Behaviour for Foods introduced by Wierenga et al (1997) in “*Agricultural Marketing and Consumer Behaviour in a Changing World*”. The model expounds that three aspects namely (1) properties of food, (2) personal factors, and (3) environmental factors determine the consumers’ decision-making process.

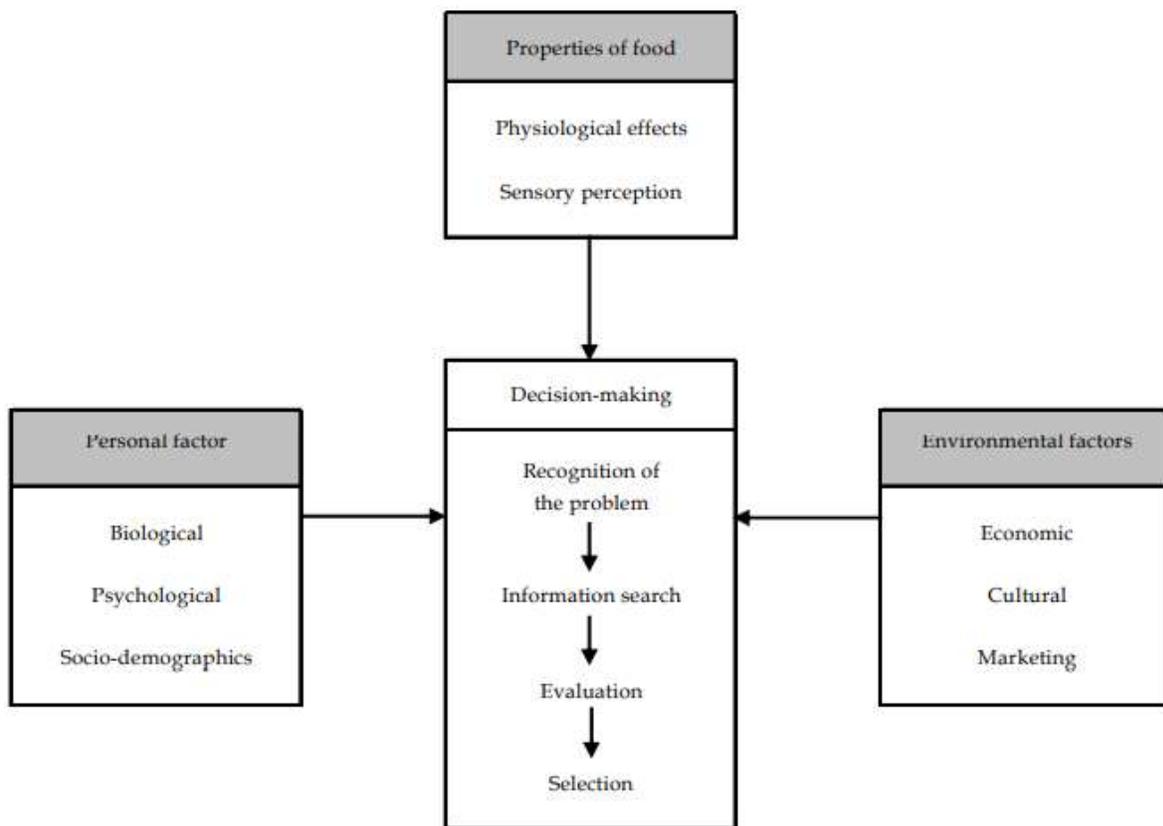


Figure: 01- Conceptual Framework

Source: Wierenga et al. 1997



The properties of the food aspect consist of two components namely, Physiological effects and Sensory perception. Physiological effects focus on reducing hunger which leads to satiation and intake of vital nutrients while Sensory perception emphasizes the influence of taste, smell, and the visual appearance (sensory impressions) of the food items to determine the consumption decision. The personal factor aspect consists of three components namely, Biological, Psychological, and Socio-demographics. The Biological and Psychological components indicate the importance of quality consciousness and consumer ethnocentrism. Social-demographics explains the impacts of consumers' income-level, size of the household, employment status, age, gender, and level of education (rational thinking) in the decision making.

The Environmental factors consist of three components namely economic, cultural, and marketing. The economic component indicates the comparison between the consumers' income and the price of food items (purchasing power). Secondly, the influence of culture in defining the food consumption patterns (how it is prepared, the rules and traditions) is explained. Thirdly, the Marketing component sets out the emergence of new consumers' buying behaviors and technological advancements in the market platforms i.e. E-commerce and mobile delivery services.

METHODOLOGY

This research was based on primary data. Data were collected from 52 households in the Western Province of Sri Lanka by using a structured questionnaire. The Simple Random Sampling method has been adopted for the study. The statistical methodologies adopted were the Paired t-Test and descriptive statistical methods. The Paired t-Test is used to examine whether the mean difference between the two sets of observations is zero. Thus, the purpose of employing a paired t-test in this research was to examine the presence of significant differences in monthly food consumption expenditures between the periods before COVID-19 and during the restrictions. These tests were employed by using STATA/SPSS data analysis software. Further, this study examined the changes in food consumption patterns and mean expenditures relevant to nine food types, namely (A) Rice, Wheat flour, Bread, Pasta and Noodles and Pulses i.e. Dhal and lentils; (B) Vegetables; (C) Fruits; (D) Meat/Egg/Fish/Dry Fish/Sprats and Seafood; (E) Milk and Milk-based products; (F) Oil and Fats based products; (G) Sweets based products; (H) Spices and condiments and; (I) Beverages and fast-food items.

DATA ANALYSIS AND DISCUSSION

The sample size is 52 households representing the Western Province of Sri Lanka. It is observed that 75 percent of respondents represented Colombo District while 17.3 percent and 7.7 percent of respondents represented Gampaha and Kalutara Districts respectively. 57.7 percent of the sample belongs to the age group between 25 to 35 years, whereas 1.9 percent of the sample belongs to the 55 to 64 years age group. It is pivotal to note that the sample selected for the study is from the labor force. It is also observed that there were no respondents from the age group between 65 and above which represents the dependency population.

Considering the monthly income levels, the majority of the sample represents the high-income level Rs.50, 000, and above. This is because studies show that urban areas of the country have the lowest poverty rate. Thus, 3.8 percent of the sample represents the low-income level below Rs.10, 000 per month. 48.1 percent holds permanent employment whereas temporary and contract modalities are 28.8 and 23.1 percent respectively. The highest respondents (86.5%) are from the service sector and 11.5 percent from the industry sector and the lowest respondents are from the agriculture sector (1.9%). As a whole, 80.8 percent of the sample belongs to the formal sector and 19.2 percent is from the Informal sector.

The majority of the urban community (53.8%) has strongly experienced a significant change in food consumption habits during the restrictions (Table 01). Few factors determine the significant change in food consumption habits. Out of which 61.5 percent accounts for "scarcity in food items", 59.6 percent account for non-availability of access to the market, 40.4 percent accounts for food price changes, and 38.5 percent for income shocks. It is observed that urban communities have experienced scarcity in food items during the restrictions. The top three scarce food types during the period were Fruits, Meat/Egg/Fish/Dry fish/Sprats and Seafood, and Spices and condiments (Table 01). It is presumed that the scarcity has occurred in fruit items because the cultivation is predominantly undertaken especially in the upcountry and low-country. As the fruit items are highly perishable, the imposed restrictions could have adversely impacted the availability for a longer period. Furthermore, the supply chain of Meat/Egg/Fish, etc. was interrupted due to the identification of COVID-19 clusters in the fish markets across the island. In addition to the above, the scarcity occurred due to the consumers' irresponsible consumption patterns. Moreover, disruptions that emerged in both export and import destinations due to the crisis, negatively influenced the occurrence of the



scarcity in food items. i.e. Turmeric. More specifically this scarcity has paved the way for the creation of the

black markets, lack of standards in production and has ultimately motivated to avoid consumption.

Table 01: Descriptive Statistics

Income Shocks During COVID – 19 Restrictions	<i>Experienced</i>					<i>Not Experienced</i>				
	53.8%					46.2%				
Access to the Physical Markets	<i>Received</i>					<i>Not Received</i>				
	53.8%					46.2%				
Changes in Monthly Consumption Habits	<i>Experienced</i>					<i>Not Experienced</i>				
	86.5%					13.5%				
Food Scarcity (%) During the COVID-19 Restrictions (According to Food Types)*	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I</i>	
	45.2	52.83	67.92	62.26	43.39	32.07	35.84	60.37	50.94	
Managing Consumption During the COVID-19 Restrictions	<i>Reduced Consumption</i>		<i>Online Banking</i>		<i>Brand Switching</i>		<i>Obtained Loans</i>			
	33.5%		23.43%		11.45%		3.125%			

Note: * (A) Rice, Wheat flour, Bread, Pasta and Noodles and Pulses i.e. Dhal and lentils; (B) Vegetables; (C) Fruits; (D) Meat/Egg/Fish/Dry Fish/Sprats and Seafood; (E) Milk and Milk-based products; (F) Oil and Fats based products; (G) Sweets based products; (H) Spices and condiments and; (I) Beverages and fast-food items.

Before the COVID-19 crisis, the mean expenditure value of the monthly food consumption of the urban community was Rs. 36, 321.67. During the restrictions in COVID-19, this value has increased to RS. 37, 236.46. Although there is Rs. 909.79 difference between the two periods, the Paired t-test confirms that this difference is not statistically significant (Table 02). The key implication of this finding is that the COVID-19 crisis has not significantly influenced to make a substantial difference in the consumers' monthly total food consumption expenditure. There could be several reasons for this. Although the community faced income shocks, generally they do not give up the amount that

they expend for foods, since foods are necessary items for consumption. Furthermore, the Government intervened to the economy to stabilize the food price fluctuations during the crisis. Due to these conditions, the urban community in the Western Province has maintained their monthly total consumption expenditure during the period of restrictions at the same-level like similar to the period before COVID-19. However, the study finds that the demand for environmentally friendly food items has declined during the COVID 19 restrictions. At the same time, when the lockdown was released the demand for such items has recovered in the urban areas.



Table 02: Results of the Paired t-Test for the mean differences of total food expenditure values between the periods, Before COVID-19 and During the COVID-19 Restrictions

Variable	Mean	Std. Error	Std. Deviation	95% Confidence Level	
Total Expenditure (Before COVID-19)	36326.67	3005.099	20819.94	30281.19	42372.15
Total Expenditure During COVID Restrictions	37236.46	4046.706	28036.4	29095.54	45377.38
Difference	-909.7917	2091.341	14489.24	-5117.028	3297.444
Mean Difference = Mean (Total Ex. Before – Total Ex. During t = -0.4350					
H0 : Mean (Difference) = 0					
H1 : Mean (Difference) < 0 Pr(T < t) = 0.3328		H1 : Mean (Difference) != 0 Pr(T > t) = 0.6655		H1 : Mean (Difference) > 0 Pr(T > t) = 0.6672	

However, differences can be seen in mean food consumption expenditure values between two periods on particular food types. There is a statistically significant difference between the mean values of the amount spent per month (Rs.) on Rice, Wheat flour, Bread, Pasta and Noodles, and Pulses i.e. Dhal and lentils before COVID-19 and during the restrictions (Table 03). Consumers have spent more on the above food items during restrictions than the period before COVID-19. As the Sri Lankan traditional food consumption pattern heavily relies on the above food items, a distinction can be observed. Before restrictions the working community in the urban areas of the Western Province, usually consume meals from restaurants and cafes, this also shows that the urban community does not necessarily consume home-cooked meals during work hours. However, with the imposition of restrictions, it is noted that the majority of the working community adapted to the “Work from Home” modality to follow the health guidelines of the Government. As a backdrop, the household consumption expenditure has been substantially increased.

Similarly, a statistically significant difference has been observed in the mean expenditure value of Beverages and Fast-food items (Table 04). The study reveals that urban consumers have comparatively expended lesser amounts for the above food items during the restrictions as opposed to the period before COVID-19. As the movements were restricted to access to the physical markets, the daily routine of the consumers has experienced a change. In addition to the above, urban consumers mainly prioritized their consumption for the necessary and essential food items rather than Beverages and fast-food.

Table 03: Results of the Paired t-Test for the mean differences in expenditure values of Rice, Wheat flour, Bread, Pasta and Noodles and Pulses i.e. Dhal and lentils between the periods, Before COVID-19 and During the COVID-19 Restrictions

Variable	Mean	Std. Error	Std. Deviation	95% Confidence Level	
A*	10322.92	944.7843	6545.658	8422.256	12223.58
A1**	11958.33	1200.697	8318.675	9542.842	14373.82
Difference	-1635.417	623.267	4318.121	-2889.268	-381.5651
Mean Difference = Mean(A-A1)				t = -2.6239	
H0 : Mean (Difference) = 0					
H1 : Mean (Difference) < 0 Pr(T < t) = 0.0058		H1 : Mean (Difference) != 0 Pr(T > t) = 0.0117		H1 : Mean (Difference) > 0 Pr(T > t) = 0.9942	

Note: * indicates Expenditure of Rice, Wheat flour, Bread, Pasta and Noodles and Pulses i.e. Dhal and lentils in the period of Before COVID – 19; ** denotes the Expenditure of Rice, Wheat flour, Bread, Pasta and Noodles and Pulses i.e. Dhal and lentils during the period of COVID – 19 restrictions.



Table 04: Results of the Paired t-Test for the mean differences in expenditure values of Beverages and Fast-Food Items between the periods, Before COVID-19 and During the COVID-19 Restrictions

Variable	Mean	Std. Error	Std. Deviation	95% Confidence Level	
I*	3489.583	618.4891	4285.018	2245.344	4733.823
I1**	2114.583	469.2375	3250.973	1170.599	3058.567
Difference	1375	371.911	2576.675	626.8115	2123.188
Mean Difference = Mean(I-I1)				t = 3.6971	
H0 : Mean (Difference) = 0					
H1 : Mean (Difference) < 0 Pr(T < t) = 0.9997		H1 : Mean (Difference) = 0 Pr(T > t) = 0.0006		H1 : Mean (Difference) > 0 Pr(T > t) = 0.0003	

Note: * indicates Expenditure of Beverages and fast-food items in the period of Before COVID – 19; ** denotes the Expenditure of Beverages and fast-food items during the period of COVID – 19 restrictions.

According to the results of the paired t-Test, for the food items namely, Vegetables, Fruits. Meat/Egg/Fish/Dry Fish/Sprats and Seafood, Milk and Milk-based products, Oil and Fats based products, Sweets based products, Spices and Condiments, a substantial difference in the monthly mean expenditure value was not observed. This is because though the consumption amount has been reduced; consumers have consumed less quantity for a higher price. Due to the above reason, there is no significant difference in the aggregate consumption expenditure before and during the restrictions.

It is revealed that the majority of the urban community reduced consumption as an alternative action to overcome the constraints namely income loss/decrease (34.61%), increase in food item prices (36.53%), food scarcity in the market (30.76%). The study also found that 38.46 percent of the respondents opted for online shopping methods. Apart from this, a considerable number of consumers have also shifted to alternative patterns of consumption i.e. utilization of home-grown products as a convenient and safety measure. Due to the increased food item prices, scarcity, and income shocks, it is evident that the majority of the consumers have reduced consumption. Therefore, the required nutrition-level may not be attained. Further, this can lead to a threat to food security. Therefore, Sri Lanka will have to make relevant policy decisions to overcome these shortfalls.

Most especially the key findings of the study relate to the Model of Consumer Behaviour for Foods. The study reveals the substantial influence of physiological effects, socio-demographic factors, and environmental factors (i.e. economic, cultural, and marketing). The research found a significant increase in the monthly expenditure for Rice, Wheat flour, Bread, etc., and a significant decrease in the food category of

Beverages and Fast-food. The physiological effect and cultural factor directly related to the increase in main meals i.e. Rice, wheat flour, etc. which contain high calories compared to Beverages and Fast-food. Furthermore, the socio-demographic factors such as income level, size of the household, employment status, age, gender, and level of education have substantially determined the consumer behavior and decision making during the crisis. Moreover, the economic component led to the reduction in consumption of several food items to manage the increase in prices. This reflects the behavior of consumers in reacting to a decrease in purchasing power. In wake of the restriction of access to the physical markets, the promotional campaign towards E-commerce platforms and mobile food delivery services had significantly arisen. This can be observed as a direct impact of marketing strategies via social and mainstream media.

CONCLUSION AND RECOMMENDATIONS

The study concludes that the COVID-19 pandemic has substantially influenced the occurrence of uncertainties across the goods and services market and the labour market. The food price increase, food scarcity, and supply chain interruptions are the key uncertainties that arisen in the goods and services market whilst the occurrence of income shocks is the key uncertainty in the labour market. This study further concludes that the above uncertainties have substantially influenced the changes in food consumption behavior even though a significant difference was not observed in the aggregate food consumption expenditure during the restrictions.

Focusing on the goods and services market, it is recommended to sustain food transportation as an essential service to address market scarcity and supply



chain interruption regardless of a crisis. Furthermore, this research suggests enhancing the food storing capacities as the Western Province in Sri Lanka records the highest population density. The findings of the study further highlight the necessity of practicing responsible consumption behavior neglecting panic demand as well. As the consumers in Western Province are shifting towards technology inherited E-commerce based buying behavior, it is recommended to further strengthen and regulate this platform. Moreover, promoting mobile food delivery services will be an effective alternative option during such a crisis. Data speeds, efficiency and rate might have a significant impact on goods and services distribution and the economic development. This area might be a potential area for future research.

In terms of the labor market, implementing a holistic social protection scheme is pivotal due to the considerable number of vulnerable populations in the urban informal sector in the Western Province. Yet, these schemes should be developed with traits of accuracy and authenticity. The state entities are responsible to monitor and evaluate the progress of the implemented schemes. During crises, the Government should intervene to reduce market uncertainties by imposing effective and productive price control mechanisms to manage the market disequilibrium.

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