



ORIGINAL RESEARCH PAPER

Commerce

CONSUMERS PERCEPTION TOWARDS COFFEE – A STUDY IN TIRUNELVELI CITY

KEY WORDS:

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1.Introduction :

Coffee is one of the most traded commodities in the world and India is the world's sixth largest producer, accounting for over 4% of world coffee production (Coffee Consumption in India, 2008). As far as domestic demand for coffee is concerned, it is largely confined to the southern regions particularly the states of Tamil Nadu (Coffee Consumption in India on the Rise, 2005; Radhakrishnan and Reddy 2007). However, new trends are emerging with coffee being just a traditional South Indian drink to becoming a trendier beverage in India as a whole.

1.1 History of coffee

Coffee was first discovered in eastern Africa in Ethiopia. A popular legend refers to a goat herder by the name of Kaldi, who observed his goats acting unusually frisky after eating berries from a bush. Curious about this phenomenon, Kaldi tried eating the berries himself, and they gave him a renewed energy. There are around 25 varieties of coffee under 'Coffea' known to the World. But only two of these varieties, *coffea arabica* and *coffea canephora* (or *coffea robusta*) are very much popular and are widely used throughout the World. About 70 per cent of the coffee production is constituted by *coffea arabica* and 25 per cent by *coffea robusta*. *Coffea arabica* is largely produced by Brazil and Columbia and is known for its best quality India stands 6th in the list of coffee producing countries, but contributes only 4 per cent of the World's coffee production.

1.2 Consumption trend of coffee

Coffee consumption in urban markets in India is estimated at around 55,000 tonnes annually, excluding those under the age of 15 years and captive consumption by the armed forces, according to the first comprehensive survey on coffee consumption in India. The "Coffee Consumption in Urban India 2001" report was commissioned by the Indian Coffee Board to better understand coffee drinking habits and practices, coffee demand by location and preparation method, the daily share of coffee within the overall beverage sector, attitudes towards coffee and opportunities for and barriers to coffee consumption. The Indian survey shows that penetration of coffee as a beverage is high at 82 per cent which is the dominant beverage even in traditional coffee areas of Southern India. Three out of four adults across India had consumed instant coffee at least once in a year, while roast and ground coffee has a penetration of 19 per cent. Per capita consumption of coffee in India is estimated at 0.5 cups as opposed to 2 cups for tea, with coffee drinking being practically non-existent in the north and east. However, the number of cups consumed daily per drinker of coffee across India is 2.1 cups, broadly in line with the 2 cups consumed per drinker of tea. The studies by zone and age show that coffee consumption increases significantly in winter months in both the north and the east across all ages groups. Northern India is a key target area for the promotion of coffee. The region has a vast population but per capita consumption of coffee is only around 10 grams as opposed to an average 54 grams in the rest of the country.

1.3 Health benefits of coffee

Drinking a cup of coffee is helpful in counteracting sleepiness during the day and also mental sluggishness, brought about by prolonged concentration and mental effort, such as in a repetitive job. More importantly, caffeine has been shown to induce a positive effect and it is this ability to lift an individual's mood that makes coffee an important source of pleasurable activity and individual happiness. Like the much publicized green tea, which has garnered considerable attention due to its high antioxidant

content, researchers have found that coffee is quite high in antioxidants. Coffee may help to manage asthma and control attacks when medication is not available and stops headache, boosts mood and even prevent cavities according to a recent study.

Choi (2016) analyzed data from a US health and nutrition survey between 1998 and 1994. The study was based on a survey of 50,000 men aged between 40 and 75 years with no history of gout. They filled a detailed questionnaire about dietary habits, including what they drank. Over the 12 years of the study, during which 757 men developed gout, the risk was lower for those who drank more coffee. The researcher found lower levels of uric acid in the blood of those who consumed large quantities of coffee. Coffee could hold the secret of curing male baldness, according to new research. Scientists have discovered caffeine stimulates the growth of tiny follicles in the scalp in men who are starting to lose their hair. Italian researchers (2016) have found that having one or two cups of coffee a day could protect a person from eye tremors-a condition in which there is sustained, forced, involuntary closing of the eyelids. The researchers had found a significant association with those who drank coffee

1.4 Objectives of the study

1. To study the consumption pattern of coffee
2. To examine the socio-economic factors influencing the consumption of coffee
3. To study the health aspects of coffee

1.5 Hypotheses

1. Coffee are consumed regularly by the people of Tirunelveli
2. Socio-economic factors have a positive influence on the consumption pattern of coffee
3. Coffee consumption cures certain disorders in human beings

2.Methodology

2.1 Description of tirunelveli city

Tirunelveli is the fifth largest city in Tamil Nadu with an area of 6826 sq km. It is situated between 8.71 latitude and 77.6 longitude. According to 2011 census tirunelveli has a total population of 4.72 lakhs comprising of 2,33,000 males and 2,39,000 females with an overall literacy of 91 percent. Rural population is about 1,73,000 and urban population accounts for 3,00,000.



2.2 Sampling Design

Sampling is the procedure of drawing representative samples from the population for the study. Whatever inference is obtained can be used for inductive reasoning of the population. Samples should always represent the population and the size of the sample must be adequate to draw meaningful inference about the population.

2.3 Sample Selection

To study the consumer behaviour towards consumption of coffee sampling technique was adopted .In the initial stage, north and south parts of tirunelveli was chosen for the study. In the north Vannarpettai, Thalayiuthu and Shanker nagar were selected and in south Perumalpuram, NGO colony and Tuckerammalpuram were taken into account, accounting to 60 sample households from where information regarding their consumption towards beverages were studied using a well structured and pre tested schedule. From these 60 households information on 300 respondents was obtained

s.no.	Particulars	Unit	Tirunelveli
1	Total area	Km	199
2	Number of wards	No's	54
3	Population	No's	4.74 lakhs
4	Males Population	Mn	2.33 lakhs
5	Females Population	Mn	2.39 lakhs
6	Male literacy rate	Percent	47.9
7	Female literacy rate	Percent	52.1

2.4 Nature and source of data

The detailed information required for the study was collected from the primary sources in order to accomplish the various objectives of the study. The primary data relating to the consumption behaviour of coffee and tea were collected from the respondents by personnel interview method to ensure that the data made available by them was adequate, comprehensive and reliable.

Information on the following aspects was collected from 60 households is as follows;

- 1) General information from the individual respondents regarding their social, economical and demographic characteristics like age, education status, occupation, monthly income, family size and family type.
- 2) Monthly family expenditure on food and non-food items in general and coffee and tea in particular were collected.
- 3) Information regarding the consumption pattern of coffee and tea was obtained.
- 4) Attributes influencing the preference of a particular coffee and tea brand was obtained from the sample respondents.

2.5 Variables of the study and their measurement

For evaluating the socio-economic factors influence on consumption of coffee and tea, few variables were selected for the study.

a) Age

Age was measured as the number of calendar years reported to have been completed by the respondents at the time of interview. The respondents were categorized in to three groups based on their age, using the formula: mean +/- (0.425 X Std dev)

Category	Range (Years)
Younger age group	Up to 35
Middle age group	35 – 50
Older age group	Above 50

b) Education

It refers to the number of years of formal schooling, successfully completed by the respondents. The respondents were grouped into the following categories: illiterate, primary schooling, high schooling, SSLC, PUC, graduation and post graduation.

c) Family type

It refers to the classification of family as nuclear and joint family. Nuclear family represents the families with single couple and unmarried children. Joint family is the family consisting of more than one couple and married children living together. The respondents were categorized accordingly and expressed in frequency and percentage.

d) Religion

Religion refers to the particular system of faith and worship. The respondents were categorized under Hindu, Muslim, Christian

religions.

e) Total family income

The total family income of the respondents was worked out by taking into account the income generated by all the members of the family from income generating activities and occupations in a month. Categorization of the respondents based on the total family income was done using the formula: mean +/- (0.425 X Std dev). The categories were,

Category	Income range (Rs)
Low income group	7000-12000
Middle income group	12000-25000
High income group	More than 25000

2.6 Tabular analysis

Percentage analyses were used to study the socio-economic characteristics of the sample respondents like age, educational status, religion, occupation, family size and type. The consumption behaviour of consumers towards beverages, place of purchase, frequency of consumption and quantity purchased were also analyzed using percentage analysis.

2.6 Statistical analysis

The following statistical tests and analyses were carried out to draw a meaningful inference.

A)Chi-square distribution

The chi-square distribution has many uses in the field of testing of hypotheses. They are used to test whether a population has given variance; to test 'goodness of fit' of a theoretical distribution to a observed distribution; and to test independence of attributes in a contingency table. Chi-square tests are also used for testing some non-parametric hypotheses.

Let Z_1, Z_2, \dots, Z_n be n independently distributed standard normal variables. Then, the distribution of chi-square is equal to $Z_1^2 + Z_2^2 + \dots + Z_n^2$ is called chi-square distribution with n degrees of freedom Here chi-square has n independent variable components. Therefore, its degrees of freedom is n. the degrees of freedom of chi-square is the number of independent components that it has.

In a population, suppose we consider two attributes, we may find dependence (association) between them. For example, suppose workers of a factory are classified as 'smokers' and 'non-smokers' and they are also classified as 'men' and 'women'. Here, we may find the number of 'smokers' is more among 'men' than among 'women'. And so, we say that the attributes 'smoking' and 'sex' is dependent (associated). The statistical hypothesis under test is that the two attributes are independent of one another. To test the hypothesis, we use the test statistics:

$$\chi^2 = \frac{\sum (O - E)^2}{E}$$

Where,

O = Observed frequency

E = Expected frequency

B) Student's t-distribution

When mean and variance are independent variables, the statistics 't' is distributed in the form defined by Student and Fisher. This condition holds good only for samples drawn from normal population. Therefore, 't' distribution is applicable only to samples which are drawn from normal population

The 't' distribution is similar to the normal curve since it is single peaked at, and symmetrical about, a zero mean, for the case in which area under the distribution is unity. The 't' distribution is a whole family of distribution, one for each value of degree of freedom. The variance of 't' distribution is more than the variance of standard normal distribution but it approaches the variance of the standard normal distribution as the degrees of freedom increases. The statistic 't' ranges from negative infinity to positive infinity. The graph of 't' distribution is lower at the centre and high

at tails than standard normal curve.

$$t = \frac{x_{1m} - x_{2m}}{\sqrt{S_p^2[(1/n_1) + (1/n_2)]}}$$

With $(n_1 + n_2 - 2)$ degrees of freedom

Where,

x_{1m} = Mean of the first group

x_{2m} = Mean of the second group

n_1 = Number of observations of the first group

n_2 = Number of observations of the second group

S_p^2 = Pooled variance and is given by,

$$S_p^2 = (SS_1 + SS_2) / (n_1 + n_2 - 2)$$

Here, SS_1 and SS_2 are the sum of squares for first and second samples, respectively.

c)Functional/Regression analysis

To study the factors influencing on the quantity of beverage purchased by the sample respondents, multiple linear regression analysis was used. In the analysis, monthly quantity of beverage consumed was used as a dependent variable and the independent variable used were price of the beverage, monthly family income, number of family members, age and education. The function form of regression equation used was

$$D = f(X_1, X_2, X_3, X_4, X_5)$$

Where,

D= Demand for coffee and tea (kgs per month)

x_1 = Age (number of years)

x_2 = Education (number of years of professional schooling completed)

x_3 = Family size (number)

x_4 = Total family income (Rs. per month)

x_5 = Price per unit of the beverage (Rs. per kilogram)

Analysis and interpretation of general characteristics of sample respondents

TABLE 4.1 Socio-economic profile of the respondents in the selected districts

Variables	Categories	Urban	Rural	Total
Education	Illiterate	3	10	13
	Primary schooling	6	6	12
	High schooling	4	6	10
	SSLC	5	2	7
	PUC	2	3	5
	Degree	6	2	8
	Post Graduation	4	1	5
	Total	30	30	60
Religion	Hindu	15	13	28
	Christian	8	11	19
	Muslims	7	6	13
	Total	30	30	60

From the above table 4.1 the total number of sample household was 60 comprising of 30 households each from urban and rural areas. Based on education majority of them in urban areas were graduates (33.33%) followed by SSLC degree holders (16.67%) and post degree holders 12.99%, only 3% were illiterate. In rural areas 16.67% were illiterate. In rural areas only 33.33 were illiterate and only 10% were graduates. Regarding religion hindus were the majority accounting more than 50% both in urban and rural areas, then comes the Christians and Muslims.

TABLE 4.2 Classification of sample respondents based on age and income

s.no	Classification	Urban	Rural	Total
1.	Age group			
A	Young age group	3	2	5
B	Middle age group	2	6	8
C	Old age group	25	22	47
	Total	30	30	60

2.	Income groups			
A	Low income group	6	6	12
B	Middle income group	2	4	6
C	High income group	22	20	42
	Total	30	30	60

The classifications of sample respondents based on age and income young age group with 20% of respondents and middle age group with 6% of total population and 67.66% comprised of old age group. In rural areas 66% 6.66% belong to young age group and 20% of respondents belong to middle age group and 66.6% belong to old age group, in both the urban and rural areas the old age group has the highest number.

The income of respondents was grouped into 3 categories, the lower income group was from 7000-12000, middle income group was from 12000-25000 and the higher income group was 25000 and above, From the above table 20% of the people are from low income group both in urban and rural areas and 6.66% are middle income group in urban areas, 12.3% in rural areas. The higher income group people in both urban and rural areas are 67.66% and 66.66% of the sample households.

TABLE 4.3 Decision makers in the family regarding food purchase

Decision makers	Urban	Rural	Total
Family head	6	4	10
Wife	2	4	8
Mother	2	-	2
Whole family	20	22	44
Total	30	30	50

Of the total sample households more than 66.67% agreed that all members of family were equally involved in taking decisions and 20% of decisions were taken by family heads and only 6% of the decisions were taken by wife. The old aged mother has equally participation as the wife in urban areas and in rural areas 68% of the decisions were taken by the whole family and both the husband and wife have the equal contribution towards decision making

TABLE 4.4 Estimated equation for coffee powder in urban and rural areas

		Coffee powder	
		Urban	Rural
Intercept	a	0.76	1.62
Age	b₁	7.17E-04	-1.76E-03
Education	b₂	0.12**	-5.41E-02
Family size	b₃	4.40E-02	0.18**
Total family income	b₄	1.15E-05	1.65E-07
Price per unit	b₅	-4.97E-03	-5.17E-03**
R²		0.59	0.67
Price elasticity		-2.28E-05	-3.47E-05
Income elasticity		1.19E-03	1.22E-05

Factors influencing consumption of coffee and tea: A perusal of Table 4.4 reveals that only education turned out to be statistically significant at one per cent level of significance with respect to coffee consumption in urban areas. The co-efficient of multiple determination (R^2) was 0.59 implying a good fit to the data. It could be observed that family size and income had a positive influence on coffee demanded, while the price per unit of coffee negatively influenced the demand for coffee. In the rural areas, the scenario was quite different. Family size and the price per unit of coffee were highly significant (at one per cent level of significance), while the rest of the factors like age, education and total family income were not significant. The co-efficient of multiple determination was 0.67.

To identify the factors influencing the demand for the coffee and tea, a multiple linear regression method was used. This functional form was selected as it gave a better fit to the data. The dependent variable selected for the model was quantity of beverage consumed, measured in kgs. The independent variables were age,

education, family size, family income (Rs. Per month) and price per unit (Rs.). The results of the regression are presented in Table 4.4.

TABLE 4.5 Association between nativity and region in coffee and tea consumption

Beverage	zones	Urban		Rural		χ ² value
		Consumers	Non consumers	Consumers	Non Consumers	
Coffee	North	8	7	-	18	7.43
	South	12	3	4	8	5.05
Milk	North	15	-	15	-	-
	South	15	-	15	-	-
Horlicks	North	15	27	1	20	6.73
	South	15	3	14	10	0.57
Ragi malt	North	4	16	8	12	1.48
	South	-	10	-	18	-

'ns' :Non-significant at 5 and 1 per cent level of significance

'*' :Significant at 5 per cent level of significance

'**' :Significant at 1 per cent level of significance

From the above table in the north zone only 10 out of 30 samples in urban area consumed coffee and the non consumers were 7(23.3%) in the north region and 23(76.6%) in south region. There was 100 percent of consumption of milk in rural and urban areas. Ragi malt was preferred by only 4 (13.3%) sample households in urban area of the north and in the rural it is 8(26.6%) while there were no consumers in the southern part.

TABLE 4.6 Monthly expenditure pattern of urban and rural households

S. no	Parameters	Mean values		Overall mean	t- value
		Urban	Rural		
1.	Coffee				
a)	Total quantity purchased	1.25	1.16	1.20	1.01 ns
b)	Total expenditure	235.13	160.39	197.76	3.70**
c)	Percent of income spent	1.17	1.33	1.25	-1.58ns
2.	Milk				
a)	Total quantity purchased	28.13	24.76	26.95	3.09**
b)	Total expenditure	475.82	402.49	438.95	3.38**
c)	Percent of income spent	2.87	5.07	3.97	-5.39**
3.	Total food items				
a)	Total expenditure	2620.3	2029.03	2375.40	4.96**
b)	Percent of income spent	16.46	23.88	20.17	-3.99**

The expenditure pattern of the sample households in the urban and rural areas are given in the Table 4.5. The results show that the urban households spent higher (Rs. 2620.93) compared to the rural household (Rs. 2129.88) in case of total food items. The total food expenditure of all the sample households stood at Rs. 2375.40. Looking into the percentage of income spent on food items, the rural households had to spend more percentage of their income (23.88%) while the urban counterparts spent about 23.88 per cent. On an average, about 20 per cent of the total income of the sample respondents was spent on the food items.

The urban households purchased a total of 1.25 kgs of coffee and/or tea powder every month, while the rural ones purchased 1.16 kgs. The average total quantity of coffee and/or tea powder purchased by all the sample respondents was 1.20 kgs per month. Its t-value was non-significant at 1.01. Comparing the expenditure, urban households spent relatively more at Rs. 235.13 and the rural households spent Rs. 160.39. On an average, Rs. 197.76 was spent on coffee and/or tea powder every month. Looking into the percentage of income spent on the coffee and/or tea powder, it was 1.17 per cent of the income for urban, 1.33 per cent of the income for rural respondents.

Health aspects of coffee

Consumption of a regular cup of coffee is not injurious to health, advocates many doctors. People drink coffee and tea not only for

its aroma and taste, but also to have a pleasant experience. Recommended frequency of coffee consumption suggested by respondent doctors The doctors felt that 16 years of age was idea for recommending coffee and tea consumption. This may be due to the fact that the caffeine in these beverages are mild diuretic and also because these beverages gives a boost during the day and by consumption of these, it is known to take a little longer time to fall asleep. The respondent doctors have recommended a maximum of three cups of the beverage per day. This could be in light of the fact that, the caffeine present in these beverages, which is a naturally occurring substance, may cause some side effects to the human body.

Findings of the study

1. Based on education majority of them in urban areas were graduates (33.33%) followed by SSLC degree holders (16.67%) and post degree holders 12.99 % , only 3% were illiterate .In rural areas 16.67 % were illiterate .In rural areas only 33.33 were illiterate and only 10% were graduates .Regarding religion hindus were the majority accounting more than 50 % both in urban and rural ares, then comes the Christians and Muslims
2. The classifications of sample respondents based on age and income young age group with 20% of respondents and middle age group with 6% of total population and 67.66% comprised of old age group.In rural areas 66% 6.66% belong to young age group and 20% of respondents belong to middle age group and 66.6% belong to old age group, in both the urban and rural areas the old age group has the highest number.
3. The income of respondents was grouped into 3 categories, the lower income group was from 7000-12000, middle income group was from 12000-25000 and the higher income group was 25000 and above , From the above table 20% of the people are from low income group both in urban and rural areas and 6.66% are middle income group in urban areas ,12.3% in rural areas .The higher income group people in both urban and rural areas are 67.66% and 66.66% of the sample households.
4. Of the total sample households more than 66.67 % agreed that all members of family were equally involved in taking decisions and 20% of decisions were take by family heads and only 6 % of the decision were take by wife .The old aged mother has equally participation as the wife in urban areas and in rural areas 68% of the decision were taken by the whole family and both the husband and wife have the equal contribution towards decision making
5. Education turned out to be statistically significant at one per cent level of significance with respect to coffee consumption in urban areas. The co-efficient of multiple determination (R²) was 0.59 implying a good fit to the data. It could be observed that family size and income had a positive influence on coffee demanded, while the price per unit of coffee negatively influenced the demand for coffee. In the rural areas, the scenario was quite different. Family size and the price per unit of coffee were highly significant (at one per cent level of significance), while the rest of the factors like age, education and total family income were not significant. The co-efficient of multiple determination was 0.67.
6. Urban households spent higher (Rs. 2620.93) compared to the rural household (Rs. 2129.88) in case of total food items. The total food expenditure of all the sample households stood at Rs. 2375.40. Looking into the percentage of income spent on food items, the rural households had to spend more percentage of their income (23.88%) while the urban counterparts spent about 23.88 per cent. On an average, about 20 per cent of the total income of the sample respondents was spent on the food items.
7. The urban households purchased a total of 1.25 kgs of coffee and/or tea powder every month, while the rural ones purchased 1.16 kgs. The average total quantity of coffee and/or tea powder purchased by all the sample respondents was 1.20 kgs per month. Its t-value was non-significant at 1.01. Comparing the expenditure, urban households spent relatively more at Rs. 235.13 and the rural households spent

Rs. 160.39. On an average, Rs. 197.76 was spent on coffee and/or tea powder every month. Looking into the percentage of income spent on the coffee and/or tea powder, it was 1.17 per cent of the income for urban, 1.33 per cent of the income for rural respondents.

Summary

The present pattern of coffee consumption is influenced by income per capita. Religious influence played some part in the early development of coffee but have little relevance at the present.

In the past, coffee was regarded as an "old fashioned" beverage for older people, with just two flavours: regular and decaf. Coffee, of late has become relevant and contemporary. Coffee houses or bars have sprung up across the country, making coffee an important part of social gathering places. In many communities, coffee bars have become innovative: some provide personal computers so that customers can surf the Net, while others provide match-making services. There is a wide variety of coffee offerings, from size, flavour, preparation and toppings and plenty of gourmet and specialty shops to provide them.

For the last few years, new product trends have been driven specifically by consumer demand for more complex, upscale coffee, both in and outside of their homes. The increased sophistication of the coffee drinker's palate means that coffee as a whole is moving away from the "Cuppa-Joe" image and towards a richer, more complex drinking experience. So, as the trend towards single cup preparation at home is building more and more momentum, packaging innovators are looking at how-to best present pods to these consumers on retail shelves.

Conclusion

- i. There is a vast scope for coffee promotion in the northern tirunelveli city. The dealers of coffee must play a strong role here.
- ii. The manufacturers of coffee brand must give more importance to the quality and as milk is consumed by all coffee should be made the next substitute for milk, also the dealers should concentrate on the old age group both in urban and rural areas
- iii. The price of the coffee powder obtained highest relative importance in both northern and southern regions of Tirunelveli. Hence the manufacturers of different coffee and tea brands should keep its prices as competitive as possible.
- iv. The family heads and the better half of the respondents were the major decision takers regarding the food purchase in the urban and rural areas. Hence the advertisements should target them for effective marketing of their brands.
- v. There must be development of coffee shops to encourage out-of-home consumption. They must provide a wide selection at affordable prices for the consumers.
- vi. Awareness about the health benefits associated with the consumption of coffee and tea must be educated to the people.

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