Sri Lanka
State of the Economy Report 2013

Chapter 12
Changing Food Demand and Consumption Patterns

by
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12. Changing Food Demand and Consumption Patterns

12.1 Introduction

Sri Lanka's food demand and consumption patterns may change in the near future as the country attempts to achieve higher GDP growth and graduate from its current lower middle income status to upper middle income category in the near future. International evidence suggests that the main determinants of the change in food consumption patterns are income growth, population growth and urbanization.[1] These three factors have led to significant shifts in food demand and consumption patterns in developed and developing countries around the world. Furthermore, improvements in transportation, changes in life style, and consumer preferences, will also affect dietary needs of people. On the food supply side, the main factors affecting the availability of food are the closer integration of global economies, which impacts the links between local production sources, liberalization of FDI, and the role of multinational corporations.[2]

> ***"There is a need to prioritize production, processing and distribution of foods in the policy agenda in order to meet the future food demand"***

Population and per capita income have been increasing in Sri Lanka for the last five decades. As a result of these two factors, the demand for major food categories has been constantly rising in Sri Lanka. Furthermore, changes in the demographic structure, increased urbanization along with the 'demonstration effect' from developed countries have led to increased consumption of several food items which are largely imported at present in Sri Lanka.[3]

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1 Delisle, H., (1990), "Patterns of Urban Food Consumption in Developing Countries: Perspective from the 1980s", Food and Agriculture Organization, Rome; Huang, J. and H. Bouis (1996), "Structural Changes in the Demand for Food in Asia", International Food Policy Research Institute, Washington, D.C.; Regmi, A. and J. Dyck (2001), "Effects of Urbanization on Global food Demand" in *Changing Structure of Global Food Consumption and Trade*, US Department of Agriculture.

2 Pingali, P., (2004), 'Westernization of Asian Diets and the Transformation of Food Systems: Implications for Research and Policy', EAS working paper, No.04-17, Food and Agriculture Organization, Rome.

3 Samaratunga, P., (2009), 'Multiple Facets of Food (in)Security in Sri Lanka", available at : www.ips.lk/.../2011/.../multiple_facets_of_food_security_in_sri_lLanka.pdf

In Sri Lanka, urbanization levels as of 2011 were estimated at 15.1 per cent, while the proportion of the total population living in rural areas is estimated at 84.9 per cent. However, there is no evidence that urbanization levels have increased rapidly in the recent past. Thus, this Policy Brief will mainly focus on per capita income growth and its impact on food demand and supply patterns in Sri Lanka.

There is an indication that there could be substantial impacts on food consumption patterns as Sri Lanka makes a transition from a low middle-income country to an upper middle-income country, with a growing middle class. These changes in food consumption patterns are expected to place significant pressure on the demand for certain food items, which may have major implications for policymakers entrusted with designing sustainable development programmes that tackle food insecurity. In addition, it is necessary to focus on efforts to increase production, processing, marketing, distribution, etc., of such foods in the future. This Policy Brief will make an initial exploration of these issues and resultant policy implications for Sri Lanka, as it attempts to bring about rapid changes in the country's income patterns through accelerated development initiatives. In addition, it will discuss several strategies that Sri Lanka could adopt to tackle future challenges which may arise due to changes in food demand and consumption.

12.2 Factors Driving Changing Food Demand and Consumption Patterns

A rise in per capita income is a key factor in driving demand for food. In India, for instance, it has been found that a rise in the per capita income of both urban and rural household has led to changes in food consumption patterns.[4] Looking at changes in food consumption patterns and expenditure elasticities of food demand, the study finds that an increase in the level of income has led to improved access to food items, accompanied by an increase in the relative consumption of livestock products, vegetables, and fruits and nuts, while relative consumption of cereals has not increased. Furthermore, given the rising demand for non-cereal based food and processed foods, the study suggests that there is a need to prioritize the production, processing, and distribution of such foods in the future.

Rising living standards in the urban sector have led to increased demand for such foods as fragrant rice, high quality wheat for breads, etc. Furthermore, a higher urban population share could reduce the demand for food grains, and increase the demand for meats and fish.[5] More generally, market developments, changing lifestyle and occupations are often found to contribute to food consumption pattern changes.[6]

Pingali (2004) has examined the implications of changing food consumption patterns and has identified several key areas of impact, including changes in trade patterns, and changes in the vertical integration of the food supply chain.[7] The author points out that as a result of rapid economic growth and increasing globalization, developing countries in many cases have transformed from being net exporters, to net importers of food commodities. In particular, a convergence to-

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4 Sharma, V.K., (2011), "An Economic Analysis of Food Consumption Pattern in India", *International Research Journal*, Vol. 2, No. 24.

5 Hsu, H. *et. al*., (2001), "How Will Rising Income Affect the Structure of Food Demand?" in *China's Food and Agriculture*: *Issues for the 21st Century*, Economic Research Service, Washington D.C.

6 Huang, J. and H. Bouis (1996), "Structural Changes in the Demand for Food in Asia", International Food Policy Research Institute, Washington, D.C.

7 Pingali, P. (2004), "Westernization of Asian Diets and the Transformation of Food Systems: Implications for Research and Policy", EAS Working Paper No.04-17.

wards Western diets has led to an expected increase in demand for temperate zone commodities, including wheat, potatoes, and temperate fruit and vegetables. Furthermore, changes in local tastes and preferences arising from increased globalization have led to a closer integration of the food supply chain to farm producers. For example, in Thailand and India, retailers have established supermarkets to cater to the growing demand for fruits and vegetables, and small farmers have been integrated directly into fresh food supply networks as a result.[8]

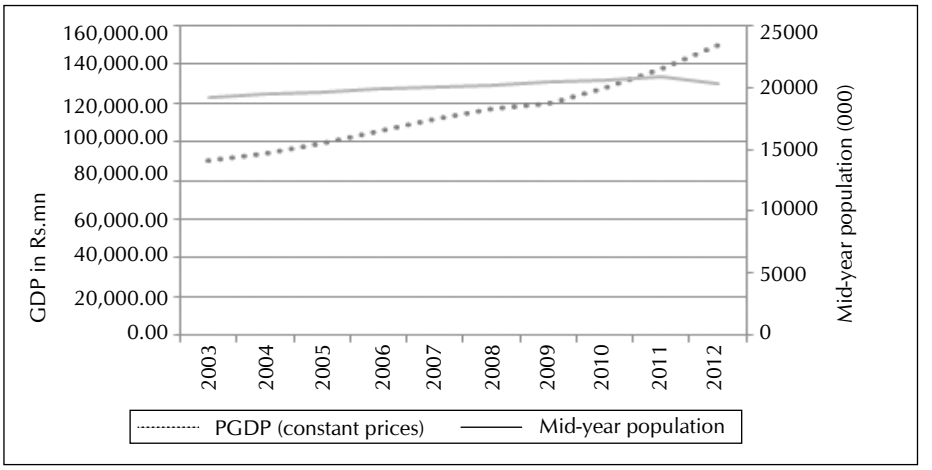
A study by the FAO (2012) confirms these findings, drawing on surveys conducted in 47 developing countries between the periods 1990-92 and 2007-09.[9] The results from these surveys reveal that diets among higher income groups within regions are more diversified, and that as income increases, the contribution of cereals, roots, and tubers to dietary energy supply decreases, while that of sugars, animal-source foods, fruits, and vegetables increases.

These changes in food consumption patterns are expected to place significant pressure on the demand for certain food items, particularly animal-derived products, including meat, eggs, and dairy items. The following section will examine the food demand and consumption patterns in Sri Lanka.

12.3 Food Demand and Consumption Patterns in Sri Lanka

According to Figure 12.1, both population and per capita income have been increasing in Sri Lanka over the past two decades. As explained earlier, these two factors are expected to increase food demand in the country.

Figure 12.1
Per Capita Income and Population Growth



Note: PGDP data based on 2002 prices.
Source: IPS, *Sri Lanka: State of the Economy 2012.*

[8] *Ibid,*

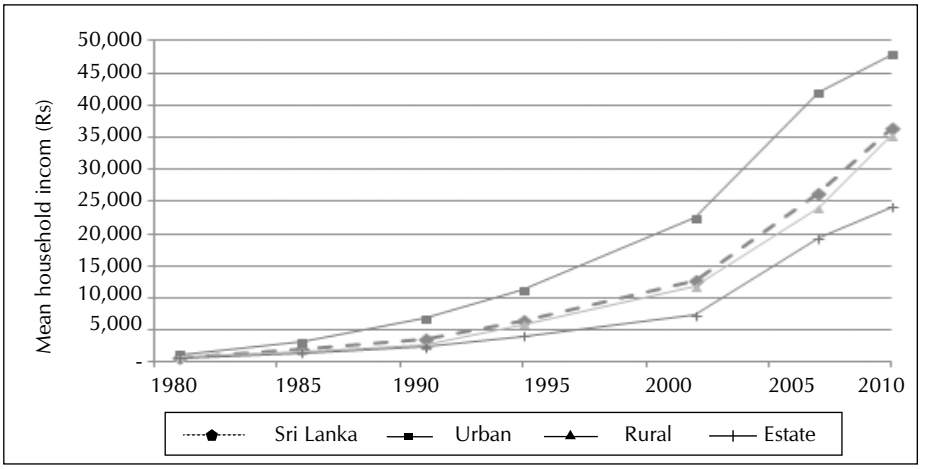
[9] FAO (2012), "Economic Growth, Hunger and Malnutrition: Income Growth and Changes in Food Consumption", Food and Agricultural Organization, Rome.

As suggested earlier, increases in household income have a strong bearing on shifting food consumption patterns. The DCS defines household income in Sri Lanka as the total income received by all members of a household, either in cash or in-kind. The sources of such income include wages and salaries, income from agricultural activities, and others. The HIES data on mean household income in various sectors of the economy are shown in Figure 12.2.

A comparison of the distribution of mean household incomes across sectors makes it clear that income has increased in all household sectors. As shown in Figure 12.2, mean monthly income on average across Sri Lanka has increased from Rs. 881 in 1981 to Rs. 36,451 in 2010. A breakdown of household income across sectors reveal that all three sectors, including urban, rural, and estate sectors, experienced increases in income during the period in question.

The DCS HIES data reveal some important features of food expenditure patterns in Sri Lanka. The relative share of food expenditure has declined over time, attributed to rising income, changing consumer preferences, relative price variations, supply condition variability, and changes in demographic conditions. In terms of expenditure patterns, Sri Lanka's food ratio – i.e., a measure of the expenditure on food and drink to total expenditure – has reduced over time (Table 12.1). This means households have tended to spend less than proportionately on food and drink, relative to expenditure on non-food items.[10] The reduction in the food ratio suggests that households spent more on non-food items such as housing, education, transport, electricity, health, etc. These trends are to be expected as countries see gradual increases in their levels of household income.

Figure 12.2
Mean Household Income in Sri Lanka by Sector, 1981 – 2010



Note: Mean household income taken as monthly average at current prices.
Source: DCS, HIES, various years.

[10] Expenditure on liquor and tobacco are not counted as a part of food and drink expenditure although it is counted in total expenditure.

Table 12.1
Proportion of Household Expenditure on Food

Year	1980/81	1985/86	1990/91	1995/96	2002	2006/07	2009/10
Mean HH expenditure per month	1232	2079	3905	6525	13147	22952	31331
Food ratio (%)	65.0	57.6	64.6	54.4	44.5	37.6	42.3

Source: DCS, HIES, various years.

Table 12.2 shows the changing pattern of expenditure on basic food items as a percentage of total expenditure, and quantity consumption of those food items from 1980 to 2010. During this period, the proportion of household expenditure spent on staple food items, including rice, decreased from 20.5 per cent to 7.3 per cent. Furthermore, the proportion of household expenditure spent on more expensive, non-staple foods, including meat, fish, and milk products, increased from 1.1 per cent to 1.7 per cent, 3.3 per cent to 3.7 per cent, and 2.2 per cent to 3.3 per cent, respectively. These changing food expenditure patterns indicate that a gradual increase in demand for animal-derived products has accompanied the increase in mean household income.

For a systematic analysis of changing food demand patterns, it is also important to evaluate the changes in food consumption in Sri Lanka, as addressed in the following section.

12.3.1 Food Consumption Patterns

The data also reveal noteworthy changes in the food consumption patterns in Sri Lanka. As evident from Table 12.2, the quantity intake of rice (the staple food in Sri Lanka) is reducing. In 1980/81, household consumption of rice was nearly 46.7 kg, but this had reduced to 36.3 kg by 2009/10. On the other hand, the consumption of meat, fish and eggs has increased in terms of quantity. This shows that the quantity of carbohydrate intake (including rice, wheat flour and bread) is re-

Table 12.2
Average Monthly Household Expenditure and Consumption of Major Food Items

	Monthly HH Expenditure (as a % of total expenditure)			Monthly HH Quantity Consumed (kgs.)		
Selected food items	**1980/81**	**1990/91**	**2009/10**	**1980/81**	**1990/91**	**2009/10**
Rice	20.45	15.62	7.33	46.7	44.3	36.3
Wheat flour	1.54	0.90	0.60	3.6	2.6	2.7
Bread	3.00	2.74	1.36	7.8	9.9	5.1
Pulses	1.54	2.94	1.75	1.4	2.6	2.8
Meat	1.14	2.05	1.65	0.8	1.2	1.4
Fish	3.25	3.51	3.71	3.5	2.4	3.8
Dried fish	2.27	2.59	1.57	1.4	1.3	1.3
Milk & milk products	2.19	3.12	3.31	2.7	1.4	1.9
Eggs	0.49	0.67	0.43	7.0	11.0	10.0

Source: DCS, HIES, various years.

Table 12.3
Average Monthly Household Consumption of Selected Food Items by Sector, 2002-2010 (kg.)

Year	2002/03			2006/07			2009/10		
Sector	Urban	Rural	Estate	Urban	Rural	Estate	Urban	Rural	Estate
Rice	28.2	36.7	42.5	28	37.8	40.8	27.5	37.4	40.8
Wheat flour	2.3	2.2	23.5	1.7	1.5	17.4	3.0	1.9	15.4
Bread	14.9	9.5	5.1	10.2	5.7	3.7	8.1	4.7	2.7
Meat	3.5	1.0	0.7	1.7	0.9	0.9	1.5	0.8	0.9
Fish	4.6	2.9	0.5	1.1	0.7	0.2	0.9	0.6	0.3
Milk	0.3	0.3	1.1	2.0	1.4	1.3	1.8	1.3	1.1

Source: DCS, HIES, various years.

ducing, while protein intake has increased slightly through the consumption of fish, meat, and eggs.

Data on food consumption patterns across sectors reveal unique characteristics specific to the urban sector, as shown in Table 12.3. The average monthly household consumption patterns show that the urban sector consumes a smaller quantity of staple foods, such as rice, and a larger quantity of non-staple foods, such as meat, fish, and milk, compared to rural and estate sectors. For example, in 2009/10, the urban sector consumed 26 per cent less rice than the rural sector and 33 per cent less rice than the estate sector, on average. On the other hand, the urban sector consumed 88 per cent more meat than the rural sector and 67 per cent more meat than the estate sector, on average. These figures suggest that there will be a greater demand for non-staple food items, especially from the urban sector.

Furthermore, a comparison of food consumption patterns across household expenditure deciles reveals a similar picture. Table 12.4 presents data relating to the quantities of daily per capita consumption of major food commodities in each household expenditure decile. Here too, households with the highest levels of income consume the least amount

Table 12.4
Daily Per Capita Consumption of Major Food Commodities by Household Expenditure Deciles (kg.)

HH Decile	Cereals	Roots and Tubers	Pulses	Meat	Fish
1	302.1	16.7	18.1	2.0	15.4
2	325.8	19.6	20.7	3.7	22.8
3	334.0	21.0	22.6	5.6	28.0
4	327.8	21.7	24.3	7.0	34.2
5	328.7	22.0	24.0	8.8	36.0
6	320.8	23.1	24.5	11.6	40.1
7	324.4	25.0	26.9	13.9	44.6
8	316.7	25.6	27.2	15.9	48.4
9	315.4	26.7	30.5	18.6	51.1
10	299.4	28.5	32.9	26.2	59.3

Source: DCS, 'Food Balance Sheets', various years.

Table 12.5
Calorie and Protein Consumption by Household Income Deciles

HH Decile Group	Mean Income (Rs.)	Consumption of Calories (Kcal)	Consumption of Protein (g)
1	1,231	1,615	36.4
2	1,987	1,867	43.0
3	2,554	1,985	46.6
4	3,095	2,006	49.3
5	3,699	2,108	51.1
6	4,460	2,180	53.0
7	5,399	2,242	56.5
8	6,792	2,304	58.4
9	9,346	2,379	62.0
10	26,068	2,497	60.5

Source: DCS, 'Food Balance Sheets', various years.

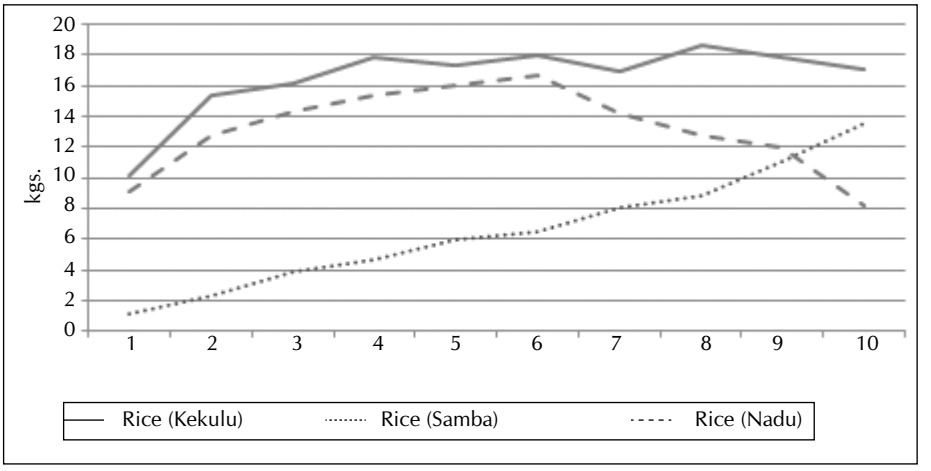
of cereal, and the highest amounts of meat and fish. Consumption of animal protein is lower in low household expenditure deciles, due to the high cost of such proteins.

As shown in Table 12. 5, the consumption of both calories and proteins increases from lower to higher income deciles. An important observation to be made is that protein consumption grows more than the calorie consumption, with increasing income. This indicates an increasing demand for high protein food products (fish, meat, milk products, etc.) when income increases.

12.3.2 Change in Quality of Foods

The quality and variety of food items also matter as incomes rise. In the case of Sri

Figure 12.3
Average Monthly Household Consumption of Rice Varieties by Household Expenditure Deciles – 2009/10



Source: DCS, HIES, various years.

Lanka's staple food item, this has led to the emergence of different quality rice in the market – for example, 'kekulu', 'samba', and 'nadu'. Samba rice is considered to be the highest quality rice among all the varieties. Rice consumption patterns in different income deciles illustrate that the high expenditure decile groups consume more of samba rice than other varieties (Figure 12.3). This clearly indicates that when incomes increase, the demand for quality food is also likely to rise, as suggested in other countries.

12.4 Conclusions and Policy Recommendations

In light of the above observations, it is clear that increases in income and population growth are expected to bring several changes in food consumption patterns in the near future. As such, there is a need to prioritize the production, processing, and distribution of foods in the policy agenda in order to reflect these changes. Furthermore, it is expected that there will be additional pressure on the supply of certain food items, particularly non-staple foods, as household income increases. It is also expected that there will be a shift in demand from cereals to animal-derived food, particularly for meat, fish, and milk, in the near future.

Is Sri Lanka ready to welcome these new changes in food demand? Presently, Sri Lanka is almost self-sufficient in its staple food (rice), producing approximately 97 per cent of the requirement. However, the country is dependent on imports for 100 per cent of its wheat requirements, 85 per cent of milk, 93 per cent of sugar, and 70 per cent of cereal.[11] Thus, the expected additional food demand may not be met with the current local production capacity alone. At least in the short run, the country may need to rely on imports, despite their high costs, to meet this new demand until domestic supply is accelerated. A well-planned strategy to meet this new demand is necessary, and engaging the private sector to increase local production on a large scale is highly recommended.

Furthermore, there is a need for a shift in the agenda for research and policy to reflect the potential changes in food consumption patterns in Sri Lanka. To help cope with the expected increase in demand for more non-staple foods, including fruits and vegetables, research into the possible generation of new technologies to improve productivity must be conducted. Both crop-specific research – including possible increases in yield potential, and better tolerance to pests – and system-level research – including better land management and tillage practices – need to be examined more closely. Such inputs will provide farmers the flexibility required to enable more diversified crop-selection and free movement between crops, as well as the increased productivity needed to cope with a growing demand for non-staple food products.

Current programmes in Sri Lanka are limited with regard to the extent to which they address shifting food consumption patterns. Programmes like Divi Neguma do in fact target livestock production, but it is more focused on increasing livestock production among household units to enable self-sufficiency among them, rather than targeting the private sector in order to increase production on a large scale.[12] Furthermore, the fertilizer subsidy programme, which provides subsidies to rural farmers for increasing their

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[11] IPS (2010), "Challenges for the Food Crop Production Sector: A Post-conflict Perspective" in *Sri Lanka: State of the Economy 2010*, Institute of Policy Studies of Sri Lanka, Colombo.

[12] See "Divi Neguma Programme: A Means of Ensuring Employment?" in this report.

crop yields, aims to encourage farmers to switch from traditional rice varieties to high-yielding varieties which are more responsive to chemical fertilizers.[13] However, once again, this programme focuses more on promoting self-sufficiency among farmers rather than increasing production on a large scale. Given this lack of policy aimed at increasing production on a large scale, particularly for non-staple foods, it is important that policymakers design a set of programmes that encourage the participation particularly of the private sector, to cope with the expected rise in non-staple foods. If local farmers are unable to cope with this increasing and changing food demand, there will be a growing reliance on more expensive, imported foods, and a dependence on the world market.

Moreover, supermarkets also play an active role in accelerating and broadening the scope for diet diversification, while at the same time, consumers are expected to increase their demand for high quality and hygienically prepared foods. Thus, it is important to strengthen food safety standards and regulations. Supermarkets are in the ideal position to deal with changes in the urban food market, due to their increasingly close integration in the food supply chain with farm producers. Vertically integrated food supply chains that link suppliers of inputs, producers, processors, distributors, and retailers, become essential for meeting changing demand and consumption requirements. Therefore, the importance of linking backward and forward linkages in the food supply chain will also be essential in meeting future food demand requirements.

[13] Weerahewa, J., *et. al*., (2010), "The Fertilizer Subsidy Programme in Sri Lanka", Cornell University.