

**A STUDY OF HOUSEHOLD CONSUMPTION PATTERN OF
SELECTED DAIRY PRODUCTS IN
BANGALORE CITY**



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**DEPARTMENT OF AGRICULTURAL ECONOMICS
UNIVERSITY OF AGRICULTURAL SCIENCES
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A STUDY OF HOUSEHOLD CONSUMPTION PATTERN OF SELECTED DAIRY PRODUCTS IN BANGALORE CITY

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BANGALORE**

CERTIFICATE

This is to certify that the thesis entitled "A STUDY OF HOUSEHOLD CONSUMPTION PATTERN OF SELECTED DAIRY PRODUCTS IN BANGALORE CITY" submitted by Miss Amitha K., for the award of degree of MASTER OF SCIENCE in AGRICULTURAL ECONOMICS to the University of Agricultural Sciences, Bangalore is a record of research work done by her during the period of her study in this University under my guidance and supervision and the thesis has not previously formed the basis for the award of any degree, diploma, associateship, fellowship or other similar titles.

Bangalore
23rd Feb., 1998


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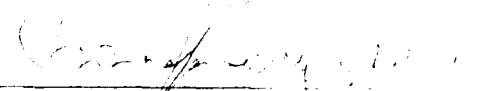
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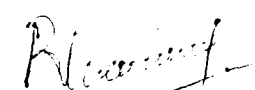
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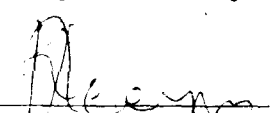
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INTRODUCTION

CHAPTER I

INTRODUCTION

Ancient literature is full of evidences of beneficial and therapeutic properties of milk and milk products. Antediluvian sages regarded milk as health tonic and strength giving nector of life and is compared to 'Amrita'. Modern science with the help of sophisticated analytical equipment's and tools, seems to be rediscovering the age old secrets of milk and milk products as described in the ancient sacred texts such as Upanishads, Puranas and Vedas.

India has a large population of cattle and buffalo comprising of 15 and 53 per cent of the world's livestock population respectively (Malothra, 1997). Though the milch population is quite substantial, the average yield per animal is around 1250 kg per lactation. The dairy sector is growing at the rate of 5.6 per cent per annum with an average milk production of 203.5 million litres per day (66.03 million tonnes per annum). The annual estimated value of milk group is Rs. 500051 crores. Although India ranks second in milk production the per capita availability is just 211 gm per day (78 kg per year) which is much below the World Health Organisation (WHO) recommendations of 350 gm per person per day (Dairy India, 1997).

Dairy industry in India is heading towards 2000 AD with a accelerated momentum. The much talked of achievements of 'White Revolution' would not be possible without the dairy co-operatives, implementation of operation flood I, II and III programs and timely policies

of the government.

2

Statistics pertaining to consumption during the year 1995, showed that the country consumed 30303000 tonnes of liquid milk valued at 3636 crores, butter milk separated from milk accounted for 22545000 tonnes worth Rs. 20110 crores. The country also consumed during this period ghee which totaled to 906900 tonnes valued at Rs. 9060 crores, butter (30000 tonnes) worth 3000 crores and 210000 tonnes of channa, paneer and chesse worth RS. 1050 crores (Dairy news, 1997).

The consumption of liquid milk accounts to approximately 46 to 50 per cent and the remaining is utilised to produce the milk products. The major milk products are curds (seven per cent), clarified butter (28 per cent), butter (six per cent), khoa (seven per cent), milk butter (3.5 to four per cent) and ice cream (0.1 per cent) (Prakash ,1996). There is a tremendous potential to convert milk into its products which have a longer shelf life.

Exports of milk products from India are given in Table 1.1 for the year 1994-95. As observed from the table, almost all the exports are directed towards neighbouring countries and to middle-east. Of the products exported milk powder stands first with Rs. 318.5 million. The total exports was 8834.7 tonnes which earned Rs. 38448 million foreign exchange. Though India's production is quite substantial exports are very meagre. Nevertheless, export opportunity are immense, India has been described by the United Nations Food and Agricultural Organization as the `slumbering giant of the international

Table 1.1 : Export of milk products from India (1994-95)

Product	Exported to	Quantity (tonnes)	Value (m.Rs)
Milk cream and milk powder	Netherland Bangladesh Phillippines	8201.5	318.5
Butter and ghee	UAE, Kuwait Bahrain & Oman	631.6	65.9
Cheese and curds	UAE	1.6	0.08
Total		8834.7	384.48

dairy trade'. However, there is a need to achieve excellence in production of quality dairy products so that 'Made in India' products are accepted all over the globe.

Karnataka's production figures for the year 1995-96 was about 14.2 lakh litres per day (LLPD). Though the state exports milk to the neighboring state of Kerala it does face shortage at times. A study conducted in selected localities of Bangalore city showed that the demand for milk is 7.27 lakh litres per day. The co-operatives are able to supply only 5.5 lakh litres per day. Local production and private dairies supply around 14000 liters and 1.74 LLPD respectively (Sharma, 1994). Bangalore is one of the fast growing cities and therefore there is an increasing demand for milk and its products.

Among the milk products ghee, butter (both plain and salted, salted is generally known as table butter), ice cream, paneer, khoa and cheese are widely used. Studies have shown that as the income increases expenditure on milk and milk products tends to increase. The production sector has already received sufficient impetus and desired results obtained, the focus now should be on the marketing and consumption sector.

Today, with the consumer playing a vital role, it is on him the whole market depends and any break through in the market for any product requires an understanding of the consumer needs and motivation, dairy products are no exception to this. The buying operations of the consumer varies with buying situation and the consumer's responses to varied market stimuli. Buying is not a single act but a multicomponent act consisting of decisions on the product class, product form, quality of the product, timing, method of

payment and a host of other such factors. The consumer goes through a process of need arousal, information search, evaluation behaviour, purchase decisions and post purchase feelings.

There is a wide variation in consumer taste and preferences for any product or service. Any firm should first understand what these tastes and preferences are, and probe into the consumer's social, economic, cultural and demographic background to get an insight of the factors that influence them to go for a particular product. It is also essential to segment the consumers into smaller clusters to effectively target market. This on one hand will satisfy the consumer need for a particular type of product and on the other the firm will be benefited. For a company to operate successfully in the long run one should have an idea of future demand and roughly estimate it.

Dairy products are an important category of food and snack items, ranging from milk to desserts and chocolates. Keeping consumers sovereign in view, given the multiplicity of branded and unbranded products, it was proposed to study the preferences for dairy products with the following objectives.

1. To study the consumption pattern of selected dairy products namely butter, ghee and cheese.
2. To examine the socio-economic factors that influence the consumption of selected dairy products.

3. To analyse the consumers preference structure for quality of butter, ghee and cheese.
4. To segment the market for the selected dairy products.
5. To estimate the demand for the chosen dairy products in Bangalore city.

For the present study the following hypothesis were made:

- a) The proportion of expenditure on the selected dairy products increases as income increases.
- b) Income and price are the factors which influence the consumption of selected Dairy products.
- c) Adult family members, number of children and educational level of housewife have a positive influence on the consumption of selected dairy products.
- d) Consumers attach highest preference to price and salt content of table butter.
- e) Texture and colour are the most preferred attributes of ghee.
- f) Variety and price are the most sought for attributes in cheese.
- g) The largest segment in case of table butter is the salt conscious consumers.
- h) Consumers giving highest preference to texture form the largest segment in ghee.
- i) In cheese, the largest segment comprises of consumers who are variety conscious.
- j) Consumers substitute high calorie product (like butter) for low calorie product like cheese spread.

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

In this chapter an attempt is made to critically review the work done by other researcher on similar lines of this investigation. Past studies regarding consumer acceptance, quality preferences, market segmentation, demand estimation have been reviewed and presented under the following sub heads.

2.1 Consumption pattern of food products

2.2 Factors influencing consumption

2.3 Consumer preferences for quality attributes

2.4 Market segmentation

2.5 Demand estimation

2.1 Consumption pattern of food products

Dhuna (1984) conducted a study to determine the prevailing pattern of consumption of soft drinks. A sample of 150 respondents were surveyed regarding their consumption habits. Analysis revealed that 54 per cent of consumption was summer and 46 per cent of consumption was during other seasons put together. It was found that about 26 per cent of the respondents were regular consumers and the rest consumed soft drinks occasionally.

Babaji (1985) studied the fish consumption behaviour 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. 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.

Sharma and Ram (1991) conducted a study on consumption pattern of households belonging to weaker sections of Sahranpur 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.

Jain and Patel (1992) studied consumption pattern of food and non-food items in Haryana state using NSS data. The average per capita total expenditure of urban households were higher compared 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 sections. Among the dairy products, the major allocation was towards liquid milk followed by ghee, butter and other milk products.

Goswami (1994) examined the consumption of dairy products among different income groups in 200 households of Shillong town (Meghalaya). Families with Rs. 4000 income per month incurred highest (Rs. 700.08) per unit expenditure on milk and milk products when compared to other income lower groups. Milk and milk products were expenditure elastic for all income groups. 'Butter and Ghee' were adjudged as luxury items by all respondents.

Gupta (1996) studied the consumption pattern of dairy products in Chandigarh. Results showed that 45 per cent of the milk purchased was used for making tea, 25 per cent for preparation of curds and butter and 30 per cent was utilised as such. As regards the consumption of different milk products, curds ranked the first with consumption being more than one kg per capita per month. Next stood butter and paneer which was 300 gms each followed by flavoured milk

and milk sweets which averaged around 200 gms each and consumption of ghee was negligible.

Sunil (1995) studied the cheese consumption in Hyderabad and Secundrabad cities of Andhra Pradesh. Out of the sample of 500 respondents, 289 were aware of the product while the rest were neither aware nor had tasted cheese. Of the 289 respondents, 167 liked cheese and 122 did not liked cheese which accounted for 33.4 per cent and 22.4 per cent to the total sample size respectively. Among the respondents who like cheese 60.5 per cent belonged to the age group of 16 to 30 years.

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 out of which 75 per cent was accounted for by milk and 25 per cent by milk products.

2.2 Factors influencing consumption

Gluckman (1986) studied the factors influencing the consumption and the preference for wine. The explicit factors identified were the familiarity with the 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 were colour and appearance. Most consumers seemed to prefer white wine to red. Packaging, appearance, colour, ornateness, use of foreign language and graphics were taken as important clues for quality and price. Consumers preferred French or German made wines to Spanish or Yugoslavian wines.

Kumar *et al* (1987) examined the factors influencing the buying decision making of 200 respondents for various food products. Country of origin and brand

of the product was cross tabulated against age, gender and income. Results revealed that the two 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 to the brands.

Inamke *et al* (1995) studied the milk consumption behaviour by urban and rural consumers in western Maharashtra. The factors considered were family size, occupational status and family income. Family income had the highest influence on milk consumption whether the consumers were urbanities or rural consumers. Occupational status and family size to a certain extent, were also responsible for deciding the milk consumption of households.

Singh *et al* (1995) considered factors namely quality, availability, convenient pack size, flavour, colour, freshness and mode of payment to study the preference for a particular source of milk namely, rural milk vendors, privately owned city dairies and dairy factories. 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 studies 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 whereas those who had a preference for quickly prepared food tended to have a low consumption of vegetables.

Hugar and Vijaykumar (1996) carried out a study in Dharwar city to identify various factors that influence the consumption of vegetables. A sample of 90 consumers were 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, higher the family income more

the quantity purchased. 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.

Shamra (1997) explained the factors determining consumers acceptance and preference for food in general. Many factors combine and interact to make buying a complex process. Price was identified as an important factor, however it had some limitations on the consumers choice. Factors like sensory attributes regional preferences, age, sex, interest, motivation, discrimination and income also undoubtedly influenced food consumption.

2.3 Consumer preference for quality attributes

Haripuram *et al* (1986) examined the consumer preference for biscuits in a sample of 470. The study revealed that taste was given the highest preference followed by freshness, crisp bite, brand name, variety, price and availability. It was also found that consumers preferred packed biscuits to loose ones and small pack size to big packs. Though the decision makers and buyers of biscuits were elders, children considerably influenced these decision making.

Steenkamp (1986) studied consumer preference for ham using conjoint analysis in Netherlands. A nation-wide sample of 250 respondents was drawn. Each respondent was administered with a set of 16 cards with different levels of attributes. The attributes considered were brand name, packaging, store and price. The relative importance of these attributes were 29.3, 43.8, 9.9 and 16.9 per cent respectively. It was found that packaging was considered to be the most important attribute influencing consumer decision.

Patel and Gupta (1989) studied the consumer acceptance for a butter-flavoured, low-fat soy spread. This survey involved 191 randomly selected respondents. The results indicated that the spread was widely accepted as a bread spread. The average hedonic response of consumers representing different

economic groups of society were 'Like very much' and 'Like moderately'. The answers of a limited number of families confirmed the potential of the spread as a low-cost, low-calorie substitute for butter. They rated the product as 'Slightly less suitable' than conventional butter. Most of the respondents expressed willingness to buy it at half the cost of butter.

Prajapati *et al* (1992) conducted a consumer survey for butter-flavoured and cheese-flavoured low fat spreads. These newly developed formulations were evaluated by 200 (butter-flavoured spread) and 111 (Cheese-flavoured spread) respondents using a 9-point hedonic scale. A sizable number of consumers (61 per cent in each case) liked the products very much as the products were low calorie and fat. Most respondents (89 per cent and 86 per cent in case of butter and cheese spreads respectively) were desirous to buy these products in place of butter, when made available at low cost.

Richardson and Shephard (1994) examined the factors influencing in 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 used. It was also found that the food package labels were an influential source of meat related information.

Gerhardy and Ness (1995) employed conjoint analysis to in United Kingdom. A sample of 160 respondents were interviewed in five locations. The average relative importance given for production method was 30.4 , price and origin were 25.6 and 25.02 per cent respectively. Freshness indicators (egg laid date, packed date etc.) received an importance of 18.9 per cent.

Huang and Fuj (1995) used conjoint analysis to assess Taiwanese consumer's preferences for Chinese Sausages. The survey was aimed at identifying consumers decision making and choice behaviour. Taste and brand had highest influence on consumer's overall judgment of the product.

Sharma (1997) applied conjoint analysis to examine the quality attributes that affect consumers preference for cut flower. It was found that colour was the most important quality attribute for rose followed by variety, price and floral arrangement. She also observed that as consumers income increased their expenditure on cut flowers also increased.

2.4 Market segmentation

Rao (1982) segmented Tenali town (Andhra Pradesh) milk market based on income and preference for a particular source of milk. Eighty eight percent of respondents of the lower income group preferred milk from vendors mainly because of it was available in small quantities and was also lower priced. In the higher income groups, 74 per cent of respondents indicated their preference for dairy milk as it was of a better quality compared to that sold by vendors.

Dhuna (1984) segmented market for soft drinks based on sex and income. Study showed that 98 per cent female respondents were aware of campa-cola, while 100 per cent of male respondents were aware of the brand. The male respondents preferred carbonated drinks, where as females preferred fruity flavoured drinks. Respondents with high income (>Rs 20000 per annum) were regular consumers of soft drinks compared to lower income group (<Rs 10000 per annum) respondents.

Steenkamp (1986) segmented the market based on the respondents quality preference for ham. The 160 respondents interviewed were categorised into four clusters. Eighteen per cent of respondents belonged to first segment who expressed a relative importance of 41 per cent each for brand name and packing. The second and fourth segments attached importance of 57, 66.9 per cent for packing while the third segment placed 60.6 per cent to brand name. All the four segments attached less importance to price and least to store of purchase.

Behe *et al* (1991) studied 401 Pennsylvania residents as regards the type of floral product purchased. Demographic characteristics and floral knowledge of the consumers were used to segment the market. Two segments namely fresh flower purchasers and flowering plant purchases were recognized. Results showed that purchasers of fresh flowers were younger and more likely employed outside the house than those who purchased flowering plants. Both the segments differ in their level of floral knowledge, demographic characteristics although minor differences were found between the two segments.

Baker and Croshie (1993) segmented market into homogeneous clusters using the technique of cluster analysis. The Consumer's valuation of food product attributes with reference to food safety in case of apple was examined. The market was segmented into three homogenous groups. Although distinctive differences in the socio-economic characteristics were noticed among the groups, common feature observed was that every segment was willing to pay extra amount to ensure that the apples meet safety standards.

Gerhardy and Ness (1995) employed cluster analysis to segment the egg market. Five clusters were identified consisting of 37, 12, 31, 45 and 35 respondents each. The first, third and fifth cluster attached highest importance of 32.9 per cent, 48.5 per cent and 29.1 per cent to production system. Second cluster and fourth cluster attached most importance of 50.5 per cent and 37.9 per cent to price respectively.

Kotler (1996) opined that markets could be segmented based on social, economical, demographic, ethical or psychographic variables. Nevertheless consumers could also be meaningfully segmented on the basis of their preference for the product attributes called preference segments. Accordingly, an hypothetical example was illustrated (sweetness and creaminess in the case of ice-cream). Wherein three distinct patterns were explained, (a) Homogenous preferences, where the market shows no natural segments, (b) Diffused

preferences, wherein consumers vary greatly in their preferences and (c) Clustered preferences, with distinct preference clusters.

2.5 Demand estimation

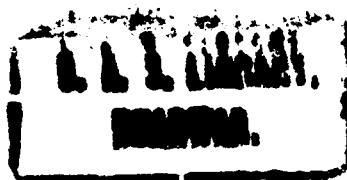
✓ Sarma and Yeung (1984) analysed the trends in production, trade and consumption of dairy products. Four regions and ten sub-regions in the third world countries were studied between 1960 and 1970. The findings showed that per capita income was rapidly increasing over the years. If the same trend continued, there would be gaps between demand for and supply of dairy products. Even if production growth increased it would not be able to meet the growing demand. Thus more intensified efforts are called for to accelerate production.

✓ Alderman (1987) attempted to estimate the demand for milk supplied by the co-operative sector taking into consideration the socio-economic status of the producers and consumers. It was estimated that the average expenditure on milk by the sample consumers was nine per cent and the price elasticity was 0.0113. It was also observed that the demand for milk products, especially ghee, yogurt and butter were rapidly increasingly compared to that of milk.

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

✓ Sharma and Vashisi (1991) used secondary data from various sources to project the demand and supply of milk in Himachal Pradesh. The income elasticity of milk was derived using the double exponential function. Income elasticity was used as proxy for expenditure elasticity. The results showed that demand for milk would depend upon growth of human population, urbanisation and growth in real

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income of people. The income elasticity of demand for milk was 0.89. The projected demand for 2000 A.D. was 122.28 litres per capita per year and the expected increase in total demand was 784.17 tonnes (in '000s).

Patel and Vyas (1993) attempted to project the demand for cereals and pulses using NSS data. Factors considered for the same were growth in population, growth in per capita income and urbanisation. The income elasticity and per capita expenditure were estimated. The projections were made using hypothetical values for growth in population and per capita income based on previous year's growth rates.

Jabbar and Comenico (1993) survey 982 households in Southern Nigeria regarding various aspects of consumption. Log-linear form of Engle's function was used to dairy expenditure. It was observed that dairy products were income elastic and it was higher for rural areas as compared to urban localities.

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

Gandhi and Mani (1995) estimated the expenditure elasticities for food in general and for meat, egg and milk in particular using NSS data. The log-quadratic function was used to estimate the same, since this functional form is flexible and amenable to statistical tests. The results revealed that the elasticities in general were lower for urban centers as compared to rural areas. The highest was that of eggs (1.26) followed by milk (1.06) which meant that there was a buoyant demand for milk and eggs in urban areas with increase in income.

METHODOLOGY

CHAPTER III

METHODOLOGY

The present study was undertaken to identify the important quality attributes, socio-economic factors that influence consumers preference for the selected dairy products, and to predict demand for the selected dairy products. This chapter covers the following aspects.

3.1 Selection of Study area

3.2 Sampling design and data collection

3.3 Analytical tools.

3.1 Selection of study area :

Karnataka is one of the major milk producing states with a production of 14.2 lakh liters per day (Dairy India, 1997). Though milk is produced in every village the consumption pockets are mainly the towns and cities. The Bangalore Milk Union procures about 3.5 lakh litres per day. However, the demand is 7.27 lakh litres per day (KMF brochure, 1997).

Bangalore is the fastest growing metropolitan city in Asia. The population is highly heterogeneous with diverse cultural, regional, religious and economic background. The city covers an area of 151 square kilometers with a population of 28.23 lakhs (1991 census). Because of this excellent culmination of various linguistic, religious and ethical groups, Bangalore is traditionally regarded by Multinational National Corporations (MNC's) and business houses as a best marketing centre for launching their new products. Since the city provides an ideal

setting to study the preferences, hence the city was chosen for the present investigation.

3.2 Sampling design and data collection

3.2.1 Selection of dairy products

Discussions were held with specialists in the field of dairy science to gather information on the products to be selected for the study, most important quality attributes that influence their consumption and other related issues. Based on the discussions, four dairy products namely table butter, plain butter, ghee and cheese were chosen for the study. Ghee and plain butter being generic products are consumed irrespective of the consumers socio-economic background. Table butter is consumed by only certain sections of consumers mainly for breakfast. Cheese was chosen mainly to see if the consumers were switching over to it from table butter.

3.2.2 Sample selection

A multistage sampling procedure was adopted to select the respondents. In the first stage Bangalore city was purposively selected for the reasons discussed earlier. In the second stage, 20 localities (Appendix I) were selected. The super rich and very poor people were not surveyed, since the preferences of the rich are diverse and the poor do not have any preferences for their consumption the sample would represent the population of the city. Ten respondents from each locality

were interviewed with a pre structured and pre tested schedule (Appendix II). Data were collected from women only as it is the women of the family who set consumption pattern in the family. The sample was post classified into three categories based on income using frequency distribution.

3.2.3 Data collection

Primary data were collected from 200 women respondents with pre structured and pre tested schedule. Data was collected from June to August, 1997. The cross sectional data were collected to cover the following aspects.

1. General information of respondents regarding their social, economic, cultural and demographic characteristics.
2. Monthly expenditure of the family on food, non-food items in general and dairy products in particular.
3. Information regarding the type of dairy products consumed and their source viz. branded, unbranded and home made.
4. The quantity of butter, ghee and cheese consumed by the family and the buying decision makers of these products.
5. Information on the substitution of table butter and cheese by cheese spread.

A detailed description of the analytical tools employed in the study are given in this section as indicated below

3.3.1 Tabular analysis

Tabular analysis was used to compute averages and percentages for various socio-economic groups of respondents. It was also employed to study the consumption pattern of the selected dairy products. ✓

3.3.2 Regression analysis

In order to examine the influence of socio-economic factors the consumption of dairy products, stepwise regression analysis was employed. The dependent variable included in the model was the total family consumption on selected dairy products. The functional form of the model is given below.

$$\ln Y = \ln a + b_i \sum_{i=1}^6 \ln X_i + e$$

where Y denotes the natural logarithm of dependent variable measured as kgs per family per month.

$\ln a$ = The intercept

b = Regression coefficient to be estimated

e = Stochastic term

X_i = Independent variables as described below

X_1 = Age of the respondent in years.

X_2 = Education of the respondent in years.

X_3 = Family size in number

X_4 = Monthly family income of the respondent's family in rupees

X_5 = Unit price of the product in rupees.

X_6 = Number of children (<15 years) per family in number.

In each iteration of regression analysis, non significant variables were dropped and finally only those variables which were most significant were retained. Thus in the last iteration only the statistically significant variables were included.

3.3.3 Conjoint analysis

Conjoint measurement is a relatively new tool in marketing research. Originally developed for Psychometric research, this technique finds numerous applications in marketing management. Conjoint technique developed mainly from the theoretical work of Debreu (1960), Luce and Tukey (1964) applied to marketing field by Green and Wind (1968) and Rao (1978).

In the present study, conjoint analysis was used to assess the consumer selected preference for dairy products. This technique focused on the evaluation of alternative products which were defined in terms of specific levels of attributes.

The following assumptions were made in Conjoint analysis:

- a. A product could be described according to levels of a set of attributes.
- b. Consumers overall judgment in respect to that product is based on the levels of each attribute.

Conjoint measurement seeks to quantify consumer's overall judgment (e.g. Quality evaluation) on the basis of the underlying attributes. It starts with the consumer's overall judgments about a set of product alternatives (i.e., combination

of attributes levels) and break the overall judgments down into the contribution of each attribute levels called part-worths.

One of the important requirements of conjoint measurement was the identification of appropriate attributes and their feasible levels. Further, the basic form of relationship between product attribute and overall judgment was specified. In the present study, an additive model was employed instead of multiplicative or interactive models, since past research has shown that these models seldom have significantly better fit to data than the additive model. The model has been formulated as :

$$Y = \sum_{i=1}^n \sum_{j=1}^m V_{ij} X_{ij}$$

where Y denotes the consumer's overall evaluation of the product alternative.

V_{ij} was the part-worths associated with level 'j' (1, 2, 3...m) of attributes ($i=1, 2, 3...n$)

X_{ij} represented the presence ($x = 1$) or absence ($x = 0$) of j^{th} level of i^{th} attribute.

Ordinary Least Squares (OLS) regression analysis procedure was used to estimate part-worths. The fit was assessed in terms of the spearman's rank correlation co-efficient between the input and estimated values of dependent variable.

Attributes for the selected dairy products were identified based on discussion held with dairy chemists, technologists, housewives and personal opinion. The

attributes were chosen for each product along with their levels are given in Table

3.1

Each combination of attribute levels represented a specific product alternative. For example in butter, high price, white colour, good spreadability and low salt content was one product alternative. For each product, four attributes with two levels each were chosen which resulted in 16 product alternatives ($2 \times 2 \times 2 \times 2$) for each product. A computer software 'Statistical Package for Social Sciences' (SPSS) was employed to select a subset of 12 product alternatives which represented the most likely ones. Thirty five consumers were administered with 12 placards to be ranked from one to 12, before which they were briefed regarding what each term in the cards meant and how they were expected to rank. For each respondent part-worths as well as relative importance scores were estimated using conjoint analysis.

Advantages

Although conjoint analysis and multidimensional scaling are generally similar, but conjoint analysis is adjudged as better as it takes into account the trade-off phenomenon and provided operative information on the utilities. Data collection procedure is quite simple, as the consumers are required to compare the different alternatives and rank the cards in the order of their preferences. This makes less demand on respondents and results in more reliable data.

Table 3.1 : Attributes of selected dairy products for conjoint analysis

Attributes	Table butter	Ghee	Cheese
Price	High	High	High
	Low	Low	Low
Colour	White	Golden Brown	---
	Creamish Yellow	Yellow	---
Flavour	---	Well cooked	Mild
	---	Slightly raw	Strong
Texture	---	Granular	Uniform
	---	Pasty	Lumpy
Variety	---	---	Spread
		---	Processed
Consistency	Pasty	---	---
	Good Spreadability	---	---
Salt content	High	---	---
	Low	---	---

The validity of the results (the utilities) depends completely on the choice of attributes and their levels. Reliable data can only be gathered if the respondent is asked to rank realistic comparisons.

3.3.4 Cluster Analysis

Cluster analysis is a statistical tool used to group individuals who are similar with respect to their product alternatives choice or their socio-economic characteristics. This analysis makes segmentation meaningful as it is based on benefits of the attributes rather than on *a priori* criterion chosen subjectively. For the present study, hierarchical clustering process was carried out for the selected dairy products.

The output of conjoint analysis i.e. the relative importance scores for the four quality attributes were used for clustering. The basis for segmentation was the Euclidean distance between the attributes. To begin with, each respondent was considered a separate cluster, then two individuals that were most alike in their relative importance for attributes were combined into a new cluster to give a (n-1) cluster solution, these (n-1) clusters were then compared to get the next most similar pair of clusters and then they were combined. This process was continued till all the respondents are combined into one group. It is then at the discretion of the researcher(s) to choose the level of clustering needed to fulfill the objectives of study.

A computer software SPSS was used to carry out cluster analysis. Information collected regarding social-economic and demographic characteristics were used to describe the segments so formed.

3.3.5 Demand estimation

An attempt was made to estimate demand for selected dairy products in Bangalore city for the period between 1997 to 2000 AD. The following functional form was used (Sarma, 1984).

$$C_T = C_{1997} [(1+(r \times \eta))]^{T-1997}$$

where

C = Per Capita consumption of the commodity in the base year (1997)

r = The trend annual growth rate of per capita real income.

η = The income elasticity of demand for the commodity

$t = 2005$

The population growth rate estimated for Bangalore (urban) district by the Bureau of Economics and Statistics was as 4.1 per cent depending on the past decade's growth rates. Three scenarios were considered for annual growth rate of real income 3.5, 4.5 and 5.5 per cent.

RESULTS

CHAPTER IV

RESULTS ✓

The important findings of the study are presented in this chapter under the following headings, keeping in view the objectives of study.

4.1 Socio-economic profile of the respondents

4.2 Purchase behaviour of the consumers of butter, ghee and cheese.

4.3 Consumption pattern of the selected dairy products.

4.4 Factors influencing consumption of the selected dairy products.

4.5 Consumer quality preferences for butter, ghee and Cheese.

4.6 Segmentation of the dairy products consumers

4.7 Demand projection of the selected dairy products

4.8 Shift in consumption from butter to cheese.

4.1 Socio-economic profile of the respondents

Respondents were post classified into three groups, based on their monthly family income using frequency distribution. Respondents with a family income of less than Rs. 7672.63 were considered as low income group, those with more than Rs. 13656.06 were classified as high income group. If the family income was between these two levels were categorised as middle income group. Accordingly,

Table 4.1 : Income wise classification of the socio-economic characteristics of respondents

Socio-economic variable	(in No's)		
	Income levels		
	Low	Middle	High
Average family income (Rs)	5542.9	10028	19234.8
Average education (yrs)	12.2	13.3	15
Average family size (No's)	4	4.3	4.8
Average age of respondent (yrs)	39.4	39.7	43.3
Average No. of children/family	1.9	1.8	2
Family type :			
Joint	57 (28.0)	71 (35.0)	31 (15.5)
Nuclear	7 (3.5 0)	20 (10.0)	14 (7.0)
Food habit :			
Vegetarian	19 (9.5)	26 (13.0)	14 (7.0)
Non-vegetarian	45 (22.5)	65 (32.5)	31 (15.5)
Occupation :			
Working	41 (20.5)	52 (26.0)	17 (8.5)
Housewife	23 (11.5)	39 (19.5)	28 (14.0)
Religion :			
Hindu	48 (24.0)	62 (31.0)	39 (19.5)
Christian	14 (7.0)	24 (12.0)	5 (2.5)
Muslim	2 (1.0)	5 (2.5)	1 (0.5)
Origin :			
Karnataka	51 (25.5)	69 (34.5)	31 (15.5)
Other states	13 (6.5)	32 (16.0)	14 (7.0)

Note : Figures in parentheses indicate percentages to the sample size.

64 (32 per cent), 91 (45 per cent), 45 (26 per cent) respondents were categorised into low, middle and high income groups.

The socio-economic profiles of the respondents are furnished in Table 4.1. It could be seen that the average monthly family income of low, middle and high income groups were Rs. 5552.96, Rs. 10028.02 and Rs. 19234.89, respectively. The average education level of the respondents in the three categories was 12.2, 13.3 and 15 years of schooling.

The average age of respondents of low, middle and high income groups were 39.4, 39.7 and 43.3 years. The average family size of the respondents were four, 4.3 and five in the three income group respectively. There were two children per family in all the three income groups.

The classification of respondents according to their family type revealed that in the low income group, 28 per cent were nuclear families and 3.5 per cent were joint families. In the middle income group 35 and ten per cent of families were nuclear and joint whereas it was 15.5 per cent nuclear and seven per cent joint families in the high income group.

The percentage of respondents under food habit classification as vegetarians and non-vegetarians in low, middle and high income groups were 9.5 and 22.5, 13 and 32.5 and seven and 15.5 respectively. Under the occupation classification, working women were 20.5, 11.5 and 26 per cent whereas

housewives were 19.5, 8.5 and 14 per cent in the low, middle and high income groups respectively. ✓

Table 4.1 revealed that majority of the respondents were Hindus comprising of 48, 62 and 39 (out of the sample size of 200) followed by Christians numbering 14, 24 and five. Muslims were minority of two, five and one in low, middle and high income groups. The predominance of non-vegetarians was seen in all the income groups, and they constituted about two thirds of the sample. It was also observed that the respondents who hailed from Karnataka numbered 51, 69 and 31 followed by respondent originated from other states who were 13, 32 and 14 in the low, middle and high income groups.

4.2 Purchase behaviour of the consumers of butter, ghee and cheese

Income-wise distribution of consumers and non-consumers is presented in Table 4.2. Of the 200 respondents 101 were consumers and 99 did not consume table butter. Among the 101 consumers, 22.1, 46.5 and 30.6 per cent belonged to low, middle and high income groups. While 41, 44 and 14 per cent of the non-consumers belonged to the three income groups. Out of the 200 respondents, 123 consumed and 77 did not consume plain butter. The low, middle and high income group consumers of the plain butter were 30.8, 42.2 and 26.8 per cent respectively, while the non-consumers were 33.7, 50.6 and 15.5 per cent. Ghee was consumed by all except six respondents. This product was consumed by 62, 87 and 45 respondents in three income groups.

Table 4.2 : Income wise distribution of consumers and non-consumers of selected dairy products

Products	Income levels						Total	
	Low		Middle		High			
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Table Butter								
Consumers	23	22.7	47	46.5	31	30.6	101	100
Non-consumers	41	41.0	44	44.0	14	14.0	99	100
Plain Butter								
Consumers	38	30.8	52	42.2	33	26.8	123	100
Non-consumers	26	33.7	39	50.6	12	15.5	77	100
Ghee								
Consumers	62	31.9	87	44.8	45	23.1	194	100
Non-consumers	1	16.6	5	83	0	0	6	100
Cheese								
Consumers	23	24.2	46	48.4	26	27.3	95	100
Non-consumers	41	39	45	42.8	19	18	105	100

As observed from the table, 95 respondents consumed cheese and 105 were non-consumers. The income wise distribution of consumers were 23, 45 and 26 and non-consumers were 41, 45 and 19 in the low, middle and high income groups respectively.

An attempt was made to elicit the reasons for consumption or non-consumption of the selected dairy products and the results are presented on Table 4.3. Table butter, plain butter, ghee and cheese were traditionally used by 28, 46, 103 and 17 consumers respectively. Thirty eight, 47, 79 and 38 respondents consumed the selected dairy products for their nutritive value. Ready to use and add flavour to cooking was the main reason for buying by 77, 72, 162 and 62 respondents for each of the earlier mentioned products. Children, trendy to use are given by friends and relatives was identified as the main reasons for consumption of table butter, plain butter, ghee and cheese by 43, 45, 63 and 40 families.

The non-consumers of the dairy products were categorised as 'not aware', 'aware but haven't used' and 'used but discontinued'. As observed from Table 4.3, only eight respondents each out of 200 were not aware of table butter and cheese. There were 60 respondents for table butter, 47 for plain butter, 2 for ghee and 67 for cheese who revealed that they were aware of the products but hadn't consumed. The number of respondents who had discontinued with the use of table butter, plain butter, ghee and cheese were 31, 30, 4 and 30 respectively.

Table 4.3 : Reasons for consumption and non consumption of the selected dairy products

(in Nos)

Reasons	Table Butter	Plain Butter	Ghee	Cheese
Consumption :				
Traditional usage	28	46	103	17
Nutritional value	38	47	79	38
Adds flavour/taste to cooking & ready to use	77	72	162	62
Children like it & others	43	45	63	40
Non-consumption :				
Not aware	08	0	0	08
Aware but haven't used	60	47	02	67
Used and discontinued	31	30	04	30

Consumers were categorised based on the source of product and are presented in Table 4.4. The sources were classified as branded, unbranded and home made. Ninety five (94.5 per cent) consumers of table butter bought branded product, five (4.9 per cent) bought unbranded product and only one respondent prepared it at home. In case of plain butter, 59 (47.9 per cent), 29 (23.5 per cent) and 55 (44.7 per cent) respondents bought branded, unbranded product and prepared it at home. As regards ghee, 154 (79.3 per cent) bought branded product, 14 (7.2 per cent) used unbranded product and 83 (42.7 per cent) respondents prepared ghee at home either from milk cream or plain butter which was either bought or prepared at home. There were 92 (96.2 per cent) cheese consumers who used branded product and two (2.1 per cent) respondents each were under unbranded and prepared at home categories.

The classification of consumers according to makers of buying decision are presented in Table 4.5. It could be seen that out of 200 households, in 121 (60.5 per cent) households, housewife made the buying decisions, whereas it was 30 and 26 by husband and husband and wife jointly which accounted to 15 and 13 per cent respectively. It could be noted that in 23 (11.5 per cent) households mother-in-law, brothers-in law and sisters-in-law were the decisions makers. It was also observed that in most families children influenced the buying decisions.

Table 4.4 : Sources of the products consumed by respondents

Product	(in No's)			Total
	Branded	Unbranded	Home made	
Table butter	95 (94.4)	5 (4.9)	1 (1.0)	101 (100)
Plain Butter	59 (47.9)	29 (23.5)	55 (44.7)	123 (100)
Ghee	154 (79.3)	14 (7.2)	83 (42.7)	194 (100)
Cheese	92 (96.8)	2 (2.1)	2 (2.1)	95 (100)

Note : Figures in parantheses indicate percentages to their respective row totals

The percentages add upto more than 100 as the respondents reported the consumption of more than one source of product.

Table 4.5 : Income wise distribution of the makers of buying decision

(in Nos)

Decision Maker	Low	Middle	High	Total
Housewife	37 (57.8)	56 (61.5)	28 (62.0)	121
Husband	17 (26.5)	11 (12)	02 (4.4)	30
Husband & Wife jointly	06 (9.3)	13 (14.2)	07 (15.5)	26
Mother-in-law	01 (1.5)	07 (7.6)	02 (4.4)	10
Others	03 (4.6)	04 (4.3)	05 (13.3)	13

Note : Figures in parentheses indicate percentages to their respective income group totals.

4.3 Consumption pattern of the selected dairy products

✓ 37

The monthly average expenditure of the households is presented in Table 4.6. It could be seen from Table 4.6 that as the household monthly expenditure of respondents increased with increase in monthly income. The average total expenditure was Rs. 4340.9, Rs. 6741.3 and Rs 10170.42 for low, middle and high income groups respectively. It could also be seen that consumers spent more on non- food items (clothing, housing, education, utilities etc.) compared to food items.

The average expenditure on dairy products was Rs. 544.6, Rs. 739.2 and Rs. 951.2 by the three income groups respectively. Among dairy products the expenses on milk and other dairy products (khoa, paneer, ice cream, curds etc.) were higher than that spent on the selected dairy products under study. Of the selected dairy products, expenditure on ghee was the highest which ranged from Rs. 68.26 to Rs. 108.5 followed by that on plain butter and table butter. Expenditure on cheese was the least which was Rs. 13.29 for low income group and Rs. 30.84 for the high income group. Fig 4.1 represents the expenditure on food, non-food and dairy products by different income groups. Similarly Fig 4.2 indicates the expenditure on the selected dairy products

Table 4.7 records relative expenditure on food and various dairy products different income groups. It could be observed that in general as income increased the food and dairy products expenditure to total expenditure decreased whereas that on non-food increased. Food expenditure to the total was

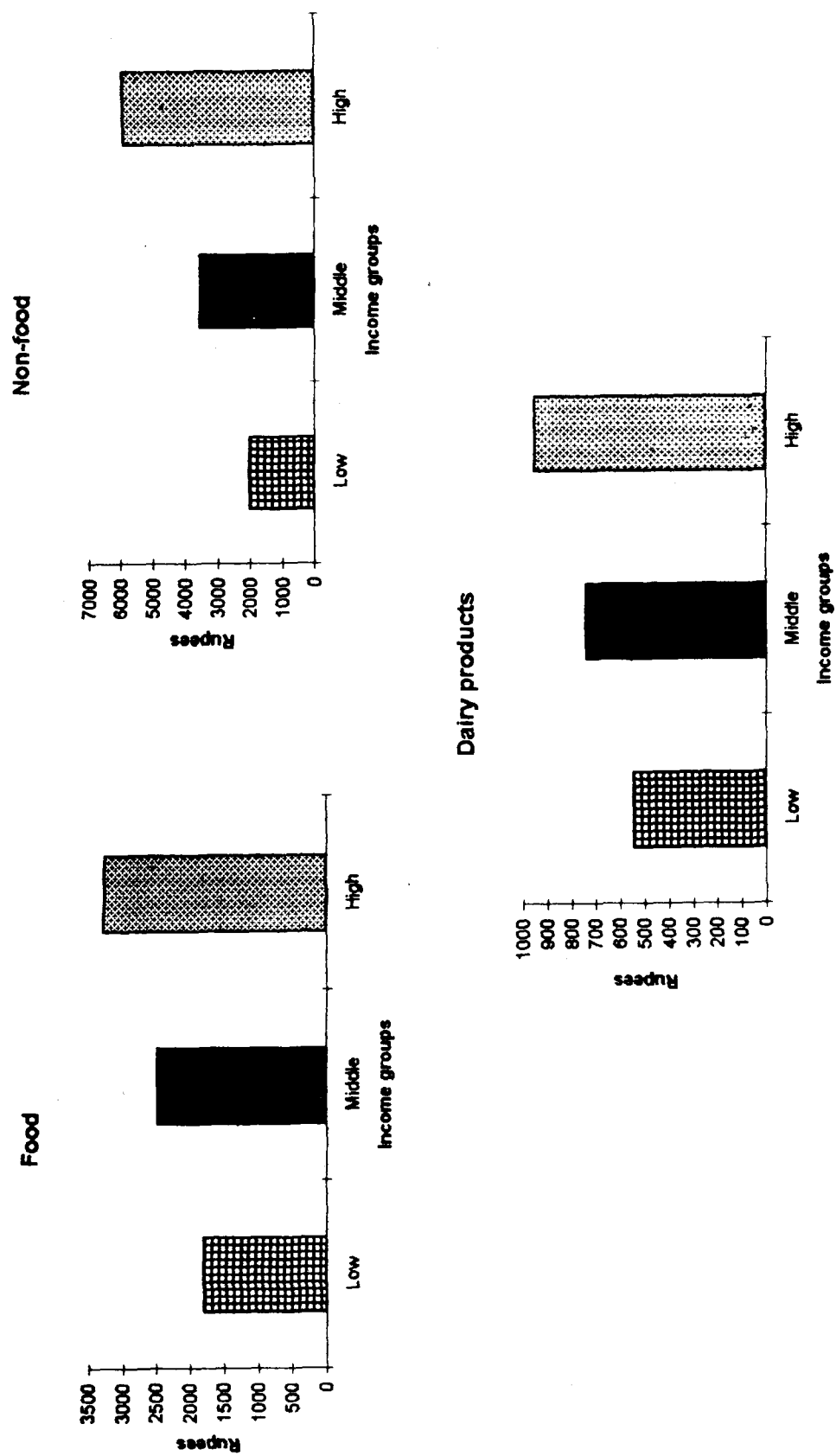


Fig 4.1 : Expenditure on food, non-food and dairy products by different income groups

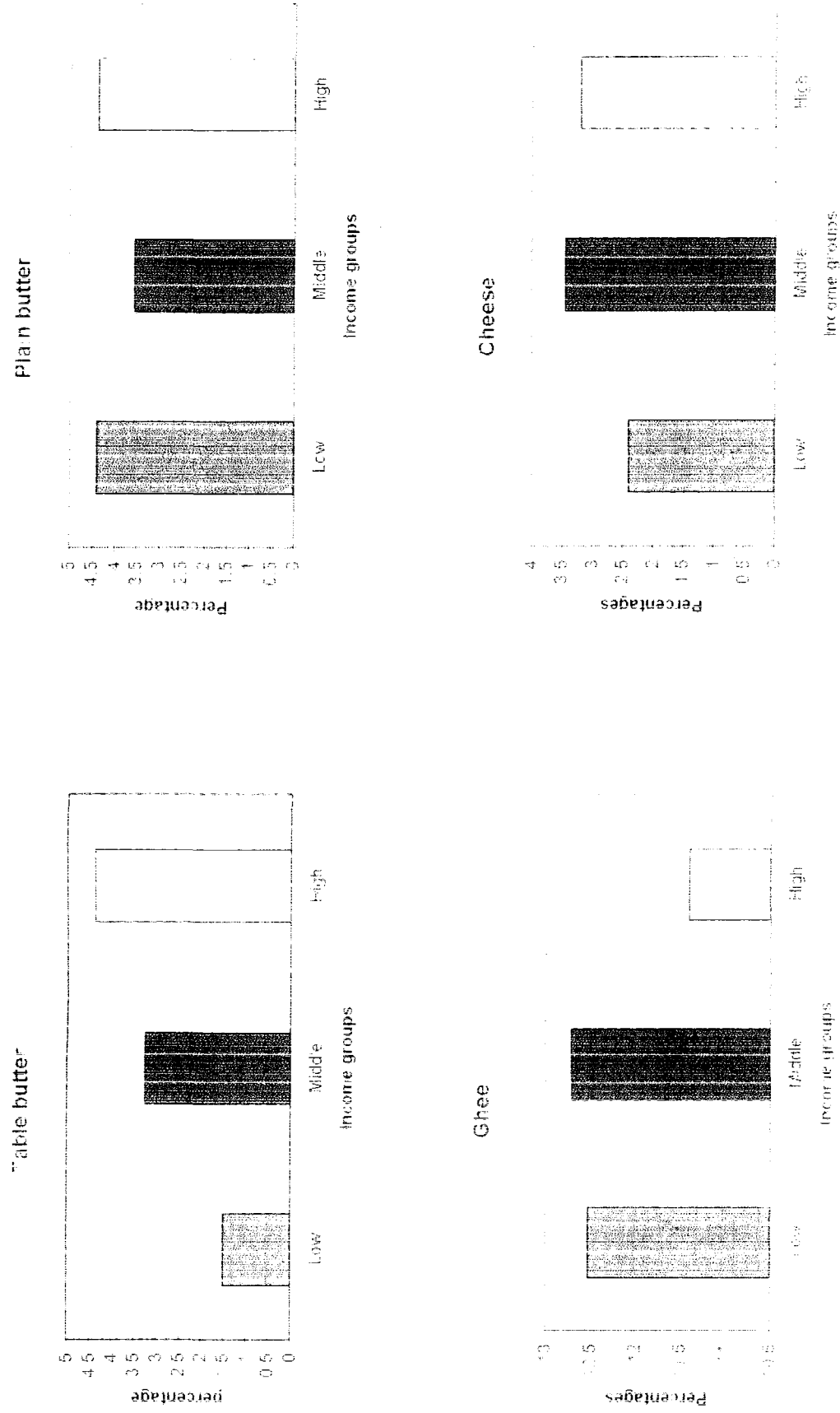


Fig 4.2 Relative expenditure on Butter, ghee and cheese in dairy products expenditure by different income groups

Table 4.6 : Average family consumption expenditure of different income groups

Expenditure	Income levels			Total
	Low	Middle	High	
Food	1789.80	2481.80	3257.70	2509.70
Non-food	2005.70	3520.50	5961.50	3829.05
Dairy products	544.60	739.23	951.22	745.24
Table butter	8.40	24.00	41.71	24.70
Plain butter	24.15	26.17	39.75	30.02
Ghee	68.26	94.01	108.50	90.26
Cheese	13.29	25.39	30.84	23.17
Milk and other dairy Products	426.40	514.08	738.22	559.56
Total	4340.10	6741.53	10170.42	7083.99

41.2, 36.8 and 31.9 per cent in the low, middle and high income groups respectively. Dairy products expenditure to total expenditure was 12.5, 10.9 and 9.3 per cent in the low, middle and high income groups respectively.

An examination of Table 4.7 revealed that there existed no trend in expenditure on the selected dairy products to dairy products expenditure across the income groups. In case of table butter, relative expenditure increased as incomes increased. However in case of plain butter and ghee the relative expenditures decreased and then increased as income increased. The relative expenditure on cheese decreased as family income increased. Fig 4.3 represents the relative expenditure on food, non-food and dairy products by different income groups.

4.4 Factors influencing consumption of selected dairy products

Demand for dairy products is influenced by a number of socio, cultural and economic factors. To examine the factors influencing the consumption of dairy products a multiple log-linear functional form was fitted. The dependent variable included in the model was the monthly family consumption in kgs. The independent variables were age (years), education (years of schooling) of the respondent, family income (Rs. per month), Unit price of the product (Rs. per kg), number of children (below 15 years) and number of adult family members. Stepwise regression analysis was carried out wherein only the significant variables were retained.

Table 4.7 : Relative expenditure on food and dairy products by different income groups

Expenditure	(Percentage)		
	Low	Middle	High
Food to total	41.23	36.85	31.96
Non-food to total	46.48	52.28	58.48
Dairy to total	12.54	10.97	9.33
Dairy to food	30.40	29.78	29.19
Butter, ghee, cheese to dairy	22.19	29.30	24.50
Table butter to dairy	1.52	3.24	4.38
Plain butter to dairy	4.42	3.54	4.17
Ghee to dairy	12.53	12.71	11.40
Cheese to dairy	2.36	3.43	3.24

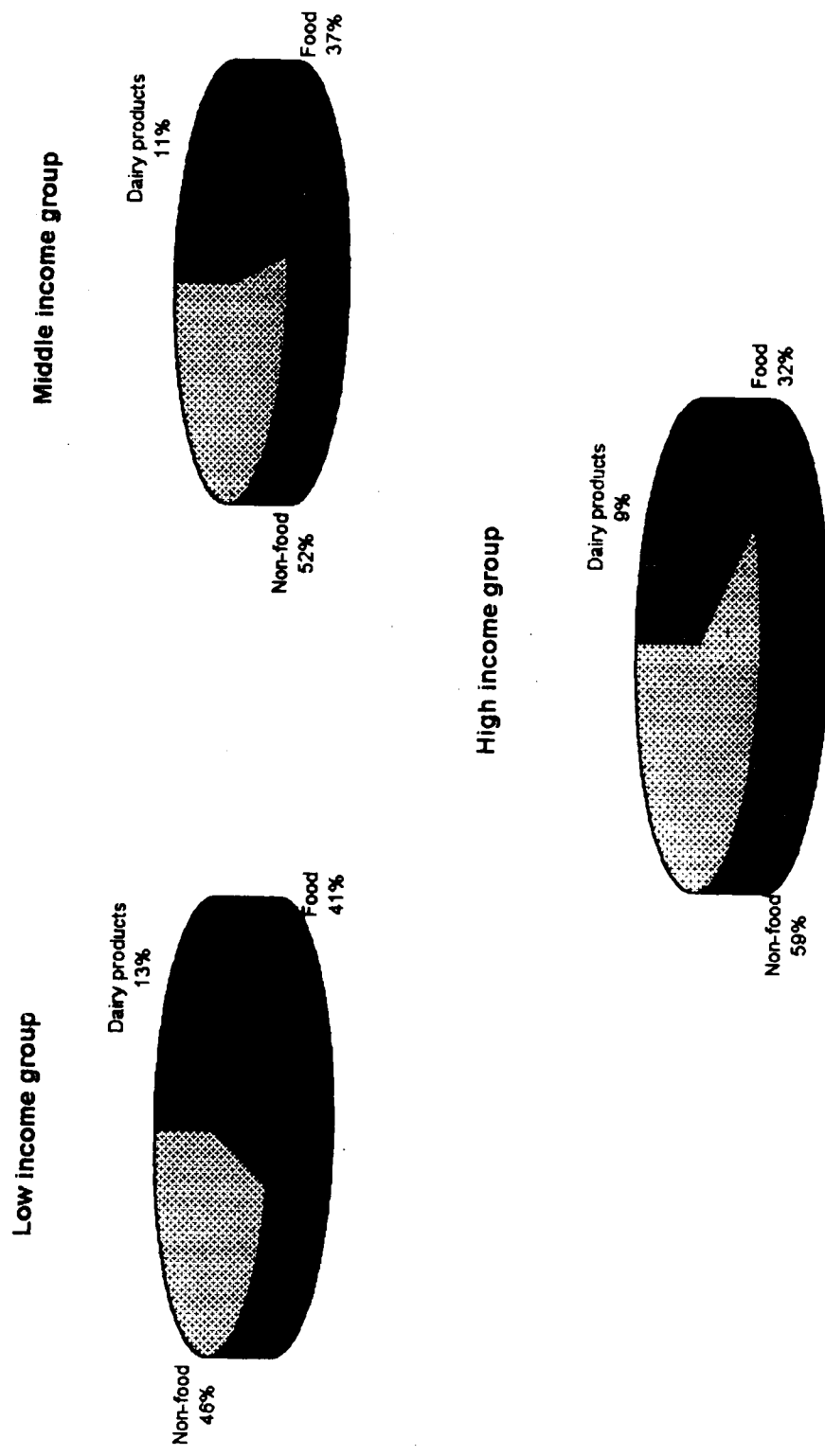


Fig 4.3 : Relative expenditure on food, non-food and dairy products by different income groups

The results of stepwise regression for table butter, ghee and cheese are presented in Table 4.8.

Table butter: Among the various factors considered, only income and price significantly influenced consumption. The co-efficient of multiple determination (R^2) was 0.32, although the R^2 was found to be low, it was significant at the one per cent level. Price of table butter had a negative influence on consumption with a co-efficient of -0.00784, which was significant at the one per cent level. The regression co-efficient of income was 0.679307, which meant that with every one per cent increase in family income, consumption increased by 0.67 per cent. The other factors like the number of children, education of housewife and adult family members did not significantly influence consumption.

Ghee: The factors that significantly influenced ghee consumption were income, price and the number of adult family members. The regression co-efficients of the mentioned variables were 0.913627, 0.535477 and 0.290806 which were found to be significant at the one per cent level (for income and price) and five per cent level (for adult family members). The co-efficient of multiple determination was 0.47 and was significant at one per cent. The results suggested that as family income increased by one per cent, consumption of ghee increased by 53 per cent.

Cheese: It is evident from Table 4.8 that price had a negative influence and income positively influenced consumption. The regression co-efficient of price

Table 4.8: Results of stepwise regression analysis

Product	Regression co-efficients			R2
	Price	Income	Adult family members	
Table butter	-0.00784** (-2.405)	0.6793** (6.138)		0.32 †
Ghee	0.913627** (10.858)	0.535447** (5.387)	0.290806* (2.075)	0.47 †
Cheese	-8.788** (-3.837)	0.27005* (2.799)		0.46 *

Note : Figures in parentheses indicate 't' values

** indicate significance at 1 per cent confidence level

* indicate significance at 5 per cent confidence level

was -8.7880 and that of income was 0.277005. The 't' values of the same were -3.837 and 2.799 which were significant at one per cent. The co-efficient of multiple determination was 0.46 and was found to be significant at one per cent.

4.5 Consumer quality preferences for butter, ghee and cheese

A product is not just a physical object but a bundle of attributes or characteristics which consumer desires to obtain by which he derives satisfaction. In order to study the important characteristics or attributes, consumers look for in the selected dairy products conjoint analysis was carried out. For each of products considered four most important quality attributes were identified along with their levels. The consumers were asked to rank the attributes according to their preference. The results of conjoint analysis are presented in the following section

Table butter : In Table 4.9 the relative importance given to the chosen attributes of table butter are presented. The whole group of consumers on an average give 40.51 per cent importance to consistency of the product followed by salt content which was 38.08 per cent for low salt with a relative part-worth of 0.8214. Price received an importance of 14.02 per cent with preference for low Price (utility value 0.3024). The least importance of 7.4 per cent was given to colour with a preference for creamish yellow colour (utility value 0.1595). The spearman's R value was 0.96 and the utilities were significant at the one per cent level.

Table 4.9 : Relative utility and importance given by respondents to various attributes of Table butter

Consumer group	price			colour			Consistency			Salt content		
	Relative utility		Relative importance %	Relative utility		Relative importance %	Relative utility		Relative importance %	Relative utility		Relative importance %
	High	Low		White	Creamish Yellow		Pasty	Good Spreadability		High	Low	
Entire consumer Group	-0.3024	0.3024	14.02	-0.1595	0.1595	7.4	-0.8738	0.8738	40.51	-0.8214	0.8214	39.08
Occupation Group												
working women	-0.0625	0.0625	3.37	0.2188	-0.2188	11.8	-0.947	0.947	61.12	-0.625	0.625	33.7
Housewife	-0.504	0.504	18.14	-0.478	0.478	17.19	-0.8114	0.8114	29.18	-0.986	0.986	35.4
Age Group												
< 35 years	-0.202	0.202	9.04	0.833	-0.833	3.72	-0.869	0.869	38.83	-1.0833	1.0833	48.2
> 35 years	-0.3274	0.3274	15.03	-0.2202	0.2202	10.11	-0.875	0.875	40.16	-0.756	0.756	34.7
Education level Group												
upto P U C	-0.3452	0.3452	16.48	0.0595	-0.0595	2.8	-1.225	1.225	50.52	-0.4643	0.4643	22.16
Graduation	-0.4417	0.4417	21.12	-0.1	0.1	4.7	-0.633	0.633	30.28	-0.9167	0.9167	43.82
Post Graduation	-0.0583	0.0583	2.43	-0.425	0.425	17.71	-0.9417	0.9417	39.24	-0.975	0.975	40.63
Income Group												
upto 7673	-0.0278	0.0278	2.03	-0.1852	0.1852	3.38	-0.5463	0.5463	39.86	-0.75	0.75	54.7
7673-13656	-0.2593	0.2593	12.73	-0.252	0.252	9.09	-0.8519	0.8519	41.82	-0.7507	0.7507	56.3
> 13656	-0.4167	0.4167	15.03	0.833	-0.833	9.56	-1.1894	1.1894	42.9	-0.9015	0.9015	32.5
Decision Maker group												
Women	-0.3949	0.3949	17.47	0.054	-0.054	2.4	-0.9819	0.9819	43.4	-0.829	0.829	36.7
Others	-0.125	0.125	5.77	-0.569	0.569	26.2	-0.6667	0.6667	30.7	-0.805	0.805	37.18

The preference of occupational group showed that both working women housewives attached high importance to consistency and salt content. The relative importance for the above mentioned attributes were 29.18 and 35.4 per cent by housewife and that of working women were 61.12 and 33.7 per cent. Working women attached least importance of 3.37 per cent to price and 11.8 per cent to colour, while housewives attached 18.4 and 17.19 per cent importance to these qualities.

A comparison of utility scores across age groups showed that both these groups attached high importance to salt content with a relative importance of 48.4 and 34.7 per cent respectively for the age group of less than 35 and more than 35 years. The next important attribute was consistency with preference for good spreadability which enjoyed an importance of 38.83 and 40.16 per cent for the two above mentioned groups. These groups attached less importance to price and least to the colour of butter.

The results pertaining to education revealed that post graduates attached least importance (2.43 per cent) to price and maximum for low salt content (40.63 per cent). Graduate respondents also attached maximum utility to low salt content (utility value 0.9167) and least to colour (utility value 0.1). Respondents educated upto pre-university attached 50.52 per cent importance to consistency and least (2.8 per cent) to that of colour.

Income-wise preference for quality attributes were similar to that of other groups with importance of 54.7, 56.3 and 32.5 per cent for salt content by low, middle and high income groups followed by preference for good spreadability with an importance value of 39.86, 41.92 and 42.9 per cent by the above mentioned groups respectively. It was surprising to note that low income group attached least importance to price (2.03 per cent) followed by middle and high income group which attached 12.73 and 15.03 per cent importance to price. All the three groups were quite indifferent to colour.

When the conjoint analysis results were compared across decision maker groups it was noticed that when women made buying decision, they attached 17.47 per cent importance to price but the same was only 5.7 per cent when others made buying decisions. Other decision maker was the only group which attached an importance of 26.2 per cent to colour with a preference for creamish yellow colour (utility value 0.569). The women and other decision maker groups attached high importance to consistency (3.4 and 30.7 per cent) followed by salt content (36.7 and 37.18 per cent).

Ghee : The consumer preference of quality attributes for ghee are presented in Table 4.10. The entire consumer group attached 53.8 per cent importance to granular texture (utility score 0.9786) followed by flavour (23.95 per cent) with utility of 0.435 for well cooked flavour. Colour and price received an importance of 15.55 and 6.68 per cent respectively Spearman's R was 0.959

which indicated that the fit was good and utilities were significant at the one per cent level.

An examination of utilities given by employed women and housewives showed that working respondents attached highest importance for colour (35.56 per cent) with preference for golden yellow colour of ghee (utility value was 0.7111) followed by price (27.78 Percent), texture (25.56 per cent) and least importance was given to flavour (11.11 per cent). Housewife respondents gave highest preference for granular texture (61.53 per cent) followed by well cooked flavour (27.5 per cent), low price (9.24 per cent) and were almost indifferent to colour (1.73 per cent importance).

When utilities were compared across age groups, it was observed that respondents above 35 years of age regarded granular texture as the most important (57.9 per cent), followed by flavour (24.16 per cent), colour (12.31 per cent) and price received the least importance. Respondents of age group less than years ranked colour first (35.85 per cent) followed by flavour (22.6 per cent) and least important was price (13.21 per cent) of ghee.

The education level of respondents were compared with their utility scores. Pre-university educated graduates gave 51.10 per cent importance to price while post graduates gave 6.6 per cent while the post graduates also attached six per cent importance to it. Graduates and post graduates attached 51.24 and 65.72 per cent

importance to texture with preference for granular texture while pre-university educated respondents gave only 8.24 per cent importance for the same.

Income-wise preference of quality attributes showed that neither of three groups gave much importance to price. An importance of 40.09, 45.74 and 59.74 per cent to granular texture as given by their utility scores of 0.7083, 0.7544 and 1.703 for low, middle and high income groups.

When the preferences of the decision maker groups were considered, it was found that both the decision making groups preferred granular texture (65.07 and 47.56 per cent for women and others decision group) and the least importance was given to price (2.57 and 8.94 per cent).

Cheese : The relative importance and utility scores as given by the consumers to the selected attributes of cheese are given in Table 4.11. It could be observed from the table that aggregate of respondents perceived texture as most important attribute (55.69 per cent) with preference for uniform texture with a part-worth of 1.0952. Next in priority came price with an importance of 25.67 per cent and that of to variety was 13.65 per cent with preference for cheese spread. Least importance was given to flavour (5.08 per cent) with a relative part-worth of 0.1 for mild flavour. The spearman's R for the entire group was 0.985 which showed a good fit of the model to the data and was found significant at the one per cent level.

Table 4.11 : Relative utility and importance given by respondents to various attributes of Cheese

Consumer group	price			Flavour			Variety			Texture			Spear- man's R	
	Relative utility		Relative Importa nce %	Relative utility		Relative Importa nce %	Relative utility		Relative Importa nce %	Relative utility		Relative Importa nce %		
	High	Low		Mild	Strong		Spread	Processed		Uniform	Lumpy			
Entire consumer Group	-0.5048	0.5048	25.67	0.1	-0.1	5.08	0.2667	0.2667	-0.2667	13.65	1.0952	-1.0952	55.69	0.985
Occupation Group	-0.3657	0.3657	17.25	0.4028	-0.4028	19	0.5509	0.5509	-0.5509	25.9	0.8009	-0.8009	37.7	0.889
	-0.652	0.652	28.18	-0.2206	0.2206	9.53	-0.0343	-0.0343	0.0343	1.48	1.4069	-1.4069	60.81	0.931
Age Group	-0.0833	0.0833	5.66	-0.4167	0.4167	28.3	0	0	0	0	0.9722	-0.9722	66.04	0.651
	-0.6264	0.6264	27.53	0.2069	-0.2069	9.09	0.3218	0.3218	-0.3218	14.14	1.1207	-1.1207	49.24	0.923
Education level Group	-0.5694	0.5694	19.18	0.3794	-0.3794	10.75	0.4306	0.4306	-0.4306	14.49	1.6528	-1.6528	55.61	0.788
	-0.5317	0.5317	27.46	-0.1508	0.1508	7.79	0.4048	0.4048	-0.4048	20.9	0.8492	-0.8492	43.85	0.901
Post Graduation	-0.3854	0.3854	15.29	0.5938	-0.5938	23.56	-0.2187	-0.2187	0.2187	8.68	1.3229	-1.3229	52.48	0.961
Income Group	-0.4881	0.4881	17.08	-0.2206	0.2206	9.53	0.6071	0.6071	-0.6071	21.25	1.5367	-1.5367	53.75	0.846
	-0.5294	0.5294	28.72	-0.2262	0.2262	7.92	0.3225	0.3225	-0.3225	17.55	0.9706	-0.9706	52.66	0.901
	-0.5583	0.5583	23.78	-0.0196	0.0196	1.06	-0.0417	-0.0417	0.0417	1.77	1.125	-1.125	48.87	0.922
Decision Maker group	-0.8294	0.8294	34.28	-0.0595	0.0595	2.46	0.4643	0.4643	-0.4643	19.18	1.0679	-1.0679	44.1	0.938
	-0.0179	0.0179	1.17	0.3393	-0.3393	22.27	-0.0298	-0.0298	0.0298	1.95	1.1369	-1.1369	47.61	0.853

The conjoint results for various groups namely, income, age, education level, occupation, decision maker groups though varied in their relative importance attached to each of the mentioned attributes, a common feature noticed was that consumers preferred low priced products to higher price ones and uniform textured cheese to lumpy cheese.

The quality judgment of cheese across age groups revealed that consumers belonging to the age groups of below and above 35 years of age considered texture as an important attribute (66.04 and 49.24 per cent importance). Consumers below the age of 35 gave no importance at all to variety. This group was indifferent to whether they consumed cheese or cheese spread, while the older age group gave 14.14 per cent to variety. Although older age group gave only nine per cent importance to flavour they preferred mild flavoured cheese where as younger age group preferred strong flavoured cheese.

The three education level groups gave an importance of 55.61, 43.85 and 52.48 per cent to texture which was the highest in all the three groups. Pre-university educated and post graduates preferred mild flavour as given by utility score of 0.3794 and 0.5938 where as graduates gave -1.593 utility to strong flavour. The relative importance given to price by the three education levels were 19.16, 27.46 and 15.29 per cent.

The analysis pertaining to income groups showed that highest importance was of 53.75, 52.66 and 49.87 per cent was given to texture while that attached to

flavour was importance of 9.53, 7.92 and 1.06 per cent was given to flavour by low, middle and high income groups respectively. High income group was indifferent to variety as the importance score only 1.77 per cent.

The grouping based on decision maker group revealed that women decision maker group gave highest importance of 44.10 per cent to texture followed by price (34.26 per cent), variety (19.18 per cent) and least was to flavour (2.46 per cent). Others decision maker group gave least importance to price (1.17 per cent) and highest to texture (74.61 per cent) with preference for uniform texture (utility score of 1.1369).

4.6 Segmentation of the dairy products consumers

In the present study an attempt was made to segment the consumers based on relative importance given for quality attributes using cluster analysis approach. The level of clustering were chosen keeping in view the amenability of clusters for comparison. Hierarchical clustering dendrograms were obtained for each of the selected dairy products. Socio-economic characteristics were used to describe each segment.

Table butter: Table 4.12 records the results of cluster analysis for table butter. Three clusters were identified (Appendix III) which had 26 (74.2 per cent) three (8.5 per cent) and seven (17 per cent) respondents respectively. The first segment attached highest importance to salt (43.05 per cent) with preference for low salt content, 32.74 per cent importance was given to good spreadability

FIGURE 1: Relative importance given by respondents to the selected attributes of butter, ghee and cheese

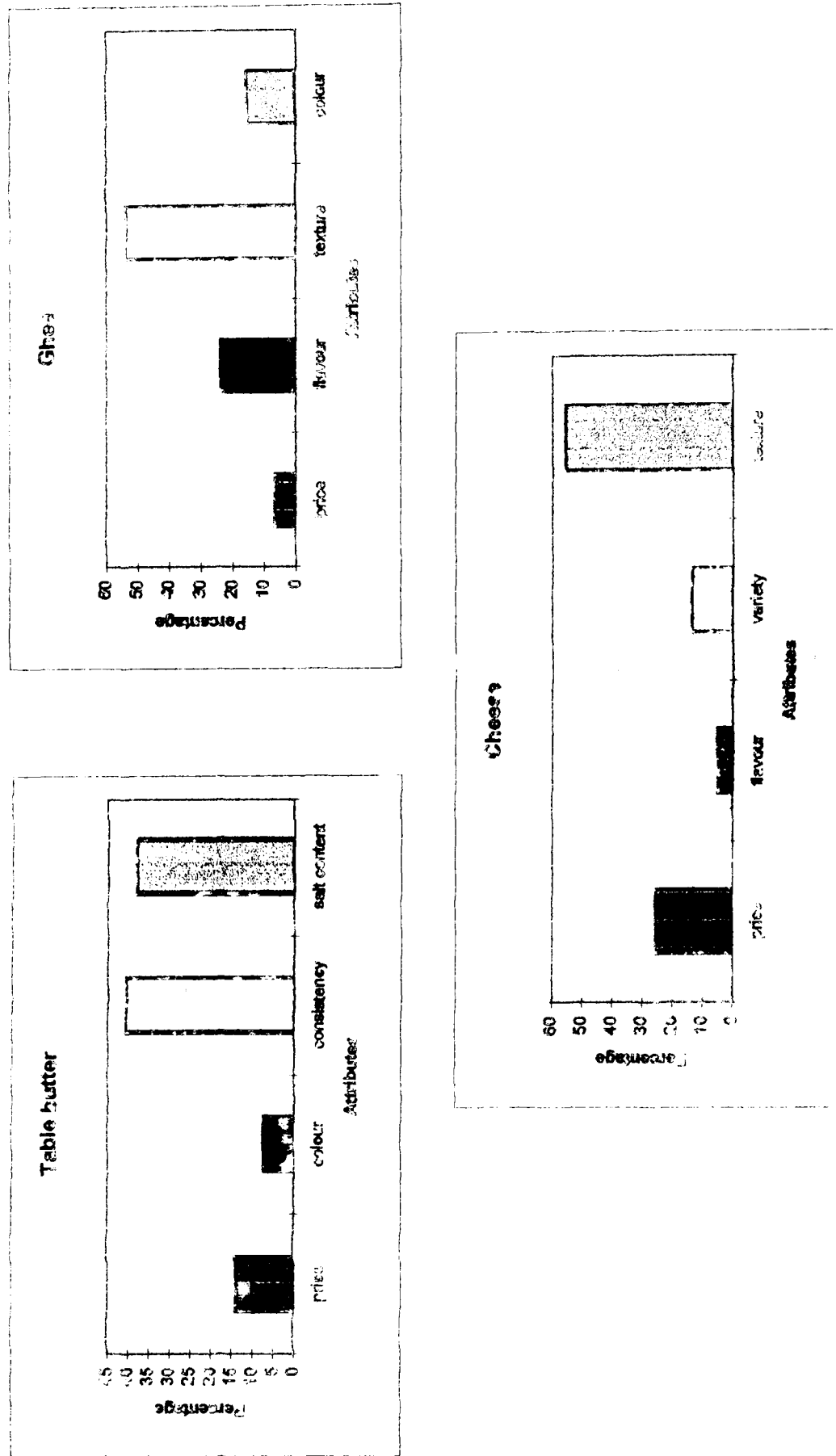


Table 4.12 : Relative importance for quality attributes of table butter given by different segments and their socio-economic characteristics.

(in No's)			
	Segment -I	Segment -II	Segment-III
Number	26 (74.2)	3 (8.5)	7 (17)
I Relative importance for quality attributes (in percentage)			
Price	14.13	37.7	20.83
Colour	10.09	29.5	32.29
Consistency	32.74	4.9	35.4
Salt Content	43.05	27.8	11.46
II Socio-economic Characteristics			
Average age (years)	39	40.6	42.5
Average Education (years of schooling)	14.23	10.6	13.6
Average monthly income(Rs)	11357.6	13666.6	13833
Occupation : Working women	15 (57)	2 (66.6)	1 (16.6)
Housewife	11 (42.3)	1 (33.3)	5 (83.3)
Food habit : Vegetarians	5 (19.2)	1 (33.3)	0 (0)
Non-Vegetarians	21 (80)	2 (66.6)	6 (100)
Family type : Nuclear Family	16 (61.5)	1 (33.3)	4 (66.6)
Joint Family	10 (38.4)	2 (66.6)	2 (33.3)
Buying decision makers : Women	18 (69.2)	1 (33.3)	5 (83.3)
Others	8 (30.7)	2 (66.6)	1 (16.6)

Note : Figures in parentheses indicate percentages to their respective group totals.

(consistency) and almost equal importance was attached to price and flavour. In this cluster 80 per cent of respondents were non-vegetarians. Working women constituted for 57 per cent in this segment. About 69 per cent of women made buying decisions in this segment.

Second cluster comprised of only 3 out of 35 respondents. Two out of three were working women (66.6 per cent) who belonged to joint families. In this group 66 per cent of the buying decisions were by other family members. Average education of this group was secondary schooling. This segment placed highest importance for price (37.7 per cent) and least importance to consistency.

The third segment was characterised by the respondents who belonged to older age and had higher family income compared to the other two segments. In this cluster, only one out of six respondents was employed. All the respondents in this cluster were non-vegetarians. Five out of six women (83.3 per cent) made buying decision making of their family. This cluster attached highest importance to consistency (35.4 per cent) followed by colour (32.29 per cent).

Ghee: The results of market segmentation for ghee are recorded in Table 4.13. Only two segments were chosen (Appendix IV) for ghee keeping in view the relative size of segments. The first segment comprised of 65.7 per cent of respondents (23 out of 35) and this segment placed highest importance for granular texture (44.66 per cent) followed by slightly over cooked flavour (42.72 per cent).

Table 4.13 : Relative importance for quality attributes of ghee given by different segments and their socio-economic characteristics.

		(in No's)	
		Segment -I	Segment -II
Number		23 (65.7)	12 (34.2)
I	Relative importance for quality attributes (in percentage)		
	Price	8.25	4.38
	Flavour	42.72	1.8
	Texture	44.66	58.51
	Colour	4.37	35.31
II	Socio-economic characteristics		
	Average age (years)	39.7	45.5
	Average education (years of schooling)	13.73	15.5
	Average monthly income (Rs.)	9617.3	15080
Occupation :	Working women	11 (47.8)	9 (75)
	Housewife	12 (52.1)	3 (25)
Food habit :	Vegetarians	2 (8.6)	7 (58.3)
	Non-Vegetarians	21 (91.3)	5 (41.6)
Family type :	Nuclear Family	18 (78.2)	6 (50)
	Joint Family	5 (21.7)	6 (50)
Buying decision makers :	Women	13 (56.5)	7 (58.3)
	Others	10 (43.4)	5 (41.6)

Note : Figures in parentheses indicate percentages to their respective group totals.

In this segment there were almost equal number of working women and housewives. Two out of 23 respondents were vegetarians, 18 (68.2 per cent) families were nuclear and in 13 (56.5 per cent) families women made buying decisions. It could be observed that this group had average monthly income of Rs. 9,617.30

The second segment comprised 34.2 per cent (12 out of 35) respondents. The least importance was given to flavour and price, highest was 35.3 per cent importance was given to colour with preference for yellow coloured ghee. It could be observed from the table that this segment comprised of respondents who were older, better educated with higher family income compared to first segment. Seventy five per cent of the respondents were employed and women made 58 per cent of buying decisions. In this group more than 50 per cent of respondents were vegetarians and 50 per cent of the respondents belonged to nuclear families.

Cheese: In Table 4.14 the results of cluster analysis for cheese are presented. The three segments identified (Appendix V) consisted of 68.5 per cent (24 out of 35), 8.5 per cent (three out of 35) and 22.8 per cent (eight out of 35) of consumers.

The first segment gave 63.89 per cent importance to texture and 14.47 per cent to that of variety. Price received 20.32 per cent importance. This segment comprised of middle income group with 54 per cent of women working 16 out of

Table 4.14 Relative importance for quality attributes of cheese given by different segments and their socio-economic characteristics.

	(in No's)		
	Segment -I	Segment-II	Segment-III
Number	24 (68.5)	3 (8.5)	8 (22.8)
I Relative importance for quality attributes (in percentage)			
Price	20.32	11.11	26.93
Flavour	1.32	44.4	38.93
Variety	14.47	44.4	9.16
Texture	63.89	0	25.19
II Socio-economic characteristics			
Average age (years)	41.12	39.6	34
Average Education (years of schooling)	13.8	14.6	15.12
Average monthly income (Rs)	12062.5	9000	11687.5
Occupation : Working women	13 (54.1)	1 (33.3)	4 (50)
Housewife	11 (45.8)	2 (66.6)	4 (50)
Food habit : Vegetarians	8 (33.3)	0 (0)	0 (0)
Non-Vegetarians	16 (66.6)	3 (100)	8 (100)
Family type: Nuclear Family	18 (75)	2 (66.6)	5 (62.5)
Joint Family	6 (25)	1 (33.3)	3 (37.5)
Buying decision makers : Women	14 (58.3)	2 (66.6)	5 (62.5)
Others	10 (41.6)	1 (33.3)	3 (37.5)

Note : Figures in parentheses indicate percentages to their respective group totals.

23 and 18 out of 23 respondents were non-vegetarians and belonged to nuclear families respectively. In this group women made 58.3 per cent buying decisions.

The second segment accorded equal importance of 44.4 per cent to mild flavour and variety i.e. they preferred cheese spread to processed cheese. Zero importance was attached to texture. The respondents belonged to middle income group. All the three respondents belonged to a joint family. Two women out of three made the buying decisions of their families.

Eight out of 35 respondents comprised of the third segment. The relative importance attached to price and flavour were almost equal and least was to that of variety. Average age of this group was 34 years with an average education of 15 years of schooling. The average family income of this group was Rs. 11687.5 per family. All the respondents were non-vegetarians, five out of eight (62.5 per cent) respondents belonged to nuclear families and five out of eight (62.5) women made buying decisions of their families.

4.7 Demand forecast of the selected dairy products

In the present study an attempt was made to forecast the annual demand for table butter, ghee and cheese for the period between 1997 and 2005. The income elasticities of demand for table butter, ghee and cheese were 0.679307, 0.535447 and 0.27005 respectively (Table 4.8) estimated using log-linear regression analysis. The sample monthly per capita consumption of table butter, ghee and cheese was 56, 173 and 43 grams respectively. Demand for butter, ghee and

cheese was estimated assuming a population growth rate of 4.1 per cent at three different levels of growth of per capita real income - 3.5, 4.5 and 5.5 per cent. Therefore, each product had three demand scenarios.

Table 4.15 gives the demand forecast for table butter, ghee and cheese. It can be observed that there was a significant difference in the estimated demand when different growth rates in per capita real income were assumed. For the year 2005, quantity of ghee demand forecast was the highest (94.47 lakhs kgs) followed by table butter (35.90 lakh kgs) and cheese (24.82 lakh kgs). The demand for cheese was almost half of that of demand for table butter. According to the fitted model estimates, table butter demand showed an increase of 12.22, 15.50 and 17.75 lakh kgs, in the three scenarios, between 1997 and 2005. Similarly the increase in demand for ghee was 21.77, 40.92 and 62.23 lakh kgs during the same period. The increase in demand for cheese in the three scenarios were 6.49, 7.02 and 7.58 lakh kgs.

4.8 Shift in consumption from butter to cheese

In the present study, an attempt was made to see if the consumers are shifting over from high calorie dairy products like butter (containing 80 per cent fat) to cheese spread (30 per cent fat). It can be observed from Table 4.16 that out of 54 consumers of cheese spread 13, 25 and 16 respondents fell into low, middle and high income groups. Among the reasons given for substitution, 'convenience' was cited by 61, 64 and 68 per cent of the respondents in the low, middle and high

Table 4.15 : Estimated Household demand for selected dairy products in Bangalore city

Year	(lakh kgs)								
	Table butter						Cheese		
	scenario1	scenario2	scenario3	scenario1	scenario2	scenario3	scenario1	scenario2	scenario3
1997	23.68	23.68	23.68	72.77	72.77	72.77	18.32	18.32	18.32
1998	25.02	25.18	25.35	75.41	77.5	78.87	19.09	19.14	19.19
1999	26.42	26.76	27.11	78.07	80.6	85.41	19.87	19.98	20.08
2000	27.85	28.14	28.97	80.75	85.51	92.4	20.66	20.83	20.99
2001	29.34	30.13	30.93	83.45	90.01	99.98	21.47	21.7	21.93
2002	30.9	31.94	33.01	86.17	96.01	107.98	22.26	22.58	22.89
2003	32.5	33.62	35.18	88.92	101.64	116.43	23.12	23.49	23.87
2004	34.17	35.79	37.48	91.68	107.53	125.57	23.96	24.41	24.87
2005	35.9	37.85	39.89	94.47	113.69	135.33	24.82	25.36	25.9

Note : Scenario 1 assumes 4.1 % population growth rate and 3.5 % per capita real income
Scenario 2 assumes 4.1 % population growth rate and 4.5 % per capita real income
Scenario 3 assumes 4.1 % population growth rate and 5.5 % per capita real income

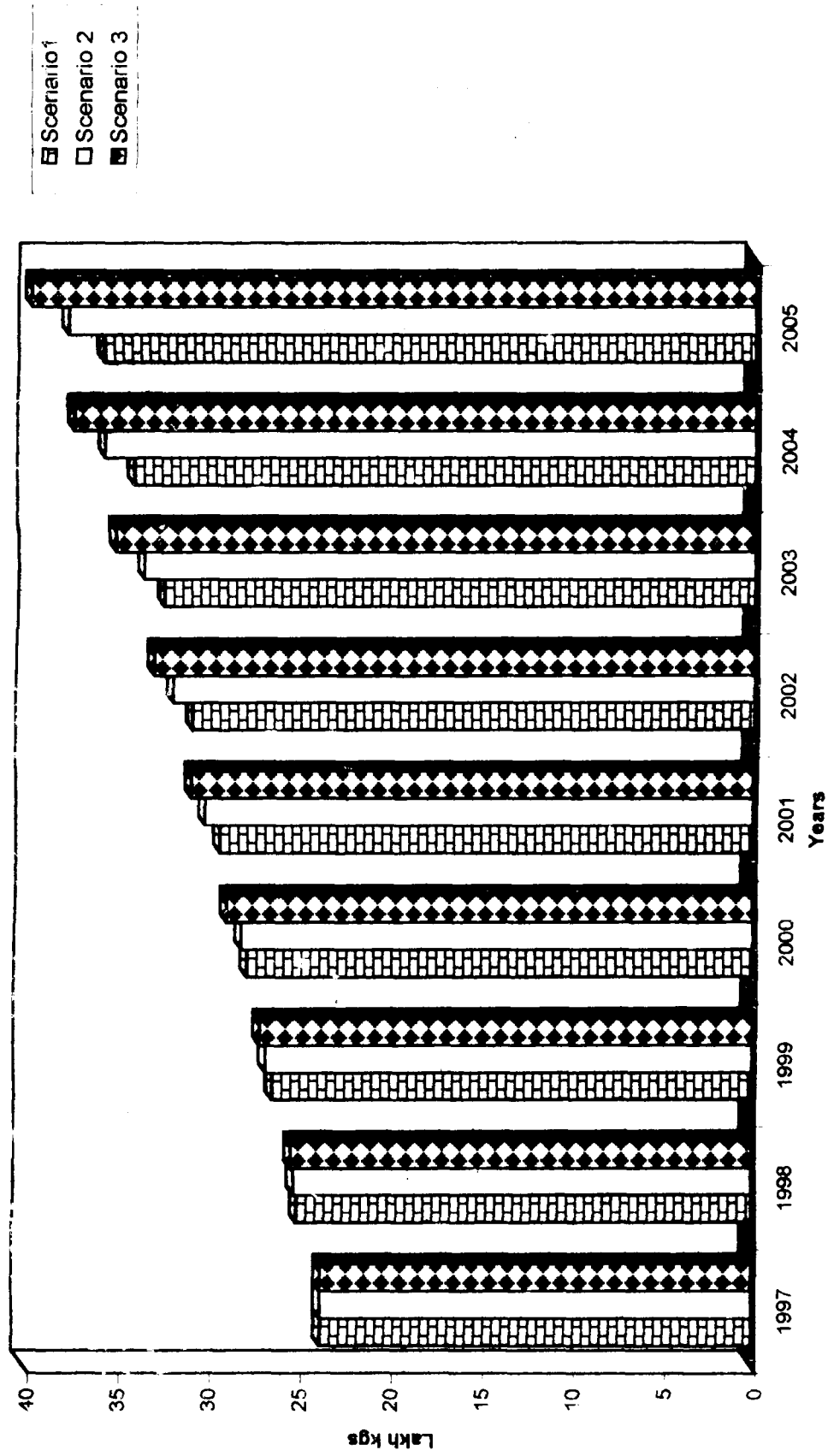


Fig. 4.5 : Household demand projections of butter (1997-2005) for Bangalore city

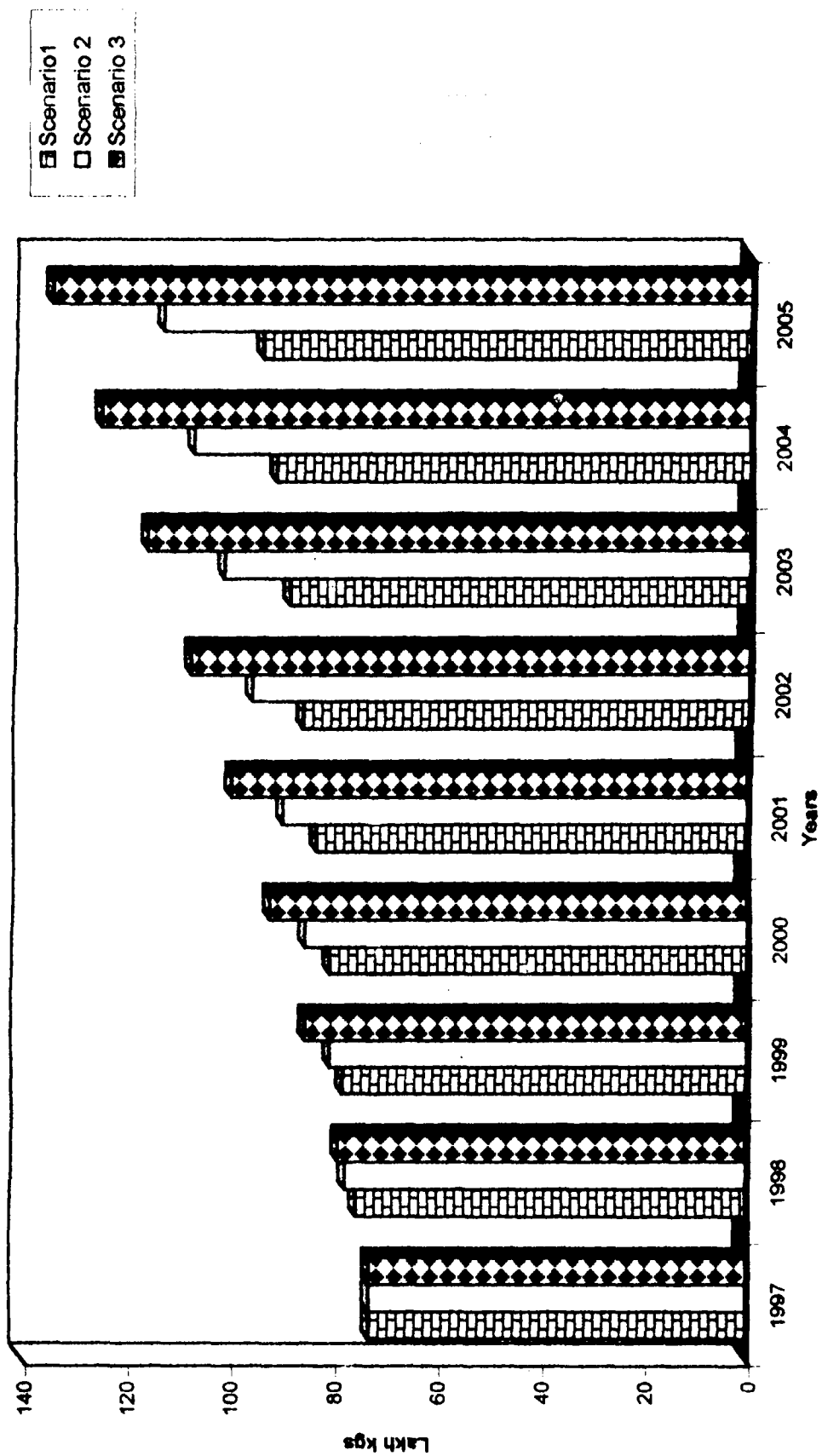


Fig. 4.6 : Household demand projections of ghee (1997-2005) for Bangalore city

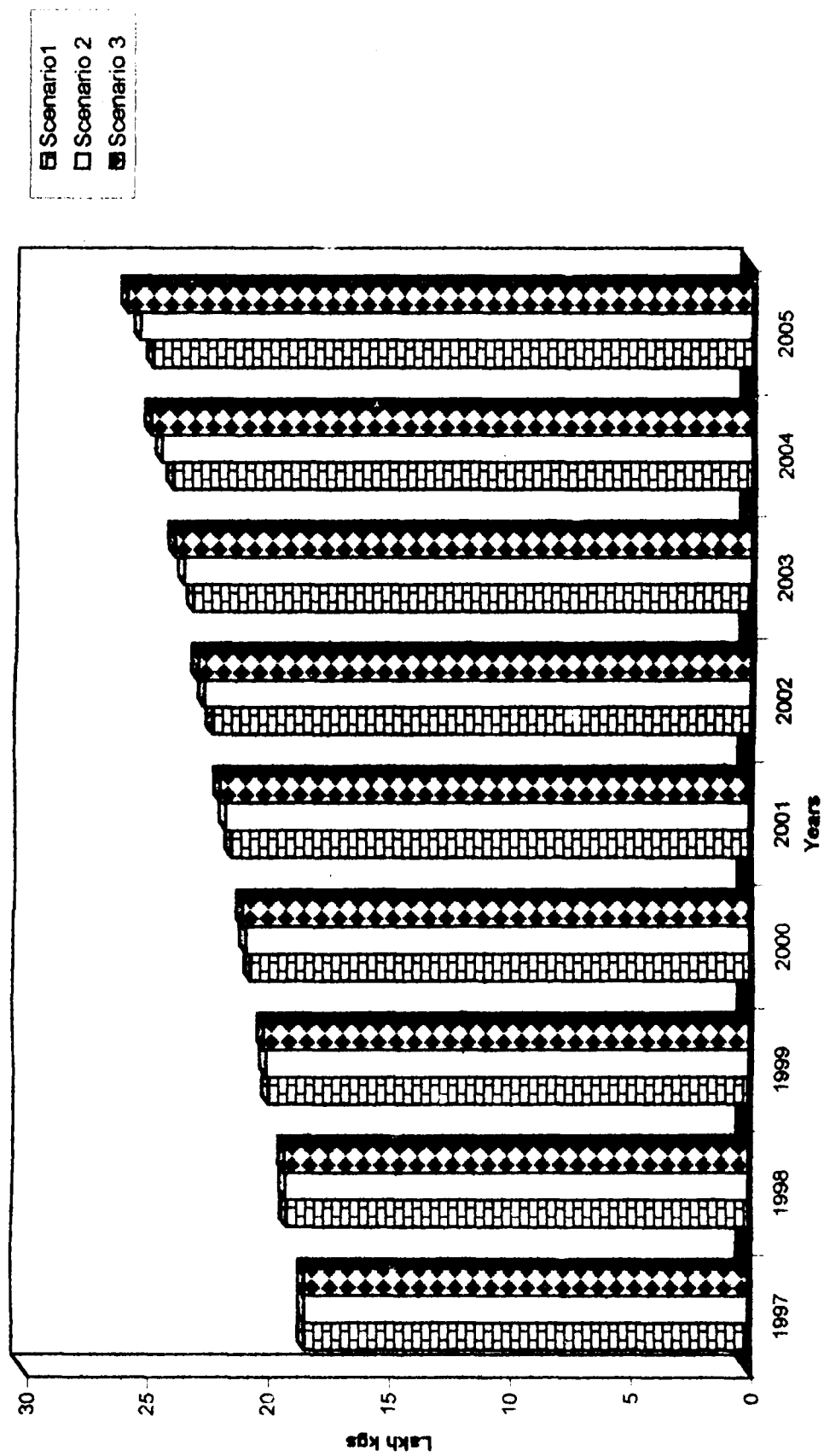


Fig. 4.7 : Household demand projections of cheese (1997-2005) for Bangalore city

Table 4.16 :Shift in consumption from butter and cheese to cheese spread.

Particulars	Income levels					
	Low		Middle		High	
	Number	Per cent	Number	Per cent	Number	Per cent
Cheese Spread	13		25		16	
Reason :						
Availability	5	38	7	28	5	31
Less calories	3	23	6	24	2	12
Convenient	8	16	16	64	11	68
Others	0	0	4	16	2	13
Substituted from :						
Butter	8	61	6	24	5	31
Cheese	4	30	14	56	9	56
Others	3	23	7	28	6	37
Shift :						
Partial	5	38	11	44	4	25
Complete	8	61	14	56	12	75

Note : Percentages are calculated to their group totals.

income groups. 'Availability' was the next important reason cited by 38, 28 and 31 per cent of respondents in the low, middle and high income groups. This was followed by 'less calories' as given by 23, 24 and 12 per cent of cheese spread consumers in the three income groups. Nineteen consumers shifted from butter to cheese spread, whereas 27 consumers were reported to have shifted from cheese to cheese spread. Thirty four consumers had completely shifted over to cheese spread while in the case of 20 respondents, this shift was partial.

DISCUSSION

CHAPTER V



DISCUSSION

The results presented in the previous chapter are discussed in this chapter under the following heads :

- 5.1 Socio-economic profile of the respondents.
- 5.2 Purchase behaviour of consumers for butter, ghee and cheese.
- 5.3 Consumption pattern of the selected dairy products.
- 5.4 Factors influencing consumption of the selected dairy products.
- 5.5 Consumers quality preferences for butter, ghee and cheese.
- 5.6 Segmentation of the dairy products consumers.
- 5.7 Demand projection of the selected dairy products.
- 5.8 Shift in consumption from butter to cheese.

5.1 Socio-economic profile of the respondents

An examination of general characteristics of the respondents revealed that a majority of women (45 per cent) hailed from middle income group, 32 per cent belonged to low income group and 22.5 per cent were from high income group. There was a positive relationship between income of the respondents and their age, family size and education. In all the income groups, the average number of children per family was around two. It was observed that 64 per cent of respondents in the low income group were working, whereas the same was 57 and

37 per cent in the middle and high income groups respectively. About 70 per cent of the respondents in each income group were non-vegetarians and 30 per cent were vegetarians. Hindus were dominant (74 per cent) religious group in the study area followed by Christians (21.5 per cent) and Muslims were a minority of only four per cent. A striking feature noticed was that all Christian families were nuclear, adult family members were at least secondary school educated and the respondents were working women in most cases. Although 75 per cent of respondents reported to have originated in Karnataka a reasonably good number did not speak Kannada, whose mother tongue was not Kannada. The rest 25 per cent belonged to other states of which 35 per cent (21) were Keralities. As Bangalore is a metropolitan city this combination of population from different states is quite natural. Among the Hindus, a good number of respondent families were vegetarians while the Christians and Muslims were generally non-vegetarians.

5.2 Purchase behaviour of consumers for butter, ghee and Cheese

Purchase behaviour of the consumers were as varied as their social economic and cultural background, as was evident from Tables 4.2, 4.3, 4.4 and 4.5. Ghee and plain butter being generic products are consumed by 97, 61.5 per cent of respondents respectively. These products can be consumed with any kind of food ranging from conventional foods Chapatti, dosa, rice, etc. to fast food like bread, burgers and pizzas. Table butter was consumed by about 50 per cent of the respondents and was restricted only to breakfast and mainly to children. Less than

50 per cent of respondents consumed cheese although cheese had varied uses compared to table butter. There was one consumer who used cheese to prepare pulav and kharabath. There was an other unique consumer who felt her breakfast was complete only if she had a cube of cheese irrespective of the type of breakfast she took. Cheese contains proteins, vitamins, less fat and is much more nutritious than butter. The product can be popularised through consumer education.

It could be observed from Table 4.3 that traditional usage (103 out of 194) was important reason for ghee consumption and it was consumed by people belonging to all classes of society. Vegetarians in particular consumed a lot of ghee and butter since milk and its products are a rich source of nutrition. Flavour and children were also important reasons for buying plain butter and ghee.

Traditional usage was a major reason reported by 28 and 17 consumers for table butter and cheese. This group comprised of Christians mainly with both husband and wife working. It must also be noted that these respondents belonged to higher strata of the society. The consumption of cheese and table butter were mostly influenced by school going children who are likely to be influenced by the advertisement they watch and also emulate consumption habit of their friends. Therefore mass media is one of the effective ways to popularise these products and must be targeted to the middle class section and children as they tend to influence the buying decisions of adults.

Eight respondents each in the case of table butter and cheese were not aware of the products. About 30 and 33 per cent of respondents were aware of table butter and cheese but did not consume mainly because these products were not required for their food preparations. Twenty two respondents in case of table butter and 14 respondent in case of cheese responded that they could not afford to buy table butter and cheese. There were only two respondents who were aware but did not use ghee since they did not require it for their food preparations. Thirty five (17 per cent) respondents used to consume table butter but had discontinued. A sizable proportion of these respondents have done so since table butter had high calorie. A few responded that table butter was high priced. Almost similar replies were given for plain butter and cheese except that there was a slight variation in number.

It was evident from Table 4.4 that most consumers went for branded products. As already seen there are more than 50 per cent of women working who naturally do not have as much time to spend on household chores as compared to housewives. Therefore they buy ready made products to save on time and as well as have a varied choice for products. It must be noted that even though the consumers bought butter and ghee it was supplement with home made ghee. There were quite a few number of consumers who made table butter at home from cream which was two in the case of cheese.

Among the consumers of unbranded product a special feature noted was that they were loyal to the source and they felt it was better than branded product since the product was fresh and the source was trust worthy. These sources were generally the local milk vendors or small retail outlets.

From Table 4.5, it was evident that 60 per cent of women made buying decision. A comparison across the income groups revealed that there were 58 per cent women in low income group and 62 per cent in the high income group. It was observed from Table 4.1 that about 64 per cent of women in the low income group were working. This explains although lower income group women were working and financially independent they did not take all the buying decisions themselves but was by consulting other family members. Women of higher income groups had a little more say in buying decision making as compared to low income group women.

Husbands made these decisions upto 26 per cent 14 per cent and 4.4 per cent in the three income group. As can be observed in the high income group husband's role in decision making is not at all prominent. They probably leave it to the woman of the house to purchase whatever she feels is best. Joint decisions were more (15 per cent) in high income group as compared with other income groups, which were 14 per cent and nine per cent in the middle and low income group respectively. Mother-in-law, children and others, especially in joint families although did make these decisions but they did not play all that significant role.

An interesting aspect to be noted was irrespective of who the decision makers were, children influenced their decision making. This is in accordance with results of a study by Haripuram (1986) who reported that the children influenced buying habits of the adults.

5.3 Consumption pattern of the selected dairy products

The consumption pattern was examined by classifying consumers into three different groups based on income as seen in Tables 4.6 and 4.7. It could be observed that the expenditure on various food items increased as income increased. However, relative expenditure on food decreased as income increased, this is in conformity with the theory put forward by Engle and also the findings of Kaur (1996). The food expenditure in the three income group varied between 41 to 53 per cent. High income group spent Rs. 951 on dairy products in relation with low and middle income groups who spent Rs. 544.6 and Rs. 739.23 per month. This fell in line with the study conducted by Goswami (1994) where the high income group spent more on dairy products than lower income groups. This result proved the hypothesis - expenditure on selected dairy products increases as income increases.

On an average consumers spent 11 per cent of their consumption expenditure on dairy products whereas in Patel's (1992) study it was as high as 25 per cent. Expenditure on ghee was the highest among the dairy products considered in the study, this is consistent with the findings of Jain and Patel (1992) where the

expenditure on ghee was highest among milk products as ghee is extensively used for preparation of all kinds of food items.

The relative expenditures of the selected dairy products to total expenditure on dairy products fell as income increased but in the case of table butter there was a positive relationship. This is probably because of the change in breakfast menu which is more towards lighter breakfasts like bread and butter.

5.4 Factors influencing consumption of selected dairy products

Food consumption in general and that of dairy products in particular is influenced by a host of socio-economic factors. However, only a few factors were found to significantly influence consumption.

Table butter : Price and income are major factors that influence consumption. This is in line with the findings of Hugar (1996) who reported that consumption of vegetables in Dharwar was influenced by income and price. Price had a negative effect on consumption while income had a positive effect on consumption.

Ghee : Factors influencing consumption of ghee is presented in Table 4.8. Adult family members, income and ghee consumption were positively related. These results are in consonance with the findings of Inamke (1995) who reported that the quantity of milk purchased was significantly influenced by the family size and income. It was interesting to note that price positively influences consumption

which is in contrast with the results of Sharma (1997) who reported that price was one of the important yet limiting factors which determine food consumption. The results however are in consonance with the findings of Gluckman (1986) where it was observed that consumers preferred costlier wine to cheaper ones. Consumers perceive higher price as an indicator of quality and therefore when the price is higher, quantity consumed does not come down as much as the increase in price.

Cheese : Table 4.8 gives the factors influencing cheese consumption. Income positively influences consumption which is in conformation with the results obtained by Kumar (1987) where income was found to positively influence consumers buying decisions in general for food products. Price, in this case was found to negatively influence consumption which confirms the results obtained by Sharma (1997) who identified price as an important factor influencing consumer's choice of the product. The findings are in consonance with that of Wandel (1995) who identified income as a significant factor that affected the purchase of fruits and vegetables.

The results prove the hypothesis that income and price are the factors that influence the consumption of the selected dairy products the most, whereas the succeeding hypothesis -Adult family members, education of house wife and the number of children have a positive influence on consumption, was only partially proved since only adult family members had a significant positive effect on the consumption of ghee alone.

Table butter : The quality attributes of table butter are presented in Table 4.9. The whole consumer group and various sub groups attached negative part-worths to price with preference for lower priced products with varying degrees of importance to price ranging from two to 21 per cent. As can be seen from Table, most of the consumers preferred creamish yellow colour whereas non-working women, younger respondents, pre-university educated respondents and high income group preferred white coloured butter. The most commonly available butter in the market is creamish yellow colour. This finding fell in the line with the results of Gluckman (1986) who reported that colour of wine (either white or red) and price are very important quality attributes of wine.

Consumers on the whole preferred butter with good spreadability and attached high importance (29 to 69 per cent), this is most natural as butter is mainly used as bread spread. The available brands in the market do have a good spreadability. Salt content also received high importance which also ranged from 22 to 54 per cent, with preference for butter with low salt content. Consumers mentioned that they preferred lesser salt content than whatever is presently available in the market (5 per cent salt content) mainly due to health concerns. The hypothesis made in the introduction chapter that the consumers attach highest importance to price and salt content of table butter was partially proved, since the consumers did attach highest importance to salt content but the relative importance given to price was only 14 per cent.

When women made buying decisions, it was noticed that they gave more importance to price (17 per cent) when compared to others (6 per cent). It was also observed that women decision maker group attached least importance to colour. Colour depends on the source of milk, if milk contains carotene butter gets creamish yellow colour but if milk comes from buffalo which is devoid of carotene, butter extracted from such milk is white in colour. Therefore, the other quality attributes like taste, texture etc. are not influenced by its colour.

It must be noted that consumers belonging to low income group attached only two per cent importance to price, this is probably because they consider price to be positively related to quality. Therefore irrespective of the price, table butter is consumed.

A firm desiring to manufacture table butter should produce a product with low salt content with good spreadability. The consumers would buy such a product even if it is marginally high priced.

Ghee : The relative importance of various attributes are give in Table 4.10. Texture and flavour were given the highest preference which has partially proved the hypothesis that texture and colour are the most preferred attributes of ghee. Entire consumer group attached highest importance of 53 per cent to texture, next was flavour with 23 per cent importance. Colour received an importance of 15 per cent and price received least importance six per cent. Positive part-worth was attached to price by high income group, post graduates and non-working women.

This implies that these groups preferred a highly priced product which is probably viewed as status symbol. Consumers in general preferred granular texture of ghee though the importance attached to it varied between 25 per cent to 65 per cent. Granular texture depends on the duration and temperature of clarification of butter. This texture appeals the consumers rather than pasty texture.

Flavour is a combination of smell and taste, an important quality of ghee. All consumers preferred the slightly over cooked or burnt flavour. The importance given to this quality attribute varied from 11 per cent to 53 per cent. An important quality attribute, not only for ghee but for any consumable or non-consumable items is colour. The entire consumer group preferred yellow colour of ghee except for non-working women group and low income group who expressed preference for golden brown coloured ghee. Yellow colour of ghee is mainly due to additives like turmeric etc., and the temperature of clarification of butter.

Flavour, texture and colour make the taste ghee. All the three depend on the clarification temperature. Haripuram (1986) found that taste was an important quality attribute that influenced consumption, the findings of this study are in conformation with that of Haripuram's findings.

The available brands in the market have more or less the desired levels of flavour, texture and colour. Market penetration of different brands would therefore depend on the company's sales promotion activities.

Cheese : Table 4.11 gives the consumers preference for cheese. It could be observed that 55 per cent importance was given to texture, variety (13.65 per cent), price (25.67 per cent) and least to flavour 5.08 per cent. Different income groups attached varying importance to the four attributes considered. Texture by far was the most important quality attribute with preference for uniform texture, which is most natural tendency of consumers.

Most groups preferred cheese spread except non-working women, post graduates, high income group and other decision maker group. Only younger respondents were indifferent to variety seen by their relative importance of zero to variety which is slightly absurd since processed cheese and cheese spread though can be substituted to a certain extent but the two entirely different products. This is in contrast with findings of Sharma (1997) who reported that variety most important variable for cut flowers purchase.

Flavour is a combination of both taste and smell. Consumers in general attached less importance to flavour compared to texture which varied from one per cent to 28 per cent. One per cent importance was attached by rich consumers which explains that they were indifferent to either strong or mild flavour provided the cheese they bought was processed variety attached 28 per cent importance to strong flavour which means that this is a taste conscious group. Companies can use particular group to test market their new products.

Price is an important factor which influenced preference and consumption of any product. Other decision maker group attached only one per cent importance to price whereas the entire consumer group attached 25.6 per cent importance to the same which fell in line with findings of Gerhardy (1995) who reported that 25.6 per cent of relative importance score was given to price of eggs.

On the whole cheese consumers attached highest importance to taste (flavour, variety and texture together) followed by price which is in consonance with results reported by Haripuram (1986) that taste, price and variety influence the consumer's purchase of biscuits.

Variety and price are the most sought attributes in cheese - hypothesis was disproved as consumers attached a maximum importance of 56 per cent to texture.

5.6 Segmentation of the dairy products consumers

The markets for the dairy products are characterised by consumers belonging to various social, economic and religious backgrounds. The advantage of classifying consumers into clusters is mainly to identify small clusters of consumers and target market the products. This study seeks to segment consumers on the basis of the similarity of their preferences.

Table butter: Three segments were identified as given in Table 4.12. The largest segment consisted of 74 percent of respondents who placed highest importance to salt content and least to that of price. This result proved the

hypothesis made in the first chapter that salt conscious consumers form the largest segment. The results clearly showed that this group is health conscious and do not mind paying higher price. This segment consisted of 57 percent working women and 69 percent of buying decisions were made by women.

Second cluster consisted of only 8.5 percent of respondents. This group was price conscious and attached 38 percent importance to it. This is in consonance with market segmentation of eggs, wherein one out of the five clusters identified gave highest relative importance to price (37.9 per cent) (Gerhardy, 1995). This cluster is not all that important as it consists of only three out of 35 respondents.

The third cluster identified comprised of 17 per cent of consumers. This cluster gave equal importance to consistency and colour with preference for butter with good spreadability and creamish yellow colour. This result fell in line with a study conducted by Sharma (1997) who reported that colour was an important quality attribute in case of cut flowers.

Ghee: Consumers of ghee were classified into two segments keeping in view the amenability of the clusters. The larger cluster consisted of 66 per cent of respondents who attached around 43 per cent relative importance to the flavour and texture with only four per cent to that of colour. The families that fell into this cluster hailed from middle income group with more than 50 per cent of the respondents working and about the same per cent of working women made the buying decisions of their family.

The second cluster was made up of 34 per cent of respondents. This segment gave maximum importance (59 per cent) to texture followed by colour (35 per cent). Price and flavour together received an importance of only six per cent. This group comprised of respondents who were graduates and belonged to high income group. Seventy five per cent of the women were working and 50 per cent of the respondent's families were joint and there were nearly 58 percent of women made buying decisions. Since this group gives high weightage to colour and flavour with preference for well cooked and golden yellow colour, a firm can release such a product for this group. These consumers would still buy the product even if it is slightly high priced.

It was observed that price was given lesser importance compared to other quality attributes by both the segments. This was partly reflected in the regression analysis wherein a positive relationship was seen between price and consumption. The results and the hypothesis made coincide since the texture received high importance by both the segments.

Cheese: As could be observed from the Table 4.14, three clusters were formed based on the relative importance given to the selected attributes. Sixty nine per cent of respondents belonged to the first segment with 64 per cent relative importance to texture, followed by price, variety and flavour. There were 66 per cent of respondents who were non-vegetarians and about 75 per cent of respondents belonged to nuclear families.

The second segment comprised of only three respondents who gave equal importance (44 per cent) to flavour and variety. Price received 11 per cent importance and texture was given no importance at all. This segment is in contrast with the first segment which gave maximum importance to texture.

The third segment comprised of eight out of 35 respondents who accounted for 23 per cent. Though this cluster also attached highest importance to flavour but the relative importance given to the other attributes varied. This segment attached 27 per cent importance to price which was the highest given to that of price among the three segments. Therefore it could be concluded that this segment is price conscious. Both the second and third segments were alike in their food habit.

It could be concluded that although texture by far is the most important quality characteristic, marketers must keep in mind that the other attributes also play an important role in the consumers choice of a product and therefore should not neglect these quality attributes. the hypothesis that variety conscious consumers form the biggest segment was therefore disproved.

5.7 Demand estimation of the selected dairy products

The income elasticities of demand for table butter, ghee and cheese were 0.67, 0.53 and 0.27. Based on the income elasticity coefficients these dairy products could be grouped as necessities. Gandhi and Mani (1995) estimated the income elasticity of milk as 1.06. Patel and Vyas (1993) found that dairy products were highly income elastic. The findings of this study are in contrast with that of

the above mentioned two studies. The income elasticity of demand in this study was inelastic which may be due to the fact that the sample drawn was from urban population and from a relatively high income bracket, where the selected dairy products were consumed regularly. The monthly per capita demand of butter, ghee and cheese were only 56, 173 and 43 grams. Even though the per capita consumption of ghee was the highest and its income elasticity was also only 0.53. It was noted that although the per capita consumption of cheese was the least and it was income inelastic. This may be due to the fact that cheese is consumed regularly for breakfast or snacks and the consumers would not increase its consumption as income increased.

Considering the three scenarios, it was observed that there wasn't any significant differences in the estimated demand for table butter, ghee and cheese.

5.8 Shift in consumption from butter and Cheese to cheese spread

An attempt was made to observe whether there was a shift in consumption from butter or cheese to cheese spread. Of 200 respondents only 95 (48 per cent) consumed cheese and cheese spread, of these 95 consumers only 54 consumed cheese spread (27 per cent to sample size). This fell in line by a study conducted by Sunil (1995) who reported that out of the 500 respondents surveyed 289 consumed cheese. In the present study 35 consumers had substituted cheese spread for cheese and butter because cheese spread was convenient to use as a bread spread unlike cheese or butter. This is in consonance with a study conducted by Patel and Gupta

(1989) who reported that consumers had widely accepted a soy-based product as bread spread and as a substitute to cheese and butter or both. In this study it was found that 11 consumers substituted cheese spread for table butter since cheese spread had less calories, this finding is in confirmation with that of Prajapati *et al* (1992) whose study showed that 89 per cent of the surveyed respondents preferred a low calorie and low fat products to butter or cheese.

Concentrating on the substitution, it was found that 34 respondents (35 per cent of cheese consumers) had completely substituted to cheese spread while 20 respondents had partially substituted cheese spread for their original products. From this, it is clear that consumers want a low-calorie (their butter-flavoured or cheese-flavoured) product which is also convenient to use (especially as bread spread). Manufactures can bring out a novel product which would have a tremendous potential.

SUMMARY AND CONCLUSIONS

CHAPTER VI

SUMMARY AND CONCLUSIONS

Milk and milk products play a vital role in human diet. Although India stands second in the world with a production of 203.5 million liters of milk per day, the per capita consumption is just about 211 grams per day. India exported dairy products mainly to the neighboring and Middle east countries which earned Rs. 3282 million foreign exchange during the year 1994-95.

Dairying was basically a backyard enterprise with just enough milch animals to cater to the dairy needs of the family and of late dairying has become a commercial enterprise. There are a plethora of dairy cooperatives, private dairies and vendors which supply milk and milk products to the teeming millions in the cities under several brand names. The country has achieved desired progress in production, the credit for which goes to the implementation of Operation Flood and other such dairy development programmes. The need of the hour is to emphasise on the marketing and consumption aspect.

Consumer in any production system plays a vital role around whom the whole system revolves and dairy products are no exception to this. In the present investigation, an attempt was made to examine the consumption pattern and factors influencing consumption of selected dairy products namely, butter, ghee and cheese.

Consumer preferences were also studied and demand forecast for the same was attempted.

The study was carried out in Bangalore city. Apart from being the capital of the state, it is also a metropolitan city. The city is also one of the test marketing centres for launching new products by well known corporates and business houses.

A multistage sampling technique was followed to collect data. A sample size of 200 respondents were chosen randomly from 20 selected localities at the rate of ten respondents from each locality which gives a representative picture of the city. Data were collected from women respondents purposively as it is the lady of the house who sets the consumption pattern of the family. Apart from this, she is also in a better position to give the entire family's consumption habits. Data were collected with the help of pre-structured and pre-tested schedules through personal interview.

The specific objectives of the study are :

1. To study the consumption pattern of selected dairy products namely, butter, ghee and cheese.
2. To examine the socio-economic factors that influence the consumption of selected dairy products.
3. To analyse the consumer preference for quality of butter, ghee and cheese.
4. To segment the market for selected dairy products.
5. To estimate the demand for the chosen dairy products in Bangalore city.

From the social, economic, cultural and demographic information so collected, the respondents were first segregated into three income categories by using frequency distribution. To study the consumption pattern, simple averages and percentages were calculated. Factors influencing consumption were studied by employing log-linear regression analysis. Conjoint analysis was used to understand the preferences of the consumers for table butter, ghee and cheese. Hierarchical clustering was made use of to segment the consumers into different groups based on their similarity of preferences for attributes. Demand was estimated using the available information on population growth rate and per capita income. Per capita consumption and income elasticities were calculated from the data.

6.1 Summary and Conclusions

The important findings of the study are summarised and suitable conclusions are drawn and presented below.

1. The general characteristics of the 200 interviewed respondents revealed that 32, 45.5 and 22.5 per cent consumers fell into low, middle and high income groups. The average monthly income of the above mentioned groups were Rs. 5552, Rs. 10028 and Rs. 19234 respectively. Majority of respondents belonged to the age group 28 to 43 years. The average family size of the sample was four with an average of two children per family.

2. Classification of respondents according to their food habit revealed that 38 per cent (76 out of 200) were vegetarians and the remaining 62 per cent were non-vegetarians. About 79 per cent of the sample respondents belonged to nuclear families. Fifty per cent of respondents were employed while 45 per cent were housewives. In the study area Hindus (74 per cent) were a dominant religious group followed by Christians (21.5 per cent) and Muslims were a minority of four per cent.

3. Purchase behavior of table butter showed that 101 out of 200 respondents consumed the product. Plain butter was consumed by 123, ghee by 194 and cheese by 95 respondents. A sizable proportion of the respondents do not consume table butter and cheese, the products could be popularised through mass media. Apart from this, the marketers can capture this potential section of the market by introducing free samples, small and convenient sized packs.

4. Ghee and plain butter being generic products were consumed by a large proportion of the sample. Table butter and cheese were used for breakfast and snacks mainly by the high income group.

5. Branded products were used by 94.5 (table butter), 47.9 (plain butter), 79.3 (ghee) and 96.8 per cent (cheese). The remaining consumers of the above mentioned products used either unbranded products or prepared the same at home. Over all 79.60 per cent of the consumers used branded products. This is because brand symbolised quality to them. The other reason for purchasing branded products is the lack of time,

especially by working women, to prepare these products at home. It was observed that more than 60 per cent of housewives made the buying decisions of their families.

6. Consumption pattern across income groups revealed that as the income increased the absolute expenditure on various food and non-food items increased. The relative expenditure of food to total decreased and that of non-food items increased. This is in tandem with Engel's law.

7. The relative expenditure of dairy to food also decreased as the income increased. The relative expenditure on ghee and cheese to dairy expenditure increased and then decreased across the income groups. In the case of table butter, the relative expenditure increased as income increased. As far as plain butter was concerned relative expenditure first decreased and then increased across the income groups.

8. Income and price were the factors that significantly influenced the consumption of table butter. It was observed that the price had the negative impact whereas the income had a positive influence on the consumption.

9. The consumption of ghee was positively influenced by number of adult family members, income and price of the product. It could be inferred that if the products are branded and priced high, the consumers would still buy the product as they perceive price as an indicator of quality and therefore a positive relationship was observed.

10. Cheese, just as in the case of table butter was influenced by price and income. Price exerted negative influence while income had a positive influence on the consumption of cheese.

11. Table butter and cheese are relatively new products as compared to ghee. For these products, price plays a vital role, it is therefore crucial to reduce the price and attract the non-consumers to try these products.

12. Quality preferences expressed by consumers for table butter in order of relative importance were good spreadability (40.5 per cent), low salt content (38 per cent), price (14 per cent) and colour was 7 per cent. Since the salt content (5 per cent) of the available brands is perceived as high, the manufacturers must therefore reduce the salt content of their product.

13. The results of conjoint analysis for ghee revealed that granular texture, well cooked flavour, golden brown colour and low price are the preferred attributes. Most of the available brands in the market do have these characteristics.

14. Most important quality attribute of cheese was texture followed by price. Cheese spread was preferred to processed cheese and mild flavour to strong. Since texture is given high prominence, it is important that cheese spread should have uniform texture if the company wants repeated sales.

15. The results of conjoint analysis revealed that price received higher relative importance when women made the buying decisions as compared to the other decision maker group.

16. The results of conjoint analysis showed that the consumers were more quality conscious than price. But the effect of price on the buying decision cannot be ignored. The marketers must therefore lower the price of their product to penetrate the market.

17. Three clusters were identified in case of table butter with 74, 8 and 17 per cent of the respondents. First segment gave an highest importance of 43 per cent to salt content, second to price with 38 per cent importance and the third to consistency with 35 per cent importance.

18. In the case of ghee, two segment were identified, first consisted of 66 percentage of respondents who attached 43 per cent importance to flavour and texture, whereas the second segment gave 58 per cent relative importance to flavour.

19. The cheese consumers were grouped into three clusters 68, 9 and 23 percentage of the respondents formed the first, second and third cluster. The first was texture conscious, second was both flavour and variety conscious where as the third was only flavour conscious.

20. It was found that table butter was slightly more income elastic (0.6793) as compared to ghee (0.5354) and cheese (0.27005) which were inelastic. This means that these products are considered as almost necessities.

21. Majority of consumers had switched over to cheese spread from butter and cheese mainly because cheese spread was convenient to use and few reported that cheese spread contained less calories and easy availability as the reasons for this substitution. Therefore there is tremendous scope to introduce novel product which would replace butter and cheese. Consumers would accept such a product as long as it is convenient to use and contains lesser calories.

6.2 LIMITATIONS

1. To analyse the consumption pattern, data over a period of time is required, which this study lacks.
2. This study has assumed insensitivity of consumer expenditure to price changes, invariance of income elasticities over time and price structure to estimate the demand.

6.3 FUTURE RESEARCH

Researchers can take up studies related to the same field in the below mentioned areas.

1. Brand preferences, brand switching and brand loyalty should be studied in this era of intense competition between brands.

2. In depth information on end users of the product and the preferences needs to be studied.

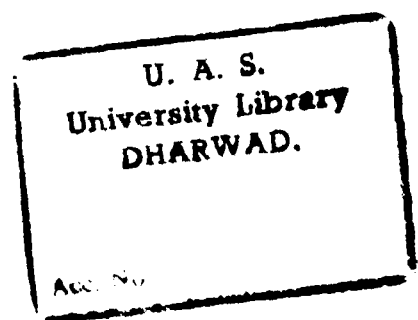
6.4 IMPLICATIONS OF THE STUDY

1. The manufacturers can promote the products easily if the preferred quality attributes – granular texture and well cooked flavour in the case of ghee are incorporated into the product.
2. Although the three considered products were found to be price inelastic, their consumption was responsive to quality. Thus a marginal increase in the price of the product would not affect its sales.
3. It was observed that cheese spread is substitutable for butter and cheese to certain extent. Therefore, it can be popularized among butter and cheese consumers through consumer education.
4. The study revealed that women made major buying decisions in the case of the considered dairy products. Sales promotion activities should be aimed at this target market.
5. As dairy products occupy 30 per cent of the consumer expenditure on food, consumer welfare can be improved if there is a technological breakthrough in production of fluid milk and /or dairy products which bring about a reduction in the costs of and price of the product. Consumer as they account for 30 per cent of the which will bring down the costs and price of the product

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CHAPTER VII

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APPENDICES

APPENDICES

Appendix I

List of localities selected for the study

- 1. Adugodi**
- 2. Basweswarnagar**
- 3. Cox Town**
- 4. Frazer Town**
- 5. Indiranagar**
- 6. Jal Vayur Vihar**
- 7. Jayanagar**
- 8. J.P.Nagar**
- 9. Jeevan Bima Nagar**
- 10. Koramangala**
- 11. Lingarajapuram**
- 12. Maruti Seva Nagar**
- 13. Rajajinagar**
- 14. Richmond Town**
- 15. R.T.Nagar**
- 16. Sanjaynagar**
- 17. Shivaji Nagar**
- 18. Shanti Nagar**
- 19. Viveknagar**
- 20. Vidyaranyapura**

Appendix II

University of Agricultural Sciences

SCHEDULE

RESEARCH TOPIC : A STUDY OF HOUSEHOLD CONSUMPTION PATTERN FOR SELECTED DAIRY PRODUCTS IN BANGALORE CITY.

(To be answered by Women only)

1. Name
2. Age
3. Educational qualification
4. Occupation
5. Religion
6. Place of origin/Region
7. Locality presently living in
8. Food habit : Veg/Non-veg
9. Type of family : Joint/Nuclear
10. Family particulars (please mention)

Members	Age	Educational status	Occupation	Monthly income
I Male				
1.				
2.				
3.				
4.				
II Female				
1.				
2.				
3.				
4.				
III Children				
1.				
2.				
3.				
4.				

11. Income from any other source : _____

12. Tick the appropriate answer

Does your family consume

(a) Table butter

Yes / No

(b) Plain butter

Yes / No

(c) Ghee

Yes / No

(d) Cheese

Yes / No

13. If your family does not consume any of the above mentioned products :

Reasons

Product	Not aware of the product	Aware but haven't used	Used but discontinued
Table butter Plain butter Ghee Cheese			

13a. If you are aware of the product (s), but haven't used : Reasons

Reasons	Table butter	Plain butter	Ghee	Cheese
Expensive Dont require it for preparations Medical reasons Others				

13b. If you have used the product and later discontinued : Reasons

Reasons	Table butter	Plain butter	Ghee	Cheese
Did not develop a taste for it Expensive High calorie Others				

14. If you consume butter, ghee and cheese : Reasons

Reasons	Table butter	Plain butter	Ghee	Cheese
Traditional usage Nutritive value Adds taste/flavour to cooking Ready to use Trendy Children like it Others				

15. Source of information about the product you are using :

Reasons	Table butter	Plain butter	Ghee	Cheese
Tradition/age old custom Friends & relatives Magazines T.V. & Newspaper Doctor's advise Retail shop Others				

16. Monthly consumption expenditure (in rupees)

Food	Non-food	Dairy products	Butter, ghee & cheese

Note :

Food includes : cereals, pulses, vegetables and fruits, oil, meat & meat products, bakery products, etc.

Non-food includes : Housing, medical expenditure, utilities(gas, water, electricity) education, clothes, transportation, alcohol, tobacco, etc.

17. Who makes buying decisions : _____

18. Source of the product :

Product	Branded	Unbranded	Prepared at home
Table butter Plain butter Ghee Cheese			

19. If the product is prepared at home :

Raw material	Bought from			
	Retail shop	Bakery	Vendors	Others

20a. Monthly consumption expenditure on the selected dairy products :

Product	Quantity purchased	Price/unit	Amount paid
Table butter			
Plain butter			
Ghee			
Cheese			

20b. Expenditure on selected dairy products on special occasions (annually)

Product	Occasion	Quantity purchased	Amount paid
Table butter			
Plain butter			
Ghee			
Cheese			

21. Where do you generally buy the following products

Product	Grocery shop	Departmental store	Market	Bakery	Others
Table butter					
Plain butter					
Ghee					
Cheese					

22a. Does your family eat out : Yes / No

22b. Kind of food consumed, frequency and expenditure (monthly)

Type of food	Frequency	Expenditure

23. If the product of your choice is not available you (a) substitute it
(b) Do without it

24. If you substitute, reasons

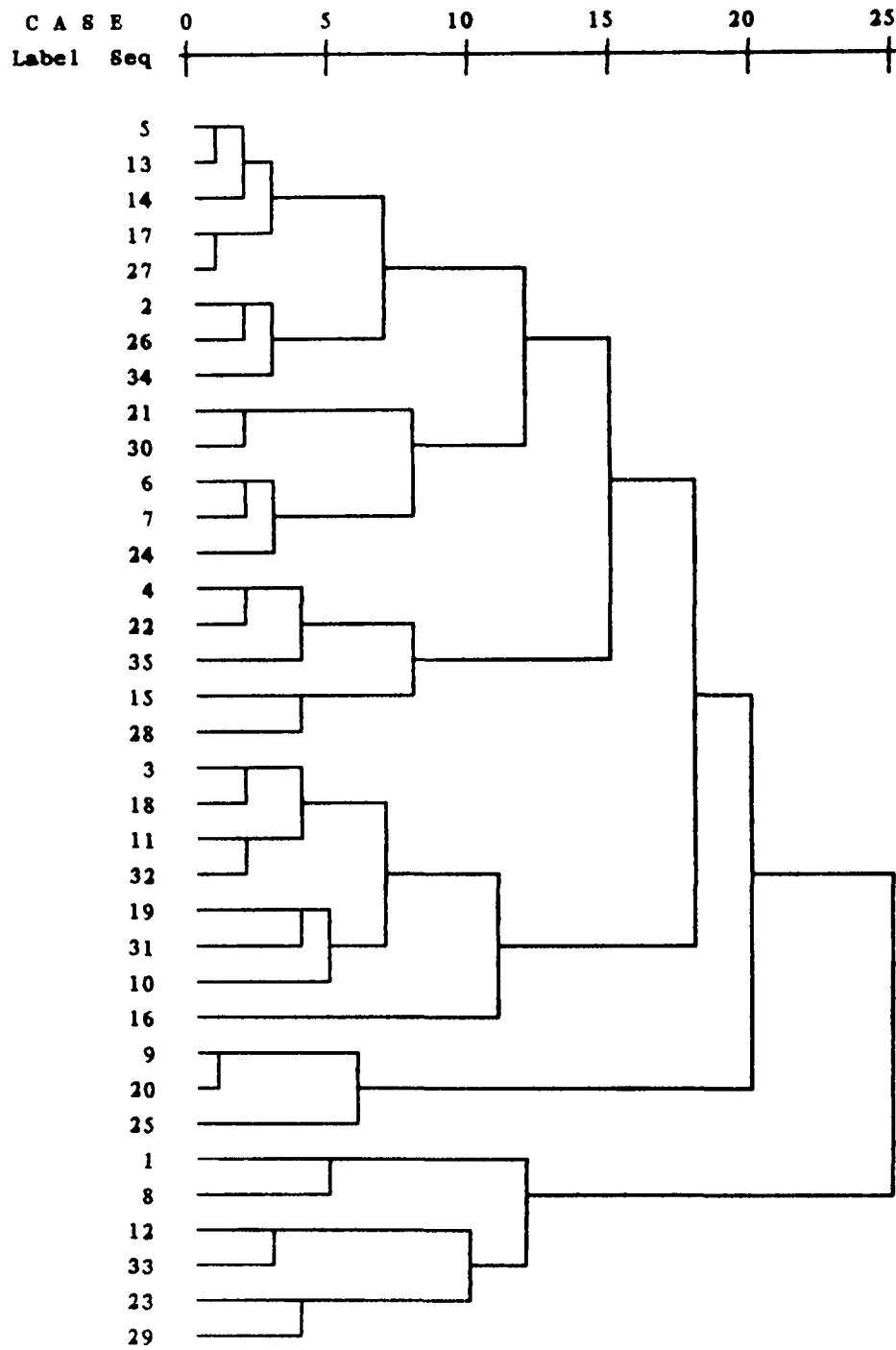
Product	Substituted by	Reasons
Table butter		
Plain butter		
Ghee		
Cheese		

25. Answer this question if your family consumes cheese spread

- a. Do you consume cheese spread because it is
- (i) Available
 - (ii) Less calories
 - (iii) Convenient
 - (iv) Others
- b. You have shifted over to cheese spread from
- (i) Butter
 - (ii) Cheese
 - (iii) Others
- c. Is the shift
- (i) complete
 - (ii) incomplete

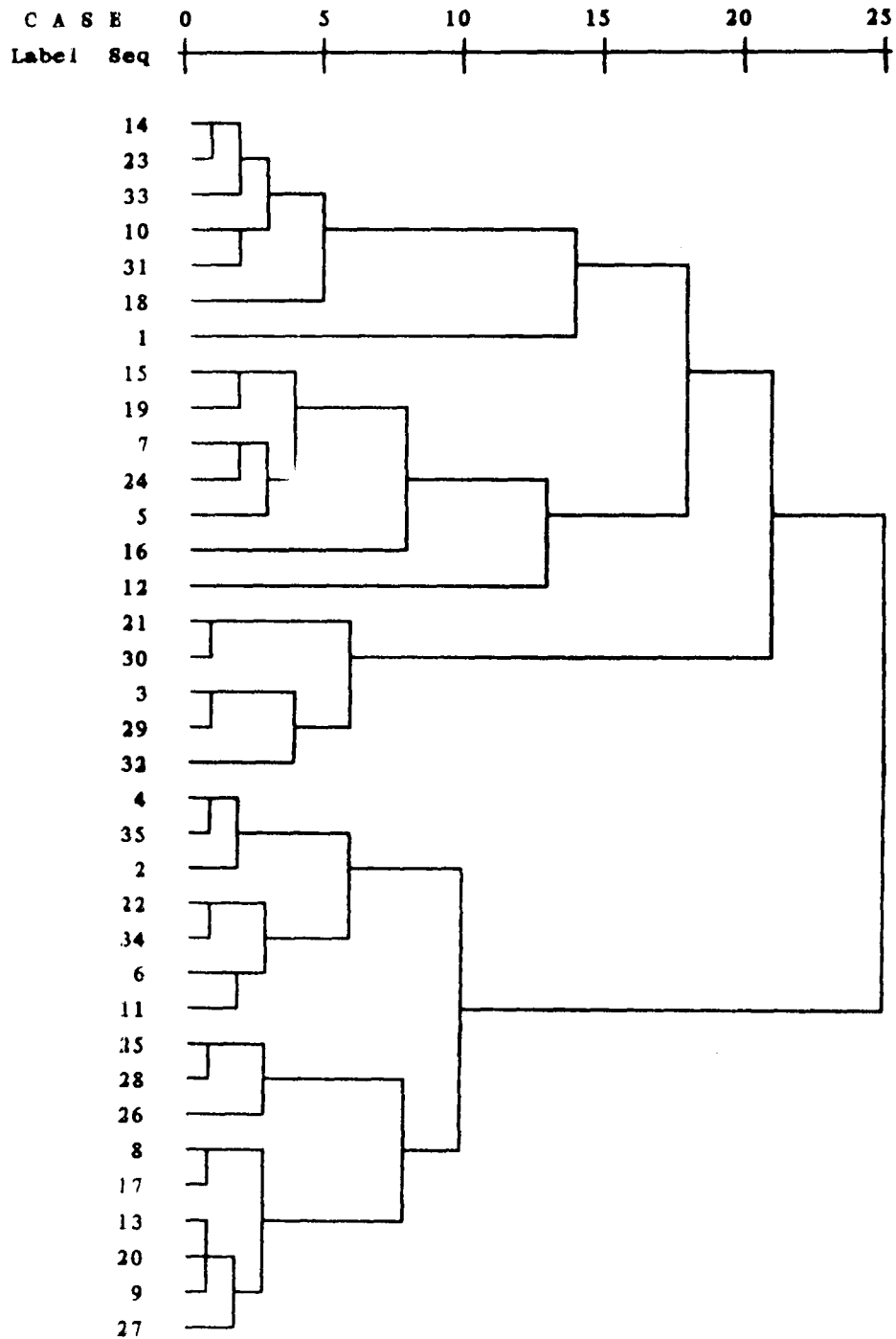
Appendix III

Hierarchical Cluster Analysis of Table Butter



Appendix IV

Hierarchical Cluster Analysis of Ghee



Appendix V

Hierarchical Cluster Analysis of Cheese

