

**AN ECONOMIC ANALYSIS OF FOOD CONSUMPTION
PATTERN IN KARNATAKA WITH SPECIAL
REFERENCE TO MYSORE DISTRICT**

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1. INTRODUCTION

The word food refers to the chemical substances taken into the body in order to keep the body in a healthy and active condition. The body requires food for the growth, repair and replacement of its worn out tissues. Hence, food has to provide the required raw material, energy and other regulating substances like vitamins and minerals for the smooth functioning of the body besides meeting the calorific requirements like carbohydrates, proteins, fats *etc.* It can be derived from plants, animals or other categories such as fungus or fermented products like alcohol. Although many human cultures sought food items through hunting and gathering, today most cultures use farming, ranching, and fishing, with hunting, foraging and other methods of local nature included but playing a minor role.

Most traditions have a recognizable cuisine, a specific set of cooking traditions, preferences, and practices, the study of which is known as gastronomy. Many cultures have diversified their foods by means of preparation, cooking methods and manufacturing. This also includes a complex food trade which helps the cultures to economically survive by-way-of food, not just by consumption.

Many cultures study the dietary habits with a view to analyze the change in consumption pattern. While humans are omnivores, religion and social constructs such as morality often affects which foods they will consume. Food safety is also a concern with food borne illness claiming many lives each year. Many plants or plant parts are eaten as food. There are around 2,000 plant species which are cultivated for food, and many have several distinct cultivars. Plant-based foods can be classified as with the nutrients necessary for the plant's initial growth. Because of this, seeds are often packed with energy, and are good sources of food for animals, including humans. In fact, the majority of all foods consumed by human beings are seeds. These include cereals (such as maize, wheat, and rice), legumes (such as beans, peas, and lentils), and nuts. Oilseeds are often pressed to produce rich oils, including sunflower, rape, canola oil, and sesame. One of the earliest food recipes made from ground chickpeas is called hummus, which can be traced back to the Ancient Egypt times.

Fruits are the ripened extensions of plants, including the seeds within. Fruits are made attractive to animals so that animals will eat the fruits and excrete the seeds over long distances. Fruits, therefore, make up a significant part of the diets of most cultures. Some fruits, such as pumpkin and eggplant, are eaten as vegetables. Vegetables are a second type of plant matter eaten as food. These include root vegetables (such as potatoes and carrots), leaf vegetables (such as spinach and lettuce), stem vegetables (such as asparagus), and inflorescence vegetables (such as globe artichokes and broccoli). Many herbs and spices are highly-flavorful vegetables. Animals can be used as food either directly or indirectly by the products they produce. Meat is an example of a direct product taken from an animal, which comes from either muscle systems or from organs. Food products produced by animals include milk produced by mammals, which in many cultures is drunk or processed into dairy products such as cheese or butter. In addition, birds and other animals lay eggs, which are often eaten, and bees produce honey, a popular sweetener in many cultures. Some cultures consume blood, some in the form of blood sausage, as a thickener for sauces, a cured salted form at times of food scarcity, and others use blood in stews such as civet.

We will have to produce more food and other agricultural commodities under conditions of diminishing per capita arable land and irrigation water resources and expanding biotic and abiotic stresses. It is important that agriculture should help developing countries not only to produce enough food for the growing population but also lend for the generation of more income and opportunities for skilled employment.

Not everyone has adequate access to food and this had led to large scale hunger and malnutrition in the world. According to FAO, nearly 800 million are today chronically under nourished and unable to obtain sufficient food to meet even the minimum energy needs, it is all the more startling to know that nearly 200 million children under the age of five years suffer from acute or chronic system of malnutrition, 3.5 million people are anemic, micronutrient deficiencies affect more than two billion people.

India is the world's second largest producer of food next to China and has the potential of being the biggest industry. The average monthly per capita consumer expenditure (MPCE) in 2004-05 stood at Rs 599 in rural India and Rs 1052 in urban India. The per capita

consumption expenditure in urban areas stood 88 per cent more than that of rural areas. It is necessary to study the consumption pattern under the changing situations of liberalization, privatization and globalization. Some of the striking features of Indian consumers are that about 5 per cent of the urban population in 2004-05 had MPCE of Rs.2540 or more. Another 5 per cent had MPCE between Rs.1880 and Rs.2540. About 5 per cent of rural population had Rs. 1155 or more while another 5 per cent had MPCE between Rs. 890 and Rs.1155. Quantity of cereal consumed per person per month declined between 1993-94 and 2004-05 (from 13.4 kgs to 10.73 kgs in rural India and from 10.87 kgs to 9.71 kgs in urban India). Between 1972-73 and 2004-05, the share of food in total consumer expenditure also fell from 73 per cent to 55 per cent in rural areas and from 64 per cent to 44 per cent in urban areas.

In India, majority of food consumption is still at home. Nevertheless, out-of-home food consumption is increasing due to increase in urbanization, breaking up of the traditional joint family system, desire for quality food, lack of time which translates into an increased need for convenience. Increasing number of working women, rise in per capita income, changing lifestyles and increasing level of affluence in the middle income group have also brought about changes in food habits. In the last two decades, the share of urban population has increased from 23.3 per cent in 1981 to 27.8 per cent in 2001. During the same period the female work participation rate has increased from 19.7 per cent to 25.7 per cent. The per capita income has increased from Rs 7,328 in 1980 to 10,306 in 2000-2001. Indian women of present day have started acquiring education and working at par with their counterparts due to the impact of modernization and scientific advancements. Since they get absorbed into dual role, that is, a housewife and a career woman, they need to make use of some strategies particularly at home by which they are able to provide maximum satisfaction to their each and every family members. Rapid urbanization and sociological changes like the desire on the part of the housewives to spend less time in kitchen, the increased value for leisure, weakening of family ties, increased impact of television and its advertisement as well as changing life styles of the families, have brought about the changes in food consumption pattern.

The study on food consumption pattern or expenditure pattern is very important as it is related to poverty and standard of living of our society. Food being the foremost basic need gets the priority in the expenditure of people, especially the poor classes. It is necessary to study the changes in food consumption pattern under the changing situations of liberalization, privatization and globalization. The analysis of changing food consumption pattern over time would help in designing appropriate policies related to food production and distribution.

The food production pattern in India is diversifying towards high value crops. The agriculture scientists, environmentalists, policy makers and academicians are more concerned about the declining trends in the growth rates of production and productivity of food grains, which may result in future food insecurity. The decline in per capita consumption of cereals in general and coarse cereal, in particular, has worsened the nutritional status of the rural poor. The underlying objective of all development programmes is to improve the consumption levels of the population especially of those belonging to the poorer strata of the society. Since food is the most important item of the consumption basket, an analysis of the changes in food consumption pattern over time has a special significance which is the most important component for low and middle income groups. Food expenditure pattern is an excellent indicator of economic well being of people. If the society is wealthy proportionately high expenditure will be made on secondary necessities, comfort, luxury products and conspicuous consumption. On the other, if the society is at subsistence level, people will spend proportionately more on food. Engel's law also states that the poorer the family, the greater is the proportion of its total income devoted to provision of food.

The changing consumption basket can be examined in numerous ways. Firstly, at the varying weights that food items contrasted with non-food items have been occupying from time to time and secondly, within the food basket, the intensity of switch over from cereals to non-cereal items. The temporal profile of the consumption basket along the above lines would clearly signal the changing consumer tastes, choices and preferences over time, as the consumers move up on the per capital income ladder. Dietary diversification in rich income groups is causing another concern. Even at higher income level, where there is no economic constraint to consume more food, some population shows under nutrition and there is decline in the average level of energy intake. It was revealed that young and child population in rich

households eat more junk food, spicy food, readymade sweets and they are developing distaste for healthy food. Keeping these issues in view, an attempt is made in this study to analyze the temporal and spatial changes in food consumption in Karnataka with the following specific objectives.

Objectives of the investigation

1. To study the changes in food consumption pattern in rural and urban areas of Karnataka
2. To estimate the expenditure elasticities of demand for food in rural and urban Karnataka
3. To study the factors influencing food consumption in rural and urban areas of Mysore district
4. To analyze constraints in the consumption of food in rural and urban areas of Mysore district

Hypotheses

1. The food consumption pattern has changed over years both in rural and urban areas.
2. The expenditure demand for food is inelastic.
3. A number of factors influence food consumption.
4. There are number of constraints in the food consumption

Limitations of the study

Some of the objectives of the study area analyzed by using the primary data collected from sample consumers by survey method. As many of the consumers furnished the required information from their memory and experience, the collected data would be subjected to recall bias though the bias were minimized through checks and repeated cross checks. The study area was limited to Mysore district and the findings may not be applicable to other areas, as vast differences exist among the consumers with regard to demographic and psychographics characteristics. Hence, the findings of the study may be considered appropriate for the situations similar to study area and extra care should be taken while generalizing the results to other locations.

Presentation of the study

The study has been presented in seven chapters. Chapter I deals with the nature, importance and specific objectives of the study. Chapter II describes comprehensively a review of the relevant research work done in the past related to the present study. Chapter III outlines the general features of the study area, sampling design followed in collection of relevant data and analytical tools used in the study. Chapter IV is devoted to present the main findings of the study through tables. Chapter V discusses the results of the study. Chapter VI provides summary and policy implications based on the findings of the study. At the end in Chapter VII important references have been listed relating to the present study.

2. REVIEW OF LITERATURE

In this chapter, an attempt has been made to review and present the literature pertaining to the past research work related to the present study.

2.1 CHANGES IN FOOD CONSUMPTION PATTERN

Iyengar and Jain (1973) used Iyengar and Rao's formulation on the income free parameters of indirect addilog Engel curves to estimate the expected levels of consumption in India during the year 1970-71 and 1975-76, separately for rural and urban sectors. An important conclusion drawn from the exercise was that positive income elasticity did not necessarily implied an increase in demand when income rises. It had been indicated that the urban households would probably shift away from cereals to processed non-cereal items of food as their living standards rose beyond a certain level of affluence. No such tendency was revealed in the case of rural households.

Pandey (1973) made an attempt to provide a more complete understanding of the demand relations of food grains in India. The study showed that there was a positive relationship between prices of food grains and per capita demand for them. However, a small inverse relationship existed between one crop and another. The extent of decline in demand for grains was observed to be maximum in rice followed by gram and wheat. The income and price elasticity of demand were high in the case of rice grain and total cereals.

Kumar (1979) analysed the consumption expenditure data drawn from NSSO reports for the period from 1960-61 to 1973-74 for rural areas in India. He observed that the per capita expenditure at constant prices (total and also food) declined over the period with small fluctuation in intervening periods. Comparison of data by fractile groups indicated rise in per capita expenditure in 1973-74 (28th round) as compared to that in 1964-65 (19th round). The decline in per capita expenditure was attributed to decline in the purchasing power of the consumers because of sharp rise in prices.

George (1980) analysed the cross-sectional data to examine the changes in consumption levels according to the socio-economic characteristics of the population from 1961-62 to 1973-74. The study found that between 1961-62 and 1973-74 in rural areas there had been a decline in both expenditure and quantity elasticity, while quantity elasticity of cereals had increased in urban areas. The changes in income and price levels during that period explained about half of the fall in per capita consumption of cereals in urban areas and about three fourths of the fall in per capita consumption of cereals in the rural areas.

Singh and Patel (1982) analyzed the variation in consumer expenditure between rural and urban areas of Muzaffarnagar district in Uttar Pradesh using household survey data for the year 1976-77 collected with the help of structured questionnaires. It was observed that the total per capita expenditure (PCE) on food items especially on cereals, pulses, sugar and jaggery both in absolute and percentage terms was higher in rural areas than in urban areas. The percentage of PCE on milk and milk products in Muzaffarnagar was found to be much higher (22%) than the all India figure (6.53%) and Western U.P. (14%). Inequalities of PCE was found to be comparatively higher in urban areas for all the items together while that on cereals was higher in rural areas. The inequality in PCE in both rural and urban sectors was lower in terms of per capita income. The expenditure elasticities provided an idea of the consumer behavior for food and non-food commodity groups but did not entail definite conclusions because of low explanatory powers of estimated Engel curves.

Dhuna (1984) studied to determine the prevailing the consumption pattern of soft drinks. Analysis revealed that 54 per cent of consumption was during summer and 46 per cent of consumption was during other seasons. It was also found that about 26 per cent of the respondents were regular consumers and the rest consumed soft drinks occasionally.

Balaji (1985) studied the fish consumption behavior of 526 consumers in Vishakapatnam city. The study revealed that 77 per cent of respondents consumed fish for dinner and 20 per cent for lunch. About 30 per cent of the respondents did not consume fish on festival days as those days were considered auspicious, while the rest had no such notions.

Mergos and Donatos (1989) estimated the "Almost Ideal Demand System" model for annual food expenditure in Greece for the period from 1950-1986. The empirical results showed that milk had income elasticity of 0.76, which was the highest. The demand for milk, daily products and eggs was high and had rather stable food budget share. Meat had acquired dominant position as indicated by its fourfold increase in quantity, but had low price elasticity.

Sharma and Ram (1991) conducted a study on consumption pattern of households belonging to weaker sections of Saharanpur district. The study revealed that per capita total expenditure, expenditure on milk and milk products were higher in winter whereas expenditure on food items was higher in rainy season. The expenditure on pure ghee, milk and other milk products showed variation in different seasons. It was also observed that dairy products and non-food items were expenditure elastic.

Srivastava (1991) analysed regional imbalance in production and consumption of fruits and vegetables in India. Examination of the consumption data showed that very little was spent on fruits and vegetables. However, in all the regions, the consumption of fruits and vegetables was higher in urban areas than in rural areas.

Jain and Patel (1996) studied consumption pattern of food and non-food items in Haryana state using NSSO data. The average per capita total expenditure of urban households were higher compared to rural households. The expenditure on food was 71 per cent and 64 per cent in the two above mentioned sections respectively. About one-fourth of the total consumer expenditure was allocated to milk and milk products in both the sections. Among the dairy products, the major allocation was towards liquid milk followed by ghee, butter and other milk products.

Sekar and Senthilnatham (1994) studied the fish consumption pattern in Coimbatore city using 150 households post classified into three income groups. The study revealed that both the per capita consumption and expenditure increased with increase in income. The percentage expenditure on fish to total consumption expenditure was 4.33 in low income groups 3.43 in medium income groups and 3.14 in high-income groups showing a declining trend. This indicated that lower income group gave more importance to fish vis-à-vis expenditure on other items. It was also observed that as income increased, per capita absolute expenditure on food items including fish increased, but the percentage expenditure on food items including fish decreased.

Rup Kumar *et al.* (1995) conducted a case study on family consumption pattern in rural sector of Vidarbha region. The study revealed that the family consumption expenditure pattern per house per annum in small, marginal and large size groups of farms was Rs.6946.94, Rs.8955.16 and Rs.18877.56 respectively. Among the total expenditure made, major expenditure was made on food items *viz.*, cereals followed by edible oil and lastly on protective foods like fruits and vegetables, meat, milk and milk products. The expenditure made on non-food items was highest on clothing followed by fuel and lighting, religions and social functions. The consumption of cereals was as per recommended level but consumption of fruits and vegetables was closer to recommended level and consumption of pulses, edible oil *etc.* were much lower than the recommended level.

Kumar and Mathur (1996) noticed that structural changes in income would bring about major shifts in the consumption of milk, fruits, vegetables and livestock products in both the rural and urban areas. They found that the increase in demand for non-cereals and non-crop commodities vis-à-vis cereals would provide incentives to the producers to diversify their production.

Datta and Ganguly (2002) analyzed the consumer expenditure pattern in India with special reference to milk and milk products using NSSO data. The per capita monthly expenditure (PCE) was estimated around Rs.175 and Rs.207, with wide sub-regional fluctuations. In the East, except for West Bengal, major states like Bihar, Orissa and Assam had less than regional PCE. Delhi's, high PCE (Rs.474) pulled the regions average to Rs.207 offsetting the lower PCF of populous Uttar Pradesh (Rs.168). In South, Kerala had higher PCE (Rs.227) than Karnataka (Rs.180) or Tamil Nadu (Rs.200). In the West, PCE of Madhya Pradesh (Rs.169) was found to be well behind that of Maharashtra (Rs.216) and Gujarat (Rs.195).

Musebe and Kumar (2002) conducted a study on dietary pattern and nutrition status of rural households in Maharashtra. Consumer expenditure data of 50th round of the NSSO conducted in 1993-94 were used for the study. Cereals constituted the major source of nutrients.

Namasivayam and Vijayakumar (2003) reported the consumption pattern of carbonated softdrinks in selected urban centres in Tamil Nadu. The study revealed that out of 360 respondents, 20.83 per cent of the respondents had the habit of drinking soft drinks during travel, 16.66 per cent at home and 16.55 per cent in the bus stands. Respondents aged less than 26 years consumed more soft drinks invariably in all places. Among the sample respondents, 70.6 per cent were male and 29.4 per cent female. It was also found that 37.22 per cent of respondents were students in colleges/universities consumed more soft drinks compared to other categories.

Bakshoodeh and Farajzadeh (2004) investigated Iranian urban consumers behaviour and determined the role of habit effect in forming the consumption pattern over the period 1980-2000. The survey covered household consumption quantity and total expenditure on foods, including bread, flour and its products, dairy products and eggs, fats, fruits and vegetables, groceries, sugar and tea, *etc.* The results obtained from decomposing the total effect of price changes indicated that habit effect had a significant role in food consumption changes. That is, despite price changes for most food items, consumers tend to keep their consumption pattern almost unchanged. It was revealed that income and substitution effects were weaker than the habit effect.

Randhwa and Chahal (2005) examined the consumption pattern of milk and milk products and the factors affecting their consumption in rural Punjab. The requisite data was collected through personal interview method by adopting multistage sampling technique. The results showed that the expenditure elasticities were 0.89 and 0.65 for liquid milk and milk products respectively.

Soe and Singh (2006) studied the household food consumption pattern in North Eastern states of India. They estimated expenditure elasticities and projected household food consumption. The analysis had brought out clearly that North Eastern states consumed much lower quantities of food items like pulses, milk and milk products, edible oils and fruits as compared to all India averages and recommended levels. Projected household demand for 2016 based on 7 per cent growth in Net State Domestic Product (NSDP) suggested a substantial increase in food demand, which necessitated more capital investment in agriculture including greater financial support to research and extension.

Nasurudeen and Kuruvilla (2006) attempted to analyse the dynamics of the per capita expenditure on various food groups, including cereals, across income groups and the consumption of cereals and calorie intake in India. The study used data from the 27th, 32nd, 38th, 43rd, 50th and 55th rounds of household consumption expenditure surveys conducted by the NSSO. The share of non-cereal items in monthly per capita expenditure had been consistently increasing in both the rural and urban areas, *i.e.* it declined from 55.70 per cent in 1972-73 to 37.31 per cent in 1999-2000, while in urban areas it declined from 36.12 per cent to 25.7 per cent and the share of cereals and pulses in total expenditure in urban areas declined from 26.73 per cent in 1972-73 to about 15 per cent in 1999-2000. The share of vegetables, fruits and nuts indicated an increasing pattern upto 1993-94, and then slightly declined to 7.55 per cent in 1999-2000.

Giri (2006) analyzed cereal consumption over time in the country and across the states using the data on consumption pattern and availability of food grains as available in various rounds of NSSO reports. Between 50th round (1993-94) and 60th round (2004-05) the decline in consumption of coarse cereals (jowar, bajra, *etc.*) was more pronounced than that of rice and wheat in urban areas. The cereal consumption of 11.2 kg during 43rd round (1987-88) declined to 9.8 kg during 58th round (2002) and then again increased to 9.9 kg and 10.0 kg respectively during 59th round (2003) and 60th round (2004). Similar trend was observed for rural areas.

Shrivastava and Saxena (2006) analyzed the consumption pattern in India after independence. The production of pulses decreased by 3.6 per cent and the per capita daily availability of pulses decreased by 36.64 per cent. The availability and consumption of

cereals, edible oil, vanaspati, sugar, milk, tea and coffee increased but in the case of pulses it was disappointing because of negative results.

2.2 ELASTICITIES OF DEMAND FOR FOOD

Sinha (1966) using National Sample Survey Organization (NSSO) data for rural and urban India tried different functional forms, namely the straight line, the semi-logarithmic, the constant elasticity, the log-inverse, the hyperbola and the log-log inverse functions. He used the goodness of fit by R^2 and Durbin-Watson statistic to judge the good fit. No single functional form was found suitable for all the items but the log-log inverse (LLI) appeared to be the best on the whole. The LLI was chosen somewhat subjectively, as the variation in Engel elasticity along the fitted curve seemed to be the lowest and most realistic for the LLI. He observed that during the period from 1951 to 1957, there appeared to be a slight decline in food expenditure elasticities due to climate, traditions and food prices. For India as a whole, expenditure elasticities were higher in rural areas than in urban areas.

Bhattacharya and Mitra (1969) carried out an extensive analysis of Engel curves using grouped NSSO data for rural and urban India for 14 broad commodity groups. Four algebraic forms, namely, hyperbola, semi-logarithmic, the constant elasticity, and the log-log inverse functions were compared on the basis of measures of fit and measures of randomness of residuals like Durbin-Watson statistic. The log-log inverse function was found to be satisfactory and provided the best fit in most cases. The residuals from this curve were nearly random, unlike those from the other forms. The semi-logarithmic and the constant elasticity functions were sometimes nearly as good but the hyperbola was acceptable only for cereals and pulses in the urban sector.

Mitra (1969) utilized data from NSSO 13th, 15th, 16th, 17th and 18th rounds to estimate expenditure elasticities in rural India for rice, wheat and total cereals. The log-log inverse form of Engel curve provided the best fit to the data. Analysis of covariance tests showed marked variation in the elasticities over different states for a given round, while the variation over rounds for a particular state seemed to be less pronounced. The expenditure elasticities were derived on the weighted average of state-wise elasticities along with elasticity estimated from aggregated data as a whole. Expenditure elasticities for cereal and cereal substitutes for rural India computed as direct all India estimates from different NSSO rounds varied from 0.47 (16th round) to 0.52 (13th round). Based on quantitative consumption of 17th round, expenditure elasticities for rice, wheat and total cereals, respectively were 0.51, 1.11 and 0.43 for rural areas.

Sinha and Verma (1972) estimated the demand for food grains and other food articles in Bihar for the period from 1971 to 1981 on the basis of rate of population growth, per capita nutritional requirements, the growth of income and co-efficient of income elasticity of demand. The estimates of demand for food grains were projected both for rural and urban population in the state.

Murthy and Suryanarayana (1974) attempted to introduce the General Functional Form (GFF) and explored its applicability in empirical demand analysis based on cross-sectional Indian data on consumption patterns. Comparison of the estimates of expenditure elasticities based on that functional form with those obtained from log-linear functional formulation was also made. The study had used the household expenditure data of the 19th round of National Sample Survey Organization (1964-65). In some cases the comparison yielded significantly different elasticities by GFF compared to constant elasticity (Double-log) form, revealing doubtful nature of constant elasticity assumption in some commodities.

Radhakrishna *et al.* (1979) used NSSO data to study consumer expenditure elasticities separately for rural and urban areas for food and non-food items. Four types of Engel Curves, namely, linear, semi-log, log-linear and log-log inverse functions, were estimated by employing weighted least squares method with number of persons in each bracket as weight. The expenditure elasticities showed considerable variation across the states. The "F-test" rejected null hypotheses of equality of parameters of the log-linear curve for almost all items. Accordingly, the researchers felt the need for state-wise estimation of demand system for each state. Thus, they ruled out the regional demand forecast on the basis of national estimates. The expenditure elasticity for rice varied between 0.35 in Punjab

and 1.32 for Mysore (Karnataka) and that for cereals varied from 0.39 for Punjab to 0.70 for Assam.

Rao *et al.* (1982) based on study of 230 sample households of Vijayawada town, Andhra Pradesh, estimated expenditure and income elasticities of demand for food and non-food items. It was found that expenditure elasticity coefficients for food and non-food items were 0.7608 and 1.3066 respectively, indicating that the food items were in the category of essential goods. The expenditure elasticity for cereals was observed to be minimum (0.2655) due to inelastic nature of demand of these items with increase in expenditure.

Kannan and Chakrabarthy (1983) projected consumer demand for selected food stuffs in India for the period from 1985-86 to 2000-01 on certain assumptions relating primarily to changes in population and consumption expenditures. Estimates were made on the basis of expenditure elasticity as revealed by NSSO household consumption expenditure data (25th round). Population projections were made on the basis of compound growth rate or component method. According to this study, demand for food grains on an average would increase by 16 per cent during each quinquennial period (compared growth rate worked out to 2.5 per cent per annum). The total demand for food grains in 2000-01 was estimated to be between 215.17 and 221.23 million tones. The wheat demand would increase from 20.84 million tones in 1970-71 to 55.13 tonnes in 2000-01 with a growth rate of 3.6 per cent where as the demand for rice would increase from 57.09 million tones in 1985-86 to 90.35 million tones in 2000-01 with an annual growth rate of 2.8 per cent. The demand for milk was found to increase faster at 5 per cent annum than that of sugar (4.3%), meat, fish, eggs (4.1% each) and edible oil (3.9%)

Binswanger *et al.* (1984) analysed demand for food grains using NSSO data from 1961 to 1974. In addition, demand for food grain quality was also analysed. It was found that rice had a high sensitivity of demand to changes in its price. It was also found to be complement to inferior cereals. Wheat demand was also found to be price elastic and was found to be a substitute for rice and bengal gram which had high price elasticity. An analysis of income consumption relationship showed that the share of rice consumed declined sharply from 20 per cent to 30 per cent for the lowest expenditure group to near zero for the highest expenditure group. But, the share of wheat was stable at 6 per cent to 8 per cent for highest expenditure groups. The demand for inferior cereals dropped by 20 per cent to 30 per cent for the low income group to near zero. The demand for food grains quality sharply increased with expenditures at low income levels but the income response of food grains quality became very small for the high expenditure groups. Family size did not appear to exert any influence on demand for food grains quality.

Pandey *et al.* (1984) made an attempt to estimate the demand for cereals, pulses and oil seeds in Haryana. They worked out expenditure elasticity by taking the quantity of concerned food grain as a function (Cobb-Douglas form) of total expenditure on all terms. It was concluded that consumption of wheat and edible oils was significantly affected by the income of the consumers in both the rural and urban sections. The consumption of rice and total pulses in the urban sector and of maize in the rural sector was also significantly affected by the increase in income levels of the consumer.

Pandey and Sarin (1984) studied the relationship of per capita per day availability income levels and retail prices of commodities and those of their substitutes from 1955-56 to 1975-76. It was observed that increase in price would lead to a fall in demand for wheat, maize and rice, with dissimilar effects in different regions under different situations of changes in income levels and prices.

Roy (1984) examined the behavior of consumer demand for food grains especially rice and wheat and visualized the welfare effect of subsidised food grain supplies available through the public distribution in India from 1965-66 to 1978-79. It was observed that there was little substitution between wheat and rice as a result of relative price changes. Further, an increase in the ration quota tends to reduce the purchases of wheat and rice in the open market but less than proportionately and would therefore tend to raise the market prices of food grains if the domestic food grain supply was inelastic. They argued for exclusion of high income groups from the purview of rationing and extending the facility to the rural poor.

Mithra (1986) estimated the demand for cereals in 1989-90 by taking the data on consumer expenditure from the 32nd round (1977-78) of National Sample Survey

Organization. He found that the per capita demand for wheat in 1989-90 would be substantially higher and the projected output by Planning Commission would not be able to satisfy the domestic demand.

Ghuman (1988) examined the relationship between total per capita expenditure and consumption of various commodities by computing Engel elasticities. An analysis of constituents of food items revealed that item-wise expenditure elasticities follow different patterns. Gram and gram products, meat, fruits and nuts registered expenditure elasticities higher than those of overall food items. Expenditure elasticities of durable goods, taxes and rent have been higher than those of over all non-food items.

Krishnaiah and Krishnamoorthy (1988) tried seven functional forms of Engel curves to estimate Engel elasticities for food grains in different regions of Andhra Pradesh. They selected log-log inverse functional form on the basis of R^2 . It was revealed that elasticity co-efficients were higher for rural population groups compared their counterparts in urban areas. There were variations in the expenditure elasticities indicating the changes in the tastes and preferences of consumers. It was reported that elasticity co-efficients of high income population were low for food items.

Reddy *et al.* (1989) projected the demand for food items such as cereals, pulses, sugar and milk for 2000 A.D. These projections were based on (a) the per capita real income growth rate (0.02%) and (b) an assumed per capital real income growth rate of two per cent. The results indicated that the food requirement by 2000 A.D. would be 81 lakh tonnes and 106 lakh tonnes under the assumed 2 per cent growth rate. The requirement of sugar was estimated to be 5.44 to 7.00 lakh tones under the above two situations. The demand for milk was estimated to be 3.06 and 4.24 million tones, respectively. Thus the overall demand for food in Karnataka was expected to increase significantly by 2000 A.D.

Sarma and Gandhi (1990) critically examined the past growth and performance in food grain production as well as developments in the growth and patterns of food grain consumption over the period from 1949/50 to 1983/84. It was found that that rapid growth in food grain production would be necessary but extremely demanding especially in the context of the dual objectives set by Indian planners *i.e.*, acceleration of economic growth and alleviation of poverty. Within agriculture, these objectives would require not only rapid increase in food grain production but even faster growth through diversification in the non-food grain sector including livestock production and horticultural crops in which income elasticities of demand and employment potential were high. Even an impressive performance, however, might leave food grain deficits that would require imports and an appropriate development strategy if accelerated economic growth and poverty alleviations were to be achieved.

Samad and Hossain (1992) estimated income and expenditure elasticities for the major consumption items in Bangladesh for both rural and urban categories over two period between 1985-86 and 1988-89. The expenditure elasticities were estimated using Engel functions. The study revealed that the expenditure elasticities were greater than corresponding income elasticities. Meat and sugar were found to be high elastic consumption items. The corresponding elasticities in the case of urban area also showed an increase over those in rural area during 1985-86 and 1988-89 with the only exception in the case of wheat. Fish, meat, sugar and tobacco seemed to be elastic items while others remained as necessary items. Wheat was highly inelastic food item in Bangladesh (urban area) and its consumption pattern remained unchanged during the periods between 1985-86 and 1988-89. Like potato, both income and expenditure elasticities for food in the urban area appeared smaller than those for rural area.

Radhakrishna (1992) analysed food trends, public distribution system and food security issues. The trend analysis of NSSO consumption data suggested that per capita consumption of cereals was declining. From 1970-71 to 1991-92, the per capita cereals consumption declined by 0.52 per cent per annum in the rural areas and by 0.23 per cent per annum in the urban areas of India.

Radhakrishna and Ravi (1992) provided estimates of consumption of food items and nutrients for India during the 1972-88 period using piece-wise linear expenditure system. The results suggested that between 1972-73 and 1987-88, real per capita cereal consumption declined by 3.91 per cent and 0.21 per cent in rural and urban areas, respectively.

Singh *et al.* (1993) estimated demand for and supply of milk in Haryana by considering factors like growth in population, growth in per capita income and urbanization. The study revealed that current and future milk production in Haryana would meet the minimum nutritional requirement during the period (1987-88 to 2004-05). There was about 11.63 lakh tonnes surplus milk in the year 1987-88 and there would be about 24.52 lakh tonnes of surplus milk after meeting nutritional requirement of milk by the end of 2004-05. However, the demand for milk was to be met up to 1995-96. After that Haryana state would be marginally deficit in milk production.

Durga and Murthy (1995) attempted to estimate demand for food in urban and rural areas using NSSO data. The popular "almost ideal demand system" was used for this purpose. Demand projections were made under two alternative income growth scenarios for the period from 1988-89 to 1992-93. The two-model variant was found to forecast the demand differently. It was concluded that the cereal consumption declined over the years in urban India, signaling shift in consumers taste and preference away from cereals.

Kaur and Gupta (1996) conducted a study in Chandigarh city and found that the percentage expenditure on food was 35 per cent while that on non-food items was 65 per cent. The relative expenditure on food items decreased as income increased. Among the food items, the largest expenditure was on milk and milk products. The expenditure on milk accounted for 75 per cent and milk products accounted for 25 per cent of the total expenditure on milk and milk products.

Pagire and Shinde (1999) conducted a study on the demand for and supply of grapes in Maharashtra, considering recommendation of 120 g of fruits per capita per day by ICMR (Indian Council of Medical Research). The demand for grapes in the state was estimated for the year 2001 AD for the projected population of the state (8.68 crores). The estimated requirement was 93.72 thousand metric tonnes at the rate of 20 g per capita per day and it was 140.62 thousand metric tonnes at the rate of 30 g per capita per day for the state.

Poroda *et al.* (2000) projected household and domestic demand for food products between the years 2000 and 2030 in different south Asian countries. It was observed that the consumption of cereals would decline with the increasing share of fruits, vegetables, milk, meat, eggs and fish in the diet. The household and domestic demand for food grains was projected to grow by 1.2 per cent, by 2030. In view of the vast agricultural potential remaining under-realized, the study suggested production enhancing strategies.

Hajarika and Sarma (2001) projected demand for and supply of rice in Assam for 2010-11, by using secondary data from various sources for the period from 1980-81 to 1994-95 for the six agro-climatic regions or zones. The study estimated that the aggregate demand for rice in 2010-11 for the state as a whole would be 63.84 lakh tonnes and the production or supply of rice in the state would be 45.17 lakh tonnes. The study observed that the state would face a deficit of 18.67 lakh tonnes of rice in 2010-11 with a demand supply gap of 29.24 per cent.

Kumar and Mittal (2002) studied on long term changes in dietary patterns and food demand in Uttar Pradesh. Study used the households level data of NSSO rounds 38, 43, 50 and 55th for the Uttar Pradesh. They noticed more than three fold increase in consumption of fruits from a level of 2.3 kg in 1983 to 10.2 kg in 1999 among the rural consumer and from a level of 3.6 kg in 1983 to 14.9 kg in 1999 among urban consumers. The demand for vegetables and fruits, which was 12.8 mt for vegetables and 11.8 mt for fruits in the year 2001 was projected to grow to about 25.5 mt for vegetables and 3.8 mt for fruits in the year 2021.

Musebe and Kumar (2006) conducted a study on food expenditure pattern of rural households in Andhra Pradesh. The study examined the data on quantity and expenditure on food items by expenditure classes, social group, educational level and land ownership. The functions specified were log inverse and log-log inverse. The total food expenditure revealed that the highest expenditure on food among the expenditure classes was by the very poor households. In the food expenditure elasticities cereals had the lowest expenditure elasticity of 0.189 while milk and milk products had the highest expenditure elasticity of 0.97. The households spent at least 46 per cent of their total income on food. The major part of the expenditure was spent on cereals.

Kumar and Mruthyunjaya (2007) studied long term changes in Indian Food Basket and nutrition. The analysis was based on 38th and 55th rounds of National Sample Survey Organization (NSSO) pertained to the years 1983-84 and 1999-2000. The per capita expenditure of the sample households was used as a proxy for per capita income. Prices of food items were computed by dividing the expenditure by the quantity consumed. The per capita consumption of all the food items (except coarse cereals) was higher by the households in the upper group in both the years under study. These differences were substantial for edible oils, horticultural and livestock products. The diversification towards high value food and changes in taste and preferences were really responsible factors for the decline in cereal consumption. The overall effect of income and taste was much less in the urban areas. The magnitude of income and taste effect seemed to decline with the rise in income, in both the groups, upper and lower income groups. The increase in per capita annual consumption during the period was the highest for fruits (169% in bottom group and 184% in upper group), followed by meat, fish and eggs (100% and 122%), edible oil (77% and 88%), vegetables (50% and 39%) and milk (31.6% and 30.7%). Thus dietary shift in favour of high-value products was prominent and pervasive.

Chandha (2007) analysed the changing structure of demand for agricultural commodities. The study was based on NSSO data on pattern and level of consumer expenditure in India. The study revealed a changing picture on the consumption of food items, separately for rural and urban India during the period between 1972-73 and 2004-05. In rural India, the proportion of real expenditure on food items witnessed no noticeable change during the past three decades and a half. For urban India as well except that during the past 5-6 years, per person monthly expenditure on food items fell noticeable from Rs.41.17 in 1999-2000 to Rs.366.37 in 2004-05. For the entire period. The real per capita monthly expenditure on food items, varied between Rs.32.00 and Rs.35.00 in rural areas and between Rs.40.84 and Rs.41.00 in urban areas.

2.3 FACTORS INFLUENCING AND CONSTRAINTS IN FOOD CONSUMPTION

Richardson *et al.* (1974) examined the factors influencing the choice of diet. The study revealed that 28.3 per cent of the factors influencing the meat consumption were healthiness, taste, concerns over additives and the trust in the purchase stores. It was also found that the food package labels were an influential source of meat related information.

Balaji (1985) studied fish consumption behavior of 526 consumers in Vishakapatnam city. The study revealed that 77 per cent of respondents consumed fish for dinner and 22 per cent for lunch. About 30 per cent of the respondents did not consume fish on festival days, as those days were considered auspicious, while the rest had no such notions and consumed fish, irrespective of festivals.

Gluckman (1986) studied the factors influencing consumption and preference for wine. The explicit factors identified were, the familiarity with brand name, the price of wine, quality or the mouth feel of the liquid, taste with regards to its sweetness or dryness and the suitability for all tastes. Some of the implicit factors identified through extensive questioning taken as important clues for quality and price were, colour, ornateness, use of foreign language and graphics. Consumers preferred French or German made wines to Spanish or Yugoslavian wines.

Kumar *et al.* (1987) examined the factors influencing the buying decision of 200 respondents for various food products. Country of origin and brand of the products were cross-tabulated against age, gender and income. Results revealed that the considered factors were independent of age, education and income. The brand image seemed to be more important than the origin of the product, since the consumers were attracted by the brands.

Jorin (1987) examined changes in spending power and buying habits of Swiss consumers since the beginning of the 20th century and in the more recent past. Current trends included greater emphasis on health and safety of foodstuffs and less attention to price, increased demand for low calorie light products and increased demand for organically grown foods. For young people, more concern with enjoyment and less for health, with more meals eaten away from home, and generally an increased demand for convenience foods. The prospects for high quality branded products were seen to be good.

Rees (1992) revealed that factors influencing the consumer's choice of food were flavour, texture, appearance, advertising, reduction in traditional cooking, fragmentation of family, demographic and household role changes and of introduction of microwave ovens. Vigorous sale of chilled and other prepared foods was related to the large numbers of working wives and single people, who require convenience foods. Development in retailing with concentration of 80 per cent of food sales in supermarkets was also considered to be important. Consumers were responding to messages about safety and health eating. They were concerned about the way in which food was produced and wanted safe, 'natural', high quality food at an appropriate price.

Ragavan (1994) reported that quality, regular availability, price, accuracy in weighing and billing, range of vegetables and accessibility as the factors in the order of importance which had influenced purchase of vegetables by respondents from modern retail outlet.

Singh *et al.* (1995) studied factors influencing consumer preferences for milk. The milk quality, convenient pack size, flavor, colour, freshness and mode of payment showed higher levels of consumer satisfaction. About 70 per cent of the respondents preferred milk supplied by city dairies. The least preferred was that sold by dairy factories.

Wandel (1995) used multivariate analysis to study factors influencing the consumption of vegetables and fruits among Norwegian consumers. The factors, which determined consumption were sex, age, income and household structure. It was interesting to note that consumers who were health conscious consumed more fruits and vegetables.

Hugar and Vijaykumar (1996) carried out a study in Dharwad city to identify various factors influencing the consumption of vegetables. A sample of 90 consumers was chosen at random. It was observed that the personal attributes such as education level and sex had significant influence on the quantity and frequency of purchase. Females purchased more as compared to males, college educated respondents purchased more than primary school educated or illiterate consumers. Income also had significant influence. The higher family income group purchased larger quantity of vegetables. It was observed that the price had a high influence on quantity purchased among the lower income groups, but the effect was not pronounced for high income groups.

Sharma (1997) explained the factors determining the consumers acceptance and preference for food in general. Many factors interact together and make buying complex process. Though price was identified as an important factor, it had some limitations on the consumers choice. Factors like sensory attributes, regional preference, age, sex, interest, motivation, discrimination and income were also found to influence food consumption.

Study by Sundar (1997) revealed that, Grocery Department of Saravana Bava Cooperative Supermarket, Cuddalore was enjoying favorable images of consumers in the attributes such as equality, price, behavior of sales persons, moving space, location, correctness of weight, packaging of goods, number of sales persons and convenient shopping hours. At the same time, the image was weak in the attributes, such as, availability of range of products, variety of goods, credit facility, door delivery and sales promotional measures.

Jain *et al.* (1998) used almost ideal demand system (AIDS) model to estimate own price, cross price and income elasticities utilizing family budget data. Demand analysis for food items revealed the demographic factors such as regionality, urbanization, household size, education and food habits were important factors in explaining the observed differences in food consumption pattern. The own price elasticities of food items ranged from -0.48 to -0.99 indicating the commodities were quite responsive to price changes. Further, substitution between the commodities was observed to be quite low. Also all commodity groups were quite responsive to expenditure changes with milk and milk products, meat, fish and egg showing the largest responses.

Rao (2000) analyzed the declining demand for food grains in rural India. He identified the factors influencing the higher per capita consumption of cereals in rural areas. The factors listed were higher prices of non-food grain and non-food items, higher energy requirement due to heavy manual labour, payment of wages in kind by the large farmers in the form of cooked food and the poor state of healthy and environmental resulting in low efficiency of conversion of food into energy.

Myszczyzyn (2000) reported that with the general rise in the average income of Polish households particularly among the non-farming population, since 1994. The demand for food products had been relatively stable although it remained 5 per cent lower than in 1988. The structure of demand was changing with increasing preference for processed foods and greater awareness of health and dietary factors among the consumer population. The study also suggested the producers to face new set of challenges to meet stricter food quality standards.

Perll *et al.* (2002) conducted a study to examine the factors influencing adolescent's fish consumption in school. Fish consumption was assessed by observation on 4 occasions. Attitudes towards the fish, friends behavior and perceived control were important predictors of the intention to eat fish. The barriers for fish consumption were a negative attitude towards both smell and accompaniments and fear of finding bones. But the eaters of fish were more satisfied with the taste, texture and appearance of the fish and rated safety significantly higher than those who resisted. They also thought to a greater extent that the fish was healthy and prepared with care. The results suggested that, it was important to alter dishes so that they appeal to children and to pay attention to the whole meal.

Agrahar and Murugkar (2005) studied the food consumption pattern of the Khasi tribals in 13 tribal villages of Ri-Bhoi, Meghalaya, India and reported that dietary pattern was still traditional. Rice, meat, roots, tubers, fermented foods, green leafy vegetables and fruits were consumed every day. Dairy products and pulses did not play a significant part in the everyday diet. Alcohol, fermented food, betel nut and tobacco were widely consumed by both men and women. Farming played a significant role in consumption of cereals and fruits. Urbanization, higher education and income significantly influenced the consumption of non-traditional foods such as dairy products. Social factors had poor influence on food consumption pattern. These results indicated that an increase in income and educational level did not mean a proportionate improvement in the quality of food consumed.

Mittal (2007) studied the changes in cereal consumption. The study used the consumer expenditure household survey data of National Sample Survey Organization (NSSO) rounds to compute the demand parameters needed for decomposition. The factors affecting cereal consumption in rural and urban regions and across different expenditure groups were analyzed. The results showed that the change in cereal consumption was the combined effect of various factors. As cereals were becoming relatively expensive, the positive own price and negative substitution price effect were leading to a change in consumption away from cereals. As income increased, the lower income groups tend to increase the consumption of cereals, whereas the upper income groups moved towards other food items. Tastes and preferences played a very important role for all the income groups had even the lowest income groups have a tendency to shift away from cereal consumption.

3. METHODOLOGY

The research methodology and design of the study is an important component of research. To analyze various objectives of the study, an appropriate methodology describing sampling design, data collection and tools of analysis for the conduct of the study are important. This chapter discusses the methodology adopted in the present study. The chapter is presented under the following headings:

- 3.1 Description of the study region
- 3.2 Nature and sources of data
- 3.3 Sampling procedure
- 3.4 Analytical tools and techniques used in the present study
- 3.5 Concepts and definitions.

3.1. DESCRIPTION OF THE STUDY AREA

A detailed understanding of the physical and natural characteristics and socio-economic status of the region is of immense importance in assessing their influence on consumption pattern in a location. Hence, an attempt has been made in this section to describe the physical, natural and socio-economic features of Karnataka state, with special reference to rural and urban areas of Mysore district where this study was conducted to analyse the changes in food consumption pattern and associated issues.

The Indian State of Karnataka is located within 11.5° and 18.5° North latitudes and 74° and 78.5° East longitude. It is situated on a tableland where the Western and Eastern Ghat ranges converge into the Nilgiri hill complex, in the western part of the Deccan Peninsular region of India. The State is bound by Maharashtra and Goa states in the North and Northwest, by the Arabian Sea in the West by Kerala and Tamil Nadu states in the South and by the state of Andhra Pradesh in the East. Karnataka extends to about 750 kms from North to South and about 400 kms from East to West. The highest point in Karnataka is the Mullayanagiri hill in Chikkamagaluru district which has an altitude of 1,929 metres (6,329 ft) above the sea level. The state has been divided into 29 administrative districts, 175 taluks and 745 hoblies. There are 232 towns and 22 urban conglomerations, 177 municipalities and corporations, 27,024 inhabited villages and 2,362 uninhabited villages in the state. Karnataka state presents varied topographical features which may be divided into four regions, viz.,

1. The coastal region which is a narrow coastal plain between the Western Ghats edge and the Arabian Sea.
2. The Malnad hilly area lying east of the Western Ghats edge.
3. The Northern trapezoidal undulating plateau.
4. The southern broad Archaean undulating plateau.

Karnataka has a total land area of 1,91,791 km²(Table 3.1) and accounts for 5.83 per cent of the total area of the country (measured at 3,288,000 km²). The state is in eighth place in terms of size. With a population of 5,28,50,562, it occupies ninth place in terms of population. The population density which stands at 275 persons per km² is considerably lower than the all-India average of 324 persons per km².

Eleven groups of soil orders are found in Karnataka viz. Entisols, Inceptisols, Mollisols, Spodosols, Alfisols, Ultisols, Oxisols, Aridisols, Vertisols, Andisols and Histosols. Depending on the agricultural capability of the soil, the soil types are divided into six types viz., Red, lateritic, black, alluvio-colluvial, forest and coastal soils. The common types of soil groups found in Karnataka are; Red soils: Red gravelly loam soils, Red loam soils, Red gravelly clay soils, Red clay soils.

With a surface water potential of about 102 cubic kilometers, Karnataka accounts for about six per cent of the country's surface water resources. Around 60 per cent of this is provided by the west flowing rivers while the remaining comes from the east flowing rivers. The state has the following four seasons in the year:

Table 3.1. General features of Karnataka state during 2006-07

Sl. No	Particulars	Unit	Number
	General features		
1	Total geographical area	Sq. kms	191791
2	Number of districts	no's	29
3	Number of Taluks	no's	175
4	Number of towns	no's	232
5	Number of villages	no's	29386
6	Number of households	no's	10401918
	Demographic features		
1	Population	no's	52850562
	i) Males	no's	26898918
	ii) Females	no's	25951644
2	Decadal growth rate	Percent	17.51
3	Sex ratio	no's	965
4	Literacy rate	Percent	66.6
	i) Males	Percent	76.1
	ii) Females	Percent	56.9

Source: Karnataka at a glance (2006-07)

- The winter season from January to February
- The summer season from March to May
- The monsoon season from June to September
- The post-monsoon season from October to December.

The post-monsoon and winter seasons are generally pleasant over the entire state. The months of April and May are hot, very dry and generally uncomfortable. Weather tends to be oppressive during June due to high humidity and temperature. The next three months (July, August and September) are somewhat comfortable due to reduced day temperature although the humidity continue to be very high. The highest recorded temperature was 45.6 °C (114 °F) at Raichur on May 23, 1928. The lowest recorded temperature was 2.8 °C (37 °F) C at Bidar on December 16, 1918.

The Southwest monsoon accounts for almost 80 per cent of the rainfall that the state receives. The annual rainfall across the state ranges from low of 50 cm to copious 350 cm. The districts of Bijapur, Raichur, Bellary and southern half of Gulbarga experience the lowest rainfall ranging from 50 cm to 60 cm while the west coastal region and malnadu enjoy the highest rainfall. Agumbe in the Western Ghats experiences the heaviest rainfall in the country next only to Cherrapunji.

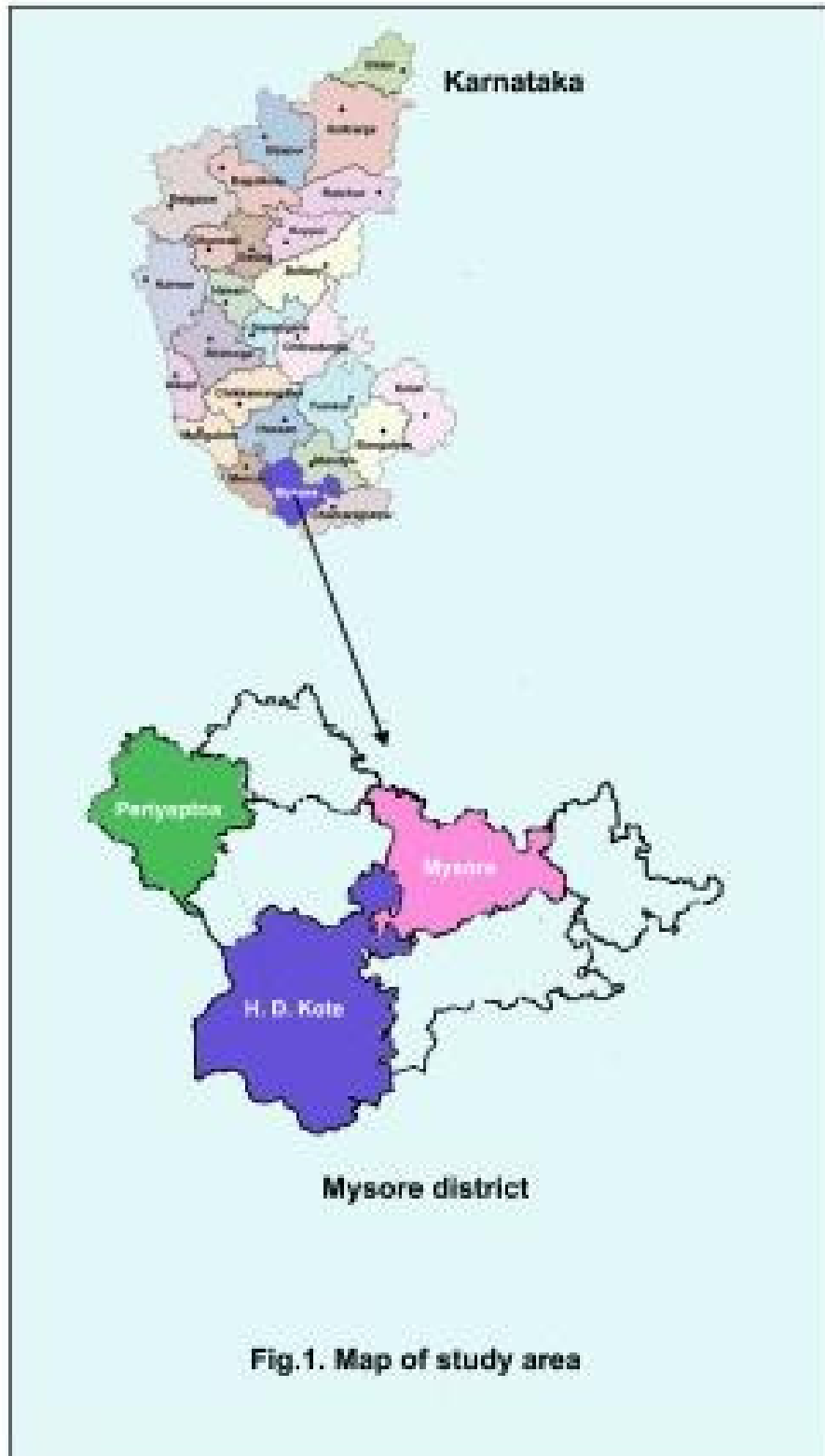


Fig.1. Map of study area

About 38724 km² area (or 20% of geographic area) is covered by forests. The forests are classified as reserved (28,611 km²), protected (3,932 km²), unclosed (5,748 km²), village (124 km²) and private (309 km²) forests. The percentage of forests area to geographical area in the State is less than the all-India average (23 %) and that prescribed in the National Forest Policy (33%).

About 70 per cent of the people of the state live in villages and 71 per cent of the total population is agriculture dependent. The major crops grown in the state are, rice, ragi, jowar, maize, and pulses besides oilseeds and number of cash crops. Cashew, coconut, areca nut, cardamom, chillies, cotton, sugarcane and tobacco are among the plantation and commercial crops grown in the state.

Some of the objectives of the present study are analyzed using primary data obtained through survey in Mysore district of Karnataka. Therefore, an attempt is made in this section to provide a brief description of Mysore district (Fig. 1).

Mysore district is situated between 11.30° and 12.45° North latitude and 75.45° and 77.45° East latitude. The district is surrounded by Hassan and Mandya districts in the North, Coorg district in the West, Cannanore and Nilgiri districts in the South and by Coimbatore district of Tamil Nadu in the East. The geographical area of the district is 6593 sq.kms

The total population of the district is 26,41,027 (Table 3.2) as per 2001 census, out of which 13,44,670 were male and 12,96,357 were female. It comprises of 16,58,899 of rural population and 9,82,128 of urban population. The literacy rate of the district is 63.48 per cent. The literacy rate of male and female are 70.88 per cent and 55.81 per cent respectively. The majority (15,30,763) of the population belonged to the non-working group followed by main working group (9,26,129) and cultivars (3,97,957). The number of agricultural laborer in the district was 2,50,362. About 92,61,629, 1,84,135 and 15,30,763 in the district are other workers, marginal workers and household activities workers respectively.

In the district, majority (2,37,060) of the population belonged to the marginal farmers followed by small (88,763), semi medium (34,971), medium (8,826) and large farmers (713).

The average annual rainfall in the district is 718 mm and actual rainfall in the year 2005 was 1058 mm. Most of the rainfall in the district is confined to the period from May to October, July being the heavier rainfall month. The maximum temperature is 31°C and December is the coolest month.

There are three distinguishably different weather seasons in the district. The Southwest monsoon spreads over June to September, winter during the months of December to February and summer spreads over March to May. The soils in the district fall mostly under red soils, black soils, and sandy loam and of mixed type. The soils lack drainage in some cases. The major crops grown in the district include ragi, paddy, maize and jowar. In addition to these, pulse crops like red gram, green gram and horse gram are also grown. The important commercial crops grown in the district are sugar cane, tobacco, cotton, mulberry, sunflower and groundnut. The vegetable crops like cauliflower, knol-khol, beans, leafy vegetables, several flower crops like rose, jasmine and crossandra and plantation crops like coconut and banana are also grown to a considerable extent. Traditionally, the people in the district have been consuming cereal based foods prepared by their own. However, increased economic status, changing food habits, tastes and preferences, increased literacy rate, increased consciousness about health and consumers taste are shifting their consumption habit from cereals to non-cereal food items. It is more so in the case of urban and semi-urban areas because of breaking up of traditional joint family system, desire for quality, increase in urbanization, lack of time for shopping due to increased number of working women and changing life styles.

The land utilization pattern in the district is presented in Table 3.3. The proportion of area under forest is 9.29 per cent of geographical area. The net sown area in the district is 3.43 lakh ha forming about 50.69 per cent of geographical area. Fallow land accounts for 11.06 per cent, cultivable waste for 3.17 per cent and barren land for 6.77 per cent of the geographical area. The net sown area works out to be 47.22 per cent for Mysore taluk, 32.95 per cent for H.D.Kote taluk and 51.71 per cent for Periyapatana taluk.

Table 3.2 General information of Mysore district and selected taluks

Sl. No	Particulars	Mysore Taluk	H.D.Kote Taluk	Periyapatna Taluk	Mysore District
1	Geographical area (Sq km)	1061	1622	815	6593
2	Population(No)				
	i) Total	1038490	245930	224254	2641027
	ii) Male	529531	124705	115849	1344670
	iii) Female	508959	121225	108405	1296357
	iv) Rural	239262	233885	209330	1658899
	v) Urban	799228	12045	14924	982128
3	Literacy (%)	76.49	52.84	59.19	63.48
	i) Male	81.58	61.95	69.66	70.88
	ii) Female	71.2	43.44	47.94	55.81
4	Rainfall (m.m)	882.7	1171.1	1215.8	1058.1
5	Workers(No)				
	i) Main workers	339926	103171	88035	926129
	ii) Marginal workers	29644	22242	14022	184135
	iii) Non-workers	668920	120517	122197	1530763
	iv) Cultivators	42156	63815	64719	397957
	v) Agriculture labours	20474	43709	18597	250362
	vi) Other services total (No)	294960	16439	17605	440343
	Workers total	369570	125413	102057	1110264
6	Land holding(No)				
	i) Marginal farmers	31285	18574	20493	237060
	ii) Small farmers	11891	17164	11429	88763
	iii) Semi medium farmers	4486	6089	5197	34971
	iv) Medium farmers	1110	1541	1582	8826
	v) Large farmers	88	138	234	713
	Total	48860	43506	38935	370333
7	Banks branches (No)				
	i) Commercial banks	142	3	9	196
	ii) Grameena banks	22	12	7	78
	iii) Urban cooperative bank	13	0	0	14
	iv) Other co-operative bank	932	1870	9205	30893
	v) P.L.D.bank	1	1	1	7

Source: Mysore district at a glance (2005-06)
Population as per the 2001 census

The major rivers in the district are Cauaveri and Hemavathi. The total irrigated area is 1,21,555 hectares of which the area under canals is 87,685 ha followed by tanks (17,377 ha) and other sources (10,323 ha) which included wells, bore wells and lift irrigation (Table 3.4).

3.2 NATURE AND SOURCES OF DATA

The present study utilizes both secondary and primary data for evaluating and analyzing the specific objectives of the study. The secondary data used for the study were collected from various issues of National Sample Survey Organization (NSSO) publications. The statistical data on household consumer expenditure was collected and compiled by the National Sample Survey Organization of India during its various rounds of enquiries.

The data on household consumer expenditure are being collected every year by the National Sample Survey Organization (NSSO) as part of its regular rounds, each round normally of a year's duration and including two or three subjects of survey such as household consumer expenditure, land and livestock holdings, etc. Data are collected by the household interview method from a randomly selected sample of households spread over all States and Union Territories of India.

Table 3.3 Land for utilization pattern in Mysore district and selected taluks 2004–05

(Area in ha)					
Sl. No	Particulars	Mysore taluk	H.D.Kote taluk	Periya-patana taluk	Mysore district
1	Geographical area	81740 (100.00)	194138 (100.00)	83121 (100.00)	676382 (100.00)
2	Forest area	3216 (3.93)	33031 (17.01)	14810 (17.82)	62851 (9.29)
3	Land put to Non-agriculture use	11260 (13.78)	18851 (9.71)	3555 (4.28)	66934 (9.90)
4	Barren and uncultivable land	6770 (8.28)	16709 (8.61)	4330 (5.21)	45812 (6.77)
5	Cultivable waste land	2202 (2.69)	13846 (7.13)	1106 (1.33)	21460 (3.17)
6	Permanent pastures	2919 (3.57)	33865 (17.44)	7088 (8.53)	55256 (8.17)
7	Trees and groves	114 (0.14)	3103 (1.60)	1504 (1.81)	6417 (0.95)
8	Fallow land	16659 (20.38)	10763 (5.54)	7748 (9.32)	74800 (11.06)
9	Net sown area	38600 (47.22)	63970 (32.95)	42980 (51.71)	342852 (50.69)

Source: Mysore district at a glance (2005-06)
Figures in parentheses indicates percentages

Table 3.4 Irrigation status in Mysore district and selected taluks during 2005-06

Sl. No.	Source of irrigation	Mysore taluk	H.D.Kote taluk	Periyapatana taluk	Mysore district
1	Canals	5350	5150	2835	87685
2	Tanks	2400	1477	1000	17377
3	Open wells	300	1223	1000	10323
4	Bore wells	1940	150	200	5795
5	Lift irrigation	10	-	15	375
6	Others	-	-	-	
	Total irrigation	10000	8000	5050	121555

Source: Mysore district at a glance (2005-06)

Although detailed information on household consumer expenditure is collected for almost all the items of consumption, including the quantity and the value of the item consumed, there is very little that is published. The NSSO reports issued by the Government of India furnish data on consumer expenditure for various broad categories of consumption. The standard NSSO tables among other things, provide the estimates of the average per capita item expenditure and the average per capita total expenditure. This information is available for the whole country and for each state separately. Though the published data of NSSO rounds was available from 27th round (1972-73), the data from 50th round (1993-94) onwards was used for the present study as it was decided to analyze changes in food consumption pattern for a recent years. Further, the data on physical quantities on selected food items (cereals and pulses) was available only from 50th round (1993-94) onwards of NSSO reports.

The primary data for the present study were elicited by using well structured and pre-tested schedules through a survey of sample respondents in Mysore district. The data relating to general information about the respondents, the information on family size, age, education, occupation, sources of income, items of food purchased along with the frequency and quantity, money spent on different food items, place of purchase and such other details were obtained from them. The method of personal interview was used to elicit the data from the respondents and ensured that the data made available by the respondents were relevant, comprehensive and reasonably correct and precise.

3.3 SAMPLING PROCEDURE

One of the objectives of the present study is to analyze the factors influencing consumption of food. This objective is analyzed by using primary data collected through survey in Mysore district. Food consumption pattern, among other things, is likely to vary across locations. Therefore, it was decided to select a sample of 45 consumers each located in urban area, semi-urban area and rural area of the selected district. The consumers located in taluka place of Mysore district were considered to represent urban area while those located

in the hobli and villages were respectively considered to represent semi urban and rural areas. There are seven taluks in the district. To give a fair representation, three taluks were chosen randomly in the first stage. In the next stage 15 consumers were selected randomly from each of the selected taluks to make a sample of 45 urban consumers. The three taluks selected were H.D.Kote, Periyapatana and Mysore.

For selection of semi urban consumers, the hoblies of the taluks which were already selected to represent urban consumers were considered in the first stage. In the second stage, one hobli from each of the three selected taluks was randomly chosen and in the third stage 15 consumers were randomly selected from each of the three hoblis to make a sample of 45 semi urban consumers. The hoblis selected were Hylvala, Sarauru and Ravanduru. For selection of rural consumers, the taluks and hoblis selected to represent urban and semi urban consumers were considered in the first and second stage. In the third stage, three villages from each of the selected hobli were randomly selected. Thus, nine villages spread in three taluks of Mysore district were selected randomly. The names of the villages selected were Sagarkatte, Ramanahalli, Kallur, Yedehalli, Kothegal, Bidagal, Thumbasoge, Hemmige, Teligina Kuppe and Kandegala. In the final stage, five consumers from each of the nine selected villages were randomly selected to make a sample of 45 rural consumers. Thus, the total sample for the study was 135 consumers of which 45 located in urban, 45 in semi urban and 45 in rural areas of Mysore district.

Based on food consumption pattern in urban, semi-urban, and rural areas of Mysore district, the food items selected includes rice, wheat, ragi, maize and jowar, among cereals, peas, soybean and gram among pulses, fruits, vegetables, edible oil, milk and milk products, nuts/dry fruits, meat, egg, sugar, salt, spices, beverages, etc.,. The non food expenditure items included expenditure on fuel, electricity clothing, footwear, education, medical, institutional, entertainment, rent, taxes, durable goods, minor personal effects, toilet articles, conveyance, other consumer services, and other consumables. The information was collected through survey during January-March 2008.

3.4 ANALYTICAL TOOLS EMPLOYED

The data collected were tabulated and analyzed. The tools used for the analysis of the data are presented and discussed below.

Tabular analysis was used to analyze the changes in the food consumption pattern and expenditure. Over years and locations per cent changes and per cent shares are worked out for consumption expenditures.

The following functional relationship was estimated (Musebe and Kumar, 2006) to compute the expenditure elasticities of demand for different food items.

Log-inverse function:- $\ln Y = a_0 + a_1 (1/X) + u$

Log-log-inverse function:- $\ln Y = b_0 + b_1 \ln X + b_2 (1/X) + u$

Where,

Y = Monthly per capita expenditure on a specific food item in rupees.

X = Monthly per capita total consumption expenditure in rupees

a_0 , b_0 , a_1 , b_1 and b_2 are the regression coefficients

u = Random error term

The monthly per capita total consumption expenditure has been used as proxy for income. Since, the data on consumer income was not available in NSSO publications.

The expenditure elasticities (e_x) for each commodity are derived from the derivatives of each equation with respect to expenditure as follows.

$$e_x = d Y/dX * X/Y$$

The elasticities (e_x) evaluated at the sample mean values for X are:- a_1/X and $b_1 - b_2/X$ for log-inverse and log-log inverse functions respectively. Both functions were fitted to the data and log-log-inverse function proved to be superior on the basis of the high value of the coefficient of determination (R^2) and low standard errors of the coefficients.

To study the factors influencing the food consumption pattern in Mysore district, multiple linear regression analysis was carried out. In the analysis, total annual expenditure on food is used as a dependent variable and the other independent variables used were family size, type of family dummy, food habit dummy and annual income. The functional form of regression equation used was

$$Y = a_0 + a_1X_1 + a_2X_2 + b_1D_1 + b_2D_2 + u$$

Where,

Y= Annual food expenditure in Rs./family

X₁ = Family size (No)

X₂ = Annual income in Rs./family

D₁ = Family type Dummy (value '1' for Joint and '0' for Nuclear family)

D₂ = Food habit Dummy (value '1' for Non-Veg and '0' for Veg family)

The constraints in the consumption with respect to different food items such as cereals, pulses, milk and milk products, fruits, vegetables, egg and meat are analyzed by working out percentages.

3.5 CONCEPTS AND DEFINITIONS

Household: A group of persons normally living together and taking food from a common kitchen constitutes a household. The word "normally" means that temporary visitors are excluded.

Household consumer expenditure: The expenditure incurred by a household on domestic consumption during the reference period is the household's consumer expenditure. Household consumer expenditure is the total of the monetary values of consumption of various groups of items, namely (i) food (ii) clothing and footwear and (iii) miscellaneous goods and services and durable articles.

Sector: A word used for the urban, semi urban and rural demarcation.

Household size: The size of a household is the total number of persons in the house.

Monthly per capita expenditure (MPCE): This is household total expenditure over a period of 30 days divided by household size.

Groups of consumption items: Different items of consumption are (1) cereals (2) pulses & pulse products (3) milk and milk products (4) edible oil (5) meat, fish & egg (6) vegetables (7) fruits & nuts (8) sugar(9) salt (10) spices (11)beverages, refreshments & processed food (12) pan, tobacco & intoxicants (13) fuel &light (14) clothing (15) footwear (16) miscellaneous goods and services (17) durable goods.

Edible oil: This included various edible oils like ground nut oil, sunflower oil, mustard oil etc.

Milk and milk products: This included ghee, butter, curd, ice-cream etc.

Beverages: This caption is used in the tables to refer to the food group beverages, refreshments and processed food. Processed food includes confectionery, biscuits, jam, pickles, etc. and, cooked meals purchased and consumed by household members.

Miscellaneous goods and services: This included educational and medical expenses, and expenditure on amusement, goods for personal care , toilet articles, consumer services and conveyance. In fact, all the items other than food, pan, tobacco, intoxicants, fuel and light, clothing, footwear and durable goods come under miscellaneous category.

Durable goods: This term referred to goods other than clothing and footwear. The items included are distinguished from miscellaneous goods by having a longer expected life time of use (roughly one year or more). Expenditure incurred on repairs and construction of durables used for domestic purpose is included in the expenditure on durable goods.

Clothing; Apart from clothing, this category included bedsheets, bedcovers pillows, curtains, mattresses, blankets, rugs, mats matings, and wool.

4. RESULTS

The overall objective of the present study was to analyze the changes in food consumption pattern in Karnataka. The necessary data was obtained from the published sources of NSSO besides obtaining through sample survey of 135 consumers in Mysore district of Karnataka. The data was subjected to statistical tools and the main findings are summarized in the form of tables. The results of the study are presented in this chapter in the following sections keeping in view, the objectives of the study.

4.1 Changes in food consumption pattern

4.2 Expenditure elasticities of demand for food

4.3 Factors influencing food consumption

4.4 Constraints in the consumption of food

4.1 CHANGES IN FOOD CONSUMPTION PATTERN

A number of factors determine food consumption pattern and these factors keep changing over a period of time. As a result the size and composition of food items consumed keep changing over locations and over time. Therefore, the change in food consumption pattern in Karnataka is analyzed over two locations namely, rural and urban and over two periods namely 1993-94 and 2004-05. The NSSO rounds data was the major source of data for this analysis.

4.1.1 Changes in monthly per capita food consumption

The data on quantity wise food consumption at two points of time for rural and urban areas of Karnataka was available only for cereals and pulses. Hence, the monthly per capita food consumption for cereals and pulses in terms of physical quantities was analyzed and the same was presented in Table 4.1.

The monthly per capita cereal consumption has declined from 13.15 kgs to 10.73 kgs in rural areas, while the corresponding decrease in the urban sector was from 10.87 kgs to 9.71 kgs. From this, it was clear that the consumption of cereals has declined in Karnataka. The examination of the composition of individual grains in total cereals revealed that rice followed by jowar were the major cereals consumed in both the locations and over two periods (Fig. 2). The proportion of rice in total cereals was more than 40 per cent. The decline in rice consumption was more pronounced in urban areas (-11.29%) than that in rural area (-2.39%). The opposite was true in the case of jowar which was another important cereals consumed in the state. The wheat consumption has increased by 20 per cent in rural areas and by 9.62 per cent in urban areas. Bajra, maize formed a negligible portion of the total cereal consumed in the state. Other cereals which include ragi witnessed a declining trend in rural as well as urban sectors. The decline was more pronounced (-26.77%) in rural areas when compared to that in urban areas (-5.13%).

The monthly per capita consumption of pulses (Fig. 3) varied between 0.74 kgs and 0.90 kgs. The monthly per capita consumption of pulses was almost stable over the two periods in rural and urban areas of Karnataka. A marginal decline of -6.33 per cent was noticed in rural area while a marginal increase of 2.27 per cent was observed in urban areas. Red gram, bengal gram and green gram were the three major pulses consumed in Karnataka. The proportion of red gram in total pulses was more than 40 per cent. The red gram consumption was almost stable in rural areas with a monthly per capita consumption of 0.32 kgs. The consumption of red gram in urban areas showed a marginal decline of -4.88 per cent. The share of bengal gram and green gram in total pulses over two periods in rural and urban areas was almost identical. The consumption of bengal gram has increased by 20 per cent in rural areas and by 8.33 per cent in urban areas, while the consumption of green gram has declined by -11.11 per cent in rural areas and by -20.00 per cent in urban areas.

Table 4.1. Monthly per capita consumption of cereal and pulses in Karnataka

(kgs)

Food item	Rural			Urban		
	1993-94	2004-05	% change	1993-94	2004-05	% change
Rice	5.44 (41.37)	5.31 (49.47)	-2.39	6.38 (58.69)	5.66 (58.29)	-11.29
Wheat	0.85 (6.46)	1.02 (9.50)	20.00	1.56 (14.35)	1.71 (17.61)	9.62
Jowar	4.01 (30.49)	2.33 (21.71)	-41.90	1.72 (15.82)	1.16 (12.00)	-32.56
Bajra	0.11 (0.84)	0.08 (0.75)	-27.27	0.01 (0.09)	0.06 (0.62)	500.00
Maize	0.20 (1.52)	0.14 (1.30)	-30.00	0.04 (0.37)	0.01 (0.10)	-75.00
Other cereals	2.54 (19.32)	1.86 (17.33)	-26.77	1.16 (10.67)	1.10 (11.33)	-5.17
Total cereals	13.15 (100.00)	10.73 (100.00)	-18.40	10.87 (100.00)	9.71 (99.90)	-10.67
Bengal gram	0.10 (12.66)	0.12 (16.22)	20.00	0.12 (13.64)	0.13 (14.61)	8.33
Red gram	0.32 (40.51)	0.32 (43.24)	0.00	0.41 (46.59)	0.39 (43.82)	-4.88
Green gram	0.09 (11.39)	0.08 (10.81)	-11.11	0.10 (11.36)	0.08 (8.99)	-20.00
Urd	0.05 (6.33)	0.05 (6.76)	0.00	0.12 (13.64)	0.13 (14.61)	8.33
Soybean	0.01 (1.27)	0.00 (0.00)	-100	-	-	-
Other pulses	0.22 (27.85)	0.17 (22.97)	-22.73	0.13 (14.77)	0.17 (19.10)	30.77
Total Pulses	0.79 (100.00)	0.74 (100.00)	-6.33	0.88 (100.00)	0.90 (100.0)	2.27

Figures in parentheses indicates percentages

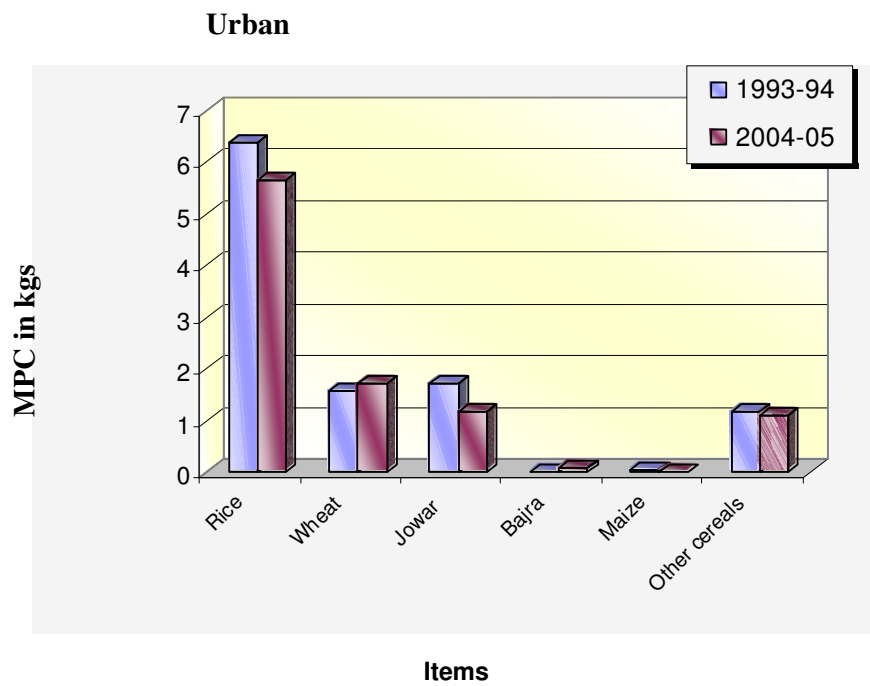
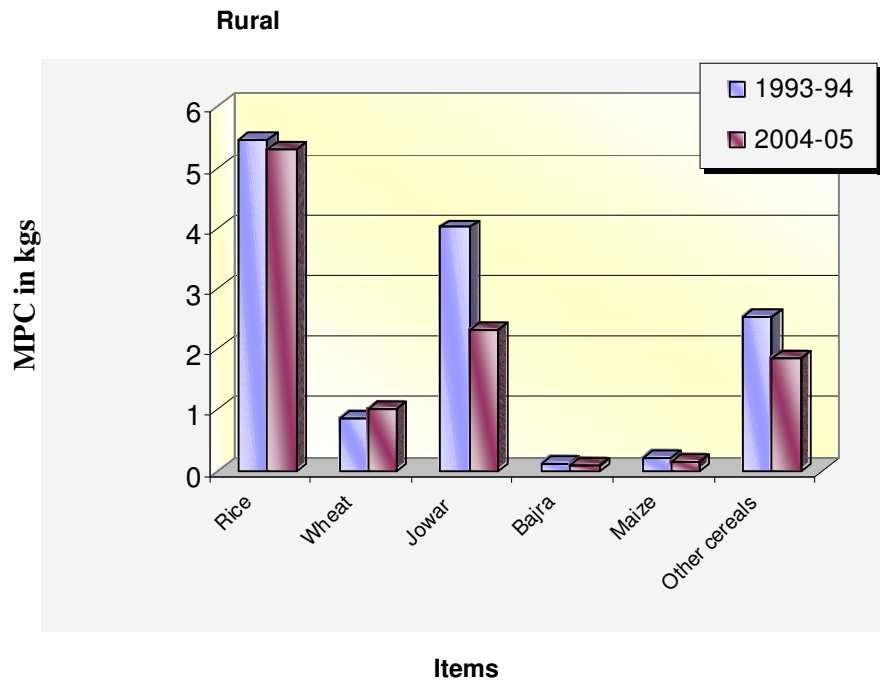
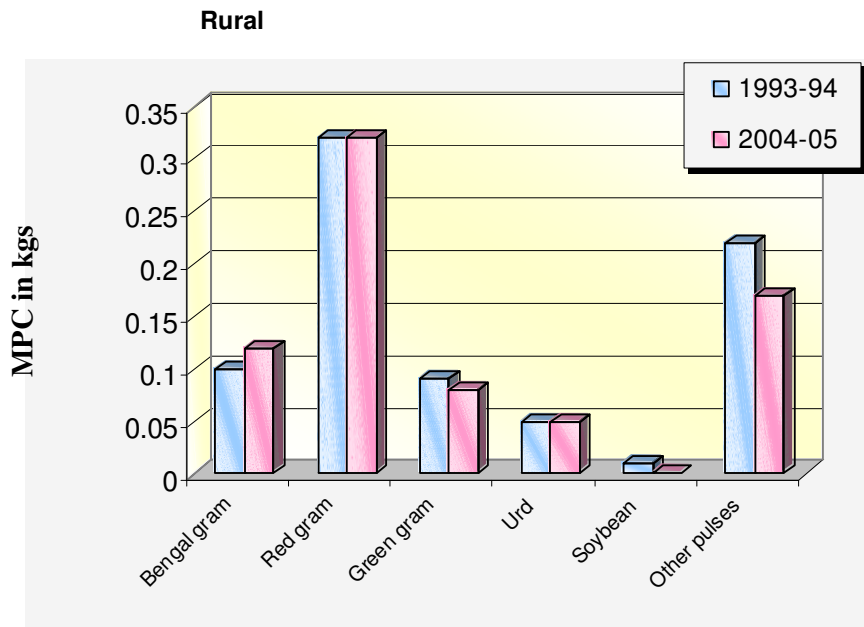
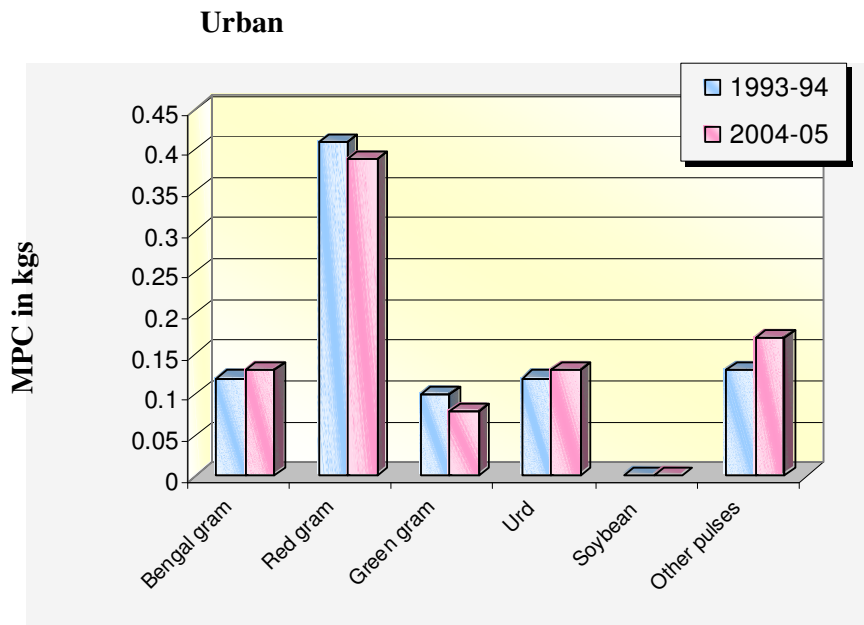


Fig. 2. Changes in monthly per capita consumption of cereals in Karnataka



Items



Items

Fig. 3. Changes in monthly per capita consumption of pulses in Karnataka

The decreased consumption of green gram has offset by increased consumption of bengal gram in rural areas and bengal gram and other pulses in urban areas. The other pulses included horse gram, cowpea, matkhi etc. and the share of these pulses in the total pulses was also substantial. The consumption of other pulses decreased by -22.23 per cent in rural areas and increased by 30.77 per cent in urban areas. Changes in monthly per capita consumption of cereals and pulses by income groups was reported in Table 4.2. The consumption of cereals as well as pulses in physical quantities showed a declining trend across all the income groups in rural and urban areas over the two periods considered with only exception of low income group in urban area. The decrease in the consumption of cereals over two periods was highest (29.54%) in high income group of rural areas and lowest (13.09%) in the low income group of rural area. High income group of urban consumers appeared to consume the lowest quantity of cereal (8.92 kgs) in 2004-05 against the highest quantity of 11.35 kgs in the middle income group of rural consumers. The proportion of decrease in the consumption of cereals appeared to increase with an increase in the income levels in rural areas. There was no such pattern of change in the consumption of cereals in urban areas. With respect to pulses, the fall in the consumption was to the tune of -27.64 per cent in the high income group of rural areas and only the low income group in urban area showed a marginal increase (2.86%) in the consumption of pulses. Thus, generally speaking the consumption of cereals and pulses witnessed a decline with increase in the income.

4.1.2 Changes in monthly per capita expenditure on food

The changes in monthly per capita expenditure on individual cereal items and pulses in reported in Table 4.3. In terms of expenditure also rice accounted for a major share in the total expenditure on cereals, the monthly per capita expenditure on rice increased from Rs.35.31 to Rs.44.27 in rural areas showing an increase of 25.38 per cent over the two periods. The extent of rise in the monthly per capita expenditure on rice was 52.67 per cent in urban areas as the monthly per capita of expenditure on rice increased from Rs.48.36 to Rs.73.83. The monthly per capita expenditure on wheat, jowar and bajra showed an increasing tendency in both rural and urban areas. The monthly per capita expenditure on red gram, bengal gram and green gram was more when compared to other pulses in both rural and urban areas during both the periods under the study. The per capita expenditure on red gram in rural areas increased from Rs.5.85 to Rs.9.29 in 2004-05, while in urban area, it increased from Rs.7.79 to Rs.11.95 thus showing a rise of more than 53 per cent in rural and urban areas.

Table 4.2. Income group wise monthly per capita consumption of cereals and pulses in Karnataka

(kgs)

Year	Rural				Urban			
	LIG	MIG	HIG	All	LIG	MIG	HIG	All
Cereals								
1993-94	11.84	14.48	15.47	13.15	10.92	11.96	10.23	10.87
2004-05	10.29	11.35	10.90	10.73	9.45	10.07	8.92	9.71
% change	-13.09	-21.62	-29.54	-18.40	-13.46	-15.80	-12.81	-10.67
Pulses								
1993-94	0.67	0.84	1.23	0.79	0.70	1.04	1.20	0.88
2004-05	0.60	0.78	0.89	0.74	0.72	0.86	1.06	0.89
% change	-10.45	-7.14	-27.64	-6.33	2.86	-17.31	-11.67	2.27

Note : The income ranges are given in Appendix I

Table 4.3. Monthly per capita expenditure on cereals and pulses in Karnataka

(Rs.)

Food items	Rural			Urban		
	1993-94	2004-05	% change	1993-94	2004-05	% change
Rice	35.31 (57.44)	44.27 (52.82)	25.38	48.36 (69.87)	73.83 (64.28)	52.67
Wheat	4.50 (7.32)	9.16 (10.93)	103.56	10.12 (14.62)	22.89 (19.93)	126.19
Jowar	13.19 (21.46)	18.75 (22.37)	42.15	6.76 (9.77)	10.29 (8.96)	52.22
Bajra	0.31 (0.50)	0.49 (0.58)	58.06	0.03 (0.04)	0.32 (0.28)	966.67
Maize	0.59 (0.96)	0.76 (0.91)	28.81	0.12 (0.17)	0.10 (0.09)	-16.67
Other cereals	7.57 (12.31)	10.39 (12.40)	37.25	3.82 (5.52)	7.42 (6.46)	94.24
Total cereals	61.47 (100.00)	83.82 (100.00)	36.36	69.21 (100.00)	114.85 (100.00)	65.94
Bengal gram	1.59 (13.14)	2.90 (14.97)	82.39	1.94 (12.56)	3.20 (12.93)	64.95
Red gram	5.85 (48.35)	9.29 (47.96)	58.80	7.79 (50.42)	11.95 (48.30)	53.40
Green gram	1.36 (11.24)	1.89 (9.76)	38.97	1.60 (10.36)	2.00 (8.08)	25.00
Urd	0.78 (6.45)	1.66 (8.57)	112.82	1.99 (12.88)	3.66 (14.79)	83.92
Soya bean	0.07 (0.58)	0.00 (0.00)	-100.00	0.03 (0.19)	0.03 (0.12)	0.00
Other pulses	2.45 (20.25)	3.63 (18.74)	48.16	2.10 (13.50)	3.90 (15.76)	85.71
Total Pulses	12.10 (100.00)	19.37 (100.00)	60.08	15.45 (100.00)	24.74 (100.00)	60.13

Figures in parentheses indicates percentages

The changes in the monthly per capita expenditure on various food items over two periods across two locations were worked out and the same were presented in Table 4.4. The monthly per capita expenditure on food was Rs.167 during 1993-94 in rural areas and it increased to Rs.283 during 2004-05, showing an increase of about 70 per cent over the two periods in rural area. The monthly per capita expenditure in urban areas increased from Rs. 236 to Rs. 447 witnessing about 90 per cent change over the two periods. The share of expenditure on cereals in the total food expenditure was between 25 per cent and 36 per cent. This showed that expenditure on cereals was the major item of food expenditure. Over the two periods the monthly per capita expenditure on cereals increased by 36.3 per cent in rural areas and 65.94 per cent in urban areas. The share of expenditure on pulses in total food expenditure varied between 5.54 per cent and 7.25 per cent. Over two periods, both rural and urban areas witnessed a rise in the expenditure to the extent of 60 per cent in pulses and 88 per cent in milk and milk products. The expenditure on edible oil whose share was around seven per cent in rural and urban areas witnessed a rise of 121 per cent in rural areas and 90 per cent in urban areas. The proportion of expenditure on vegetables was around eight per cent and its rise over two periods was almost similar in rural and urban areas. This was also true for food items like fruits and nuts, sugar, spices and beverages. Over the years, the expenditure on meat, fish, and egg has increased by more than 98 per cent in rural and urban areas.

The income group wise monthly per capita expenditure on food items was reported in Table 4.5. With respect to cereals, the monthly per capita expenditure was highest in high income groups of urban area (Rs.160.98) while it was lowest (Rs.72.24) in the low income group of rural area during 2004-05. The percentage change in the monthly per capita expenditure among cereals was around 35 to 45 per cent across most of the income groups in urban and rural areas with an exception that it was 99.70 per cent in the high income group of urban areas. The monthly per capita expenditure on pulses during 2004-05 varied between Rs.15.34 in the case of low income group of rural areas and Rs.33.34 in the case of high income group of urban area. The percentage change in monthly per capita expenditure on pulses was highest (82.66%) in the low income group of urban areas and was lowest (34.87%) in the high income group of rural area. The low income groups of both rural and urban areas showed a substantial rise (around 130%) in the monthly per capita expenditure on edible oils. The monthly per capita expenditure on edible oil was the highest (Rs.46.43) in high income group of urban area and was lowest in low income group of rural area (20.33%). In absolute terms, the monthly per capita expenditure on all food items in both the periods increased with an increase in income levels. The percentage change in monthly per capita expenditure for meat, vegetable and sugar groups of foods was generally higher in the low income groups of both urban and rural areas.

4.1.3 Changes in monthly per capita expenditure on non-food

The changes in the monthly per capita expenditure on non-food items in rural and urban areas of Karnataka was presented in Table 4.6. The monthly per capita expenditure on non-food items increased from Rs.102.50 in 1993-94 to Rs.225.41 in 2004-05 for rural consumers and from Rs.187.40 to Rs.586.73 for urban areas. The increase in monthly per capita expenditure on non-food was to the tune of 213.09 per cent in urban areas and 119.91 per cent in rural areas. The expenditure made on miscellaneous goods and services, rent and taxes accounted for major share in the monthly per capita expenditure on non-food items and this expenditure increased by 138 per cent in rural area and by 260 per cent in urban areas. The expenditure on intoxicants, fuel and light and clothing also shared a considerable portion of total non-food expenditure in both the periods in rural and urban areas. The expenditure on fuel and light increased by 243 per cent in urban areas and 158 per cent in rural areas. The monthly per capita expenditure in clothing increased from Rs.19.50 to Rs.29.55 in urban areas and from Rs.15.90 to Rs.17.89 in rural areas. The monthly per capita expenditure on intoxicants also increased by more than 60 per cent. The expenditure on durables decreased by 41.2 per cent in urban area and increased substantially by 270.83 per cent in rural areas.

The income group wise monthly per capita expenditure on non-food items was presented in Table 4.7. In absolute terms, the expenditure on different non-food items in both the periods increased with an increase in the income in both rural and urban areas. However, the per cent increase in the monthly per capita expenditure on different non-food items in rural and urban areas across the income groups differed considerably.

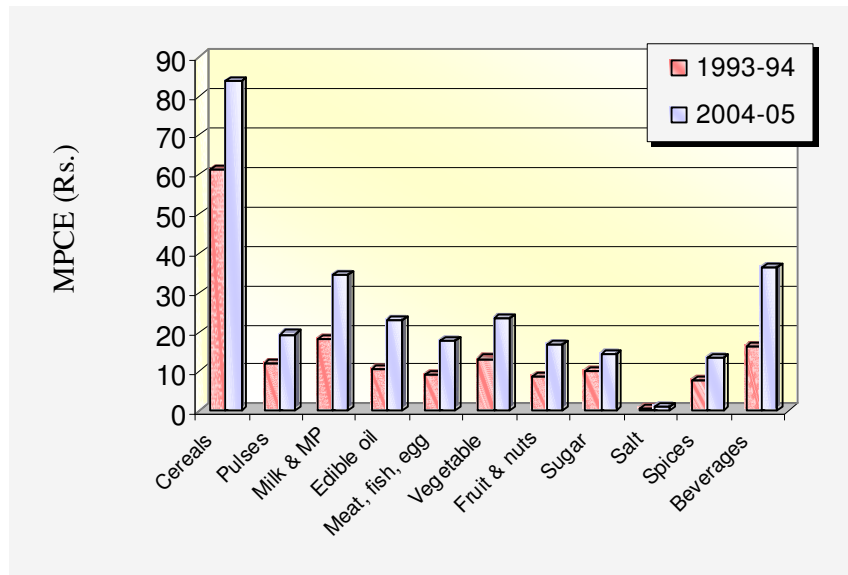
Table 4.4. Monthly per capita expenditure on food items in Karnataka

(Rs.)

Item	Rural			Urban		
	1993-94	2004-05	% change	1993-94	2004-05	% change
Cereals	61.47 (36.84)	83.82 (29.84)	36.36	69.21 (29.38)	114.85 (25.72)	65.94
Pulses	12.10 (7.25)	19.37 (6.89)	60.08	15.45 (6.56)	24.74 (5.54)	60.13
Milk & MP	18.30 (10.97)	34.35 (12.23)	87.70	34.60 (14.68)	65.35 (14.63)	88.87
Edible oil	10.40 (6.23)	23.00 (8.19)	121.15	15.80 (6.70)	29.97 (6.71)	89.68
Meat, fish, egg	9.00 (5.39)	17.81 (6.34)	97.89	14.40 (6.11)	30.07 (6.73)	108.82
Vegetable	13.10 (7.85)	23.44 (8.34)	78.93	17.60 (7.47)	32.28 (7.23)	83.41
Fruit & nuts	8.60 (5.15)	16.59 (5.91)	92.91	13.50 (5.73)	26.96 (6.04)	99.70
Sugar	9.90 (5.93)	14.17 (5.04)	43.13	10.70 (4.54)	14.92 (3.34)	39.44
Salt	0.40 (0.24)	1.08 (0.38)	170.00	0.50 (0.21)	1.28 (0.29)	156.00
Spices	7.50 (4.49)	13.25 (4.72)	76.67	8.50 (3.61)	14.89 (3.33)	75.18
Beverages	16.10 (9.65)	36.16 (12.87)	124.60	35.30 (14.99)	91.26 (20.44)	158.53
Food total	166.87 (100.00)	283.04 (100.00)	69.62	235.56 (100.00)	446.57 (100.00)	89.58

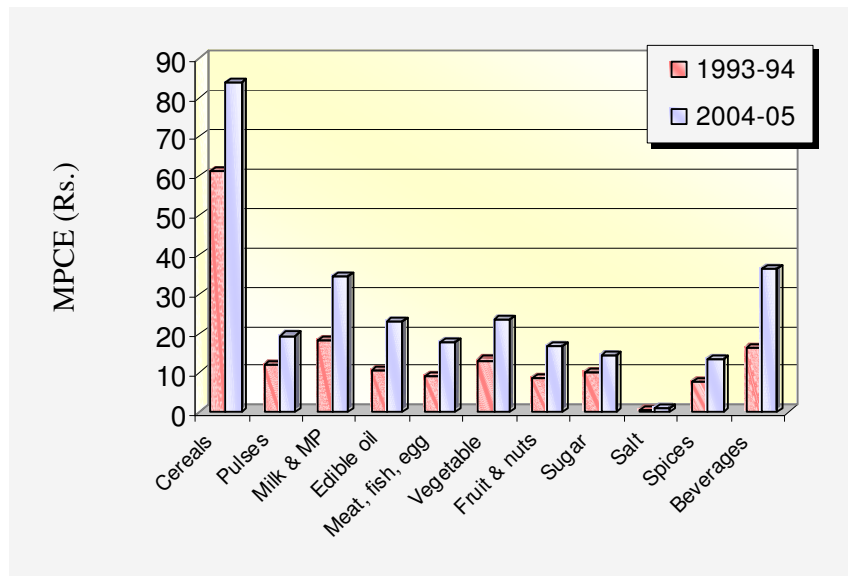
Figures in parentheses indicates percentages

Rural



Items

Urban



Items

Fig. 4. Changes in monthly per capita expenditure on food in Karnataka

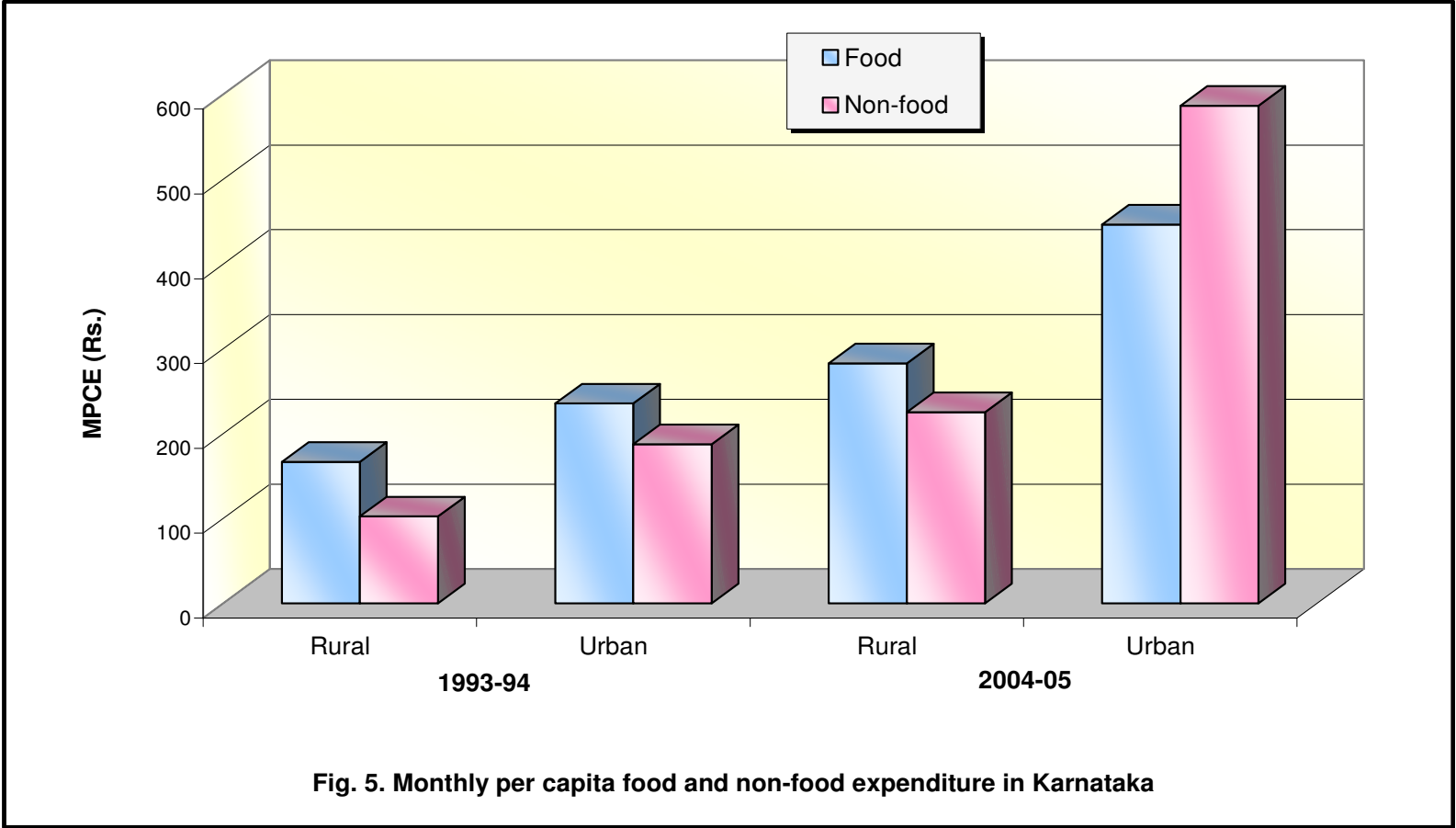


Fig. 5. Monthly per capita food and non-food expenditure in Karnataka

Table 4.5. Income group wise monthly per capita expenditure on food items

(Rs.)

Year	Rural				Urban			
	LIG	MIG	HIG	ALL	LIG	MIG	HIG	ALL
Cereals								
1993-94	50.87	69.80	88.84	61.47	64.95	79.63	80.61	69.21
2004-05	72.24	92.52	126.34	83.82	90.29	119.03	160.98	114.85
% change	42.01	32.55	42.21	36.36	39.01	49.48	99.70	65.94
Pulses								
1993-94	9.59	12.31	20.19	12.10	11.13	17.85	21.54	15.45
2004-05	15.34	20.42	27.23	19.37	20.33	24.89	33.34	24.74
% change	59.96	65.88	34.87	60.08	82.66	39.44	54.78	60.13
Edible oil								
1993-94	8.21	10.38	20.50	10.40	11.00	18.34	28.71	15.80
2004-05	20.33	25.59	35.98	23.00	25.24	32.41	46.43	29.97
% change	147.62	146.53	75.51	122.01	129.45	76.72	61.72	89.80
Meat, fish, egg, milk & milk products								
1993-94	16.75	29.74	72.06	27.30	27.34	53.48	121.44	49.03
2004-05	35.33	61.58	140.23	52.16	57.76	98.72	202.53	95.42
% change	110.93	107.06	94.60	91.06	111.27	84.59	66.77	94.62
Vegetables, fruits & nuts								
1993-94	14.37	24.78	50.40	21.72	18.82	34.93	73.57	31.13
2004-05	28.99	45.37	93.52	40.03	39.90	61.53	143.43	59.24
% change	101.74	83.09	85.56	84.30	112.01	76.15	94.96	90.30
Sugar, salt, spices & beverages								
1993-94	23.40	36.21	83.32	33.95	32.99	55.73	191.29	55.07
2004-05	44.00	67.52	250.94	64.66	68.33	121.45	451.34	122.35
% change	88.03	86.46	201.20	90.45	107.12	117.90	135.90	122.17

Table 4.6. Monthly per capita non-food expenditure in Karnataka

(Rs.)

Non-food item	Rural			Urban		
	1993-94	2004-05	% change	1993-94	2004-05	% change
Pan, tobacco, intoxicants	11.30 (11.02)	18.07 (8.02)	59.91	9.60 (5.12)	19.27 (3.28)	100.73
Fuel & light	21.80 (21.27)	56.14 (24.91)	157.52	31.30 (16.70)	107.48 (18.32)	243.39
Clothing	15.90 (15.51)	17.89 (7.94)	12.52	19.50 (10.41)	29.55 (5.04)	51.54
Footwear	1.30 (1.27)	2.62 (1.16)	101.54	2.30 (1.23)	2.26 (0.39)	-1.74
Miscellaneous goods & services rent, tax	47.40 (46.24)	112.89 (50.08)	138.16	117.70 (62.81)	424.06 (72.28)	260.29
Durable good	4.80 (4.68)	17.80 (7.90)	270.83	7.00 (3.74)	4.11 (0.70)	-41.29
Total non-food	102.50 (100.00)	225.41 (100.00)	119.91	187.40 (100.00)	586.73 (100.00)	213.09

Figures in parentheses indicates percentages

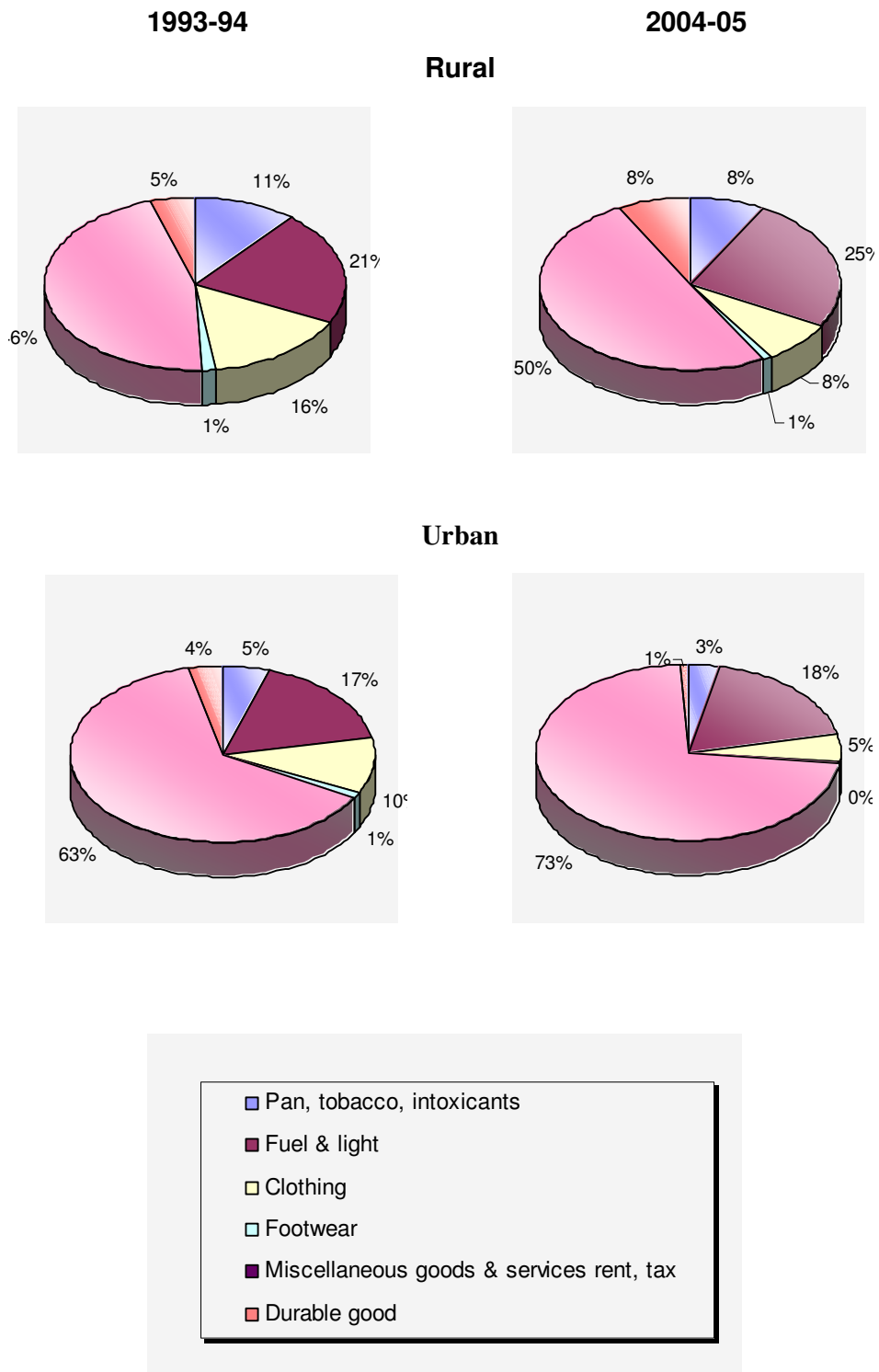


Fig. 6. Share of monthly per capita non-food expenditure in Karnataka

4.2 EXPENDITURE ELASTICITY OF DEMAND FOR FOOD

The expenditure elasticities for different food items were derived by estimating the expenditure functions separately for rural and urban areas. In the model, the monthly per capita total consumption expenditure has been used as a proxy for income. This was because the data on consumer income was not available in NSSO publications. The monthly per capita total consumption expenditure was considered as independent variable and monthly per capita expenditure on a specific food item was considered as dependent variables in the model. The estimates of expenditure functions for different food items was presented in Table 4.8. Log-inverse and log-log inverse functions were fitted to the data and the log-log inverse functions proved to be superior on the basis of the coefficient of multiple determination (R^2).

The estimated expenditure functions explained more than 90 per cent of the variation in monthly per capita expenditure on different food items barring the estimated function for edible oil in rural areas and estimated functions for other foods in urban areas. The high F values indicated the goodness of fit of the models. The expenditure elasticities for different food items were derived from the derivatives of the estimates of expenditure functions. The elasticities were estimated as $b_1 - b_2/X$. The estimated expenditure elasticities were presented in Table 4.9. The estimated expenditure elasticity of demand for all food items was positive. The elasticities were less than one for all the food items in urban areas, where as the expenditure elasticities were more than one for milk, edible oil, egg fish group, vegetables, fruits and other food items in rural areas. The expenditure elasticity was highest for vegetables (0.961) in the case of urban area and was lowest (0.047) for other food items in urban areas. The expenditure elasticity was almost near to one in the case of milk, vegetables and fruits in urban areas. The expenditure elasticities for different food items varied between 0.704 in the case of cereals and 1.155 in the case of other food items in rural areas.

Table 4.7. Income group wise monthly per capita expenditure on non-food items

(Rs.)

Year	Rural				Urban			
	LIG	MIG	HIG	ALL	LIG	MIG	HIG	ALL
	Pan, tobacco, intoxicants, fuel & light, clothing & footwear							
1993-94	26.74	47.88	223.55	50.27	35.10	64.95	227.05	62.75
2004-05	63.76	108.36	339.27	94.72	98.93	176.08	492.25	158.56
% change	138.44	126.32	51.76	88.42	181.85	171.10	116.80	152.69
	Miscellaneous goods & services & durable goods							
1993-94	15.19	47.88	263.11	52.19	46.05	121.21	706.25	124.66
2004-05	60.57	117.70	1182.71	130.70	125.76	368.37	2356.18	428.17
% change	298.74	145.82	349.50	150.43	173.09	203.91	233.60	243.50

Note: Miscellaneous goods and services included educational and medical expenses and expenditure on good for personal care, toilet articles, consumer services and conveyance.

Table 4.8. Estimated expenditure functions for different food items.

Food items	Rural areas					Urban areas				
	Constant	ln X	1/X	R ²	F	Constant	ln X	1/X	R ²	F
Cereals	-0.12 (0.55)	0.74* (0.09)	9.04 (8.93)	0.96*	178.50	-0.32 (0.41)	0.74* (0.06)	7.81 (8.64)	0.97*	305.16
Pulses	-2.24 (0.66)	0.85* (0.11)	-18.31 (10.82)	0.97*	301.39	-1.63 (0.45)	0.72* (0.07)	-23.99 (9.46)	0.98*	427.7
Milk & milk products	-2.99 (0.50)	1.06* (0.08)	-13.78 (8.19)	0.99*	701.25	-1.59 (0.34)	0.84* (0.05)	-22.16 (7.05)	0.99*	974.12
Edible oil	-1.85 (4.04)	0.83 (0.69)	-53.34 (65.44)	0.67*	14.38	-1.44 (0.60)	0.66* (0.09)	-52.98 (12.60)	0.98*	335.33
Egg, fish, meat	-3.33 (0.55)	1.01* (0.09)	-24.57 (8.99)	0.98*	638.09	1.79 (0.89)	0.27 (0.14)	-77.62 (18.59)	0.93*	101.75
Vegetables	-2.85 (0.33)	0.98* (0.05)	-34.17 (5.45)	0.99*	1920.04	-2.56 (0.89)	0.88* (0.04)	-26.07 (6.40)	0.99*	1347.26
Fruits	-3.19 (0.49)	0.97* (0.08)	-23.85 (8.08)	0.99*	730.82	-2.40 (0.30)	0.83* (0.06)	-35.42 (8.37)	0.99*	811.24
Sugar	-2.86 (0.60)	0.88* (0.10)	-1.69 (9.86)	0.97*	272.84	-1.89 (0.40)	0.67* (0.08)	-13.84 (11.12)	0.97*	234.58
Others	-3.51 (1.05)	1.19* (0.18)	9.05 (17.14)	0.95*	137.04	6.99 (0.53)	-0.28 (0.23)	113.71 (30.20)	0.75*	21.06

* Indicates level of significance 1%

** Indicates level of significance 5%

Figures in parentheses indicates standard error

Table 4.9. Estimated expenditure elasticities of demand for different food items

Food items	Rural	Urban
Cereals	0.704	0.719
Pulses	0.947	0.789
Milk and Milk Products	1.132	0.909
Edible Oil	1.094	0.820
Egg, Fish, Meat	1.133	0.498
Vegetables	1.147	0.961
Fruits	1.088	0.934
Sugar	0.893	0.717
Others	1.155	0.047

4.3 FACTORS INFLUENCING FOOD CONSUMPTION

The present study also attempted to explain some of the factors influencing food consumption by using primary data. The required data for this investigation was obtained by a survey of 135 sample respondents spread in Mysore district of Karnataka. The sample was categorized into urban (45), semi-urban (45) consumers and rural consumers (45) to study the variations in the factors affecting food consumption across locations. The general characteristics of the sample consumers was presented in Table 4.10. Majority of the respondents were in the middle age group in urban and rural areas while in semi-urban area more than 42 per cent of the consumers were within the age group of 51 years to 60 years. The majority of respondents in urban areas had college education whereas as around 49 per cent and 42 per cent of the respondents in semi urban areas and rural areas had education up to middle school. Most of the respondent families belonged to nuclear type of family. More than 70 per cent of the respondents belonged to medium income group in semi-urban and rural areas and most of them found to be non-vegetarians.

The monthly per capita expenditure on food and non-food items of the respondents was summarized and presented in Table 4.11. The monthly per capita food expenditure in the study area was Rs.730 for urban respondents Rs.601 for semi-urban respondents and Rs.483 for rural respondents. The total monthly per capita expenditure of the respondents was Rs.2000 for urban consumers, Rs.1231 for semi urban and Rs.1032 for rural consumers. The proportion of food expenditure in the total expenditure was highest for semi-urban respondents and lowest for urban respondents. The share of non-food expenditure was 64 per cent for urban consumers, 51 per cent for semi urban consumers and 53 per cent for rural respondents. The share of monthly per capita expenditure on different food items like cereals, pulses *etc.* for urban consumers was generally low when compared to that for semi urban respondents. Similarly, the share of monthly per capita expenditure on different food items for semi-urban people was less than that for rural respondents. However, in terms of absolute magnitude, urban respondents were found to spend more on milk, edible oil, vegetable, fruits and nuts, bakery items and beverages, when compared to the expenditure made by their counterparts in semi-urban and rural areas. The respondents in semi-urban areas were found to spend less on cereals than their counterparts did in urban and rural areas.

The frequency of purchase of various food items by rural, semi-urban and urban consumers was analyzed and was presented in Table 4.12. Majority of the semi-urban and rural people found to buy rice and ragi on an annual basis whereas majority of the urban people purchased the same on a monthly basis. Majority of the respondents irrespective of their locations were found to buy wheat on a monthly basis. Majority of the urban and semi-urban respondents were found to buy bengal gram on monthly basis while most of the rural respondents bought it on a weekly basis. With respect to red gram, weekly purchase was more common in semi-urban areas while monthly purchase was more common in urban and rural respondents. Similar pattern of purchasing behavior was also noticed for green gram. Almost all the respondents irrespective of their locations preferred to buy milk on a daily basis and milk products on a monthly basis. Urban and semi-urban consumers preferred to buy fruits and nuts and vegetables on a weekly basis, whereas rural consumers purchased fruits on a monthly basis and vegetables on a weekly basis. The urban respondents purchased bakery items on a weekly a basis while the semi urban and rural consumers purchased it on a monthly basis.

To study the influence of different factors on food consumption, a multiple linear regression analysis was carried out. The food basket of the consumer consisted cereals, pulses, milk, edible oil *etc.* which were heterogeneous in nature. The assessment of the impact of these heterogeneous products in physical quantities on food consumption was difficult. Therefore, the money spent on all these items on an annual family basis was considered as dependent variable. The independent variables considered to influence the food consumption were family size, annual income, for dummy family type and a dummy for food habit. The estimated multiple linear regression function for urban, semi-urban and rural consumers of Mysore district were presented in Table 4.13. The coefficient of multiple determination (R^2) was more than 0.83 in all the cases. This implied that more than 83 per cent of the variation in annual family food expenditure was explained by the variation in the dependent variables considered in the model.

Table 4.10. General characteristics of the sample respondents

Sl. No.	Category	Units	Urban (n=45)		Semi urban (n=45)		Rural (n=45)	
			Frequency	Percentages	Frequency	Percentages	Frequency	Percentages
1	Age							
a.	Young (18-35 years)	No	1.00	2.22	2.00	4.44	2.00	4.44
b.	Middle (36-50 years)	No	20.00	44.44	11.00	24.44	18.00	40.00
c.	High (51-60 years)	No	11.00	24.44	19.00	42.22	14.00	31.11
d.	d. 61 & above	No	13.00	28.89	13.00	28.89	11.00	24.44
2	Educational qualification							
a.	Illiterate	No	0.00	0.00	2.00	4.44	9.00	20.00
b.	Primary school (1-4)	No	2.00	4.44	3.00	6.67	11.00	24.44
c.	Middle school (5-7)	No	4.00	8.89	22.00	48.89	19.00	42.22
d.	High school (8-10)	No	9.00	20.00	11.00	24.44	2.00	4.44
e.	College	No	30.00	66.67	7.00	15.56	4.00	8.89
4	Family type							
a.	Joint family	No	7.00	15.56	12.00	26.67	20.00	44.44
b.	Nuclear family	No	38.00	84.44	33.00	73.33	25.00	55.56
5	Monthly income*							
a.	Low	Rs	8.00	17.78	5.00	11.11	1.00	2.22
b.	Medium	Rs	32.00	71.11	32.00	71.11	43.00	95.56
c.	High	Rs	5.00	11.11	8.00	17.78	1.00	2.22
6	Food habit							
a.	Veg	No	8.00	17.78	4.00	8.89	2.00	4.44
b.	Non-veg	No	37.00	82.22	41.00	91.11	43.00	95.56
7.	Family size	No						
	4-5	No	24.00	53.33	26.00	57.78	22.00	48.89
	6-8	No	17.00	37.78	15.00	33.33	11.00	24.44
	8-10	No	3	6.67	2.00	4.44	6.00	13.33
	10 & above	No	1	2.22	2.00	4.44	6.00	13.33
8.	Land holding							
	Nil	No	35	77.78	5.00	11.11	0.00	0.00
	1-2 ha	No	3	6.67	25.00	55.56	10.00	22.22
	3-4 ha	No	6	13.33	5.00	11.11	14.00	31.11
	4 ha & above	No	1	2.22	10.00	22.22	21.00	46.67

Note: * See Appendix II for income ranges

Table 4.11. Monthly per capita expenditure of sample respondents on food and non-food items

(Rs.)

Food items	Urban	Semi urban	Rural
Cereals	100.23 (5.01)	96.97 (7.87)	110.10 (10.67)
Pulses	73.20 (3.66)	79.89 (6.49)	92.19 (8.94)
Milk & M.P	133.89 (6.69)	88.76 (7.21)	61.12 (5.92)
Edible oil	72.16 (3.61)	46.91 (3.81)	38.22 (3.70)
Vegetables	37.90 (1.90)	32.10 (2.61)	26.94 (2.61)
Fruits & nuts	68.27 (3.41)	53.57 (4.35)	41.74 (4.05)
Egg & meat	99.96 (5.00)	118.66 (9.64)	114.84 (11.13)
Others	24.63 (1.23)	23.67 (1.92)	26.20 (2.54)
Bakery items	59.28 (2.96)	20.76 (1.69)	13.18 (1.28)
Beverage	52.13 (2.61)	39.31 (3.19)	42.29 (4.10)
Food total	730.15 (36.51)	600.61 (48.78)	482.93 (46.81)
Non-food	1269.85 (63.49)	630.76 (51.22)	548.68 (53.19)
Total expenditure	2000.00 (100)	1231.38 (100)	1031.61 (100)

Figures in parentheses indicates percentages

Table 4.12. Frequency of purchase of food items by sample respondents

Item	Urban	Semi-urban	Rural
Rice	Monthly (66.67)	Annual (62.00)	Annual (100)
Wheat	Monthly (88.90)	Monthly (86.60)	Monthly (86.60)
Ragi	Monthly (86.60)	Annual (60.00)	Annual (88.80)
Bengal gram	Monthly (73.30)	Monthly (60.00)	Weekly (77.70)
Red gram	Monthly (88.80)	Weekly (80.00)	Monthly (86.60)
Green gram	Monthly (86.60)	Weekly (53.30)	Monthly (88.80)
Milk	daily (100)	Daily (100)	Daily (100)
Milk product	Monthly (55.50)	Monthly (75.50)	Monthly (55.50)
Edible oil	Monthly (100)	Monthly (100)	Weekly (22.20)
Fruits & nuts	Weekly (88.80)	Weekly (75.50)	Monthly (93.30)
Vegetables	Weekly (62.20)	Weekly (86.60)	Weekly (95.50)
Processed products	Weekly (77.78)	Monthly (66.60)	Monthly (55.50)

Figures in parentheses indicates percentages

The regression coefficients of family size and annual income were not only positive but also significant in all the cases barring the annual income of rural consumers. The results thus, clearly showed that an increase in the family size would increase the annual family expenditure on food. The increase in the annual family expenditure on food with every increase in the family member was to the extent of Rs.11143 in the case of urban consumers and Rs.7292 in the case of rural consumers. Similarly every rupee rise in the annual income would increase the annual expenditure on food by about Rs.0.08 in the case of urban consumers and by about Rs.0.05 in the case of semi-urban and rural consumer. The regression coefficients of family type dummy were found to be positive in all the cases but significant only for rural consumers. The positive association between the type of family and annual food expenditure revealed that the annual expenditure would be more for joint families. However, this relationship was not statistically established for semi-urban and rural consumers. The food habit dummy exerted a positive influence on food expenditure for urban, semi-urban and rural consumers. The positive relation implied that the food expenditure would be more for non-vegetarian consumers. However, this relationship was not statistically established.

4.4 CONSTRAINTS IN FOOD CONSUMPTION PATTERN

The constraints in food consumption pattern were summarized in Table 4.14. The majority of consumers in urban area reported that rice, groundnut and red gram were not liked by the family. The major constraint faced by the consumers in the items like wheat, ragi, bengal gram and pea was difficulty in cooking. In the case of vegetables, milk products, processed and bakery items, spices, beverages meat and egg, the majority of the consumers felt that they were expensive. Around 42 per cent of the respondents did not like cowpea for its poor quality and low nutritive value. More than 75.6 per cent of respondents reported that edible oil and sugar was not suitable for their health.

In semi-urban areas, majority of the consumers did not buy enough quantity of milk products, beverages and meat in view of their low income. Some of the respondents felt that fruits and nuts, vegetables, milk, processed products, spices and egg were expensive. In the case of rural areas, majority of the respondents opined that fruits and nuts, vegetables, spices, meat and beverages were expensive.

Table 4.13. Factors influencing food consumption expenditure

Sl. No.	Variable	Urban	Semi-urban	Rural
1	Intercept	26436.40	8087.32	11753.57
2	Family size (X_1)	11143.02* (1421.81)	7784.97** (735.61)	7291.69* (719.57)
3	Annual Income (X_2)	0.082* (0.023)	0.048** (0.0252)	0.0462 (0.425)
4	Family type dummy(D_1)	4493.66** (1998.53)	-1233.57 (1640.21)	1473.97 (1756.16)
5	Food habit dummy(D_2)	6619.19 (3883.98)	1136.33 (2635.36)	3850.55 (4287.46)
	R^2	0.85*	0.85*	0.83*
	F	67.94	60.06	52.10

* Indicates level of significance 1%

** Indicates level of significance 5%

Figures in parentheses indicates standard error

Table 4.14. Major constraints faced by consumers in food consumption

Items	Urban	Semi-Urban	Rural
Rice	Not liked (31.10)	Low nutritive value (22.20)	Not liked (42.22)
Wheat	Cooking Problem (35.60)	Cooking Problem (22.20)	Uneasy for digestion (11.10)
Ragi	Cooking Problem (26.70)	Not liked (13.33)	-
Bengal gram	Cooking Problem (42.20)	Cooking Problem (11.10)	Cooking Problem (22.20)
Red gram	Not liked (51.10)	Uneasy for digestion (24.40)	Uneasy for digestion (24.40)
Pea	Cooking Problem (80.00)	Expensive (44.44)	Expensive (44.44)
Cow-pea	Poor quality (42.20)	Low nutritive value (66.70)	Low nutritive value (66.70)
Ground-nut	Not liked (26.70)	Poor quality (33.30)	-
Fruits & nuts	Expensive (55.6)	Expensive (88.90)	Expensive (84.40)
Vegetables	Expensive (66.70)	Expensive (60.00)	Expensive (55.00)
Edible oil	Not suitable for health (75.60)	Low nutritive value (28.90)	Expensive (26.70)
Milk	Expensive (84.40)	Expensive (57.80)	Expensive (35.60)
Milk products	Expensive (88.90)	Expensive (77.80)	Expensive (91.10)
Processed products	Expensive (91.10)	Expensive (66.70)	Non awareness (44.44)
Sugar	Not suitable for health (88.90)	Low nutritive value (91.00)	Not suitable for health (77.80)
Spices	Expensive (86.70)	Expensive (51.12)	Expensive (88.90)
Beverages	Expensive (88.92)	Expensive (77.80)	Expensive (86.70)
Meat	Expensive (84.40)	Expensive (88.90)	Expensive (82.22)
Egg	Expensive (66.70)	Expensive (80.00)	Expensive (77.80)

Figures in parentheses indicates percentages

Note: The details of other constraints is reported in Appendix III to V.

5. DISCUSSION

In this chapter, an attempt is made to discuss the results of the present study. The discussion is attempted under the following headings.

- 5.1 Changes in food consumption
- 5.2 Expenditure elasticities of demand for food
- 5.3 Factors influencing food consumption
- 5.4 Constraints in food consumption

5.1 CHANGES IN FOOD CONSUMPTION

Table 4.1 shows the changes in monthly per capita consumption (MPC) of cereal and pulses in Karnataka state as estimated from the 50th (1993-94) and 61st rounds (2004-05) of NSSO data. A decline in the quantity consumed for all food items except wheat was observed in rural and urban areas. The monthly per capita consumption of cereals in physical terms has declined from 13.15 kgs in 1993-94 to 10.73 kgs in 2004-05 for rural areas and corresponding figures for urban areas were 10.87 kgs to 9.71 kgs. Similar findings were reported by Nasirudeen *et al.* (2006) and Chadha (2007).

Wheat and rice were the two cereals for which per capita consumption in urban areas exceeded that in rural areas of Karnataka. The per person monthly consumption of wheat increased from 0.85 kgs in 1993-94 to 1.02 kgs in 2004-05 for rural areas, the corresponding increase was 1.56 kgs to 1.71 kgs for urban areas. The reason was that wheat was rich in protein and less in fat content, the consumer choices were shifting in favour of wheat. Further wheat was supplied through Public Distribution System (PDS) both in rural and urban areas. There was substitution of fine grains for the coarse ones and subsequent replacement of cereal by protective foods like milk, fruits and vegetables. Higher per capita consumption of cereals in the rural areas was attributed to factors like higher prices for milk, meat, vegetables, *etc.* The overall shift in terms of increased wheat consumption and reduced coarse grain consumption during 1993-94 through 2004-05 was visible both in rural and urban areas. In the case of urban areas, the consumption of bajra has slightly increased. Jowar, being a coarse cereal, exhibited a decline in its consumption both in rural and urban areas of Karnataka state.

The shift away from cereal consumption was prominent across all households in different income groups over time (Table 4.2). The decline in cereal consumption was attributed to the diversification of food production, easy access of high value commodities, changed tastes and preferences Radhakrishna (2005), Kumar (1998), Murthy (2000). Radhakrishna and Ravi (1992), Kumar (1997) and Rao (2000) have reported that, rise in per capita income, urbanization, changing tastes and preferences were the dominating factors for the change in the per capita consumption of cereals. Mechanization of agriculture, improvement in infrastructure and medical facilities also contributed to the reduction in energy requirement and led to less cereal consumption (Rao, 2000). Tastes and preferences were also moving towards high value commodities, with the increase in income. The decline in calories by reduced cereal consumption was partly compensated by intake of highly nutritive and vitamin rich food products (Rao, 2000).

The monthly per capita consumption of bengal gram has slightly increased both in rural and urban areas, which was generally considered to be the low cost protein source for vegetarians. The consumption of red gram and green gram have decreased over the years. The monthly per capita consumption of total pulses has decreased in rural areas and slightly increased in urban areas. When the actual quantity of cereals consumption was considered, there was a slight decrease in it (Table 4.1) while pulses consumption has increased marginally in urban areas. This was an indication of the nutrition consciousness of urban people.

The income group wise changes in average quantity of monthly per capita consumption of cereals and pulses were presented in Table 4.2. It was clear from the table that as income rises, the demand for cereals has increased slightly across different income groups with an exception of high income groups of urban consumers during 1993-94. But this

was not a case during 2004-05. An important conclusion drawn from the exercise was that increase in income did not necessarily imply an increase in demand for cereals during 2004-05. The urban households would probably shift away from cereals to non-cereal processed items of food as their living standards rose beyond a certain level of affluence. The monthly per capita consumption of cereals in Karnataka has declined substantially over the years for all the income groups. This could largely be due to agricultural diversification combined with changes in tastes and preferences (Mittal, 2007).

Pulses consumption in rural areas has decreased over the years. The quantity of pulse consumption increased with increase in income. In urban areas, pulses consumption has increased slightly from 0.88 kg 1993-94 to 0.89 kg during 2004-05. The major pulses which find a place in dietaries were red gram, bengal gram, black gram, green gram *etc.* Rural people consumed more of cereals compared to their urban counterparts. Rao (2000); Nasuruudeen *et al.* (2006) reported similar results.

Table 4.3 showed the changes in monthly per capital expenditure of rural and urban consumers on various food items. The changes in quantities consumed, as explained by demand theory were influenced by changes in income levels, relative prices and consumer preferences. The changes in per capita expenditure on individual commodities affect the relative importance of these commodities as measured by their proportion in expenditure. As far as individual food commodity groups were concerned, it was observed that there was a decline in the proportion of expenditure on cereals. The decline was from 36.84 per cent during 1994-95 to 29.84 per cent by 2004-05 in rural Karnataka. The decline in urban areas was from 29.38 per cent to 25.72 per cent and similar decreasing trend over the years was seen in the case of pulses both in rural and urban Karnataka. The rise in the proportion of expenditure on edible oil and other food commodities like beverages, fruits, vegetables, milk and milk products, were higher in rural Karnataka than that in urban Karnataka. Iyengar and Jain (1973); Pandey (1973); George (1980); Binswanger *et al.* (1984); Pandey and Salin (1984) and Nasirudeen *et al.* (2006) reported similar findings. The improvement in economic access to food due to increased income, did not result in a higher consumption of cereals, but has increased the consumption of vegetables, fruits and nuts and livestock products, especially milk and eggs (Nasirudeen *et al.*, 2006).

The consumers in urban areas were more likely to diversify their diet to beverages, fruits, nuts, meat and egg. The share of expenditure on pulses in total expenditure in urban areas has declined from 6.56 per cent in 1993-94 to 5.54 per cent in 2004-05. The share of expenditure on vegetables, fruits and nuts, witnessed an increasing trend, but more increase was seen in the case of beverages for rural consumers. The expenditure share on food items like, milk and milk products, edible oil, meat, fish, egg, vegetables, fruits and nuts has increased both in rural and urban areas of Karnataka. The share of expenditure on milk and milk products has increased from 10.97 per cent in 1993-94 to 12.23 per cent by 2004-05. The total monthly per capita food expenditure was higher in urban areas due to higher income, urbanization and varied preferences. They spent Rs.446.57 per person per month while it was Rs.283.04 per person per month in rural areas during 2004-05.

The monthly per capita expenditure on all food items was higher for urban consumers than their counterparts in rural areas during both the periods (Table 4.3). The share of non-cereals in total food expenditure has depicted an increasing trend during the last decade. The consumers both in rural and urban areas opted for diversified food basket and it was true for all income groups. These results indicate a higher demand for livestock and horticultural products in the future.

The income group wise monthly per capita expenditure on food items was reported in Table 4.4. With respect to cereals, the monthly per capita expenditure was highest in high income groups of urban area (Rs.160.98) while it was lowest (Rs.72.24) in the low income group of rural area during 2004-05. The percentage change in the monthly per capita expenditure among cereals was around 35 per cent to 45 per cent across most of the income groups in urban and rural areas with an exception that it was 99.70 per cent in the high income group of urban areas. The monthly per capita expenditure on pulses during 2004-05 varied between Rs.15.34 in the case of low income group of rural areas and Rs.33.34 in the case of high income group of urban area. The percentage change in monthly per capita expenditure on pulses was highest (82.66%) in the low income group of urban areas and was lowest (34.87%) in the high income group of rural area. There was a substantial rise (130%)

in the monthly per capita expenditure on edible oils for the low income groups across the locations. The monthly per capita expenditure on edible oil was the highest (Rs.46.43) in high income group of urban area and was lowest in low income group of rural area (20.33%). In absolute terms, the monthly per capita expenditure on all food items in both the periods increased with an increase in income levels. The per centage change in monthly per capita expenditure on meat, vegetable, and sugar, groups of foods was generally higher in the low income groups of both urban and rural areas.

The changes in monthly per capita expenditure on individual cereal items and pulses was reported in Table 4.5. In terms of expenditure also rice accounted for a major share in the total expenditure on cereals, the monthly per capita expenditure on rice increased from Rs.35.31 to Rs.44.27 in rural areas showing an increase of 25.38 per cent over the two periods. The extent of rise in the monthly per capita expenditure on rice was 52.67 per cent in urban areas. The monthly per capita expenditure on wheat, jowar and bajra showed an increasing tendency in both rural and urban areas. The monthly per capita expenditure on red gram, bengal gram and green gram was more when compared to other pulses in both rural and urban areas during both the periods under the study. The per capita expenditure on red gram in rural areas increased from Rs.5.85 to Rs.9.29 in 2004-05, while in urban area, it increased from Rs.7.79 to Rs.11.95 thus showing a rise of more than 53 per cent in rural and urban areas.

The changes in the per capita monthly non-food expenditure in rural and urban areas of Karnataka was given in Table 4.6. Among non-food items, the expenditure on miscellaneous goods and services, rent, tax had the highest per centage share in per capita monthly non-food expenditure both in rural and urban areas. The share of this category has increased by three folds over the period under consideration in the state. In rural areas, the expenditure on rent was low as compared to that of their urban counterparts and further only few people live in rented dwellings in rural area.

The share of expenditure on fuel and light was higher in rural areas when compared to urban areas. The use of fire wood, kerosene, gobar gas as the primary source of energy for cooking and lighting in the rural areas was more. Whereas in urban areas, though fire wood was used, the use of LPG and kerosene were equally important. In rural areas, kerosene and electricity together covered almost 100 per cent. As against this, in urban area, these two sources accounted for 77 per cent. In the urban areas, kerosene was not that dominant as a source by energy. The expenditure made on clothing and foot wear were higher in urban households compared to that in rural households. The reason was that the urban households used better quality clothing and footwear at higher cost. The per capita monthly expenditure on durable goods was higher in rural areas than that in urban areas. This reflected the more rapid growth in durable consumption in rural areas.

The income group wise monthly per capita expenditure on non-food items was presented in Table 4.7. In absolute terms, the expenditure on different food items and non-food items both in the periods increased with an increase in the income both in rural and urban areas. However, the per cent increase in the monthly per capita expenditure on different non-food items in rural and urban areas across the income groups differed.

5.2 FOOD EXPENDITURE ELASTICITIES

To estimate food expenditure elasticities, log-inverse and log-log inverse functions were used. The log-log inverse functions gave the best fit for the expenditure data. The signs of the regression coefficients were also as expected. The food items were considered as essential, if the elasticity was between zero and one, inferior goods, if the elasticity was less than zero and luxury, if the elasticity was greater than one. The elasticities of demand are useful for predicting consumer behavior and evaluating the likely effect of the contemplated policy. The high and significant R^2 values for all commodity groups implied that the model provided a better explanation. These functions were used to derive elasticities. The resulting elasticities evaluated at the sample mean values of per capita monthly total expenditure were reported in Table 4.9. The food expenditure elasticity of all commodity groups was positive. This indicated that all the commodities were normal goods. In rural and urban areas of Karnataka cereals were essential commodities and were found to be the staple diet as was evident from the elasticities obtained which were less than one. The low expenditure elasticity of cereals implied that there would be a shift in the consumption to other food items as

income increases. Expenditure elasticity of demand (implying income elasticity of demand) measures the per centage change in consumption of a commodity as a result of the per cent change in total income. The expenditure elasticities for all food groups were less than unity in urban areas with the highest value being 0.96 for vegetables. This implied that an increase in monthly per capita expenditure (income) would bring greater changes in vegetable consumption.

One important point to be noted was that since all expenditure elasticities were less than unity, all the food items were treated as necessities. The lowest expenditure elasticity was observed for cereals (0.70 in rural and 0.72 in urban area). This was because food is basic necessity for sustenance of life. The highest expenditure elasticity was observed for vegetables (0.96 in urban and 1.15 in rural area). An increase in income would shift the consumption expenditure from cereals to vegetables. Thus, there was a greater appreciation in the importance of vegetables in Karnataka as the income level increases. Musebe and Kumar (2006) noticed similar results. The changes in income would lead to less than proportionate changes in consumption of most of the food items.

In rural areas of Karnataka, cereals (0.70), pulses (0.94) and sugar (0.89) were considered as essential commodities. Milk and milk products (1.13), edible oil (1.09), egg, fish, meat (1.13), vegetables (1.14), fruits (1.08) and others (1.15) were found to be luxuries. This implied that an increase in monthly per capita expenditure (income) would lead to greater changes in the consumption of vegetables, egg, fish, meat, milk, milk products, edible oil and fruits

5.3 FACTORS INFLUENCING FOOD CONSUMPTION

The general characters of sample consumers revealed that the majority of sample respondents (Table 4.10) in urban area belonged to middle age group. The majority of semi-urban sample consumers were in the old age group. However, many of the sample respondents in the case of rural areas belonged to middle age group (40.00%), followed by old age group (31.11%). Nearly 20 per cent of the respondents in rural category were illiterates. Majority of the rural respondents were illiterates since rural areas lacked proper educational facilities and it was difficult for those living in rural areas to spend more on education. More than 67 per cent of the respondents of the urban areas were having college education. This was because most of the respondents belonged to the working group. More than 48 per cent of the respondents in semi-urban areas had middle school education and about 24.44 per cent had high school education. More rural sample households lived in joint family. This was expected, considering the fact that traditionally, rural people have been living in the ancient homes with many members in a family. In semi-urban areas, 26.67 per cent of households were living in joint family. The majority of families in the urban area (84.44%) belonged to nuclear families. The predominance of nuclear families might be due to urbanization and realization of advantages of nuclear families. The most common family size in the study area was 4 to 5 members in a family. About 38 per cent of urban families, 33 per cent of semi-urban and 25 per cent of rural families had the family size 6 to 8 members. A large majority (78%) of urban sample respondents did not own land. About 56 per cent of sample respondents in semi-urban area owned land between 1 ha and 2 ha. Whereas in rural area more than 77 per cent of the respondents had land more than 2 ha.

The expenditure pattern of sample households in the urban and rural areas indicated that the urban households spent a little higher amount on food when compared to their counterparts in semi-urban and rural households. This was because the income of urban consumers was higher when compared to that of semi-urban and rural consumers. Further the urban consumers used processed food which usually costed more. Milk being an essential commodity, the urban households spent Rs.140 as compared to Rs. 89 by semi-urban and Rs. 61 by rural areas. In rural areas, usually milk producing animals were domesticated and cost of milk was less when compared to that in urban areas. Further, the urban consumers used branded milk and home delivery and transportation charges were added to the cost. In the case of vegetables, urban consumers were spending more (Rs.37.9), when compared to their counter parts did in semi-urban and rural areas. Some of the rural and semi-urban consumer used vegetables cultivated on their own field. Semi-urban and rural consumers were spending more money on meat and egg than the urban households did on it. The expenditure made on bakery items was highest in the case of urban

areas (Rs.59.28). The semi-urban and rural consumers did not spend much on these items because of unawareness and non-availability. The expenditure made on non-food items were more in urban areas than in semi-urban and rural areas.

The majority of the respondents in urban areas (Table 4.12) purchased the cereals on a monthly basis. This was mainly due to the fact that most of the urban respondents were employees of government or private firms and they receive salary on a monthly basis. Hence, they purchased all the necessary goods on a monthly basis but in the case of rural areas, all the respondents purchased rice once in a year because most of the respondents were farmers and their major source of income was from agriculture. So, they purchased cereals on an annual basis, wheat was brought on a monthly basis in rural and urban areas as they purchased it from Public Distribution System (PDS) on a monthly basis.

Almost all the pulses were bought on a monthly basis by most of the respondents in rural, semi-urban and urban areas. In the case of milk, its freshness and shelf life were of utmost importance and hence was purchased on a daily basis by all the respondents irrespective of their location. Milk products and processed products were purchased on a monthly basis by most of the respondents in urban, semi-urban and rural areas. Fruits and vegetables were purchased on a weekly basis to retain its freshness. The urban respondents prefer to buy fruits and vegetables during weekends due to lack of time to the respondents. Majority of the respondents in urban, semi-urban and rural areas purchased meat once in a week. This was because in most of the households meat dish was prepared during the week ends.

The results of functional analysis (Table 4.13) indicated that annual income significantly influenced the food expenditure both in urban and semi-urban areas while, the family size exerted a significant influence on the dependent variable in the rural areas. In the urban areas, a unit increase in a family annual income increased the expenditure on food by 0.058 units, while, in the semi-urban area, the expenditure increased by 0.06 units for every unit increase in the annual income.

The family size, family type and food habits had a positive influence on expenditure on food in both urban and semi-urban and rural areas. It could be observed that expenditure on food was high in joint family when compared to that in a nuclear family.

5.4 CONSTRAINTS IN FOOD CONSUMPTION PATTERN

In rural areas, none of the respondents faced the problem of non-availability of rice, wheat, ragi, bengal gram, red gram, pea, cowpea, sugar, salt, spices, and beverages, because these were the basic essential commodities, and most of these items were produced in the village. Around 55 per cent of the respondents opined that income was a constraint for purchase of adequate quantities of fruits and nuts, vegetables, spices, beverages and meat. The respondents in rural areas belonging to low income group did not prefer to spend much on these items. About 42.2 per cent of family households in rural areas disliked consuming rice and were shifting towards to other cereals like ragi and wheat. Ragi was the major food grain consumed in the area and it was liked by most of the respondents.

The urban and semi-urban consumers did not face the problem of non-availability of rice, wheat, ragi *etc.* In the case of fruits and vegetables only few consumers faced the problem of non-availability on a regular basis. In urban and semi-urban areas, majority of the respondents opined that red gram, vegetables, milk products, processed products, spices, beverages, meat and egg were expensive. The products in urban areas were normally high priced in view of the transportation, packaging and storage costs.

6. SUMMARY AND POLICY IMPLICATIONS

This chapter gives a summary of findings of the present study and the policy implications emerging from it.

India is world's second largest producer of food next to China. The average monthly per capita consumer expenditure (MPCE) in 2004-05 stood at Rs 599 in rural India and Rs 1052 in urban India. The per capita consumption expenditure in urban areas was 75 per cent more than that of the rural areas (National Sample Survey Organization, GOI). It is necessary to study the consumption pattern under the changing scenario of liberalization, privatization and globalization. In India, majority of people consume food still at home. Nevertheless, out-of-home food consumption is increasing due to increased urbanization, breaking up of the traditional joint family system, desire for quality food, time which translates into an increased need for convenience. Increasing number of working women, rise in per capita income, changing lifestyles, increased impact of television and its advertisement and increasing level of affluence in the middle income group have also brought about changes in food habits. In the last two decades, the share of urban population has increased from 23.3 per cent in 1981 to 27.8 per cent in 2001.

The study on consumption pattern is very important as it is related to poverty and standard of living of society. Food being the foremost basic need gets the priority in the pattern of expenditure of people, especially for low and middle income groups. The analysis of temporal and spatial changing food consumption pattern would help in designing appropriate policies related to food production, processing and distribution. Keeping these issues in view, this study was under taken with the following objectives.

Objectives of the investigation

1. To study the changes in food consumption pattern in rural and urban areas of Karnataka
2. To estimate the expenditure elasticities of demand for food in rural and urban Karnataka
3. To study the factors influencing food consumption in rural and urban areas of Mysore district
4. To analyze constraints in the consumption of food in rural and urban Mysore district

The present study utilized both secondary and primary data for evaluating and analyzing the specific objectives of the study. Secondary data on monthly per capita expenditure for Karnataka were collected from various issues of National Sample Survey Organization (NSSO) published by GOI. Though the published data of NSSO rounds was available from 27th round (1972-73), the data from 50th round (1993-94) on wards was used for the present study as it was decided to analyze the changes in food consumption pattern for the recent years. Further, the data on physical quantities on selected food items (cereals and pulses) was available only from 50th round (1993-94) onwards. Using the above data, the percentages were calculated to analyze the changes in the pattern of food consumption. Log-log inverse function was fitted to the data to obtain expenditure elasticities of demand for different commodity groups. The primary data was collected from sample respondents located in urban area, semi-urban area and rural area of Mysore district. The consumers located in taluka places of Mysore district were considered to represent urban area while those located in the hobli and villages were respectively considered to represent semi-urban and rural areas. Thus, a total sample of 135 respondents (45 urban, 45 semi-urban and 45 rural households) formed the sample for the study. Multiple linear regression analysis was used to estimate the factors influencing food consumption.

Major findings of the study

The monthly per capita cereal consumption has declined from 13.15 kgs to 10.73 kgs in rural areas, while the corresponding decrease in the urban sector was from 10.87 kgs to 9.71 kgs. Thus the consumption of cereals has declined in Karnataka between the two periods. The wheat consumption has increased by 20 per cent in rural areas and by 9.62 per cent in urban areas. Bajra, maize formed a negligible portion of the total cereal consumed in the state.

The monthly per capita consumption of pulses varied between 0.74 kgs and 0.90 kgs. The monthly per capita consumption of pulses was almost stable over the two periods in rural and urban areas of Karnataka. A marginal decline (-6.33%) was noticed in rural area while a marginal increase (2.27%) was observed in urban areas.

The consumption of cereals as well as pulses in physical quantities showed a declining trend across all the income groups in rural and urban areas over the two periods with only exception of low income group in urban areas.

With respect to pulses, the fall in the consumption was to the tune of 27.64 per cent in the high income group of rural areas. The low income group in urban area showed a marginal increase (2.86%) in the consumption of pulses.

The monthly per capita expenditure on food was Rs.167 during 1993-94 in rural areas and it increased to Rs.283 during 2004-05, showing an increase of about 70 per cent over the two periods. In urban area, the monthly per capita expenditure increased from Rs. 236 to Rs. 447 witnessing about 90 per cent increase between the two periods.

Expenditure on cereals was the major item of food expenditure. Over the two periods, the monthly per capita expenditure on cereals increased by 36.3 per cent in rural areas and 65.94 per cent in urban areas.

The share of expenditure on pulses in total food expenditure varied between 5.54 per cent and 7.25 per cent. Over the two periods, both rural and urban areas witnessed a rise in the expenditure to the extent of 60 per cent in pulses and 88 per cent in milk and milk products. The expenditure on edible oil which shared around 7 per cent witnessed a rise of 121 per cent in rural areas and 90 per cent in urban areas.

The proportion of expenditure on vegetables was around 8 per cent and its rise over the two periods was almost similar in rural and urban areas. This was also true for food items like fruits and nuts, sugar, spices and beverages. Over the years the expenditure on meat, fish, and egg has increased by more than 98 per cent in rural and urban areas.

With respect to cereals, the monthly per capita expenditure was highest in high income groups of urban area (Rs.160.98) while it was lowest (Rs.72.24) in the low income group of rural area during 2004-05.

The percentage increase in monthly per capita expenditure on pulses was highest (82.66%) in the low income group of urban areas and was lowest (34.87%) in the high income group of rural area. The monthly per capita expenditure on red gram, bengalgram and green gram was more when compared to that with the other pulses in both rural and urban areas during both the periods.

The percentage increase in monthly per capita expenditure for meat, vegetable, and sugar groups of foods was generally higher in the low income groups of both urban and rural areas.

The increase in monthly per capita expenditure on non-food was to the tune of 213.09 per cent in urban areas and 119.91 per cent in rural areas. The expenditure on intoxicants, fuel and light and clothing shared a considerable portion of total non-food expenditure in both the periods in rural and urban areas. The monthly per capita expenditure on intoxicants increased by more than 60 per cent. The expenditure on durables decreased by 41.2 per cent in urban area and increased substantially by 278.83 per cent in rural areas.

The expenditure elasticities of demand for food were less than one for all the food items in urban areas, where as the expenditure elasticities were more than one for milk, edible oil, egg fish group, vegetables, fruits and other food items in rural areas. The expenditure elasticity was highest for vegetables (0.961) and lowest (0.047) for other food items in urban areas. The expenditure elasticities for different food items varied between 0.704 in the case of cereals and 1.155 in the case of other food items in rural areas.

Majority of the respondents were in the middle age group in urban and rural areas while in semi-urban area more than 42 per cent of the consumers were within the age group of 51 to 60 years. More than 70 per cent of the respondents belonged to medium income group in semi-urban and rural areas and most of them found to be non-vegetarians.

The monthly per capita food expenditure was Rs.730 for urban respondents, Rs.601 for semi-urban respondents and Rs.483 for rural respondents of Mysore district. The total monthly per capita expenditure of the respondents was Rs.2000 for urban respondents, Rs.1231 for semi-urban and Rs.1032 for rural respondents.

The proportion of food expenditure in the total expenditure was highest for semi-urban respondents and lowest for urban respondents. The share of non-food expenditure was 64 per cent for urban respondents, 51 per cent for semi-urban respondents and 53 per cent for rural respondents.

Majority of the semi-urban and rural consumers found to buy rice and ragi on an annual basis whereas majority of the urban people purchased the same on a monthly basis. Majority of the respondents irrespective of their locations were found to buy wheat on a monthly basis. With respect to red gram, weekly purchase was more common in semi-urban areas while monthly purchase was more common in urban and rural respondents. Almost all the respondents irrespective of their locations preferred to buy milk on a daily basis and milk products on a monthly basis. Urban and semi-urban respondents preferred to buy fruits and nuts and vegetables on a weekly basis, whereas rural respondents purchased fruits on a monthly basis and vegetables on a weekly basis.

The functional analysis carried out to study the factors influencing food expenditure revealed that there would be an increase in the annual family expenditure on food with every increase in the family size to the extent of Rs.11143 in the case of urban consumers and Rs.7292 in the case of rural consumers. Similarly, every rupee rise in the annual income would increase the annual expenditure on food by about Rs.0.08 in the case of urban consumers and by about Rs.0.05 in the case of semi-urban and rural consumers.

The majority of the consumers in urban areas reported that rice, groundnut and red gram were not liked by most of the family members. Wheat, ragi, bengal gram and pea were found to pose difficulty in cooking.

In the case of vegetables, milk products, processed and bakery items, spices, beverages meat and egg, majority of the respondents found them expensive. In semi-urban areas, majority did not buy enough quantity of milk products, beverages and meat in view of their low income. In the case of rural areas, majority of the respondents opined that fruits and nuts, vegetables, spices, meat and beverages were expensive.

POLICY IMPLICATIONS

The implications based on the findings of the current study are as follows.

- The quantities of cereals and pulses consumed declined over the two periods. But, the monthly per capita expenditure on these two food items showed an increase of more than 60 per cent. Thus, the price rise appears to be the root cause for the fall in the quantities of cereals and pulses consumed and the price rise was higher in urban areas than in rural areas. Cereals and pulses being an essential component of food, the price rise needs to be kept under control. Due importance should be accorded to cereal and pulses from the view point of food and nutritional security until the level of per capita income is large enough to permit the purchase of adequate quantities of horticulture and livestock products.
- The per capita consumption of non-cereal based food and processed foods is increasing implying that there is a great demand for these products in the urban and semi-urban areas. The share of these products in the total expenditure is increasing over the years. But high prices are acting as constraint in the consumption of value added products. The consumption pattern over the years and over locations has under gone a visible change as was evidenced in this study. The consumption and the share of different food items has changed appreciably. Increase in income, education and easy availability of ready-to-eat foods may bring about enormous changes in the food consumption pattern in the near future. Therefore production, processing and distribution of processed foods should have priority in the policies of the state.
- The production and supply of horticultural and livestock products should have more priority in all production programmes.

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APPENDIX I

Range of income for classification of consumers (NSSO data)

Income groups	Rural		Urban	
	1993-94	2004-05	1993-94	2004-05
LIG-Low income group	< Rs.190	<Rs.365	<Rs.265	<Rs.580
MIG-Middle income group	Rs.191 to Rs.300	Rs.366 to Rs.580	Rs.265 to Rs.490	Rs.581 to Rs 1100
HIG-High income group	Rs.301 to Rs.506 & above	Rs.581 to Rs.1155 & above	Rs.490 to 1055 & above	Rs.1101 to Rs.2540 & above

APPENDIX II

Range of income for classification of sample respondents into different Income groups

(Rs./month)

Category	Urban	Semi-urban	Rural
High (>mean +SD)	32,053.48	13,703.18	17,422.98
Medium (mean-SD to mean +SD)	11,498.54- 32,053.48	7,419.78- 13,703.18	7,326.68- 17,422.98
Low (<mean-SD)	11,498.54	7,419.78	7,326.68

APPENDIX III

Constraints in food consumption pattern in urban areas

(n=45)

Food items	Non-availability	Non-awareness	Expensive	Not liked	Poor quality	Cooking problem	Low nutritive value	Uneasy for digestion	Not suitable for health
Rice	0 (0.0)	0 (0.0)	6 (13.3)	14 (31.1)	5 (11.1)	0 (0.0)	9 (20.0)	0 (0.0)	8 (17.8)
Wheat	0 (0.0)	0 (0.0)	6 (13.3)	10 (22.2)	4 (8.89)	16 (35.6)	6 (13.3)	8 (17.8)	16 (35.6)
Ragi	0 (0.0)	0 (0.0)	0 (0.0)	2 (4.4)	2 (4.44)	12 (26.7)	0 (0.0)	4 (8.9)	6 (13.3)
Bengalgram	0 (0.0)	0 (0.0)	8 (17.8)	5 (11.1)	12 (26.7)	19 (42.2)	12 (26.7)	9 (20.0)	3 (6.7)
Red gram	0 (0.0)	0 (0.0)	17 (37.8)	23 (51.1)	17 (37.8)	0 (0.0)	8 (17.8)	6 (13.3)	10 (22.2)
Pea	0 (0.0)	0 (0.0)	12 (26.7)	26 (57.8)	12 (26.7)	37 (82.2)	6 (13.3)	1 (2.2)	12 (26.7)
Cowpea	0 (0.0)	0 (0.0)	0 (0.0)	12 (26.7)	19 (42.2)	0 (0.0)	2 (4.4)	0 (0.0)	2 (4.4)
Groundnut	0 (0.0)	0 (0.0)	10 (22.2)	12 (26.7)	3 (6.67)	0 (0.0)	4 (8.9)	0 (0.0)	9 (20.0)
Fruits & nuts	5 (11.11)	0 (0.0)	25 (55.6)	6 (13.3)	2 (4.44)	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.2)
Vegetables	10 (22.22)	0 (0.0)	30 (66.7)	5 (11.1)	5 (11.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Edible oil	0 (0.0)	0 (0.0)	23 (51.1)	16 (35.6)	10 (22.2)	0 (0.0)	17 (37.8)	6 (13.3)	34 (75.6)
Milk	0 (0.0)	0 (0.0)	38 (84.40)	2 (4.4)	20 (44.4)	0 (0.0)	7 (15.6)	2 (4.4)	0 (0.0)
Milk.Pro	0 (0.0)	0 (0.0)	40 (88.9)	40 (88.9)	10 (22.2)	0 (0.0)	10 (22.2)	12 (26.7)	6 (13.3)
Processed P	0 (0.0)	0 (0.0)	41 (91.1)	40 (88.9)	2 (4.44)	0 (0.0)	0 (0.0)	32 (71.1)	35 (77.8)
Sugar	0 (0.0)	0 (0.0)	18 (40.0)	25 (55.6)	6 (13.3)	0 (0.0)	2 (4.4)	23 (51.1)	40 (88.9)
Spices	0 (0.0)	0 (0.0)	39 (86.7)	32 (71.1)	3 (6.67)	0 (0.0)	2 (4.4)	0 (0.0)	14 (31.1)
Beverages	0 (0.0)	0 (0.0)	40 (88.9)	20 (44.4)	12 (26.7)	0 (0.0)	0 (0.0)	0 (0.0)	7 (15.6)
Meat	0 (0.0)	0 (0.0)	38 (84.4)	20 (44.4)	3 (6.67)	23 (51.1)	5 (11.1)	5 (11.1)	10 (22.2)
Egg	0 (0.0)	0 (0.0)	30 (66.7)	18 (40.0)	0 (0)	4 (8.9)	7 (15.6)	19 (42.2)	18 (40.0)

Figures in parenthesis indicates percentage

APPENDIX IV

Constraints in food consumption pattern in semi-urban areas

(n=45)

Food items	Non-availability	Non-awareness	Expensive	Not liked	Poor quality	Cooking problem	Low nutritive value	Uneasy for digestion	Not suitable for health
Rice	5 (11.1)	0 (0.0)	0 (0.0)	5.0 (11.1)	4.0 (8.9)	0.0 (0.0)	10.0 (22.2)	0.0 (0.0)	5.0 (11.1)
Wheat	4 (8.9)	0 (0.0)	0 (0.0)	4 (8.9)	0.0 (0.0)	10.0 (22.2)	5.0 (11.1)	0.0 (0.0)	20.0 (44.4)
Ragi	0 (0.0)	0 (0.0)	0 (0.0)	6.0 (13.3)	0.0 (0.0)	0.0 (0.0)	3.0 (6.7)	5.0 (11.1)	0.0 (0.0)
Bengalgram	0 (0.0)	0 (0.0)	0 (0.0)	4.0 (8.9)	0.0 (0.0)	5.0 (11.1)	3.0 (6.7)	2.0 (4.4)	10.0 (22.2)
Red gram	0 (0.0)	0 (0.0)	5 (11.1)	10.0 (22.2)	0.0 (0.0)	5.0 (11.1)	10.0 (22.2)	11.0 (24.4)	10.0 (22.2)
Pea	0 (0.0)	0 (0.0)	20.0 (44.4)	10.0 (22.2)	5.0 (11.1)	4.0 (8.9)	15.0 (33.3)	10.0 (22.2)	15.0 (33.3)
Cowpea	0 (0.0)	0 (0.0)	0 (0.0)	9.0 (20.0)	2.0 (4.4)	0.0 (0.0)	30.0 (66.7)	2.0 (4.4)	5.0 (11.1)
Groundnut	0 (0.0)	0 (0.0)	2 (4.4)	1.0 (2.2)	15.0 (33.3)	0.0 (0.0)	5.0 (11.1)	3.0 (6.7)	5.0 (11.1)
Fruits & nuts	0 (0.0)	0 (0.0)	40 (88.9)	5.0 (11.1)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	5.0 (11.1)	5.0 (11.1)
Vegetables	0 (0.0)	0 (0.0)	27 (60.0)	3.0 (6.7)	0.0 (0.0)	0.0 (0.0)	11.0 (24.4)	2.0 (4.4)	3.0 (6.7)
Edible oil	0 (0.0)	0 (0.0)	13 (28.9)	10.0 (22.2)	0.0 (0.0)	0.0 (0.0)	41.0 (91.1)	0.0 (0.0)	15.0 (33.3)
Milk	0 (0.0)	0 (0.0)	26 (57.8)	17.0 (37.8)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	1.0 (2.2)
Milk.Pro	0 (0.0)	0 (0.0)	39.0 (86.7)	14.0 (31.1)	0.0 (0.0)	0.0 (0.0)	35 (77.8)	0.0 (0.0)	21.0 (46.7)
Processed P	0 (0.0)	13 (28.9)	30 (66.7)	10.0 (22.2)	0.0 (0.0)	0.0 (0.0)	0 (0.0)	5.0 (11.1)	21.0 (46.7)
Sugar	0 (0.0)	0 (0.0)	10 (22.2)	20.0 (44.4)	8.0 (17.8)	0.0 (0.0)	41.0 (91.1)	0.0 (0.0)	30.0 (66.7)
Spices	0 (0.0)	0 (0.0)	23 (51.1)	15.0 (33.3)	0.0 (0.0)	0.0 (0.0)	21.0 (46.7)	4.0 (8.9)	10.0 (22.2)
Beverages	0 (0.0)	0 (0.0)	35 (77.8)	21.0 (46.7)	29.0 (64.4)	0.0 (0.0)	33.0 (73.3)	3.0 (6.7)	5.0 (11.1)
Meat	0 (0.0)	0 (0.0)	40 (88.9)	4.0 (8.9)	0.0 (0.0)	37.0 (82.2)	5.0 (11.1)	5.0 (11.1)	5.0 (11.1)
Egg	0 (0.0)	0 (0.0)	36 (80.0)	5.0 (11.1)	0.0 (0.0)	3.0 (6.7)	5.0 (11.1)	10.0 (22.2)	9.0 (20.0)

Figures in parenthesis indicates percentage

APPENDIX V

Constraints in food consumption pattern in rural areas

(n=45)

Food items	Non-availability	Non-awareness	Expensive	Not liked	Poor quality	Cooking problem	Low nutritive value	Uneasy for digestion	Not suitable for health
Rice	0 (0.0)	0 (0.0)	0 (0.0)	19 (42.22)	4 (8.9)	0 (0.0)	35 (77.8)	0 (0.0)	15 (33.3)
Wheat	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	10 (22.2)	5 (11.1)	4 (8.9)
Ragi	0 (0.0)	0 (0.0)	0 (0.0)	6 (13.3)	0 (0.0)	0 (0.0)	6 (13.3)	6 (13.3)	5 (11.1)
Bengalgram	0 (0.0)	0 (0.0)	0 (0.0)	5 (11.1)	0 (0.0)	10 (22.2)	5 (11.1)	2 (4.4)	0 (0.0)
Red gram	0 (0.0)	0 (0.0)	5 (11.1)	10 (22.2)	0 (0.0)	10 (22.2)	15 (33.3)	11 (24.4)	3 (6.7)
Pea	0 (0.0)	0 (0.0)	20 (44.4)	20 (44.4)	5 (11.1)	29 (64.4)	20 (44.4)	20 (44.4)	20 (44.4)
Cowpea	0 (0.0)	0 (0.0)	0 (0.0)	9 (20.0)	2 (4.4)	0 (0.0)	30 (66.7)	2 (4.4)	0 (0.0)
Groundnut	0 (0.0)	0 (0.0)	2 (4.4)	1 (2.2)	0 (0.0)	0 (0.0)	3 (6.7)	3 (6.7)	4 (8.9)
Fruits & nuts	15 (33.3)	0 (0.0)	25 (84.4)	5 (11.1)	0 (0.0)	0 (0.0)	5 (11.1)	5 (11.1)	5 (11.1)
Vegetables	0 (0.0)	0 (0.0)	25 (55.0)	3 (6.7)	0 (0.0)	0 (0.0)	3 (6.7)	2 (4.4)	3 (6.7)
Edible oil	3 (6.7)	0 (0.0)	12 (26.7)	10 (22.2)	8 (17.8)	0 (0.0)	41 (91.1)	0 (0.0)	23 (51.1)
Milk	10 (22.2)	0 (0.0)	16 (35.6)	17 (37.8)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Milk.Pro	15 (33.3)	0 (0.0)	41 (91.1)	14 (31.1)	0 (0.0)	0 (0.0)	39 (86.7)	0 (0.0)	21 (46.7)
Processed P	10 (22.2)	20 (44.4)	10 (22.2)	10 (22.2)	0 (0.0)	0 (0.0)	5 (11.1)	0 (0.0)	4 (8.9)
Sugar	0 (0.0)	0 (0.0)	5 (11.1)	20 (44.4)	0 (0.0)	0 (0.0)	39 (86.7)	0 (0.0)	35 (77.8)
Salt	0 (0.0)	0 (0.0)	45 (100.0)	25 (55.6)	0 (0.0)	0 (0.0)	40 (88.9)	0 (0.0)	31 (68.9)
Spices	0 (0.0)	0 (0.0)	40 (88.9)	15 (33.3)	0 (0.0)	0 (0.0)	35 (77.8)	4 (8.9)	7 (15.6)
Beverages	0 (0.0)	0 (0.0)	39 (86.7)	21 (46.7)	0 (0.0)	0 (0.0)	33 (73.3)	6 (13.3)	13 (28.9)
Meat	4 (8.9)	0 (0.0)	37 (82.2)	9 (20.0)	0 (0.0)	20 (44.4)	22 (48.9)	27 (60.0)	8 (17.8)
Egg	10 (22.2)	0 (0.0)	35 (77.8)	5 (11.1)	0 (0.0)	0 (0.0)	5 (11.1)	30 (66.7)	11 (24.4)

Figures in parenthesis indicates percentage

AN ECONOMIC ANALYSIS OF FOOD CONSUMPTION PATTERN IN KARNATAKA WITH SPECIAL REFERENCE TO MYSORE DISTRICT

PAVITHRA B. S.

2008

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ABSTRACT

The objective of the present study was to analyze the food consumption pattern in Karnataka with special reference to Mysore district. The household consumer expenditure data of the 50th round and 61st round of the National Sample Survey Organization (NSSO) was used for the study. The primary data was collected from sample respondents located in urban area, semi-urban area and rural area of Mysore district. A total sample of 135 respondents (45 urban, 45 semi-urban and 45 rural households) formed the sample for the study. Percentage were calculated to analyze the changes in the pattern of food consumption. The monthly per capita cereal consumption has declined from 13.15 kgs to 10.73 kgs in rural areas, while the corresponding decrease in the urban sector was from 10.87 kgs to 9.70 kgs. Thus the consumption of cereals has declined in Karnataka over the periods. The monthly per capita consumption of pulses was almost stable over the two periods in rural and urban areas of Karnataka. The monthly per capita expenditure (MPCE) on food was Rs.167 during 1993-94 in rural areas and it increased to Rs.283 during 2004-05. In urban area, the MPCE increased from Rs.236 to Rs.447.

The expenditure elasticities for all food groups were less than unity in urban areas with the highest value being 0.96 for vegetables. The lowest expenditure elasticity was observed for cereals (0.70 in rural and 0.72 in urban areas).

The monthly per capita food expenditure was Rs.730 for urban respondents Rs.601 for semi-urban respondents and Rs.483 for rural respondents of Mysore district. The total MPCE of the respondents was Rs.2000 for urban, Rs.1231 for semi-urban and Rs.1032 for rural respondents. The functional analysis carried out to study the factors influencing food expenditure revealed that there would be an increase in the annual family expenditure on food with every increase in the family size to the extent of Rs.11143 in the case of urban consumers and Rs.7292 in the case of rural consumers.