FOOD CONSUMPTION PATTERNS IN INDIA

Introduction

India is a vast and varied subcontinent, with 2.4% of its global landmass supporting over one-sixth of the world's population. At the time of Independence, the country had high poverty and under-nutrition rates. Realising the importance of rapidly improving the situation, the country invested in multi-sectoral, multi-pronged strategies and programmes to improve nutritional status of the population. Nutrition scientists have utilised the data from ongoing nutrition surveys to assess trends in dietary intake and nutritional status and monitor progress and impact of ongoing nutrition and health interventions.

Data from the National Sample Survey Organization's (NSSO) consumer expenditure surveys[1] are extensively used by economists for making poverty estimations, computing consumer price index and for exploring equity related issues regarding access to food. Nutrition scientists have not made extensive use of the valuable data from NSSO surveys on time trends, inter-state and inter income group differentials in household expenditure on food and food consumption patterns. This might partly be because the data sets became readily accessible only about a decade ago to all users. The fact that data pertain to households and not to individual's consumption and as such it will be difficult to relate it to the dietary intake and nutritional status of the individuals is another major factor that comes in the way of wider use of this data by the nutrition scientists. In this paper some of the major findings on household food and nutrient consumption based on quinquennial NSSO Consumer Expenditure Surveys from 1972-73 to 2004 is presented.

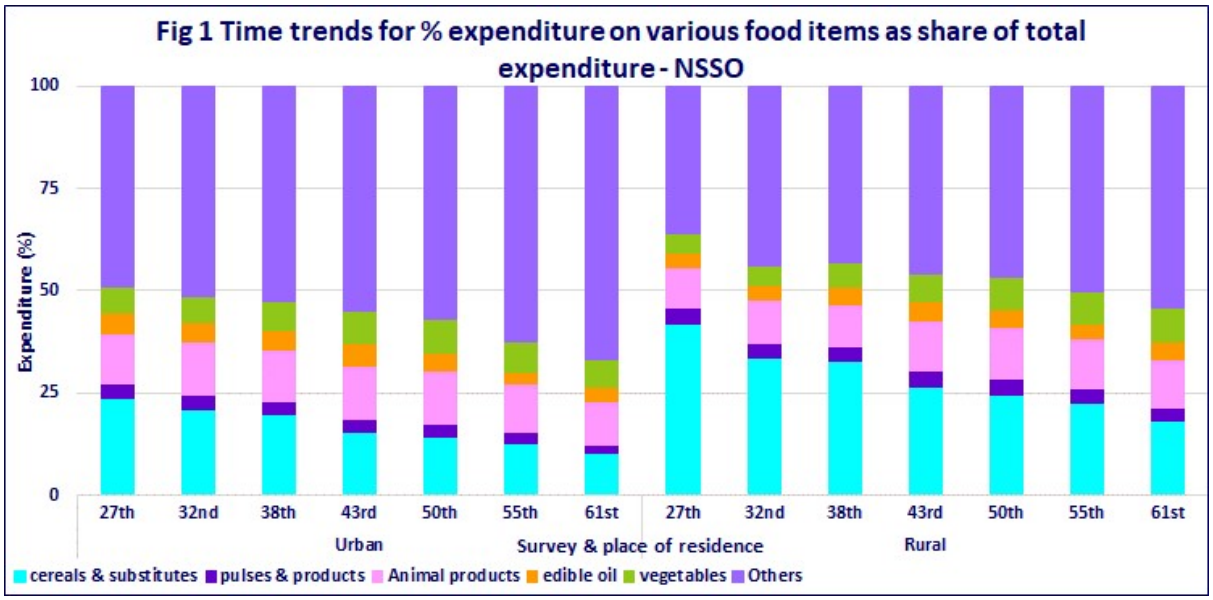
NSSO consumer expenditure surveys

The NSSO, a permanent survey organization was set up in the Department of Statistics of the Government of India in 1950 to collect data on various facets of the Indian economy through nationwide large-scale sample surveys. NSSO surveys provide time-series data of expenditure on food and non-food items in different income groups, residence (rural & urban) and state obtained from survey appropriate number of households. NSSO uses a two-stage stratified sampling design at the household selection stage; those belonging to the affluent section and others are sampled separately. Consumption expenditure of food items per capita and per consumption units are provided using two reference periods of 7 and 30 days immediately preceding the day of the survey. The survey is carried out in sub-rounds covering the four seasons. The results presented in the report are based on the 30-day reference period. Taking into account the cost of food in the corresponding year, NSSO computes and reports household level of consumption of different food items and also energy, protein and fat consumption.

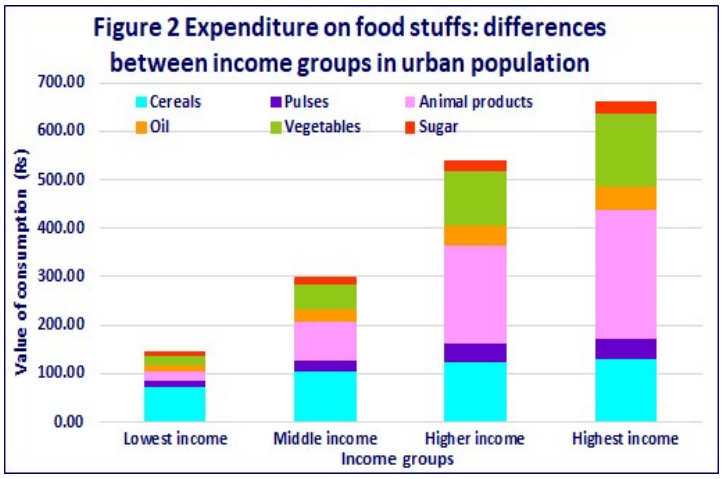
The NSSO has carried out Consumer Expenditure Surveys quinquennially since 1972-73 (27th, 32nd, 38th, 43rd, 50th, 55th and 61st rounds of NSS) at roughly 5-year intervals for assessing the impact of economic, agricultural and food distribution related interventions on food consumption over time in different states in urban and rural areas and in different income groups. The strength of food consumption data from NSSO are the sampling design, sample size, explicitly stated estimation procedure, national coverage and uniformity of

data collection over decades. Some of the potential shortcomings in use of NSSO data on food consumption are the reliability and validity of data collected on consumption expenditure on food by a single interview with a reference period of 30 days. Another major problem is that while it captures expenditure of household on food items and derives household consumption of foodstuffs, it does not provide any insight into the critical intra-familial distribution or food consumption of individuals.

Time trends in consumer expenditure on food

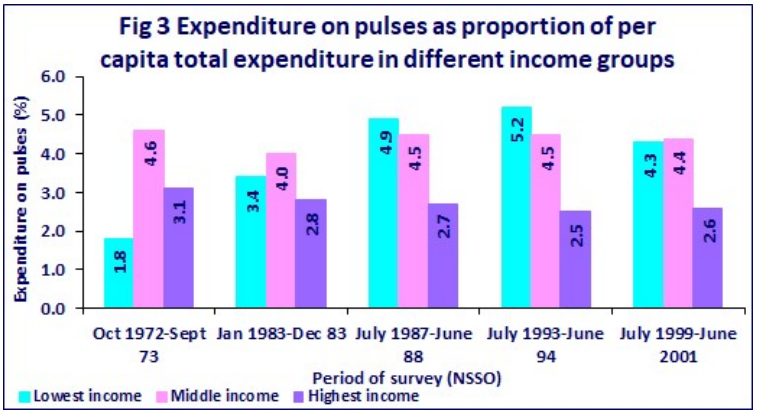


Data from the 27, 32, 38, 43, 50, 55 and 61st rounds of NSSO on consumption expenditure in food (different food stuffs) and non-food items is shown in Fig 1. There has been a decline in the proportion of expenditure on food items in last three decades in both urban and rural areas. However, the expenditure on food remained higher in rural areas as compared to urban areas (Fig 1). Between 1972-73 and 2004-05, the share of food in total consumer expenditure has fallen from 73% to 55% in rural areas and from 64% to 42% in urban areas. The proportion of expenditure on non-food items has increased from 24% to 37.7.



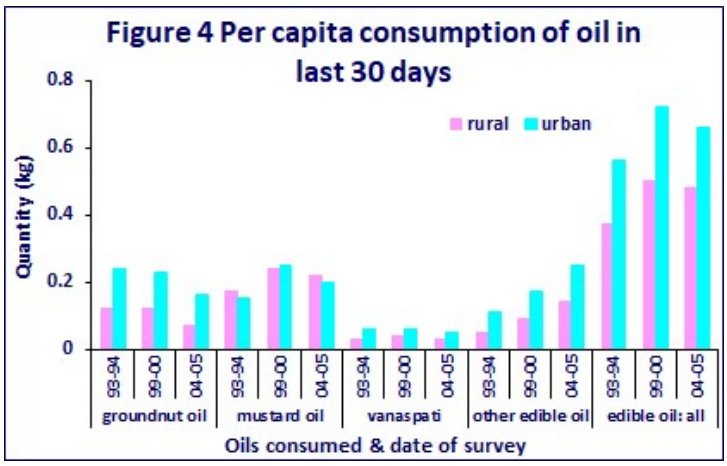
The decline in consumption expenditure on food items is mainly due to low cost of cereals which are the major source of energy in Indian dietaries and it was seen in all income groups (Fig 2). The share of cereals in household expenditure has fallen from 41% to 18% in rural India and from 23% to 10% in urban India over the same period (Fig 1). In spite of the fall in expenditure

there has been a small increase in the cereal consumption of the lower income groups; in the middle- and high-income groups there has been some decline in cereal consumption, which has also contributed to the declining expenditure on cereals in these income groups.



Over this period the expenditure on pulses has remained more or less same in all the income groups (Fig 3). However, because of the soaring cost of pulses, there has been a decline in pulse consumption in all the income groups. Among the upper income groups there has been a greater dietary diversification with increase in consumption of milk and animal products; as a result, in these income groups there has not been any decline in protein intake in spite of reduction in pulse intake. However, among the poorer segments of the population pulses remain the major source of protein and lower pulse consumption can result in further reduction in already low protein consumption.

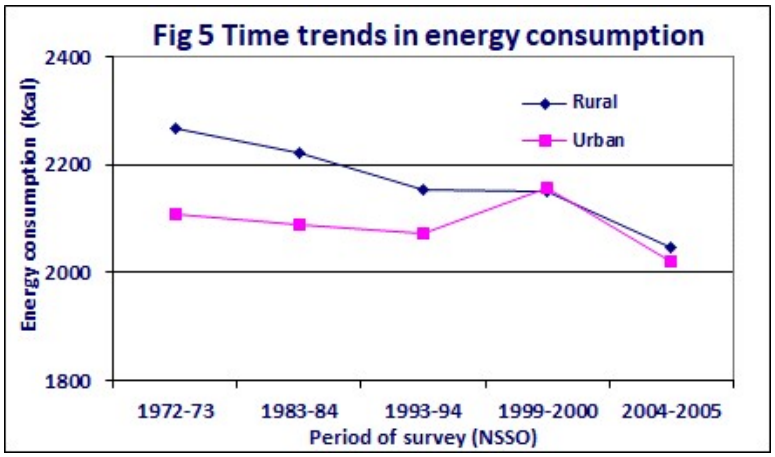
Over the years expenditure on micronutrient rich vegetables and fruits have increased; the increase is more in urban areas as compared to rural areas (Fig 1). One of the major factors responsible for the relatively low consumption of vegetables is the non-availability of vegetables, especially green leafy vegetables throughout the year at an affordable cost both in urban and rural areas. India ranks number one and two in vegetable and fruit production in the world. Steps to improve access to vegetables at affordable cost coupled with nutrition education on the importance of these for good nutrition and health may go a long way in rapidly improving the vegetable intake both in urban and rural population.



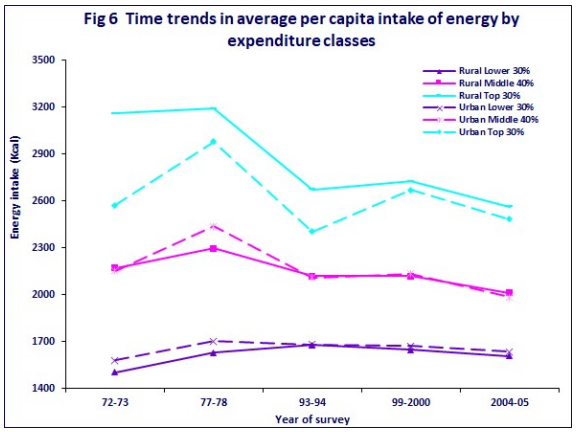
NSSO survey data showed that there has been an increase in the per capita consumption of edible oil; between 1993-94 and 1999-2000, there has been a rise in oil consumption both in rural and urban areas (Fig 4). However, there was a small decline in total oil consumption in urban areas between 2000 and 2005. Vegetable oils such as ground nut, mustard, soya and sunflower oil are the major oils used. Consumption of vanaspati (with trans fatty acids) is relatively low. The growing consumption of empty calorie from oils, fats, sugar and beverages is a matter of concern, because they contribute to the increasing prevalence of over-nutrition in all age groups especially among the urban affluent segments of the population. If the expenditure on these items is used for the purchase of vegetables and fruits, there can be substantial, sustainable benefit in terms of improved micronutrient intake and cardio-vascular diseases

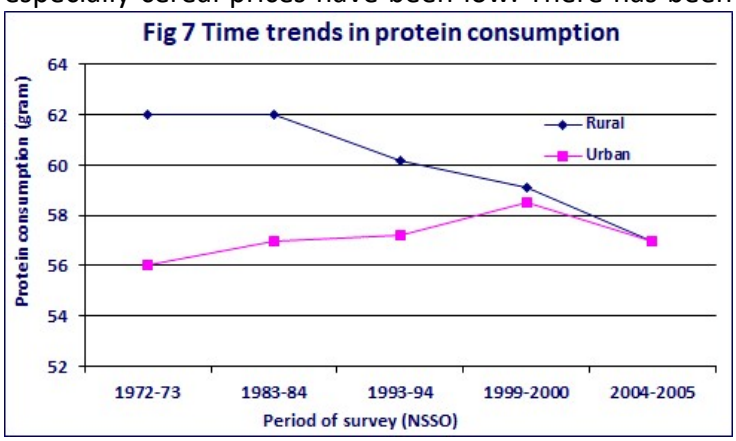
(CVD) risk reduction. In the National Nutrition Monitoring Bureau (NNMB) states, data from NNMB surveys shows similar trends as NSSO surveys in per capita and per consumption unit intake of cereal, pulse, oil, animal foods and vegetables[2].

Time trends in energy, protein and fat consumption



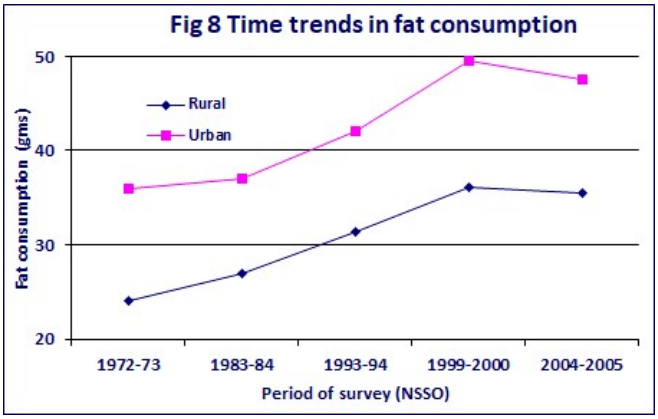
Realising that poverty and lack of purchasing power were the two major factors responsible for the low dietary intake and chronic under-nutrition, India defined poverty line on the basis of energy intake of the population and initiated interventions aimed at improving the purchasing power, access to subsidized food, essential goods and services to people below poverty line. NSSO consumer expenditure data on energy intake of urban and rural areas over the last three decades provides a valuable tool for assessing the impact of these interventions on energy intake. During this time, there has been a slow but steady decline in energy intake in rural areas. In the urban areas there has been a very small reduction in energy intake between mid-seventies and mid-nineties. There was a small rise in 1999-2000 but in 2004-05 the energy intake was lower than all the previous years (Fig 5). However, when the data is analysed by expenditure classes, the energy intake has shown a small increase in both urban and rural poor and a decline among the urban and rural middle- and higher-income groups (Fig 6). In the urban areas, the variation in intake over the years is much smaller. The reduction in energy intake is not due to poor access to food because food supply has been adequate; it is not due to economic constraints because food especially cereal prices have been low. There has been a reduction in expenditure on food and most of the decline in energy intake has occurred in the middle and high-income groups with no economic constraints in accessing food. The decline in energy intake might be due to reduction in energy expenditure attributable to the changes in lifestyle and reduction in physical activity. In-spite of the reduction in energy intake, there has been an increase





in prevalence of over-nutrition suggesting that reduction in physical activity may be the crucial factor in the ongoing nutritional transition in India.

There has been a small but steady decline in the protein consumption in rural areas between 1973 and 2004-05; this is mainly attributable to the decline in cereal and pulse consumption. The protein consumption in urban areas has remained unaltered perhaps because of the increasing consumption of milk and animal products (Fig 7).

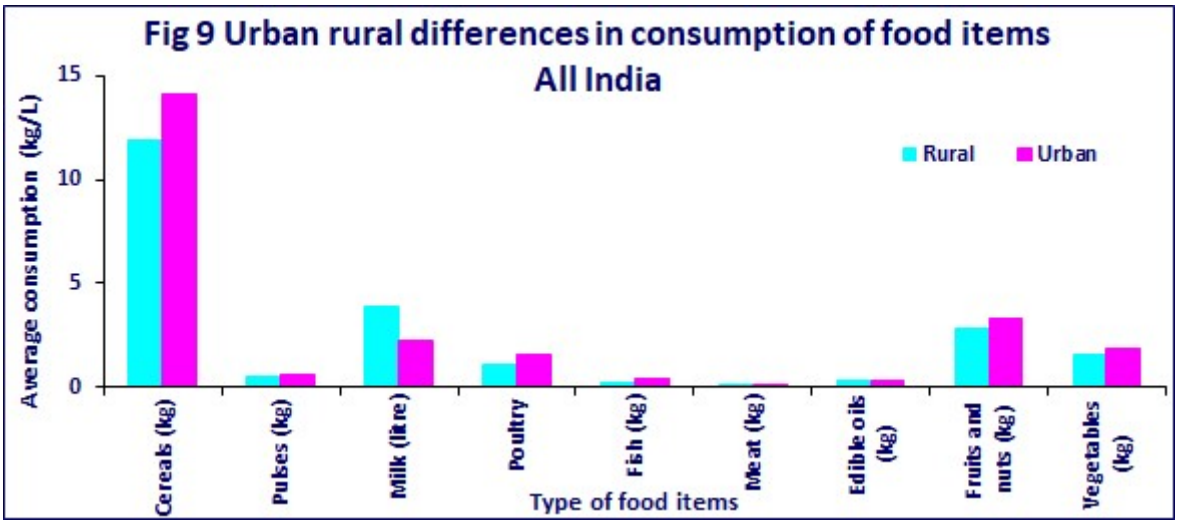


Over the last three decades, there has been a substantial increase in the fat intake in both rural and urban areas. However, it is noteworthy that even in 2004-05 average fat intake contributes less than 15% of the total energy intake (Fig 8). In view of adverse nutrition (obesity) and health (non-communicable diseases) implications of increased fat intake, especially, among the affluent group, this has to be curtailed through appropriate nutrition education.

Findings from recent NSSO consumer expenditure surveys

The last two quinquennial NSSO surveys conducted in 1999-2000 and 2004-05 provide a wealth of data on current trends in food consumption. The last survey conducted in July 2004 - June 2005, data was collected from a sample of 79,298 rural and 45,346 urban households spread over 7999 villages and 4602 urban blocks respectively. The number of persons surveyed was 4,03,207 in rural areas and 2,06,529 in urban areas. Data from these surveys on the current differentials in consumer expenditure on food items between different income groups, in urban and rural areas, in different states provide very interesting findings; some of these are summarized in the following pages.

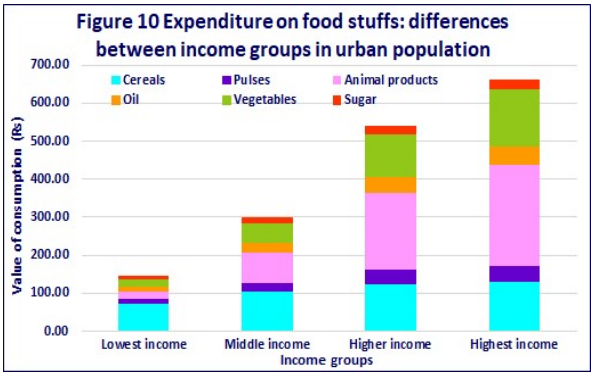
Urban rural differences in food consumption

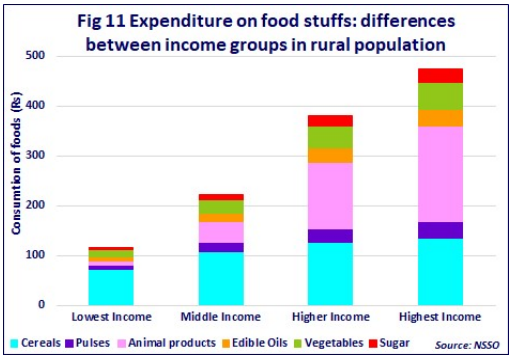


Even in 2004-05, cereals formed the largest component of the diet of both urban and rural population. Consumption of pulses was very low; this may be due to the high cost of pulses.

Consumption of milk, fruits and vegetables, and animal foods continues to be quite low both in urban and rural areas. Consumption of cereals, pulses, poultry, fish, fruits and vegetables are higher in rural areas as compared to urban areas perhaps because these reach the household directly from their farms and are not as expensive as the items purchased in urban markets. In urban areas consumption of milk and oil is higher (Fig 9).

Consumption expenditure and dietary diversification

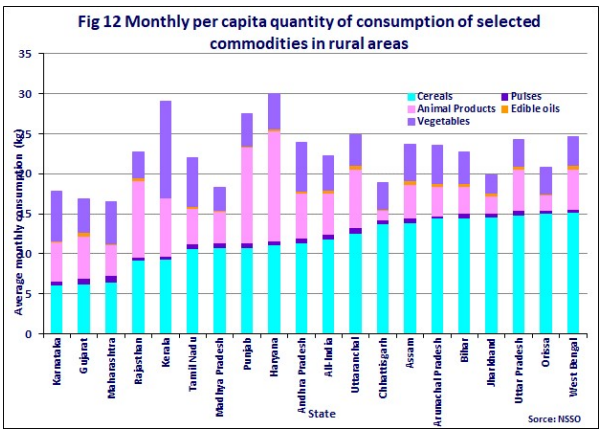


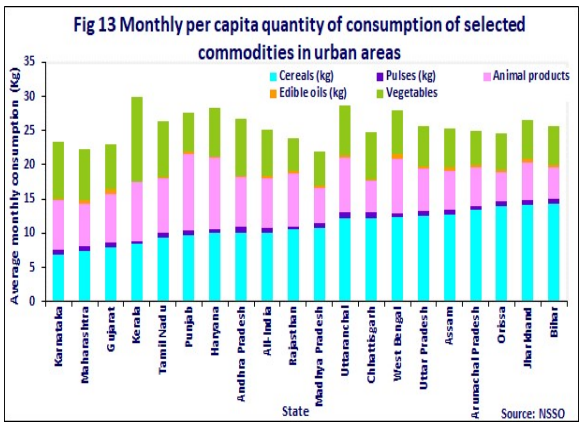


Data from the 1999-2000 survey were analysed to assess the relationship between consumption expenditure and dietary diversity. Dietary diversity increases with increasing monthly per capita expenditure both in urban and rural areas. Expenditure on cereals constitutes the single major component of expenditure on food items both in urban and rural poor. Consumption of milk and animal products increases with increase in consumption expenditure.

In the highest expenditure group, they are the major sources of protein (Figs 10-11). There is an increase in intake of vegetables with increasing consumption expenditure, especially, in urban areas; this trend is to be encouraged as it will improve the micro and phytonutrient intakes in these households. However, the increasing consumption of sugar and oil in the highest expenditure group is a matter of concern. Health education efforts should be redoubled to reduce the consumption of foodstuffs with “empty” calories.

Interstate differences in food consumption

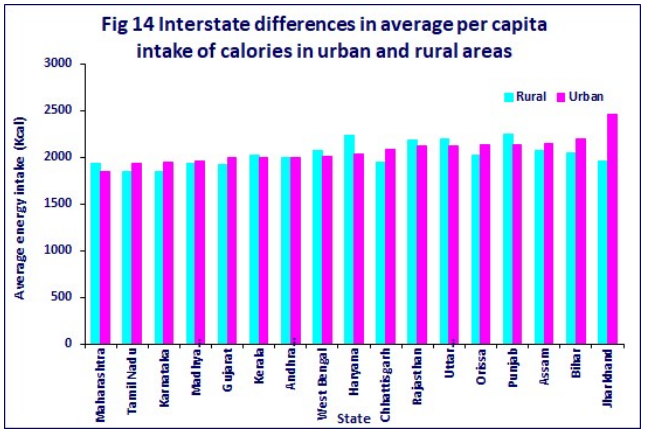




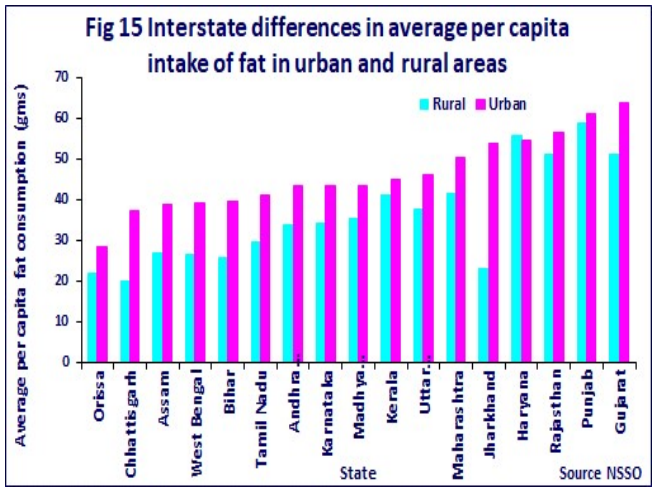
Data from the 2004-05 survey show that the large inter-state differences in types and quantities of food being consumed both in urban and rual areas (Figs 12-13). Cereals continue to be the major food item in all the states; however, the amount consumed varies

substantially. The amount of cereals consumed in Karnataka, Gujarat and Maharashtra is less than half the amount consumed in West Bengal, Orissa and Uttar Pradesh (UP). Pulse and oil consumption is relatively low in all states both in urban and rural areas. There are large variations between states in vegetable, fruit and animal product consumption. In the most states cereal consumption is higher in rural areas and animal product consumption is higher in urban areas.

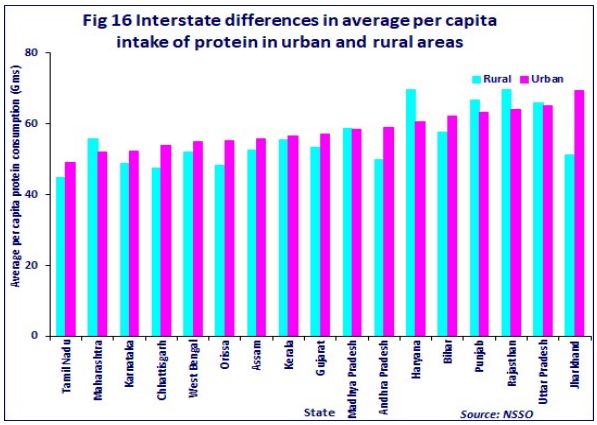
Interstate difference in energy intake



Data on energy intake in urban and rural areas in different states is shown Fig 14. In most of the states, energy intake in rural areas is higher than the urban areas though the differences are not large. In Bihar, Chhattisgarh and Assam energy intake is higher among urban population. Energy intake is lower in states like Maharashtra, Tamil Nadu, Karnataka, Gujarat and Madhya Pradesh and is higher in Haryana, Punjab, UP and Rajasthan. While per capita income and access to food are some of the determinants of energy intake (eg higher intake in states like Punjab and Haryana), factors like higher physical activity and higher energy expenditure in manual labour (eg Orissa, Rajasthan, Bihar and UP) might also play an important role as determinants of energy intake.



In all, states fat consumption is higher in urban as compared to rural areas. The urban-rural differences in fat intake are very high in states like Chhattisgarh or Jharkhand, perhaps because the fat content in traditional tribal diets is low; the urban migrants tend to move away from the traditional diets and consume foodstuffs with high fat content. Urban-rural difference in fat intake is relatively low in states such as Haryana, Punjab and Rajasthan where fat consumption in both urban and rural population is high (Fig 15). There are substantial interstate differences in fat intake. It is low in states like Orissa, Chhattisgarh and Assam, which are predominantly rural and have low per capita income; and is higher in the prosperous urbanized states like Gujarat, Haryana and Punjab. However, fat intake is high even in



Rajasthan which is neither highly urbanized nor very prosperous. In view of the higher prevalence of obesity in different age groups including children and women in states with high fat and high energy intake, nutrition education aimed at reducing fat intake and health education aimed at improving physical activity are urgently needed.

Unlike fat consumption, protein consumption is higher in rural areas in states such as Haryana, Punjab and Rajasthan (Fig 16). Protein consumption is lower in rural areas in states like Tamil Nadu, Karnataka, Orissa Bihar. The urban-rural differences in protein intake are high in states like Jharkhand and Andhra Pradesh. There are relatively large inter-state differences in protein consumption between states. Protein intake is relatively low in states like Tamil Nadu, Karnataka, Orissa and West Bengal where rice is the major cereal consumed and pulse consumption is low.

Protein intake is comparatively higher in states like Punjab, Rajasthan and Haryana; this might be partly due to the fact that wheat is the staple cereal in these states and partly due to higher intake of animal products with high protein content in these states.

Conclusion

India is currently undergoing rapid socio-economic, demographic, health and nutritional transition. The rate of transition varies substantially between states, urban and rural population and income groups. It is essential that the trends in food consumption patterns are monitored carefully to identify positive and negative trends. Data so far presented indicate that the NSSO surveys provide valuable insights on time trends, interstate, urban-rural and inter income group differentials in household expenditure on food and food consumption patterns. Data from NSSO surveys and the ongoing nutrition surveys can help in identifying the groups and states with problems as well as potentially beneficial trends. Clearly focused nutrition education efforts aimed at strengthening the positive trends and combating the negative ones can go a long way in improving the dietary intake, lifestyles and nutritional status of the population.

References

National Sample Survey Organisation: NSSO surveys 1973 - 2005 http://mospi.nic.in/mospi_nsso_rept_pubn.htm; last accessed on 4/3/08

NNMB National Nutrition Monitoring Bureau. 1979-2002. *NNMB Reports:* National Institute Of Nutrition, Hyderabad