Determinants of Non-Alcoholic Beverages: A Case of Punjab Pakistan

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Abstract

This current research endeavors to study important factors having a significant impact on consumer's choice of beverages in Punjab province of Pakistan. Beverages in two major categories of 'hot' and 'cold' have been studied to examine consumer consumption pattern. Data has been collected through interview from 80 respondents belonging to these two major cities of Punjab i.e. Lahore and Faisalabad by incorporating stratified random sampling technique. These two cities of Punjab were selected because of their big departmental stores like Metro cash and carry store, AL-Fateh and others. A pre-tested and well-arranged questionnaire was used for data gathering from the respondents. To estimate the outcome of factors affecting the choices of consumers (demand function), multiple regression was incorporated. Results of this research showed that consumption pattern of cold beverages was affected significantly by consumer income, cold beverages prices, city selected for survey and number of adolescents in a family whereas factors which affected the consumption of hot beverages were food expenditure, living area, marital status, income, working persons in a family and family size. Due to availability of various brands of beverages, consumption is accelerating with the passage of time and consumers are willing to pay for beverages due to change in various socio-economics factors in the society. So, local industry should produce cost effective and quality drinks to enhance the usage.

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1. Introduction

A beverage is a drink that is used explicitly for consumption of humans. This beverage industry in Pakistan has seen a prompt development during the last couple of years. Juices, soft drinks, syrups, squashes and milk are the products of this industry (Ahmad, 2003).

Worldwide, the beverages consumption has been increased enormously (Popkin, 2012). Beverages are classified as alcoholic as well as non-alcoholic; and non-alcoholic is further categorized as cold and hot beverages. Changing priority of consumer, increase in government directives and globalization has a great influence on the manufacturing of these beverages around the globe.

Beverage and processed food industry have an enormous contribution in Pakistan industrial division. There is a contribution of 16% of entire employment and 27% of the whole production in manufacturing component (Shabir, 2004). More than 900 units were involved in food and beverages manufacturing (Haidari, 1997). Industrial revolution has created a huge impact on this industry and as a result of it, this industry has grown massively in Pakistan.

Ahmad (2003) revealed that all over Pakistan almost 170 beverage industrial units are working at present. Beverages industrial production reached to a level of $2 billion during the previous years Khan (2009). People living in Pakistan consume non-alcoholic beverages to a great extent. Life style is changing rapidly, population is growing and shifting towards urban areas and due to this there is a rapid growth of beverages industry. Among beverages, fruit juices, soft drinks, tea and coffee are the most prevalent. Even most of the people prefer to have a beverage along with meals.

In comparison with the carbonated drinks, processed fruit juices are considered to be nutritious, manufacturing for their refreshing and energizing feature because it carries healthy stable nourishment along with vitamins and minerals that are our body's requirement (Mohamed & Eissa, 2012). That's why these juices are very much popular and expanding all over Pakistan especially in hotels and hospitals where they are effectively advertised and promoted (Maqbool, 2008). At this time,

there are thirty-eight production units of fruit juices, squashes and syrups are operational in all over the country. Major manufacturing includes Mitchells Fruits, Nestle and Benz.

Primarily, fruit juices manufacturing units are being functioned in Lahore, Hattar, Loralai, Sargodha, Karachi, Hyderabad and Bahawalpur. Major fruit juices market is in a form of 250 ml packaging. Due to a rise in raw material and packing cost, the prices of the fruit juices and other associated products have been escalated in the local market (Bardhan, Jha, Jaiswal, & Alenis, 2010). Due to the fruit juice, as a preferred choice around the globe shows the possibility to increase in the growth of this industrial sector, in addition to this fruit industry has rapidly flourished because of increased exports and exclusion of CED (custom and excise duty) which are locally manufactured on fruit juices (Maqbool, 2008).

People in Pakistan consume juices very much and reason behind the success of these drinks is mainly associated with the availability of branded beverages as *Nestle Fruit Juices, Rani and Minute Maid* etc. (Aslam & Rasool, 2013). Hot beverages like tea or coffee are used massively in Pakistan and its market has grown promptly due to the opening of different coffee shops where many people approach for coffee consumption. Its consumption is much lesser than tea due to availability of inexpensive tea and lesser buying power.

Traditionally, tea is widely used in Pakistan and is served as guest and household servings. There are many brands of tea prevailing in the market. Tea is also imported and Pakistan is the 3rd major tea importer. Increase in per capita income and urbanization are the main causes of increase in tea consumption (Shabir, 2004). In Pakistan, per capita tea consumption is about one kg per annum. More than 140 tons of tea is being imported by Pakistan (Waheed, Hasid, Ahmad, & Khan, 2002).

In order to satisfy wants regarding purchase and using products, consumer behavior assists in examining diverse activities and procedures that many people are involved in. Environmental factors like season and weather and social factors like culture, income, and subculture and reference group influence the purchasing pattern. External factors

like changing life styles and consumption pattern and psychological factors as perception, self-benefits and learning also play a vital role in this aspect.

If we go through the existing literature related to the user's decision to choose and their priorities, it is revealed that many surveys are present which describe the impact of significant variables that affect the priorities of users for the different things such as for fresh meat (Becker, 2000), for meat (Grunert, Bredahl, & Bruns, 2004) and for the organic food (Shaharudin, Pani, Mansor, & Elias, 2010) etc. Some empirical surveys are present that describe the user choice for the drinks are rare and these include Murtaza et al., (2004), Grimm, Harnak, & Story, (2004), Khan (2009, June 28) etc. In this survey, it was planned to examine the significant factors which affect the user's preferences in the two main cities for beverage industry.

2. Literature Review

Pollard, Kirk, and Cade (2002) concluded that decision of food choice is related to the intake of fruits as well as vegetables by the consumers. Some problems make this decision difficult such as sensory appeal, habits similarities, social contact, media and ads, cost of products, access to the products, health issues and time constraint. Fruit and vegetables consumption at some specific occasion or time is affected by these issues intentionally or unintentionally. To some groups of respondents some techniques were used for the promotion of health considering the same values related to the choices of food. This paper examined that for making choice related to food, some education should be provided to the people to know about the effectiveness of nutrients.

Shabir (2004) analyzed that half production of vegetables and fruits were destroyed in collecting, storing and preserving processes and only 4-5% fruits were imported by the USA. To cope up with the damage of fruits, Pakistan is making a wide range of different juices. But it could not meet the standards of APHRIS (Animal and Plant Health Regulation Inspection Services), so they could not be exported to the USA. He also suggested that Pakistan can export these fruit juices to the USA and save foreign investment following by good marketing.

Geuens, Brengman, and Rosette, (2003) concluded that people are too busy and have no time for going to shopping. They wanted all variety of products, low rates, good environment and good designs at one

store. In last few years' demand for juices in Pakistan has been elevated too. Weather condition is a main and foremost factor for this demand elevation. They are included in daily food that's why to achieve the demand level juices are imported. A lot of investment can be saved by manufacturing them locally. For preserving juices, he suggested different methods like heating, chilling, radiation treatment as well as the use of chemical preservers (Murtaza et al., 2004).

Shields, Corrales, and Metallinos-Katsaras (2004) analyzed the intake of gourmet coffee in college ladies. Comparatively it was a new drink in market and thought and used for high energy. He conducted a study to analyze the usage of coffee and find the role of energy and fat among the ladies in their diet. The survey was conducted by using a questionnaire and a diary of 3-day food choices. Questionnaire, which was pre-tested, was filled by the 165 graduate and undergraduate college ladies' diary was completed by 41 ladies. Study was conducted between two groups i.e. users of GCB (gourmet coffee beverage) and non-users.

Outcome showed that coffee drinkers had high intake (P=.250) of calories (206Kcal/day) and sugar (32g) than the respondents who don't use coffee ($p<.05$). A significant and bigger percentage of college going ladies used coffee and take more fats and extra energy. These extra fats and increased energy badly effect on the weights of the college ladies. Education should be provided to the people related to energy and fat and their effect on weight, and healthy choices should be provided such as skimmed milk as compared to the full fat milk.

Bonilla (2004) conducted a study that revealed the significance of nutrition and health. Development and increase in income provides new chances of new products and their changes. Significant features of the products were their price and quality but in the current scenario label and packing of the product also have a great impact on the buying behavior of users. Study analysis revealed that consumer's decision to purchase a product in case of fruit juice is effected by the label, packing and its 100 percent quality of fruit juice. Before launching new products in market the producers and marketing persons should recognize the user's behavior, priorities and their needs.

Grimm et al. (2004) conducted a study related to consumers' attitude for label and brand of juice was conducted. In that study, it was

shown that 68 out of 100 percent consumers use juices daily in the morning. It was also revealed that 70 out of 100 percent react towards the prices of the product and for grocery buying use vouchers or coupons and like readymade and convenient food.

The current study showed that main factors which are the causes of the usage of beverages among children. He surveyed through a questionnaire and the sample was 560 children of ages between 8 to13. 49% girls and 51% boys were used as the sample for the study. For factor analysis frequency distribution as well as multivariate logistic regression was used. Results suggested that taste of the cold drinks was the significant and strongest factor. Parents and friends' usage habits of drinks, access to drinks at home as well as school and media advertisements were the factors to consume drinks among children

Flood, Roe, and Rolls (2006) suggested that a large quantity of beverages was used for the intake of energy. Caloric drinks were commonly and widely used in lunch and they are used for enhanced levels of energy consumption. This paper showed that the choices of people for drinks in the food caused an increased level of drinks consumption. Large quantity of drinks was used in food that's why this level increased. Consumption of energy could be reduced by replacing the drinks of high calories with low calories.

A study examined the behavior of users toward the buying action of organic milk. To analyze the purchasing behavior and other characteristics such as socio- economic factors regression and group analysis were used. Four groups of variables were examined. Organic milk buying behavior is tested by the respondents. Their small size of family as well as education affects the pattern of purchasing and income does not have any effect on the buying pattern.

Laitala, Kaprio, and Silventoinen (2008) examined the coffee heritability in Finland and its constant liking in a sample of twins. It was most likely hot drink as compared to any other drink in Finland. Coffee had a considerable impact on the health and welfare of the people. Study measured that the intake of coffee was influenced by the exclusive environmental aspects and additive genetics. Heritability of adjusted use of coffee for sex and age measured in 1975 was 0.56 and in 1981 it was 0.45. Genetics attributes which affected coffee usage were constant while correlation of genetic factors was 0.83 in ladies and 0.84 in men.

Correlation of environmental factors was measured as moderate i.e. 0.36 and 0.45.

Additive attributes had a maximum impact in young adults. They measured that use of coffee is influenced by both the factors i.e. exclusive environmental and additive genetics attributes and both elements play a significant role. Constant use of coffee in long term duration is influenced by the set of constant additive genetic attributes. The study revealed that factors were analyzed, which were the cause of increase in drinks industry progress and development. Beverages demand was increased by the ads, marketing, life patterns and technology. This study showed the obesity effects in children and effect of these drinks on the atmosphere (Maqbool, 2008).

A study was conducted with reference to a large variety of problems in relation to the use of soft beverages and examined the association between beverages usage, effect on health and weight. In Australia and NSN, this survey measured the level and nature of use of the drinks. Young children like and use sweet drinks containing sugar. The use of these sweet drinks on daily basis causes an imbalance in energy and low level of nutrients in children. In Australia milk and fruit juices are main and important food. Different factors i.e. psycho-social, environmental and socio-cultural elements have an impact on the usage of drinks. Results revealed that to decrease the complete beverage usage new research and innovation will assist to enhance the efficiency of the present interventions. With all of these more plans related to environment are required to decrease this level of consumption. Plan should be about price, labels, packing, marketing, promotion and the size of portion (Hector, Rangen, Gill, Louie, & Flood, 2009).

Heuberger and Boyle (2009) conducted a study to delineate the effects of drinks usage on people's health. Drinks such as carbonated beverages had less nutrition and were the reason of obesity. Level of nutrition of the body is badly and negatively affected by these carbonated beverages. This study revealed the risk of drinks usage choices among the respondents living in the rural areas. This survey was conducted by using many questionnaires and experienced interviewers.

A cross-sectional sample of 760 respondents was used. The result revealed that the use of carbonated drinks and alcohol was associated to improved and enhanced level of calories and BMI (body mass index). The caloric derivation of carbonated beverages and alcohol usage were

higher in younger individuals aging less than 35 increased their weight ($p<0.5$). National research council suggested the age for male and females is 34 – 53 for the carbonated drinks and alcohol usage.

Johns (2009) examined the Mexican retail industry and concluded that global economic downturn was greatly affected by the retail segment related to grocery. People's lifestyle and standards had been enhanced by the convenience stores. Main factors of this enhanced and better lifestyle were that consumers don't like to go to distant places for shopping and stores which are available and open day and night. He stated that due to the bigger markets and chain of stores sales were elevated in the last year. In the last few years the soft drinks industry is continuously increasing and elevated to the standard level of $2 billion. Its growth rate is increased up to 18% till 2009 (Khan, 2009, June 28).

Aslam and Rasool (2013) described that the local beverages (fruit juices) should be promoted so in this way everyone from any income group could relish the beverages. In the meanwhile, export earnings of fruit juices should be enhanced by growing acreage and cultivation of the fruit crops. So, in this way foreign earnings would be increased, employment opportunities would be created mainly in the units of juice processing and this would pave the way of prosperity. Processed food consumption was very much high in Brazil and people included beverages in their diet (Duffey, Pereira, and Popkin, 2013) .

A study conducted by Duran, Almeida, Latorre, and Jaime (2015) in Brazil showed the impact of local environment of retail food on fruits, vegetables and sugar based beverages. In Mexico, there was a higher rate of per capita consumption of soft drinks Colchero, Salgado, Unar-Munguı´a, Herna´ndez-A´ vila, and Rivera-Dommarco (2015).

3. Methodology

For this study, primary data is used. With the help of a well-arranged and complete questionnaire the data was collected. For the study, 80 consumers provided us with the data. Both are industrial cities that is why most of the people living in these cities are manufacturers and laborers. Due to this reason, consumption function related to different income groups can be easily seen. Sample technique in this study was stratified sampling (equal allocation). From both of the cities, 40 consumers were selected. For the research purpose customers of big departmental stores (Al-Fateh, Metro Cash & Carry and other different stores) were used and

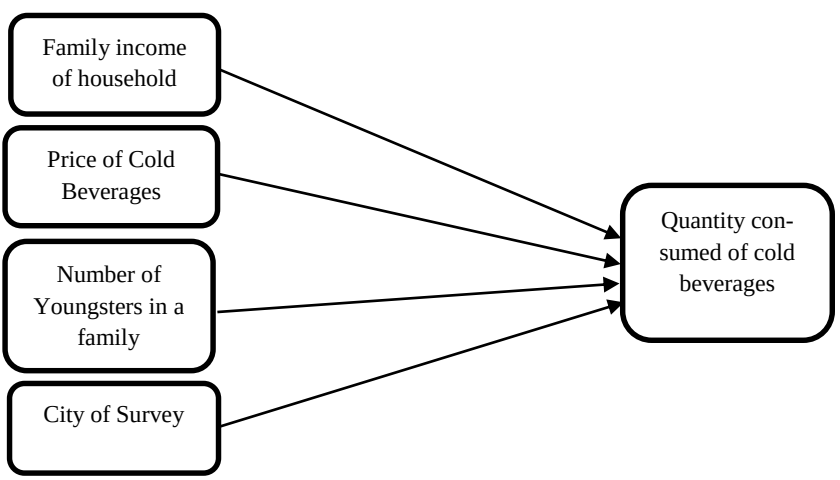
double log form of regression was used to calculate the effect of main factors that affect the usage of cold and hot drinks.

3.1. Conceptual Framework

For analyzing the activities and procedure of people during finding, buying and consuming the good for their needs, user attitude and behavior can help. Many environmental elements such as season or weather and social factors such as culture, income, reference groups etc. affected the buying behavior of the user. Decision for buying things and user's choice can be influenced by the external features like change in the using pattern of goods, health, status and lifestyle. Ads and some psychological features such as opinion, awareness and personal benefit are also some characteristics.

Literature work related to consumer's priorities and selection showed that different studies are present which describe the effect of significant variables and factors that affect user's priorities for the goods such as Becker (2000) study on fresh meat and Grunert et al. (2004), as well as Tendero and Bernabeu (2005) paper for cheese and Humayun and Hasnu (2009, November) study on liquid milk and Shaharudin et al. (2010) survey for organic food. Simultaneously empirical survey such as Murtaza et al. (2004), Shields et al. (2004), Grimm et al. (2004), Laitala et al. (2008), Singal (2009) and Khan (2009, June 28). Regarding this literature, the aim of this study is to explore and check the impact of main factors influencing the user's preference for drinks in two cities of Pakistan i.e. Lahore and Faisalabad.

Figure 1: Conceptual Model for Cold Beverages



3.1.1. Hypotheses for Cold Beverages

- Increase in family income of household may lead to more consumption of cold beverages.
- Decrease in prices of cold beverages may result in more consumption of cold beverages.
- More young persons in the family may lead to more consumption of cold beverages.
- More young persons in the family may lead to more consumption of cold beverages.
- Highly populated city may lead to more consumption of cold beverages.

3.1.2. Hypotheses for Hot Beverages

- Increase in family income of household may lead to more consumption of hot beverages.
- Increase in consumption of other foodstuff expenses may result decrease in hot beverages.
- Increase in number of family members may lead to more consumption of hot beverages.
- Decrease in prices of cold beverages may result in more consumption of hot beverages.
- Increase in working members in the family may lead to more consumption of hot beverages.
- Increase in married persons in the family may lead to more consumption of hot beverages.
- Change in living area may lead to less or more consumption of hot beverages.

3.2. Theoretical Framework

For finding the results descriptive statistics will help to calculate the frequencies as well as the percentage of the users. Average was calculated by this formula:

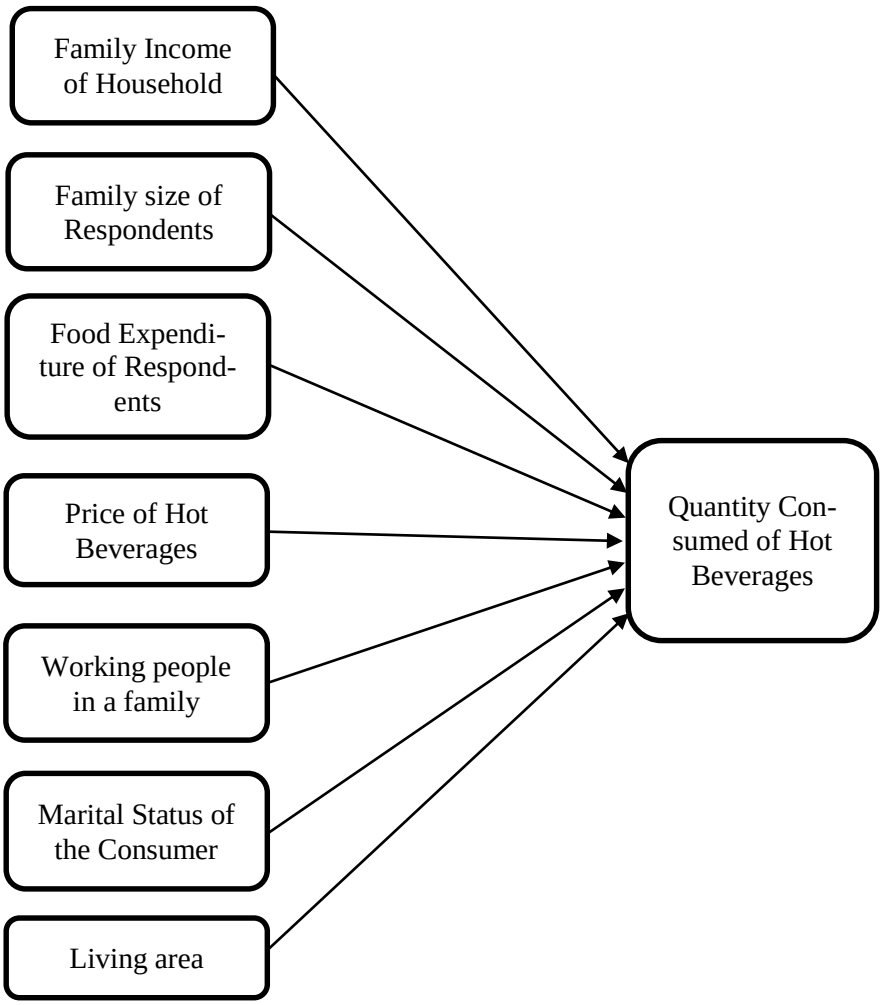
$$AM = \Sigma X / N \quad (1)$$

In this formula AM showed arithmetic mean, N showed total number of observation and ΣX showed total sum of variables.

For percentage calculation formula was used:

$$P = F / N * 100 \quad (2)$$

Figure 2: Conceptual Model for Hot Beverages



Percentages were calculated for comparison. In this formula, F is frequency and N total number of observations.

3.3. Demand Function for Cold Beverages

The relationship between dependent and independent variables is given as;

$$Y = f(Xi, Dj) \quad (1)$$

Where; Y = Quantity consumed of cold beverages (Liter / month)

Xi = Vector of quantitative variables i = 3

Dj = Vector of qualitative variables j = 1

In more specific form, equation 1 can be written as;

$$Y = \beta o\ Xi^{\beta i}\ Dj^{\beta j}\ e^{\mu} \quad (2)$$

The equation 2 can be further explained as;

$$Y = \beta o\ X_1^{\beta 1}\ X_2^{\beta 2}\ X_3^{\beta 3}\ D_1^{\beta 4}\ e^{\mu} \quad (3)$$

By taking natural log on both sides, equation 3 can be written as;

$$\ln Y = \beta o + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 D_1 + \mu \quad (4)$$

Where;

Xs are the independent variables in which,

X_1= Family income of household (Rs/month)

X_2= Price of cold beverages (Rs./liter)

X_3= Number of youngsters in a family (No.)

D_1 = City of survey (Dummy)

D_1=1, if Lahore

D_1=0, if Faisalabad

βo is the intercept, βs are the elasticities and μ is the random error

ln = Natural log

3.4 Demand Function of Hot Beverages

The relationship between dependent and independent variables is given as;

$$W = f(Zi, Dj) \quad (5)$$

Where; W = Quantity consumed of hot beverages (Gram / month)

Zi = Vector of quantitative variables i = 5

Dj = Vector of qualitative variables j = 3

In more specific form, equation 1 can be written as;

$$W = \beta o\ Zi^{\beta i}\ Dj^{\beta j}\ e^{\mu} \quad (6)$$

The equation 2 can be further explained as;

$$W = \beta o\ Z_1^{\beta 1}\ Z_2^{\beta 2}\ Z_3^{\beta 3}\ Z_4^{\beta 4}\ Z_5^{\beta 5} D_1^{\beta 6}\ D_2^{\beta 7}\ D_3^{\beta 8}\ e^{\mu} \quad (7)$$

By taking natural log on both sides, equation 3 can be written as;

$$\ln W = \beta o + \beta_1 \ln Z_1 + \beta_2 \ln Z_2 + \beta_3 \ln Z_3 + \beta_4 \ln Z_4 + \beta_5 \ln Z_5 + + \beta_6 D_1 + \beta_7 D_2 + \beta_8 D_3 + \mu \quad (8)$$

Where;

Zs are the independent variables in which,

Z_1= Family income of household (Rs/month)

Z_2=Family size of respondents (No.)

Z_3= Food expenditure of respondents (Rs. / month)

Z_4= Price of hot beverages (Rs. / gram)

Z5=Working people in a family (No.)

D_1 = City of survey (Dummy)

D_1=1, if Lahore

D_1=0, if Faisalabad

D_2 = Marital status of the consumer (Dummy)

D_2=1, if married

D_2=0, if otherwise

D_3 = Living area (Dummy)

D_3=1, if urban

D_3=0, if otherwise

βo is the intercept, βs are the elasticities and μ is the random error

ln = Natural log

4. Empirical Results

This survey was conducted to analyze the effect of different factors that had an impact on the consumption pattern related to hot and cold drinks of the respondents. 80 randomly chosen respondents of Lahore and Faisalabad helped us to collect the data. The calculation of demand factor is done through the regression and explained below:

4.1 Descriptive Statistics (Demand Function for Cold Beverages)

The association of independent variable (income of family, prices of drinks, number of young adults and survey city) with the dependent variable (use of cold drinks) was measured by using the double log of regression analysis, because this relationship showed scattered plot between dependent and independent variables. Data of dependent variable and quantitative independent variable was measured by the descriptive statistics and this data is shown in table 1.

In this case, undesirable condition is multicollinearity where between independent variables correlation is strong. Tolerance is the term used statistically for explaining that how much the dependent and independent variables are linearly related.

4.2 Regression Analysis (Demand function for Cold Beverages)

Adjusted R^2 for this case was 0.49 which showed that all independent variables showed mutually 49 percent variation in the dependent variable (use of cold beverages) keeping all other elements constant. This value also showed another aspect i.e. 51 percent change in dependent variables that was affected by some of the other variables; their effect could not be showed by this model used (table 2).

In this case F-value is 20.94 ($p<0.05$) which was significant and indicated all the suitability of the model (Table 2). F-value suggests that independent variables are non-significant or significant factors for changing in dependent variables.

The findings showed that all variables are significant at 5% significance level while only family income of household coefficient showed significant level at 1%. This variable showed positive value at 1 % significant level with elasticity coefficient value of 0.497 which depicts that 1 percent increase in the respondent's income causes an increase of 0.497 percent in the cold beverages consumption. It showed

that high income group mainly used cold drinks. Cold drinks consumption is comparatively income elastic. Cities taken for research are used as dummy variable in demand function measurement of cold beverages.

Findings showed that at 5 percent significant level variables' values are highly positive. The people of Lahore are using 0.228 times more cold drinks as compared to the people of Faisalabad city. In case of food stuff, price play an important role. Usage of cold drinks will increase as a result of a decline in the prices and vice versa.

Price coefficient with t- value 0.852 has value 0.152 with negative sign which means 1% decrease in the price will increase the use of cold drinks by 0.152%, keeping all the other aspects constant.

Youngsters use more cold beverages rather than the old people. Coefficient for youngsters depicts positive sign with 5% significant level at t- value of 2.154 with an elasticity value of 0.234. In our society youngsters use more cold drinks.

4.3 Descriptive Statistics (Demand Function for Hot Beverages)

The association of dependent variable with the independent variable is analyzed by the regression technique of double log form due to the scattered plot that suggests such association. Dependent variable data i.e. consumption/ quantity purchased and quantitative independent variables were explained by the descriptive statistics such as Maximum, Minimum, Std. Deviation and Mean. This description showed in Table 3.

Multicollinearity is an unwanted condition in which a strong correlation between independent variables exists. Tolerance of independent variables showed how much the variables are related linearly with each other.

VIF (variance inflation factor) and tolerance are opposite or reciprocal to each other in relation. If VIF increases, it causes an increase in the variance of regression coefficient which make this estimate unstable. VIF value more than 10 showed the issue of multicollinearity (Gujarati, 2008). This data has no issue of multicollinearity because its VIF has value less than 10 (Table 3).

Table 1: ***Summary of Statistical Data used for Model Estimation***

Variables	Minimum	Maximum	Mean	Std. Deviation	Collinearity Statistics	
					Tolerance	VIF
Quantity of cold beverages consumed	2	30	9.24	6.249	-	-
Family income of household	7000	600000	43887.50	68524.595	0.982	1.018
Prices of cold beverages	45	60	50.04	9.743	0.926	1.080
Number of youngsters	1	16	3.24	2.326	0.866	1.154

Table 2

Estimated Demand Function for Cold Beverages

Variables	Coefficient	Standard Error	T-Value	Significance (P-value)
(Constant)	-3.371	0.829	-4.066	0.000**
Family income of household (Rs. per month)	0.497	0.062	8.046	0.000**
Survey of city (Dummy)	0.228	0.105	2.181	0.032*
Price of cold beverages	-0.152	0.178	-0.852	0.039*
Number of youngsters (No.)	0.234	0.109	2.154	0.034*
R^2				0.520
Adjusted R^2				0.494
F-value				20.94

(Source: Author's own estimations)

Note: ^{NS} Denotes Non-Significant

**Denotes significant at 1 percent level

* Denotes significant at 5 percent level

4.4 Regression Analysis (Demand Function for Hot Beverages)

0.37 was the value of adjusted R^2 showed that altogether all independent variables indicate 37 percent change in dependent variables keeping all the other elements constant. This value also depicted that remaining 63 percent variation in the dependent variables was due to other variables that could not be measured by this model (Tale 4). F-value explains that altogether all independent variables are non-significant or significant features caused changes in dependent variables. 6.84 ($p<0.05$) is the value of F; that is significant and it indicated complete suitability of the model (Table 4).

Table 4 depicted that income coefficient was fairly elastic and positive; its value is 0.148 with 0.37 standard error and 3.989 as t-value at 0 percent significance level. It showed the use of hot beverage level will increase by 0.148 percent with an increase in the income level of 1 percent. Food expenses level was significant with t-value of -2.739 at 1% significance level and standard error for this case is 0.033.

The research findings takes us to the conclusion that 0.089% decline in hot drinks consumption is the result of 1% increase in the expenses. For this case price coefficient (-0.053) has a negative sign and showed high insignificance level. This describes that price show insignificance for making choice for using the hot drinks. The marital status and working people's coefficients values are 0.290 and 0.217 and all the two variables had values at 1% significance level.

The working people in family coefficient showed that 1% increase in its value 0.217% increase in the hot drinks consumption and marital status coefficient depicts that 1% increase in marital status value that married individuals 0.290% used more hot beverages than unmarried persons. In the last, living area coefficient value is 0.438 and depicted the fact that people living in the urban areas use more hot drinks than the people living in the rural areas. This variable at 1 percent significance level has t-value of 2.457 and it furthermore confirmed the results that living areas have an impact on the use of hot drinks.

5. Discussion

This research has been conducted to investigate the impact of various factors that influence the hot and cold beverages consumption of people. Multiple regression analysis is applied to calculate the demand function and to estimate the outcome of different factors affecting the consumer choices.

Two major Punjab cities i.e Lahore and Faisalabad have been selected for data collection and 80 respondents were interviewed to gather and analyze the data. Lahore and Faisalabad were chosen because of many departmental stores such as AL-Fateh, Metro cash and carry and others. Pre-tested questionnaire has been incorporated for the collection of data. Results of this study revealed that cold beverages consumption pattern was influenced by cold beverages prices, city of selected survey, consumer income and number of adolescents in a family.

On the other side, consumption pattern of hot beverages, living area, marital status, food expenditure, working persons in a family and family size. As there are many brands available in the market due to which beverages consumption is increasing as time passes and more importantly socio-economic lifestyles are changing as well which persuade people to consume more beverages.

Table 3
Summary of Statistical Data Used for Model Estimation

Variables	Minimum	Maximum	Mean	Std. Deviation	Multicollinearity Statistics	
					Tolerance	VIF
Quantity of hot beverages consumed	90	5000	900.190	753.750	-	-
Family income of respondent	7000	600000	43887.500	68024.595	0.837	1.195
Family size of respondent	3	12	6.470	2.381	0.256	3.900
Food expenditures of respondent	1000	60000	16412.500	12825.700	0.650	1.539
Prices of hot beverages	30.00	665.00	286.310	167.322	0.252	3.964
Working people	1	7	2.950	1.500	0.511	1.956

By keeping in view these factors, local industry should try to yield cost effective and quality oriented drinks to augment the usage. On the other side, consumption pattern of hot beverages, living area, marital status, food expenditure, working persons in a family and family size. As there are many brands available in the market due to which beverages consumption is increasing as time passes and more importantly socio-economic lifestyles are changing as well which persuade people to consume more beverages. By keeping in view these factors, local industry should try to yield cost effective and quality oriented drinks to augment the usage.

Table 4
Estimated Demand Function for Hot Beverages

Variables	Coefficient	Standard Error	T-Value	Significance (P-value)
(Constant)	4.428	0.493	8.983	0.000*
Family income of household (Rs./month)	0.148	0.037	3.989	0.000*
City of survey	0.218	0.276	.790	0.432^{NS}
Family size of respondent (No.)	0.216	0.091	2.367	0.021*
Food expenditure of respondent	-0.089	0.033	-2.739	0.008*
Prices of hot beverages (Rs./gram)	-0.053	0.043	1.227	0.224^{NS}
Working people in family (No.)	0.217	0.089	2.433	0.017*
Marital status of respondent (Dummy)	0.290	0.120	2.412	0.018*
Living area of respondent (Dummy)	0.438	0.178	2.457	0.016*
R^2	0.435	F-value	6.840	
Adjusted R^2	0.372			

Source: Author's own estimations
Note: ^{NS} Denotes Non-Significant
* Denotes significant at 1 percent level

6. Conclusion

The result of this survey showed that the use of cold drinks was affected by the survey city, number of young respondents, price of the drink and income of the family, while hot drinks usage was effected by the size of family, income of family, expenses of food, marital status, living area and number of people working in the family.

It was also witnessed that availability of branded drinks in the markets increased the use of drinks with every passing day. Due to this reason consumers with low income are discouraged to buy these drinks because of the high prices. High prices and decreasing buying power were also related but it has a serious effect on the user's real income that affected the choice of decision to buy the beverages.

For hot beverages case, during the last few years due to the opening of new cafés and restaurants in Pakistan, coffee consumption is increased. But in Pakistan it is still used in higher and middle income individuals. So, there is a room to make it familiar with other people at low price and in local brands.

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