



Socio Economic Determinants of Food Consumption Pattern in Rural Areas of District Nowshera Khyber Pakhtunkhwa Pakistan

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Abstract: This research study was conducted to analyze the socioeconomic determinants of the food consumption pattern in rural areas of District Nowshera, Khyber Pakhtunkhwa Pakistan in 2015. For the said purpose a village in District Nowshera named, Mughalky was selected as study area to analyse the food intake pattern of households. The sample size for the study was 3% of the study area calculating to be about 120 households while adopting the systematic random sampling (lottery method). Both the data sources while primary data were mainly used. Questionnaire cum interview schedule method was used for collection of primary data. Multiple Linear Regression and Descriptive Statistics were used for data analysis. The results described that an average household size in the concerned area consisted of eight persons. Average monthly income of an average household was 10634.2 and an average household expend 44.25% proportion of their income on monthly food consumption. All the food items were separated into different main groups i.e. flour, meat, pulses, milk, rice, vegetables, edible fates, fruits, sugar, eggs, tea, bakery items, drinks and fast food. An average household's total expenditure on food consumption was Rs. 4705.5(44.93%). Furthermore, it was found out that the percentage part of flour in entire expenditure was 20.06%. The part of other food items in total expenditure was found to be milk 19.65%, sugar 12.44%, edible fates 12.08%, meat 9.64%, vegetables 6.99%, rice 4.24%, pulses 4.17%, tea 3.94%, fruits 2.52%, eggs 1.40%, drinks 1.34%, bakery items 1.26%, and fast food 0.27%. Results also described that value of various food items was having negative correlation with the household's consumption while the household size and income were having positive correlation with consumption of the various food commodities. It may be concluded that the consumption pattern in rural areas was a traditional one. It was not much healthy and nutritional in the sense that people cannot take healthy food as it is necessary due to lack of awareness, low income level and education. It was suggested that better and attractive job opportunities should be provided to the residents of rural areas.

Keywords: Socio Economic, Food Consumption, Rural Areas

1. Introduction

Consumption is the final and direct use of commodities in order to satisfy human wants and needs. Two types of goods are normally used by people i.e. single-use goods (fuel, matches, cigarettes, foodstuff, etc.) and goods of durable-use (clothes, watches, tables, scooters, etc).

In economics, the use of commodities by the people is called consumption. There is a difference between the consumption expenditure and consumption, the former, is the purchase of commodities, while the latter is the use of commodities by the people. In Neoclassical (mainstream) economic thought consumption is generally considered as the final purpose of an economic activity, and thus the consumption level per person is considered as a vital determinant of productive success of an economy. The study of consumption behavior has a significant role in the field of economics both in microeconomics and macroeconomics. Consumption behavior is studied by the micro economists for different purposes, e.g. to measure poverty by consumption data, to check preparedness of households for retirement, or to test competition theories in retail industries. The *Consumer Expenditure Survey* (conducted by the U.S. government) and other such like household-level data sources, allow economists to study spending behavior of households in minute detail, and these data have also been used by the micro economists to analyze relations between consumption and other microeconomic behavior (i.e. educational attainment or job seeking etc.).

1.1. Historical Review

According to Keynesian perspective, the concept of consumption function is a common approach that when income increases people spend more on consumption, but not in the same proportion because people also save a part of their income. The people of rural areas consume as well as save a big amount with an increase in income.

Hence, the Keynesian psychological law of consumption is based on the propositions stated as follows:

- i. The consumption expenditure of people will increase, as their income increases, but not in the same proportion.
- ii. It follows from this that a rise in income is always divided into spending and saving.
- iii. A rise in income will, thus, lead to a rise in both savings and consumption. This means that with a rise in people's income, we cannot usually anticipate a decrease in total consumption or a decrease in total savings. An increase in level of income will often be accompanied by a rise in savings while a fall in income by decreased savings. As compared to later stages, in the initial stages of rise and fall of income, the rate of increase or decrease in savings will be greater.

The essence of Keynesian law is that the main factor of consumption is income and people do not spend all of their increased income on consumption, they also save some part of their income. The Keynesian concept of consumption function is based on this fundamental maxim.

1.2. Types of Consumption

There are two basic types of consumption i.e. *Direct Consumption* and *Indirect Consumption*. Direct consumption is when people use goods to satisfy their wants directly or immediately, e.g. drinking water, taking meals, use of computers, etc. it is also called final consumption. Indirect consumption is when the goods are not consumed directly but they are used for producing other goods to satisfy human wants, e.g. using of sewing machine for making cloths, use of fertilizer in agricultural activities, etc. it is also called productive consumption.

1.3. Food Consumption and its Importance

Food comes under the basic needs category as it is necessary for human survival. Food is considered as the main source of nutrients required for existence. Various foods are the only source of taking nutrients into the human body and bringing about pleasure, therefore, while taking food, the quantity and quality of food both matters. There are categories of essential nutrients to determine the quality of food taken, which must be combined in a suitable proportion to ensure a balanced food intake. These include proteins, carbohydrates, oil

and fats, minerals and vitamins[1]and are absorbed by an organism to produce energy, maintain life, and stimulate growth.

“While global food demand, especially in developing countries, is expected to increase with income, the food share of total budget is expected to decline as income increases. As population grows, food demand also grows. With increasing income and urbanization, demand for food not only increases, but changes with shifts in consumption patterns.

1.4. Food Consumption Pattern

Patterns of food consumption can be defined as the recognizable ways of food intake. Rural inhabitants, rather than venturing to seek modern and more proper eating patterns, tend to adhere to their old eating habits. In order to maintain sound and healthy diets, “a variety and balance of foods from all food groups and moderate consumption of all food items is very important. The importance of food in any country cannot be overemphasized.” The any household’s consumption pattern revealed the types of food and non-food items consuming household members. Food consumption patterns provide information necessary for the government to develop appropriate food security policies in order to improve the life quality of public. The people’s consumption patterns describe the level of welfare and poverty that is been experienced. It gives direction to the government in making poverty elimination and welfare maximization policies.

1.5. Objectives of the Study

Objectives of the study are as follows:

- i. To examine the food consumption of house hold pattern in rural area.
- ii. To evaluate the total as well as the relative expenditure on the food items and proportion of the total income that is spent on the food in the rural area.
- iii. To evaluate effects of the household size on food and consumption pattern in rural area.
- iv. To examine the household’s food consumption differences among different income level groups in rural area.
- v. To test the Engle’s Law in case of rural areas of Pakistan.
- vi. To identify the factors those are hurdles in the way of improvement in the health, regarding food consumption.
- vii. To give suggestions and recommendations for improvement in food policy prescription/measures.

2. Literature Review

Gupta (1968) [2] has conducted a study on “A comparison of consumption pattern in UP & Madras”. In his study he compared the differences in their overall consumption pattern, for the reason to identify the distinct economic, social and cultural differences in the consumption pattern of both states. The study concluded to have significant differences in the consumer expenditure on various categories of items in these states while pinpointing the differences between rural and the urban regions consumption pattern.

Kreienjihoop while conducting a study in Germany on “The Income Elasticity of the Demand for Vegetables”, found out that the income elasticities of demand for the individual types of vegetables were average in each household. He concluded that for fresh vegetables the income elasticity as a whole ranged from +0.30 (one person household) to +0.47 (five person household) while those for processed vegetables (36-44% of consumption) ranged from +0.20 (three person household) to +0.31 (two person household).

Salvanes and Devoretz (1997)[3] have conducted a study in Canada on “Household Demand for Fish and Meat Products: Separability & Demographic Effects” wherein the household demographic factors’ impact was also analyzed and separability test of fish and meat items was conducted by using three demand models i.e. Model-I, Model-II and Model-III. In Model-I and Model-II four and six commodity groups were included respectively and in Model-III six and eight commodity groups were included. The demand models were

estimated through Lined Estimate of An Nearly Ideal Scheme and found out that altogether the cross price resistances were positive while the own price elasticities were negative. Moreover, at one percent level of significance all the spending and fractionous price properties were important.

Khan (1999) [4] conducted a study on “household food expenditure and its determinants: a quantitative analysis” in district Charsadda, KP Pakistan. For the study 100 households were selected to analyze the determinants that affect the household’s expenditure on food commodities. The study found out that an expenditure equal to the amount of Rs.6278.00/ month is incurred by an average household on food items consisting of flour (16.7%), meat (15.9%), milk (13.8%), fruits (13.2%), edible fats (10.1%), vegetables (9.7%) and pulses (6.4%), respectively. It was identified that the consumption of flour, meat, milk, edible fats, vegetables and fruits was determined by the consumed quantities of the respective food items and total income of the households. Safia Begum (2010) [5] conducted a study on “Socio Economic Factors Affecting Food Consumption Pattern in Rural Area of District Nowshera, Pakistan. The study was purposed to identify socio economic issues mainly household size, literacy status, equal of the education and total monthly income affecting the food consumption pattern in rural areas of District Nowshera, KP Pakistan. According to the results an average household (i.e. 8.5 persons) spent 55% per month of his total scheduled income on consumption of food commodities while highlighting the literacy rate as 94%.

Thandi Puoane et. al. (2006) [6] while conducting a study on “Socio-cultural Factors Influencing Food Consumption Patterns in the Black African Population in an Urban Township in South Africa”, identified socio-economic factors affecting food intake in different income groups. The methods of focus group discussions and in-depth interview were used to discover these factors in different age groups of men and women. Food revealed to be the major factor of nourishing the body and additionally it was a symbol of warmth, acceptance and friendship. Consumption of meat found to be related with a high socio-economic status while the vegetable ingesting was related with a low socio-economic status on a daily basis. Food intake in large portion was associated with affordability. The results revealed the effects of socio-economic factors on consumption pattern of sample population and the study emphasized that these factors need to be taken into consideration the development of interventions to promote healthy food consumption. Manzoor et al. (2011) [7] led a study on “Impact of Inflation on Household Consumption-A Case of Pakistan” and analyzed rise impact on the consumption of eleven food items in Pakistan. The study resulted that with that of the increase in the price level, the expenditure on food items also increased. The current inflation found to be significantly affecting the overall household consumption pattern.

Muhammad Ajmir and Nasim Akhtar (2012) [8] conducted a study on “Household Consumption in Pakistan (A Case Study of District Bhimber, AJK)”. The study was purposed to examine the factors (income of the household, household size and the basic needs) disturbing the consumption of households. All the variables except age found to be positively related with consumption. It was also found out that in high-income group, the potential of consumption and their consumption level were high, which satisfied the economic theory that the income variable positively affect the household consumption. According to the results, the education put positive effects on consumption level and the educated households’ consumption level found to be higher as they maintained a certain living ordinary and spent more on the education of the children, health and food, clothing and necessary luxury commodities. Dr. Adiq K. Kiani (2013) [9] conducted a study on “Forecasting the Future Consumption: A Case Study for Pakistan”. The study was purposed to analyze the changes in household’s consumption expenditure pattern for the period of 1997-2009 in Pakistan while using the data on consumption expenditure of households from Household Integrated Economic Survey (HIES) and Pakistan Social and Living Measurement (PSLM). The study analyzed the changes in expenditure of different commodities due to changes in households’ income. Income and total expenditure of households were used alternatively as explanatory variables. For estimation of the regression equation the OLS (Ordinary Least Square) was employed and by using the double-log function type the expenditure elasticities were estimated. The study concluded that consumption expenditure of all major commodities has a significant relationship with income. Dr. Kiran and Savneet Sethia (2013) [10] conducted a study on “Factors that Influence the Household and Individual Food Consumption”. According to the results, the food has central importance in the culture and traditions as it was specifically prepared for wedding, funerals and religious occasions. Traditional food consumption was largely

associated with poverty and as people migrate to the cities, they modify their diet to a typical westernized diet with a high fat content and low carbohydrate intake. The study also revealed that the population using meat in their daily food consumption found to be associated with high socio-economic standing. Wong et. al. (1984) [11] while conducting a study on the relationship between household income level, expenditure and consumption of food in urban areas of Mexico have confirmed the consequences of study. The researchers highlighted that the consumption of high protein foods increased with the increase in family income.

3. Methodology and Procedures

The study has been conducted in the rural area of the District Nowshera of Khyber Pakhtunkhwa, Pakistan named Mughalky. This study analysed the food consumption pattern in Mughalky, which is one of the pure rural areas of District Nowshera. According to the research design, a predetermined and pretested questionnaire was administered to collect the required data from the sample households. Simple random sampling (i.e. lottery method) has been used in the study. This study was primarily based on primary data while secondary data were also used. The respondents were asked to make available necessary data for the year 2015 during survey. As a research instrument, questionnaire cum interview schedule method was used for collection of primary data and the response rate was 100%. Data collection has been followed by data analysis while using descriptive statistics, frequency tables, multiple linear regression and correlation methods.

4. Analytical Techniques

In order to examine the average feasting of the food items as a usual domestic in that of rural areas while tabulating the associated data, means of the actual quantities of each and each food item being consumed were calculated. In addition to the tabulation, percentage and averages of different variables, the following general econometric model was used for the study area (rural).

$$C_i = f(P_i + TY + HS) \text{-----} (3.1)$$

Where

$i=1 \text{-----} n$

C_i = Quantity consumed of i th commodity,

P_i = Price of i th food commodity,

TY = Total income of household,

HS = Household size.

The relative expenditure on individual food items was calculated as the expenditure on individual food items divided by the total expenditure on food multiplied with hundred as presented below:

$$\text{Relative Exp. on Individual Food item} = \frac{\text{exp. on individual food items}}{\text{total exp. on food}} \times 100$$

In order to find out the percentage share of food items in total expenditure and in total household income, percentages of expenditure of each and every food item were calculated.

The abovementioned equation was further specified and estimated in the following model. This model was used to estimate the contribution of different factors affecting the expenditure on specified food items.

$$\text{Expenditure on } F_{ci} = \alpha_0 + \alpha_1 TY + \alpha_2 HS + U \text{-----} (3.2)$$

Where Expenditure on F_{ci} = Expenditure on i th food commodity,

α = Regression coefficient,

TY= Total income of household,

HS= Household size,

U= Error term.

For the description of gender wise sample population, relative expenditure on each item, the percentage share of each item in the household's total monthly income and total monthly income, the frequency distribution was used.

Table1: Demographic Features of Sample Households

House Hold Features							
Household size			Gender %				
Min	Max	Average	Male		Female		
4	13	8	53		46.8		
Literacy Rate			Level of Education				
Literate		Illiterate	Below Matric		Above Matric		
55%		45%	35%		20%		
Monthly Income (Rs)/(000)			Level of Income				
Min		Max	Less than 10 (000)	10-20 (000)	21-35 (000)	36- 50 (000)	Above 50 (000)
4000		75000	6.7%	32.5%	35%	17.5%	8.3%

(

Source: Survey, 2015)

The above table shows that the size of average household was 8 persons in the study area. The total sample population comprised 53% *males* and 46.8% *females*. According to results of the study, the literacy status of sample respondents has been highlighted as 45% *illiterate* and 55% *literate*, while 35% sample respondents and those of 20% found to be falling in the categories of *below Matric* and *above Matric* respectively. Different income groups as mentioned in the above table found to exist while highlighting the monthly income status of the households in the targeted area.

The study resulted that an regular household in rural area spends Rs. 4705.5/- that is 44.25% of total household's income. The results also revealed that an average household spends more on the consumption of flour as compared to other food merchandises. The fraction share of flour in total expenditure found to be 20.06%. The share of other food items in total expenditure found to be as milk (19.65%), sugar (12.44%), edible fates (12.08%), meat (9.64%), vegetables (6.99%), rice (4.24%), pulses (4.17%), tea (3.94%), fruits (2.52%), eggs (1.40%), drinks (1.34%), bakery items (1.26%), and fast food (0.27%).

4.1. Research Hypotheses (Results)

Following are the results for below hypotheses:

Hypothesis No.2: The larger the household size the larger will be the consumption level.

Hypothesis No.4: Low-income rural households follow traditional eastern food consumption pattern.

Multiple Regression was utilized to report the results connecting to the above stated hypotheses. Summary statistics including significance level for each of these variables are displayed in below table.

	Determinants
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Food Items	Income		Household Size	
	Coefficient	Significance	Coefficient	Significance
Flour	3.293	1.082	80.555	.000
Pulses	5.947	.073	5.270	.000

The above results show that the level of income for flour and pulses is insignificant verified to be as necessary staple food in the study area, while household size is significant. The level of income found to be having no effect on the consumption of flour and pulses, whereas the size of the household did affect.

So, the hypotheses number 2 and 4 found to have been proved true as per the given results.

Hypothesis No.1: The higher the income level, the higher will be the consumption level.

Hypothesis No.3: Increase in revenue centrals towards growth in the request for nourishing food.

Hypothesis No.5: The *Engel's Law* in operation in case of rural areas of Pakistan.

Multiple Regression was utilized to report findings relating to the above stated hypotheses. Summary of statistics having significance level for each of these variables are displayed in the following table.

Food Items	Determinants			
	Income		Household Size	
	Coefficient	Significance	Coefficient	Significance
Meat	110.152	.000	4.520	.139
Rice	46.213	.000	1.499	.482
Eggs	65.003	.000	-.122	.947
Sugar	172.626	.000	7.292	.213
Fruits	48.666	.000	-.336	.797
Drinks	64.814	.000	-2.282	.432

The results given in the above table depict that the level of income significantly affects the consumption of meat, rice, eggs, sugar, fruits and drinks, whereas household size is insignificant in this regard. It means that the consumption of above stated food items is significantly affected by the level of income but not by the household size in the study area.

So, the given hypotheses number 1, 3 and 5 proved to be in line with the above stated results.

Hypothesis No.1: The higher the income level, the higher will be the consumption level.

Hypothesis No.2: The larger the household size the larger will be the consumption level.

Hypothesis No.3: An increase in income leads towards increase in the demand for nutritious food.

Hypothesis No.5: The *Engel's Law* in operation in case of rural areas of Pakistan.

Multiple Regression was utilized to report that the findings relating to the above stated hypotheses. Summary of the statistics include significance level for each of these variables are displayed in below table.

Food Items	Determinants			
	Income		Household Size	
	Coefficient	Significance	Coefficient	Significance
Vegetables	13.442	.002	9.574	.000
Milk	287.787	.000	48.384	.000
Tea	21.614	.000	6.854	.000
Edible Fats	128.984	.000	23.140	.000

The results of vegetables, milk, tea and edible fats highlighted in the above table stated that all these commodities are significantly related to the level of income and household size. It may be concluded that the income level and household size can affect the consumption of above stated food items in the study area.

So, the study results found to have satisfied the given hypotheses number 1, 2, 3 and 5.

Hypothesis No.1: The higher the income level, the higher will be the consumption level.

Hypothesis No.3: An increase in income leads towards increase in the demand for nutritious food.

Hypothesis No.4: Low-income in rural households always follow the traditional of eastern food consumption pattern.

Hypothesis No.5: *The Engel's Law* in the operation in case of rural areas of Pakistan.

Multiple Regression was utilized for reporting the findings relating to the above stated hypotheses. Summary of statistics that include the significance level for these variables are shown in below table.

Food Items	Determinants			
	Income		Household Size	
	Coefficient	Significance	Coefficient	Significance
Bakery Items	59.129	.000	-2.569	.461
Fast Food	18.432	.000	-1.958	.102

According to the results tabulated above, income level significantly affects the consumption of bakery items and fast food, while household size is insignificant in such case. It may be concluded that consumption of bakery items and fast food is effectively associated with the level of income but not with the household size in the concerned study area.

So, keeping into account the above stated results, the given hypotheses number 1, 3, 4 and 5 proved to be true.

5. Conclusion and Recommendations

The research study concluded that the consumption pattern in rural areas is traditional one. People prefer traditional food commodities including, flour mostly wheat flour, milk, sugar, edible fats mostly ghee, meat, vegetables, pulses, tea etc. in their daily diet. Main determinants of food consumption pattern are household size and the income level. It is evident from the results of the study that *The Engel's Law* is satisfied in case of rural consumption pattern, (i.e. if the basic requirements are previously satisfied, the fraction of the revenue spent on food consumption declines as the income increases), and *Benet's law* (i.e. starchy staples ratio failures as household the income upsurges) also proved to be true.

Agricultural setup may be improved so that the living standard of the people may be enhanced and developed. Some sort of food subsidy program is needed to meet the nutritional requirements of low-income groups. There is a need to establish modern educational institutions to standardize the entire education system

while keeping into account the day to day challenges and to fulfil educational development purposes. It is suggested that the rural people may be provided with job opportunities in their own locality or home station.

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